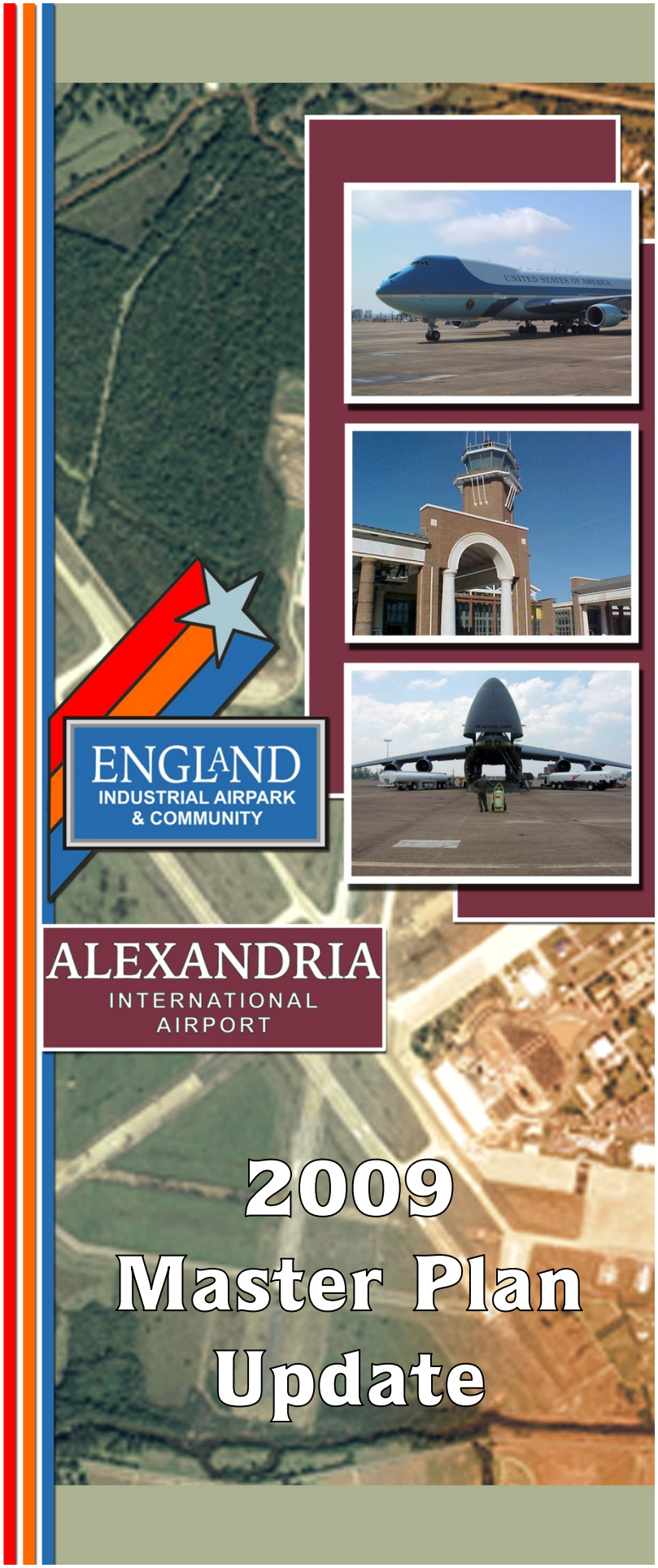

Appendix D
Target Industry Analysis

Appendix D
Target Industry Analysis for England Airpark, Alexandria LA

The purpose of the target industry analysis is to review, verify and recommend industry targets for company relocation and expansion. This target industry analysis is intended to provide England Airpark with a framework to focus its resources on those areas that will hold the most return on time and marketing dollars invested in expansion and attraction efforts. However, the decision to focus on a select few target industry groups or functions does not preclude improvement and possibilities in other areas. Rather, the priority targets are, or have the potential to become, drivers that take capital from outside the Airpark and initiate activity that produces income and value for the Airpark. Setting target priorities is important in driving strategic action. Conscious choices can proactively shape the future of the Airpark.

The key to recommending industry targets is to match feasibility (strengths and assets) with desirability. The Team's recommendations are based on a tour of the community, interviews with local businesses, SWOT Analysis, previous reports, available inventory, future development plans, the Airport Profile and the Team's collective experience. All of these elements were used to determine the feasibility of industry targets for the Airpark. A detailed methodology follows the recommended industries.

D.1 Overall Targeting Recommendations

In addition to the specific target industries outlined below, we have several general targeting recommendations for the Airpark regardless of target industry. Alexandria International Airport currently has commercial aviation connections to Atlanta, GA, Memphis, TN, Dallas-Ft. Worth, TX, and Houston, TX. When targeting companies, priority should be give to businesses with multiple locations that have one or more locations in Louisiana and additional locations in one of the four metropolitan regions with direct air connections. Firms with experience in Louisiana will be more comfortable with the state as a place to do business. And whether it is a branch operation (production facility, regional distribution center) or regional customer contact center, companies typically express a strong preference for single-connection locations. This allows for efficient management and travel, and this factor is often heavily weighted in their decision models. Alexandria's targeting efforts will benefit from the strong roster of companies with headquarters in the direct-connection locations.

While the labor market in south Louisiana is very constrained, Central Louisiana and Alexandria have a more acceptable labor market. However, it is still recommended that England Airpark target businesses whose expansion needs would not put a huge strain on the region's labor market as existing employers have reported some challenges in filling positions. Thus, we suggest targeting businesses looking to expand into the Airpark whose labor requirements are fewer than 100 employees as the best opportunities for success in the near- and mid-term. It is

important to clarify that EAP and Alexandria can certainly compete for large projects; however, an on-going target marketing program would be most effective with primary targets having an employment range of approximately 100 employees.

D.2 TARGET INDUSTRY RECOMMENDATIONS

Based on our observations and experience, we recommend the following industry targets:

- Aviation
- Corporate Training and Shared Services
- Rail Car-Related Cluster
- Plastics Manufacturing
- Regional Distribution
- Homeland Security and National Defense

D.2.1 Aviation

When deciding the appropriate industry targets for England Airpark, it is obvious that a significant amount of time and resources should be devoted to targeting various sectors within the Aviation industry. For many communities, the Aviation industry is a very attractive target. It is a wealth creating industry that attracts employers that typically offer higher wage jobs. The Aviation industry also compliments other recommended targets by offering higher paying jobs and increased technology demands relative to the other targets. Targeting companies within this industry may also benefit the Corporate Training and Shared Services target by potentially creating demand for aviation training. Increased demand for training may convince the state of Louisiana to further invest in training resources. The Airpark is well positioned to take advantage of training facilities looking to locate on EAP property.

The Airpark offers several assets for Aviation companies. EAP provides excellent air facilities including the new commercial, Million Air general aviation and military processing terminals. Alexandria International Airport offers a 24 hour manned tower and 9,500 feet of runway. For companies requiring runway access, there are several available facilities that offer runway access. If a company is looking to build, there is available land on the south ramp. There is relatively uncluttered air space within the region which may be attractive for test flights. The Airpark offers a facility with a “Hush House” that would be ideal for engine testing. EAP may also be able to take advantage of the growing presence of aircraft maintenance operations in region. Operations located close by include: ASA in Baton Rouge; a paint shop and helicopter maintenance facility in New Iberia; Grumman and FedEx in Monroe; Continental in Shreveport; and Michaud in New Orleans. With EAP’s central location, excellent airport facilities and uncluttered airspace, there may be opportunities for aircraft maintenance operations to locate within the Airpark.

One of the challenges to recruiting this industry is that companies within this industry typically require employees with skills in specialized areas such as aerospace engineering, aircraft mechanics and service, as well as mechanical and electrical engineering. Currently, the availability of this labor in the area is somewhat constrained. Thus, companies locating in the

Airpark may have to recruit from outside the region. However, in order to meet demand, EAP may want to consider developing training programs to assist Aviation related companies locating to the Airpark. In fact, with the assets currently available, EAP may be an ideal location for a flight and/or aircraft maintenance school. Such a school or schools could further make EAP an ideal location for Aviation related businesses, thus, insuring the future growth of the Aviation industry in Central Louisiana.

Based on EAP's current assets and our experience, we recommend that EAP focus on the following sectors within the Aviation industry:

- Aviation maintenance, repair and overhaul
- Aviation opportunities related to Homeland Security and National Defense
- Aviation related training (flight and/or maintenance schools)
- Aviation related distribution, including freight transportation arrangement, miscellaneous airport operations, and miscellaneous support activities for air transportation

Please note that many of these sectors are also part of additional industry targets including Regional Distribution, Homeland Security and National Defense, and Corporate Training and Shared Services.

D.2.2 Corporate Training and Shared Services

While corporate training and shared services are two different audiences for the Airpark, the types of companies we recommend targeting are very similar. The corporate training target is centered primarily on office-related companies that may have a need for a centralized training or meeting location within Louisiana and the southern region of the US. Shared services refers to the transactional processing, customer support operations, and other various call center activities for companies within the financial, insurance, and computer-related services industries. Thus, our recommendation for both audiences is to target companies within these industries. However, it is recommended that separate marketing messages be created when communicating with companies for each audience.

Corporate training is an ideal target for the Airpark. The Airpark is centrally located within Louisiana. The Alexandria International Airport has direct connections to four major, commercial air transportation hubs including Atlanta, GA, Memphis, TN, Dallas-Ft. Worth, TX, and Houston, TX. Companies that have multiple locations, especially in any of those four markets and Louisiana will find the Airpark to be a convenient location for corporate training. Also, the Airpark boasts several assets that may be attractive to corporate executives and employees arriving at the Airpark. These include, but are not limited to, the Oak Wing Golf Club, the new Million Air Terminal as well as the attractive main passenger terminal, the Bistro on the Bayou, and the Parc England Boutique Hotel. Employees and executives flying into the Airpark will have access to food, lodging and entertainment without having to leave the Airpark. In addition, the Learning Center for Rapides Parish is located within the Airpark and offers several educational and training programs for employers at the Airpark.

Training in general, and corporate/executive training in particular, is a growing part of many company budgets. Technology changes, dynamic market changes, assimilation issues resulting from merger and acquisition activity, and the competition for talent, all lead to increased training budgets. While EAP will face competition from casinos, the Airpark could position itself for higher-end, executive-focused, fly-in/fly-out professional training, rather than the convention or large-meeting focus of the casinos.

In addition to the strengths and assets described above, companies looking to locate shared services operations within the Airpark will be able to benefit from the strong infrastructure present, including dual power feeds and access to fiber. The Airpark and Alexandria are also located far enough away from the Gulf of Mexico that hurricane risk is minimal, ensuring that a business can operate 24/7. However, it is likely that hurricane perception issues will need to be overcome when marketing to these companies.

As shown in **Exhibit D-1**, the Airpark has several available facilities that would be a good fit for companies within this target. In particular, Building 1720 would be a great location for a shared services operation. This facility was previously used in a similar capacity as a utility concern's trading office and, thus is already wired for heavy communications and internet usage. Secondly, Building 610 could be used by an office user that requires close access to the passenger terminal and Million Air facility. Its proximity to the terminals also allows for an opportunity to have corporate signage visible to anyone visiting the terminals. There are also several other available facilities with a variety of space for any company needed to set up operations as quickly as possible. The area of Site #11 would also be a compatible location for such activity if a new building was desired.

According to recent employment trends within Rapides Parish, there has been moderate employment growth within the Professional and Business Services sector indicating that corporate training and shared services may be an emerging sector within the Parish.

D.2.3 Rail Car-Related Cluster

This target represents an opportunity that will likely be unique to the Airpark. The recent location of Union Tank Car (UTC) represents a unique opportunity to build a cluster of related businesses that would benefit both UTC and the prospective businesses due to close proximity to one another. These businesses include supplier industries to rail car manufacturing. In general, these are businesses that manufacture various metal and electrical components such as brakes and various fittings that make up rail car production. In the industry overview section, we have included several NAICS codes that represent businesses likely to be suppliers to this industry.

ENGLAND
INDUSTRIAL AIRPARK & COMMUNITY

Alexandria International Airport
Master Plan Update 2009

1500' 0 3000'
SCALE: 1" = 3000'

England Airpark
Existing Opportunities and Challenges

Exhibit
D-1

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However, we also strongly encourage Airpark representatives to work with UTC to develop a specific supplier list. Airpark personnel can then create very specific and targeted messages to UTC's suppliers to encourage expansion within the Airpark.

There are several reasons as to why the Airpark is a good location for rail car related businesses. There are several available sites within the Airpark, including the property in the Northern Industrial Cluster near UTC (Airpark sites 19, 20, 21 and 23) as well as an area southwest of UTC which offers the potential for a rail served site. If immediate proximity to UTC is not necessary, the proposed New Town area west of the Airport offers approximately 1,000 acres. There is relatively little union activity in the area, and the overall labor costs are indicated by most employers as acceptable or favorable. This may prove to be a clear advantage for the Airpark when recruiting rail car-related businesses from traditionally union active regions such as the Upper Midwest (Michigan, Ohio, Illinois, Pennsylvania, etc.). Also, any company locating within the Airpark will be very close to the petrochemical industry present in Louisiana. This may be important not only for businesses that wish to be close to UTC, but also those whose location requirements require close proximity to potential tank car customers. Overall, the labor requirements for this industry are a good fit for the labor within the region. However, as noted earlier, the labor market has some constraints so it may be necessary for businesses within this cluster to recruit some labor from outside the region.

Overall, this industry is mature, and as such it is unlikely that there will be significant expansion across the U.S. But, the presence of UTC, the region's low union activity, relatively low operating costs, and the Airpark's proximity to the petrochemical industry all make the Airpark an attractive location for rail car-related businesses.

D.2.4 Plastics Related Manufacturing

This is a strong manufacturing target for the Airpark. Users within this industry require industrial sites with reliable electricity. As such, the Airpark offers a dual power feed to any manufacturers locating within the Airpark. The new CLECO power plant will also further improve electrical reliability in the near future. The availability of rail in the Airpark will also benefit companies operating within this industry. In fact, the overall transportation infrastructure of the Airpark and surrounding region is fairly strong with excellent north-south highway access from I-49. East-west highway access is not quite as strong, but improving; it is possible to reach Shreveport and Lafayette and I-20 and I-10, respectively, via I-49. Further, all modes of transportation are potentially available to any manufacturer locating within the Airpark. In addition to road and rail, air transportation is very strong within the Airpark and there is river access available nearby.

The Airpark's close proximity to the Gulf of Mexico and various petrochemical manufacturers may prove to be an advantage for any manufacturer whose locational requirements include close access to necessary petrochemicals.

There are several available sites within the Airpark that may be attractive to plastics manufacturers. These include the Northern Industrial Cluster near Union Tank Car (Airpark

sites 19, 20, 21 and 23), an area southwest of UTC which offers the potential of a rail served site, and the New Town area of the Airpark which is west of the airport. These sites offer anywhere from 5 acres to potentially 1,000 acres. If a plastics manufacturer required an immediate facility to expand into, there is the possibility of expansion into Building 806 which offers approximately 25,000 sq. ft. of manufacturing space.

As with the rail car-related cluster, the labor situation is similar. The labor market will present some challenges for an expanding manufacturer to find the necessary workforce initially. Outside recruitment and workforce training will most likely be required. However, the low union activity, relatively low labor costs and overall lower cost of living are very attractive to plastic manufacturers and could offset the labor concerns.

D.2.5 Regional Distribution

The Airpark's location within Central Louisiana suggests that it may be an ideal location for distribution-related businesses. The Airpark is within close proximity to Shreveport to the north and Lafayette to the south. However, while the north-south transportation corridor is very strong, the east-west transportation corridor is relatively weak in comparison. It is possible to transport goods to the east and west of Alexandria; but the best east-west routes are to first head north or south on I-49 and then east-west on I-20 in Shreveport or I-10 in Lafayette. LA 28, and the improvements to US 165 and US 167, present an improving east-west transportation situation. This should be noted in marketing EAP to this industry. The Airpark does offer several amenities that may serve to overcome the perception of a weak east-west corridor. These include the other available transportation modes in the Airpark, including rail and air transportation. River access through the Alexandria Regional Port Authority is also a possibility, although container shipping is not as strong. The Airpark's central location within Louisiana may also be a strength for companies looking to distribute products primary within the state. Another advantage within the Airpark is its very close proximity and very easy access to I-49.

The area southwest of the Union Tank Car facility and Site #20 would be ideal locations for a distribution facility. However, in order to not interfere with other activities within the Airpark, we recommend road improvements that would connect these sites to Route 1. As any distribution activity would bring a lot of truck traffic, a "back door" into the distribution site would keep the truck activity away from other areas in the park that may have corporate and other office users. This would ensure that a distribution operation would not interfere with the non industrial areas of the Airpark.

Another area of interest for distribution centers would be the New Town or west side of the Airpark. This area offers open sites and easy access to I-49 without having to cross through the primary area of the Airpark. In addition, this area would allow EAP to compete for a very large distribution project (e.g., the 1 to 1.5 million square foot DCs for major retailers) which due to size and truck traffic would not fit in the east side of the Airpark.

While distribution-related activities will not likely bring high wages to the Airpark, these activities are a good fit for the labor present within the region, requiring good work ethic and basic skills enhanced with some basic training..

It should also be noted that companies within this industry are part of the Trade, Transportation, and Utilities economic sector. This sector has seen significant employment growth in Rapides Parish over the past few years which indicates that it is a growing sector within the region.

Based on the regional nature of the distribution opportunity, we recommend targeting distribution operations that would require no more than 250,000 to 300,000 square feet. Also, based on the results of the Airport Profile, we've outlined specific distribution targets in the industry overview.

D.2.6 Homeland Security and National Defense

Homeland Security and National Defense is a broad target that focuses on defense related industries including Unmanned Aerial Vehicles (UAV), Radio Frequency Identification (RFID), software, and security focused products and services. The Airpark's proximity to Fort Polk, a military processing terminal, and other overall assets make this a strong target for this industry.

As with the Corporate Training and Shared Services target, companies within this industry may be a good fit for the available properties within the Airpark. Building 2107 which offers approximately 14,000 sq. ft. of space, is on the flight line and thus would allow Homeland Security businesses runway access. Many aviation-related businesses would find this attractive. Homeland Security-related businesses designing software or with high-end communications needs would also find properties such as Building 1720 to be appealing. Building 1720 is already pre-wired for extensive internet usage.

The Airpark's proximity to Fort Polk and an extensive airport infrastructure are strong assets for Homeland Security-related businesses since they would benefit from access to a runway and a major military installation. In addition, the Airpark's proximity to the Gulf Coast without being in a major hurricane zone makes it an ideal location to stage disaster relief efforts for the region. The Airpark may very well serve as an ideal place to test disaster recovery-related procedures and products, both for disaster relief and Homeland Security applications.

The challenge in recruiting businesses within this industry is the constrained availability of skilled labor. Any Homeland Security-related business considering a location within the Airpark would likely have to recruit some of its talent from outside the region. Thus, in order to fully capture the opportunities in this target industry, the development and implementation of appropriate training programs is important.

D.3 METHODOLOGY

D.3.1 Tour and Interviews

The project began with business interviews and a tour of the Airpark in May 2008. The Team met with Airpark Staff and business leaders through focus groups and one-on-one interviews. The purpose of these meetings and interviews was to determine firsthand the strengths and assets of the Airpark, economic development objectives desired by staff, and the types of companies that would be a "best fit" for expansion into the Airpark.

In general, we heard similar comments from the business executives we interviewed. The business climate of the area is healthy with steady annual growth. The region's workforce was described as very loyal and hardworking. Most were pleased with the infrastructure within the Airpark, including water, power, and rail. However, a comment mentioned to us most is the tight labor market. Many employers are having difficulty finding skilled employees. There is a lot of competition in the workplace with many employees job hopping to find higher paying jobs.

D.3.2 Review of Locational Assessment for Central Louisiana

As part of selecting target industries for the Airpark, we reviewed the ***Locational Assessment for Central Louisiana*** written by the WADLEY-DONOVAN GROUP.

Any businesses that locate within the Airpark will be drawing employees from throughout Alexandria and the Central Louisiana Region which is why it is imperative to understand the current labor situation. The locational assessment of the Central Louisiana region covers eight-parishes including the location of the Airpark, in Rapides Parish. Survey responses from regional businesses in the assessment list several challenges and assets that will impact the selection of the target industries as well as overall company recruitment.

Some of the challenges that will impact company recruitment to the Airpark include:

- Labor market conditions – according to the assessment the region's employment increased 7.2% between 2000 and 2006 while unemployment decreased. This will be a challenge in recruiting businesses to the Airpark as companies will have to compete for the available labor which may increase labor costs.
- Difficulties in recruiting professional and other talent from outside the region – due to the labor market conditions, it may be necessary to recruit professional talent from outside the region. However, according to the assessment there are limited opportunities for "trailing" spouses which is a challenge when recruiting talent.
- Some employers report that their training needs are not being met locally – while this is a current challenge, it also represents an opportunity for the Airpark. The location of the Learning Center presents an opportunity for the Airpark to work with the Learning Center to create training programs for employers within the region. **By doing so, the Airpark could become a central destination within the region for job training.**

However, there are several key assets within the region that will impact company recruitment:

- Employers report satisfactory work ethic and productivity among their current employees – although the current labor market is tight, the strong work ethic and productivity of the workforce with the region will be a key asset for businesses looking to expand within the Airpark.
- The region has a cooperative labor relations environment – this will be important when recruiting businesses from the Northeast and Upper Midwest. While some unions are present in the region, the cooperative environment may prove to be very attractive to businesses currently in heavily unionized areas.
- Relatively low to moderate labor costs and the region's moderate cost of living – while the labor market conditions may increase labor costs for some positions, these costs should be thought of as relative as the overall cost of doing business in the Airpark will be significantly less than other regions of the country. Also, the region's moderate cost of living will be an attractive asset when recruiting businesses and talent to the Airpark.
- Post-secondary educational opportunities – the programs available at the six campuses of Louisiana Technical College, Louisiana State University at Alexandria, Louisiana College and Northwestern State University should be very attractive to employees considering relocating to the region. In addition, the Learning Center of Rapides Parish is on site at the Airpark.

Source: ***Locational Assessment for Central Louisiana***, the WADLEY-DONOVAN GROUP and GARNET Consulting Services, Inc., October 2007.

D.3.3 Economic Base of Rapides Parish

In order to identify trends that may impact the selection of target industries for the Airpark, we analyzed data gathered by the Bureau of Labor Services Quarterly Census of Employment and Wages to look at current and recent employment and business changes within Rapides Parish. We also compared Rapides Parish with the State of Louisiana and the U.S. The results are listed below.

Overall, the economy of Rapides Parish appears to be healthy with moderate annual employment and business growth. For the most part, Rapides Parish has similar percentages of employment with key industries to the State of Louisiana and the U.S. Interestingly though, the Parish has a much higher share of Health and Education employment. This coupled with employment growth within the Professional and Business Services sector indicate that office users may be an emerging target for the Airpark.

D.3.4 Rapides Parish Businesses by NAICS Super Sector - 2004 to 2006

Rapides Parish has seen steady business growth between 2004 and 2006. There has been moderate business growth amongst Construction; Trade, Transportation, and Utilities; Financial Activities; Education and Health Services; and Leisure and Hospitality.

TABLE D-1
RAPIDES PARISH BUSINESSES by NAICS SECTOR

NAICS Sector	2004 Businesses	2005 Businesses	2006 Businesses
Natural Resources and Mining	89	93	90
Construction	275	293	311
Manufacturing	95	105	102
Trade, Transportation, and Utilities	871	872	895
Information	51	47	45
Financial Activities	384	421	429
Professional and Business Services	437	451	480
Education and Health Services	465	484	483
Leisure and Hospitality	231	238	247
Other Services	305	303	309
Unclassified	19	16	20

Source: BLS Quarterly Census of Employment and Wages

D.3.5 Rapides Parish Employment by NAICS Super Sector - 2004-2006

Between 2004 and 2006, most sectors experienced steady to moderate business growth. These sectors include: Natural Resources and Mining; Construction; Manufacturing; Trade, Transportation, and Utilities; Professional and Business Services; Education and Health Services; and Leisure and Hospitality. A few sectors experienced growth declines. These include: Information; Financial Activities; and Other Services.

TABLE D-2
RAPIDES PARISH EMPLOYMENT by NAICS SECTOR

NAICS Sector	2004 Employees	2005 Employees	2006 Employees
Natural Resources and Mining	763	875	875
Construction	3,939	4,033	4,093
Manufacturing	3,204	3,445	3,772
Trade, Transportation, and Utilities	10,699	10,853	11,013
Information	956	960	880
Financial Activities	2,596	2,443	2,463
Professional and Business Services	4,639	5,139	5,547
Education and Health Services	10,391	11,199	11,265
Leisure and Hospitality	4,714	5,000	5,023
Other Services	1,420	1,412	1,375
Unclassified	49	41	44

Source: BLS Quarterly Census of Employment and Wages

D.3.6 Total Employment – U.S., Louisiana, and Rapides Parish

The majority of Rapides Parish's employment is in the Trade, Transportation, and Utilities; and Education and Health Services Sectors.

TABLE D-3
TOTAL EMPLOYMENT

Industry	U.S. Total	Louisiana Statewide	Rapides Parish Louisiana
Base Industry: Total, all industries	112,718,858	1,474,800	46,349
Natural Resources and Mining	1,776,777	56,549	875
Construction	7,602,148	130,424	4,093
Manufacturing	14,110,663	152,076	3,772
Trade, Transportation, and Utilities	26,006,269	369,758	11,013
Information	3,040,577	27,012	880
Financial Activities	8,162,063	91,285	2,463
Professional and Business Services	17,469,679	194,141	5,547
Education and Health Services	16,916,228	220,252	11,265
Leisure and Hospitality	13,024,615	184,162	5,023
Other Services	4,364,889	46,441	1,375
Unclassified	244,951	2,700	44

Note: Data based on 2006 Quarterly Census of Employment and Wages Data (most current available) Employment numbers represent private employment

D.3.7 Percentage of Employment – U.S., Louisiana, and Rapides Parish

Compared to the U.S. and Louisiana, Rapides Parish has a much higher percentage of Education and Health Services employment. Rapides Parish has a slightly lower percentage of Manufacturing and Professional and Business Services employment. Otherwise Rapides Parish is very similar to the State of Louisiana and the U.S.

TABLE D-4
PERCENTAGE OF EMPLOYMENT

Industry	U.S. TOTAL	Louisiana Statewide	Rapides Parish Louisiana
Base Industry: Total, all industries	100.00%	100.00%	100.00%
Natural Resources and Mining	1.58%	3.83%	1.89%
Construction	6.74%	8.84%	8.83%
Manufacturing	12.52%	10.31%	8.14%
Trade, Transportation, and Utilities	23.07%	25.07%	23.76%
Information	2.70%	1.83%	1.90%
Financial Activities	7.24%	6.19%	5.31%
Professional and Business Services	15.50%	13.16%	11.97%
Education and Health Services	15.01%	14.93%	24.30%
Leisure and Hospitality	11.55%	12.49%	10.84%
Other Services	3.87%	3.15%	2.97%
Unclassified	0.22%	0.18%	0.09%

Note: Data based on 2006 Quarterly Census of Employment and Wages Data
Employment numbers represent private employment

D.3.8 Location Quotient – Comparison of Louisiana & Rapides Parish (U.S. as base)

As compared to the U.S. and Louisiana, Rapides Parish has a much higher share of Education and Health Services employment. By contrast, Rapides Parish has a much lower share of Natural Resources and Mining employment.

TABLE D-5
LOCATION QUOTIENT

Industry	Louisiana Statewide	Rapides Parish Louisiana
Base Industry: Total, all industries	1	1
Natural Resources and Mining	2.43	1.20
Construction	1.31	1.31
Manufacturing	0.82	0.65
Trade, Transportation, and Utilities	1.09	1.03
Information	0.68	0.70
Financial Activities	0.85	0.73
Professional and Business Services	0.85	0.77
Education and Health Services	1.00	1.62
Leisure and Hospitality	1.08	0.94
Other Services	0.81	0.77
Unclassified	0.84	0.44

Note: Data based on 2006 Quarterly Census of Employment and Wages Data/ US as base

D.3.9 Significant Existing Building Review

The Team also analyzed existing facilities and development plans for the Airpark. Currently, the Airpark has a large inventory of office and general manufacturing space available for lease. Available properties range from approximately 2,000 square feet to 35,000 square feet. As many expanding businesses are on a tight schedule, they often cannot afford to wait for the construction of a new facility. Thus, is important to take into consideration the available facilities within the Airpark when recommending industry targets.

Many of the properties within the Airpark would be ideal for office-related usages including corporate training and shared services and homeland security operations. Building 610 in particular may be ideal for an office user that would like to be as close to the new terminal as possible, as well as a user that would like to have corporate signage visible to everyone visiting the terminal. Building 610 has multiple individual offices as well as large rooms that could be divided or used for conference rooms, making this ideal training space.

Building 806 which was previously used as a computer assembly facility, may be attractive to many manufacturers, including those manufacturing homeland security related products, smaller plastics operations, and companies within the rail car-related segment.

Building 1720 would be a great location for a number of office users, especially those requiring an extensive communications infrastructure. Corporate training and shared services users as well as homeland security-related businesses are potential users of this space.

Building 2107 which offers approximately 14,000 sq. ft. of space, is on the flight line, and thus would allow a Homeland Security businesses runway access. Many aviation-related businesses would find this attractive.

D.4 STRENGTHS AND WEAKNESSES ASSESSMENT

The England Airpark (EAP) is located in Alexandria, LA in central Louisiana a regional hub city for central Louisiana. The Airpark has developed upon the reduction in mission of England Air Force Base. The Airpark has been successful in development of many of its assets, including industrial recruitment, air services enhancement, housing, and hotel and restaurant development. As part of the Alexandria International Airport/England Airpark Master Plan Update, a strengths and weaknesses assessment and target industry analysis was conducted to prepare England Airpark for its future growth.

During the site selection process, most expanding companies will consider a host of factors, many custom to their needs. However, certain factors are common to most location decisions. These are best grouped as Physical Factors, Operating Factors, and Living Factors.

D.4.1 Physical Factors

Sites

One of the most fundamental elements of any location decision is the availability of sites. Ultimately, projects go to a specific piece of property and unless a community has a healthy portfolio of available properties, it will not compete effectively for recruitment of outside investment and employment, or even existing industry expansion.

England Airpark has advantageous strengths with regard to sites. First and foremost, it is the premier industrial park in the region. Central Louisiana has a host of available industrial properties across the region. (McCallum Sweeney Consulting toured 14 such parks and sites in seven parishes in the region.) Like much of Louisiana, many of the sites lend themselves to large single users, or are closer to raw property than developed parks. However, the region has two strong industrial parks: the Ward One Park in Evangeline Parish and the England Airpark in Rapides Parish. Ward One offers a rural setting with minimal amenities, while EAP stands out as the region's most attractive industrial park. Since location decisions typically focus on regional assessments, EAP is well positioned to successfully compete with other properties in the central Louisiana region.

From a wider perspective, England Airpark is well positioned to compete with similar parks across the southern US. Parks such as Alliance/Ft. Worth TX and Huntsville AL have more available land, but EAP has open land on the west side to meet most opportunities that will arise. Some Parks such as Donaldson/Greenville SC and Alliance/Ft. Worth TX have a longer roster of

well known tenants, but the presence of Union Tank Car at EAP is significant and provides strong evidence of the manufacturing opportunities at England.

As noted earlier, England Airpark is physically attractive and presents a diverse set of sites and related assets that position it for recruitment of a wide range of activities, from aviation, to manufacturing and distribution, to various office uses. This is a significant, distinguishing advantage for EAP over numerous airports that are seeking to increase development such as Jackson MS, Smyrna TN, and Columbia SC. In fact, compared to other regional airports in the region, EAP is well positioned to build a future cluster of aviation related businesses and activities including aviation and aerospace research and manufacturing, fixed base operations, aviation-related training, and homeland security and national defense research and manufacturing.

Following is an overview of the strengths and weaknesses of Airparks and airport related properties against which England Airpark will compete.

Ellington Field; Houston, Texas. There are 370 acres remaining at EFD. The longest runway is 9000 feet. It is about 12 miles to the Port of Houston and about 2 miles to I-45. The strengths at EFD include close proximity to NASA and related contractors, strong aerospace community, and sites that can be rail-served. There is good access to the port of Houston – although it is not ideal for oversized components. A major disadvantage at EFD is that Houston is non-attainment for key criteria pollutants making permitting a paint hanger difficult (costly and timely) although not impossible.

Cecil Field; Jacksonville, Florida. Cecil Field has 235 acres fully-served with access to the runway. There are 700 additional acres on the east side of the runway, which are not currently served by utilities, but can be developed. In addition, there are about 350 acres available without direct access to the runway. The airport has 4 runways with the longest being 12,500. The site is located about 6 miles from I-10. The site can be rail served – but it is costly. The closest rail siding is 5 miles away and the port of Jacksonville is 20 miles away. The advantages at Cecil Field include good sites that have been completely master planned and some have been pre-permitted; a lot of room for future development; good runway length. The disadvantages at Cecil Field include rail service feasibility; distance to the port; some sites are owned by the Aviation Authority and some by the City of Jacksonville (and they don't always cooperate effectively in recruiting new industry).

Trent Lott Aviation and Technology Park; Pascagoula, Mississippi. Runway is 6500 feet with plans to extend to 8,000. There are approximately 290 acres for development, but only parts have been master planned. There is a significant portion of the park that has already received its wetlands 404 permit. Site is fully served by utilities. Site is rail served by a short-line providing direct access to the Port of Pascagoula. The major advantage at Lott is the master-planned area that includes wetlands permits. The major disadvantage at Lott is that its sites with access to the runway are small size.

Stennis International Airport; Bay St. Louis, Mississippi. Stennis markets itself as having 300 to 400 developable acres; however, many of those acres are in floodplain. Hancock County flood plain is being completely re-drawn due to Katrina and the flood plain elevations are expected to be higher not lower. Some of those acres are in the buffer zone of Stennis Space Center and therefore are only available for long-term lease. Rail access is 10 miles away and a rail extension would be costly. Runway length is 8,500 feet with FAA approval to go to 9,500 feet. The site is located 3 miles from I-10. The major advantages at Stennis include isolated sites with minimal traffic, and proximity to NASA and related-contractors. The major disadvantages at Stennis include developability hampered by flood plain issues and no feasible rail service.

Jetplex Aviation Center; Huntsville, Alabama. The Huntsville Jetplex has nearly 1,400 acres available for development. Most of this acreage will have direct runway access after the completion of the new taxiway. The park is completely master-planned and all areas of the Jetplex have access to utilities. Huntsville International Airport has two runways – 10,000 feet and 12,500 feet. The site has river port access on the Tennessee River with federally-maintained channels of 9 feet. The site is 4 miles to I-565 and 8 miles to I-65. The major advantages for Huntsville include the fact that Huntsville is a significant aerospace and military community with access to every major company in the business, good runways, and good sites. The disadvantages for Huntsville include no access to an open water port, and runways that are shared with a commercial service airport, which is typically viewed as a risk to aerospace companies that need access to runway.

Alliance; Fort Worth, Texas. The Alliance Development has 17,000 acres master-planned and under development (not all of these acres have runway access or are intended for industrial development). Hillwood Development has nearly 3 million square feet of industrial and distribution spec space available. The industrial segments of the Alliance are in close proximity to BNSF's intermodal facility. Alliance has two runways (8,200 feet and 9,600 feet) with an 11000 foot expansion currently underway. The advantages at Alliance include sites, master-planned development, available buildings, and good runways. The major disadvantages at Alliance include cost (expensive property) and lack of port access.

EAP's current site portfolio is attractive for many potential uses, but currently has limited amounts of property for major new industrial users. The successful recruitment of Union Tank Car (UTC) in 2006 provides a strong anchor for future industrial recruitment. The property near Union Tank Car – the Northern Industrial Cluster (Airpark sites 19, 20, 21 and 23) – offers various opportunities for development for small users (5 acres to 25 acres). In addition, an area southwest of UTC offers the potential for a rail served site, and Site #20 lends itself well to further development of a distribution cluster associated with current activities already on Site #19. However, some challenges exist in this area. First, the rail user who may consider locating here will need to be comfortable with the immediate proximity and likely shared rail spur with UTC. In addition, road access improvements will be necessary for this Northern Industrial Cluster to be effective; direct access to Route 1 without having to use Air Base Road would be

ideal. A "cross park connector" of sorts could be built but would have to navigate the existing tank farm and may negatively impact the potential of the new rail site. In addition, it is very important to develop this industrial road access such that truck traffic is kept apart from other Airpark traffic, and, ideally, to avoid having trucks and employee traffic from having to cross rail (since this would be crossing a limited use spur, this may be not be a major issue). This is important to the industrial users who will be concerned about access and safety, and to maintain the high visual quality and aesthetic appeal of the rest of the park, much of which is non-industrial.

An additional industrial development area would leverage the most obvious asset of EAP – the air field, tarmac and hanger area (Sites #11, #8 and potentially #9). Site #11 should be developed with sensitivity as it is a highly visible location near the terminal. However, sites #8 and #9 would lend themselves to an assortment of aerospace related activities, both services and small production. Road ingress and egress for this southern area should also be sensitive to other uses, but given the likely size and nature of the industrial development in this area, it would not be expected to generate a lot of truck traffic.

The great opportunity for EAP in industrial development lies west of the airport – the New Town area. This area has the potential to position EAP as the premier industrial location in central Louisiana for many years. However, some important actions must be taken to realize this potential. First, while current EAP New Town property amounts to considerable acreage (approximately 1,000 acres), its irregular shape and access are limiting factors. It is strongly recommended that EAP consider securing control of two significant parcels.

1. On the southwest end of New Town, the property from the west side of the New Town border to North Bayou Rapides Road (State 1202). This is necessary to i) provide more a much more viably-shaped site for large industrial users, and ii) to ensure such users that incompatible uses (e.g., residential) will not arise between their site and the road. In addition, there are a couple of in-fill parcels that should be included in this effort. Together, this would result in an attractive 800+ acre parcel that will allow EAP to compete for large project opportunities. **This property action is critical to the viability of the west side property**, which in turn is critical to the overall development plans and targeting efforts of EAP, and should be considered an immediate need.

2. From a longer time frame, there is the potential to greatly increase the amount of property on the west side. On the northwest end of New Town, the property west of Johnny Brown Road (bordered by Johnny Brown Road on the east, State 1202 on the south, Rapides Station Road to the west, and Moss Point Drive to the north). This parcel would be beneficial in positioning EAP with a full portfolio of industrial sites, including the ability to compete for potential mega-projects (which would bring large capital investments and high numbers of, and high quality, jobs). While beneficial, this parcel does not carry the urgency of the parcel noted above. In addition, should a mega-project opportunity arise, the recruitment effort would include extensive state and local support, and property control issues could be addressed as the need arises.

In association with these property acquisitions, EAP needs to plan for enhanced road access. Fortunately, a potential solution exists which would provide excellent access and keep all future industrial traffic from this area out of the "Old Town" area of the base itself. Improvements to State 1202 (N Bayou Rapides Road) at State 406 to Rapides Parish Road and Rapides Parish Road north to the intersection with I49 at Exit 94. This represents potentially outstanding access, and will provide EAP with the flexibility of locating large and/or heavy industrial users in this expanded New Town area instead of the Northern Industrial Cluster area where site sizes are limited and traffic issues are of a greater concern.

Infrastructure

Transportation

The Alexandria area provides excellent access to the entire US Gulf Coast. The region is well served by I-49, which runs North-South. The region currently lacks strong East-West roads, but improvements have already begun to mitigate this disadvantage. First, it should be noted that I-49 gives reasonably good access to I-20 in Shreveport (about 120 miles) and I-10 in Lafayette (about 90 miles). The region is also benefiting from the widening projects on US 165, and US 167 from Alexandria to Arkansas border, and the continuing improvement of LA 28 (from Alexandria to Hwy 171) to a 4 lane roadway. This creates an effective, multi-state east-west corridor from Texas, through Alexandria Louisiana, to Alabama. This project may have its greatest impact in greatly enhancing intra-regional transportation and commuting as truck travel is currently challenging in parts of the region. This project is set to be completed by 2010.

All modes of transportation are present at EAP, which is a great benefit. Rail is well served on site and throughout the region, although it does not appear to be feasible to provide rail to the New Town area. The Alexandria Regional Port Authority provides river access at a recently upgraded port; however container shipping can still be difficult. The Alexandria airport recently completed a major modernization and renovation, so the facility is a real strength. Having all modes of transportation allows for greater flexibility in the dynamic world of global supply chains that now exists. Since the different modes of transportation are already available, even if a company has no present use for all of them they can easily upgrade to use any. Companies find this flexibility very attractive when making location decisions.

Utilities

Utility considerations are an important part of most site selection decisions. Whether there is a focus on one particular item such as electricity, or for all energy and public utilities, new facilities need adequate infrastructure in place, and to be able to use it at reasonable cost. Many communities have created and maintained a competitive advantage with their commitment to infrastructure. For example, Jonesboro AR is a small town in northeast Arkansas that has had great success in recruiting companies, many food-related (Nestle, Frito-Lay, Butterball, Kraft-Post, and most recently Nordex (wind power equipment), because of their on-going commitment to stay ahead of infrastructure needs.

Infrastructure is mostly in place on the majority of England Airpark with a few exceptions. (Infrastructure development will be necessary as part of the New Town development, and can be planned for potential heavy utility users.) From the perspective of regional competition, electric reliability at EAP appears better than for other sites across the region. Water resources at EAP will be adequate for most targeted prospects, although there may be difficulties in immediately serving a very heavy user. In addition, there is a dual power feed to the site and fiber access throughout the park. This is important to all users, including potential high end office and technical center development. The development of the multi-fuel generating facility with a third generator at Rodemacher should improve short term and long term electric reliability for the entire region. There is some concern regarding electric rates, but there is strong evidence that industrial electric rates are rising in many parts of the country.

Another often overlooked asset of EAP is the on-site presence of police, fire and rescue. For projects in general, this is a real plus in getting comfort that such services are adequate and in close proximity. For aerospace related prospects, the aviation fire and rescue capabilities are outstanding and a very strong competitive advantage for EAP, and may create an opportunity to develop into a training service business.

It is important to note the development of key aviation assets at the park. These can be seen as "infrastructure" assets from the perspective of outside prospects, and are significant businesses in their own right. These are the new general aviation terminal being built for Million Air, and the new military processing facility that is completed. The Million Air facility will greatly enhance the appeal of the aviation capabilities at the Airpark, and will be an important asset for a wide range of potential prospects for whom easy general aviation access is critical.

D.4.2 Operating Factors

Labor

The labor market for the Alexandria region presents a mixed picture. Existing industries generally report great satisfaction with their existing workforce, while at the same time noting some challenges with the quality of the overall labor market when they seek new hires.

As a result, labor is the most significant challenge facing England Airpark. This is particularly challenging for EAP as it is an issue not directly controlled by EAP. The skilled labor availability is constrained in the area. This relatively small pool of skilled labor drives the cost up for skilled employees and also creates competition for the hires and, for some employers, a turnover rate that is higher due to local competition for existing employees. This lack of skilled labor creates fairly low unemployment among skilled laborers, which new prospects will find a concern.

While some local employers indicated a high turnover rate of employees, the most common response on this issue was that once hired and trained, employees become loyal and have a very good work ethic. Most references to labor other than when addressing hiring issues indicates they are very good employees.

There is a common perception among existing employers that a contributing factor to the labor market challenges is the school system. Labor training resources are inadequate, especially in high end technical areas at either the high school or community college level. The regional community colleges is reported to offer little to no vocational training. This is a significant weakness for the region that extends to the Airpark.
There is relatively little union activity and overall labor operating costs are reported as generally acceptable or favorable. This is a strength of the region that extends to EAP.

Taxes and Incentives

Taxes rates in Louisiana are a challenge, but the state's apportionment formula helps by reducing the tax base. State income tax rates are near 8% and high. The major incentive is the Quality Jobs Program which rebates a portion of the personal income tax of new employees back to the project. This has the potential to be a high impact incentive for prospective new companies. Sales tax rates are also relatively high. High impact tax exemptions are available under Quality Jobs and include those for construction costs, the purchase of machinery and equipment, and tangible property used in the process. Property tax incentives include a potential ten year abatement program.

EAP is controlled and managed by the England Economic and Industrial Development District. This gives EAP some remarkable control over local property and incentive negotiations. The track record at EAP shows great flexibility in crafting competitive real estate agreements. In addition, EAP provides a "One-Stop" for real estate management and site development and permitting issues; this is a distinct advantage for EAP as schedule risk and interruption risk are concerns of every prospect. So overall, real estate is a distinct competitive advantage for EAP.

D.4.3 Living Factors

Quality of Life

From a regional perspective, community living in the area appears pleasant with an optimistic outlook for the future from community leaders. (Actual economic data shows the Alexandria region with slow but relatively steady growth.) The area offers small town living with a good quality of life, especially conducive to family living, and the cost of living is relatively low. Outdoor recreational opportunities are abundant and a strength of the region. Cultural opportunities exist in Alexandria, but the size of the community limits the extent of these assets. As noted earlier, the public school system is perceived as having significant room for improvement; it is important to note that a number of significant community efforts are underway to address and improve the local schools. Another factor that may influence EAP's competitive position for new prospects is that there is very small presence of an international community. In the short- and mid-term, this will be an issue as much of the current and expected investment opportunity is being sourced from Europe and Asia; most of these prospects are more comfortable when others from their country are already present. While the overall number of hotel rooms in the area of the Airpark is acceptable (and growing), employer interviews indicate that there is a shortage of higher end quality lodging or meeting space., often exacerbating the problem of training of employees that have been recruited from outside the area.

For the Airpark itself, the "quality of life" amenities are a major strength. The curb appeal of the Airpark is very strong and will be even stronger as the new Master Plan is developed and implemented. High quality employers rarely look for isolated Greenfield locations; rather they look for high quality parks with great visual appeal and a host of amenities that add to the quality of work life. EAP has all that with attractive roads (curb and gutter in most parts of the park), attractive and consistent signage, and attractive and very well maintained landscaping. Most of the buildings are in good condition from a roadside curb appeal perspective, even those that may have limited future viability. The Airpark management team has done a very good job of maintaining these buildings. EAP is greatly positioned as the premier industrial park site in Central Louisiana, and is a location that can compete with locations across the Sun Belt.

The on-site presence of an award winning and upscale inn and restaurant is a strong asset of the Airpark. The Oak Wing golf course provides not only immediate recreation but also a very pleasing green space throughout much of the Airpark. The course is part of the Louisiana Audubon Trail of golf courses, and so has marketing efforts behind it that will help attract visitors and prospects. The golf clubhouse is another asset for meetings and casual dining on site.

As the Master Plan is implemented it is expected that two areas of potential improvement will be addressed. An enhanced walking trail system throughout the Airpark will match an amenity that is now common in new upscale industrial parks. Additional on-site commercial development will support, and in turn be supported by, additional office and industrial development.

Housing is typically a regional issue, and often part of the location decision of new companies, particularly those looking at locations that are not major metropolitan areas. EAP has a number of current and potential future housing assets and area on site. While most new companies would not expect their employees to come from these neighborhoods or move there en masse, the presence of the housing, senior living areas, and private school on site are all positive attributes. (This is yet another reason for expanding the west side properties in New Town as heavy users will be concerned about having such housing and education assets as immediate neighbors, and at the same time the residents would be concerned about such heavy users in the east side of the Airpark.) The development of the New Town side of the campus will allow EAP to competitively recruit such high impact users to the campus while maintaining the attractive diverse mix of activities on the "Old Town" side.

EAP also houses an on-site daycare center. This is an amenity that many top-end parks around the country strive to offer, but it is still not common and so another competitive asset for EAP, particular in relation to its regional competition.

D.4.4 Airport Profile for England Airpark

In order to help identify and prioritize industry targets for EAP, we analyzed the types of business that typically locate near an airport. The results of this profile will help the England Airpark and Applied Marketing focus on the best targets for expansion within the Airpark. As

part of this process, we also specifically looked at Aviation related businesses. We analyzed businesses that are located within 2 ½ miles* of each of the following airports:

- Anchorage International Airport - Anchorage, AK
- Columbia Metropolitan Airport - Columbia, SC
- Dallas-Ft. Worth International Airport - Dallas, TX
- Huntsville-Madison County International Airport - Huntsville, AL
- Jacksonville International Airport - Jacksonville, FL
- McGhee-Tyson Airport - Knoxville, TN
- Nashville Metropolitan Airport - Nashville, TN
- Portland International Airport - Portland, OR
- Airborne Airpark - Wilmington, OH

*Due to size, for Dallas-Ft. Worth International Airport, we analyzed businesses within 4 miles of the airport

Tables showing the types of businesses by industry type for each airport are located at the end of this Appendix. For analysis purposes, we also combined all of the airport data together. We then analyzed the businesses by specific industry type including all manufacturing businesses; transportation and warehousing businesses; and wholesale businesses. Highlights of this research are listed below. The full tables are listed at the end of this appendix.

D.4.5 Recommendations

The results of this analysis were useful in determining industry targets for attraction efforts, particularly within the distribution and aviation related sectors.

Based on the results of the analysis as well as data uncovered elsewhere within this appendix, we recommend that the Airpark focus on the following specific NAICS codes.

These NAICS codes are part of the recommended target industries:

Corporate Training and Shared Services
524210 – Insurance Agencies and Brokerages

Rail Car Cluster
332312 – Fabricated Structural Metal

Regional Distribution
488510 – Freight Transportation Arrangement Operations (Aviation Related)
484110 – Local Trucking Operations
488119 – Miscellaneous Airport Operations (Aviation Related)
484121 – Long Distance Trucking Operations
488999 – Miscellaneous Support Activities for Transportation
488190 – Miscellaneous Support Activities for Air Transportation (Aviation Related)

In addition to targeting companies by the recommended 6-digit NAICS codes, we will look at the individual companies to determine common characteristics such as size, number of locations, and specific product and service descriptions to focus on the best opportunities location near the England Airpark and Alexandria Airport.

All Businesses Located Near Airports

We analyzed all businesses located near the nine airports together regardless of industry. Many of the businesses include:

- 561499 - Miscellaneous business support services such as address coding and bar coding services
- 813110 - Churches
- 488510 - Freight transportation arrangement operations
- 722110, 722211, and 721110 - Restaurants and hotels
- 62111 and 531210 - Professional services such as doctors and real estate agents
- 484110 - Local trucking operations
- 481111 and 488119 - Airport related operations such as airlines and a variety of airport support services such as maintenance, hangar, and airport cargo handling operations

Table D-6 lists all industries with at least 70 businesses.

Manufacturing Businesses Located Near Airports

We also analyzed manufacturing businesses located near the nine airports. This will allow us to determine the manufacturers that may need distribution support. The top manufacturing industries include:

- 339999 - Miscellaneous manufacturing - this is a wide ranging category including everything from beach umbrellas to Christmas trees to slot machines to wigs
- 323110 - Commercial lithographic printing
- 339950 - Sign manufacturing
- 323119 - Miscellaneous commercial printing including business directories, greeting cards, trade magazines, and yearbooks
- 332312 - Fabricated structural metal
- 332710 - Machine shops
- 311811 - Retail bakeries

Table D-7 lists all manufacturing industries with at least 5 businesses.

Transportation and Warehousing Businesses Located Near Airports

Next, we grouped all transportation and warehousing businesses located near the nine airports. The top industries include:

- 488510 - Freight transportation arrangement operations
- 484110 - Local trucking operations
- 481111 - Scheduled passenger air transportation (airlines)
- 488119 - Miscellaneous airport operations including airport maintenance, hangar and airport cargo handling operations
- 484121 - Long distance trucking operations
- 488999 - Miscellaneous support activities for transportation including car pools and pipeline terminal facilities
- 488190 - Miscellaneous support activities for air transportation including aircraft inspection, aircraft maintenance, and aircraft fueling
- 481112 - Scheduled air freight
- 488111 - Air traffic control

Table D-8 lists all transportation and warehousing industries with at least 5 businesses.

Wholesale Trade Businesses Located Near Airports

We analyzed all wholesale trade businesses located near the nine airports. Wholesalers often have warehousing and transportation needs. The top industries include:

- 423830 - Industrial machinery and equipment
- 424990 - Miscellaneous nondurable goods - this is a wide ranging category including everything from candles to felt to pet supplies to industrial yarns
- 423610 - Electrical apparatus and equipment, wiring supplies, and related equipment

- 423690 - Miscellaneous electronic parts and equipment – this is a wide ranging category including everything from antennas to diodes to printed circuit boards to blank video tapes
- 423990 - Miscellaneous durable goods – this is a wide ranging category including everything from fire extinguishers to musical instruments to signs
- 423840 - Industrial supplies
- 423120 - Motor vehicle supplies and new parts
- 423850 - Service establishment equipment and supplies
- 423310 - Lumber, plywood, millwork and wood panel
- 423430 - Computer and computer peripheral equipment and software

Table D-9 lists all wholesale trade industries with at least 5 businesses.

Professional Services Related Businesses Located Near Airports

We analyzed all Professional Services businesses located near the nine airports. The top industries include:

- 561499 - All Other Business Support Services
- 524210 - Insurance Agencies and Brokerages
- 531210 - Offices of Real Estate Agents and Brokers
- 541618 - Other Management Consulting Services
- 541611 - Administrative Management and General Management Consulting Services
- 531110 - Lessors of Residential Buildings and Dwellings
- 541330 - Engineering Services
- 541512 - Computer Systems Design Services

Table D-10 lists all wholesale trade industries with at least 5 businesses.

D.5 Recommended Target Industries

D.5.1 Aviation

Definition

NAICS Codes

33451 – Navigational, Measuring, Electromedical and Control Instruments
33641 – Aircraft, Engine & Parts Manufacturing
48819 – Aircraft Maintenance & Refueling Services
48851 – Freight Transportation Arrangement
48899 – Other Support Activities for Transportation
61151 – Technical & Trade Schools (Flight and Aviation)

Recommended Research Filters

When marketing to this industry, we recommend that England Airpark target companies within the following parameters.

Sales:	$10m minimum
Employment:	100 minimum
Geographic Scope:	National
Growth:	10% in sales or employment (over two years)
Events:	Predictive events such as executive change, merger/acquisition, new markets, new products/services, new contract, and IPO.

Aviation Universe	
Companies within geographic scope (national)	309,111
With 100+ employees and $10m+ sales	5,380
With growth and/or events	2,111

Industry Importance Factors

The following site location factors and labor needs are most important to the aerospace industry. They are based on our experience.

One of the most important site location factors for the aviation and aerospace industry is the effective cost of both skilled and unskilled labor. A highly skilled and intelligent workforce is vital to this industry. Professional specialty, technical, and precision production/repair skills are especially needed in this industry. The productivity and profitability of these companies will depend on the available skills in the workforce.

Other critical site location factors considered by the aviation and aerospace industry include energy dependability, close access to geographic markets and close access to intermediate manufactured products. All are important factors as they are for most manufacturing intensive industries. Reliable and high-quality energy is a far greater consideration than the cost of energy since disruptions are very costly in lost production time and machinery configurations. Also, easy access to production inputs become more important as the number of parts and required components grows. As with other large machinery, airplane and aerospace vehicles have a high number of parts to track and assemble.

For the most part, quality of life and business incentives are not one of the main site location criterions. The quality of life consideration will become more important if top level executives are locating with the new site.

Labor Outlook

NAICS Code	Industry	1996 Jobs	2006 Jobs	2016 Jobs	1996-2006 Change	2006-2016 Change
3345	Navigational Equipment Mfg.	489,100	437,500	417,800	-11%	-5%
3364	Aircraft, Engine & Parts Mfg.	514,200	471,600	496,900	-8%	5%
488	Support Activities for Transportation	445,900	570,700	667,700	28%	17%
6115	Other Educational Services	308,900	534,200	702,500	73%	32%

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, November 2007

33451 Navigational, Measuring, Electromedical and Control Instruments Manufacturing

This industry comprises establishments primarily engaged in manufacturing navigational, measuring, electromedical, and control instruments. Examples of products made by these establishments are aeronautical instruments, appliance regulators and controls (except switches), laboratory analytical instruments, navigation and guidance systems, physical properties testing equipment, and watches and clocks.

The major determinants of demand for the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry include:

- Technological changes. Demand increases with the development of new products, which can replace the functions of earlier equipment much more efficiently.
- The age of the capital equipment in hospitals research laboratories, industry, schools, and tertiary institutions.
- The short-life span of equipment, averaging 3 to 5 years and sometimes as little as 18 months. Depending on the product, the life span of a good influences the need to replace that particular good.
- The health of the general population. With conditions such as heart disease, cancer, aids, and hepatitis on the increase, the demand for specialized instrumentation and equipment such as ultrasonic, laser, cardiographic and laboratory equipment has increased.
- Public and private equipment expenditure. The level of funding towards navigational, measuring, medical, and control instrument technology and innovations by government and the private sector influences the degree of new product development. At present the majority of funding is derived from private enterprise however the government also plays a significant role in the funding of startups and the expansion of the industry.
- The ability to patent new product innovations and other intellectual property rights. Protection of intellectual property encourages new product development.
- Changes in domestic and international regulations, such as more vigorous compliance and enforcement activities that may delay or prevent the approval of new products, can impact on export and import demand.

The life cycle stage of this industry is mature:

- Despite frequent technological advancements in this industry and considerably high levels of R&D expenditure, the US Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry is in the mature phase of its lifecycle.
- Industry gross product grew by an annualized 2.2% in the current performance period, similar to GDP growth.
- The Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US is the global leader in medical device and technological innovation. Dominating in worldwide sales, the US searches to find new opportunities by supplying to developing markets abroad.
- The majority of participants have large budgets and R&D expenditure. These companies benefit from economies of scale and have the ability to purchase smaller startup companies in the industry.
- Over the past five years the number of establishments has diminished, falling by an annualized rate of 0.5%.
- The industry experiences intense competition both domestically and internationally and many companies participate in price competition.
- Introduction of new product developments take approximately 2 to 5 years before they can achieve worldwide market acceptance, as products.

Industry Outlook

IBISWorld forecasts that industry revenue will decrease at an annualized rate of 1% during the five years to 2012. Increased competition from products from low labor cost countries towards the end of the period is forecast to result in negative growth in these years. During the outlook period, IBISWorld estimates that the following factors will influence growth in the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US: the overall reduction in import penetration, the health and age of the population; and advances in navigational, measuring, medical, and control instrument technology.

R&D expenditure is forecast to rise at a healthy rate at least until 2012. The demand for product improvements and innovation will require testing and measuring equipment. Areas of the economy that are forecast to be important in the future are energy, health, biotechnology, electronics and conservation. Within the electromedical and electrotherapeutic apparatus segment the pressure to provide cost-effective and efficient devices, which could effectively treat more patients, has led to industry participants spending more R&D dollars on developing computer-assisted equipment. However, as other countries begin to produce this type of equipment, and other types of industry products, this will continue to lower industry growth.

The industry is forecast to enter a period of negative revenue growth from 2007. Increased levels of imports from China and other low labor-cost countries, as well as declining export income, are expected to push industry revenue down by 1.5% during the year to $110.24 billion. Lower prices and volumes are expected to result in value added falling by 1.7% to $70.04 billion.

During the remaining years of the outlook period IBISWorld forecasts that the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US is expected to continue to experience negative growth in revenue. In 2009 industry revenue is expected to fall by 0.9% to $107.22 billion for the year as pricing and import pressures continue. In 2011, revenue is estimated decline by 1.2% to $104.57 billion, while in 2012 revenue is forecast to increase slightly by 0.4% for the year as exports decrease and imports increase. Value added is forecast to decline by 1% during the year to $66.15 billion and then rise by 0.9% to $66.75 billion in 2012.

Over the period it is expected that the Search, Detection and Navigational Instrument segment in the US will contribute much of the growth in industry revenue. Advancements in technology in this segment combined with increased government and private equipment expenditure will add to industry demand.

In the five years to 2012, the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US is expected to move into a decline phase of its life cycle. Value added is forecast to decrease by an annualized rate of 1%, which is below the overall level of expected economic growth of 3.1% per annum during the same period. Employment levels, establishment numbers and total industry wages are expected to decline due to consolidation within the industry and cost-cutting by individual firms.

Excerpts from Navigational, Measuring, Electromedical and Control Instruments in the U.S., IBISWORLD Industry Report, November 2007

33641 – Aircraft, Engine & Parts Manufacturing

This industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing complete aircraft; (2) manufacturing aircraft engines, propulsion units, auxiliary equipment or parts; (3) developing and making prototypes of aircraft; (4) aircraft conversions (i.e., major modification to systems); and (5) complete aircraft overhaul and rebuilding (i.e., periodic restoration of aircraft to original design specifications).

Demand determinants include:

- Price and Credit Terms: The price of aircraft is expensive compared to other modes of transportation. The biggest customer of this industry is commercial airline passenger companies. The improvement in aircraft fleet is based upon the price of the aircraft and the level of credit and funding available. The currency crisis in Asia brought about a significant retrenchment by Asian airlines, causing the elimination of many international flights and decisions to delay delivery or cancel high-value orders for LCA. Another consequence of the economic crisis and currency devaluation in eastern Asia for the aerospace industry has been the reduction of funding for these markets from financial institutions. Japanese banks in part also have less capacity to lend then they previously did as a result.

- Household Disposable Income: Many airlines improve and/or expand their aircraft fleet based on the level of demand from passengers (based on household disposable income). The increase in disposable income will lead to greater spending on air travel over other products. Disposable income is influenced by domestic interest and tax rates, employment levels and household savings rate. Household disposable income also determines the amount of leisure time and activity taken by an individual. Changes in passenger travel historically have been proportional to changes in GDP, and demand for large civil aircraft for example is directly proportional to demand for passenger travel (often with a lag of 3 to 4 years). Demand for business aircraft will also increase during periods of robust real GDP growth as it correlates with strong business sentiment.
- Global Oil Prices: An increase in the price of aviation fuel will make it more costly for operators to run their aircraft fleet and put off purchases for new airplanes.
- Abnormal events: Events such as the terrorist attacks on the US on September 11, 2001 and the recent attempt by suicide bombers to blow up aircraft traveling to the US from the UK (in 2006) can have a detrimental impact on confidence to consumer aviation services. However, it may increase the demand for defense equipment. Acquisitions of military aircraft and rotorcraft by the US Department of Defense (DoD) increased as a result of the terrorist attacks.
- Level of defense spending: Governments that allocate a large amount of funding to defense will likely buy more aircraft and defense systems to protect their nation.
- Funds allocated to research and development: As more funds are allocated to research and development, the greater the likelihood that new aerospace products will be commercialized in the future. The launch of the Boeing 'dreamliner' aircraft due in 2009 has led to an increase in orders. Many innovations are as a result of research and development, improvements in aviation infrastructure and support by governments for their aerospace industries which is important towards higher downstream demand.
- Technological Innovation: The improvement and release of new aircraft models and defense systems will tend to lead to a surge in demand. Worldwide military forces constantly upgrade their aircraft and defense equipment to counter new threats. This may however be limited by restrictions by some governments in allowing foreign countries to get access to their technology such as the US B-2 Stealth Bomber.
- Security and Defense: The industry is an important contributor to national defense and is crucial for security as well as providing the capabilities for realizing policy aims in neighboring and distant countries around the world.
- Globalization: Increase in globalization is fueling the demand for air transport. As companies and businesses expand beyond their region, the demand for transportation, especially air transport will increase.

Historically, the demand for air transport has been closely linked to the level of world economic activity. It follows that the demand for aircraft is also heavily influenced by short term changes in activity. However, civilian aircraft are very costly long-lived capital goods. As a result, purchases are typically based on expectations of long-term growth in air transport and replacement of older aircraft, rather than short-term conditions. Therefore, in response to short-term declines in air-travel, airlines typically postpone rather than cancel orders of new aircraft.

Together with the lead time between the ordering and delivery of aircraft this has allowed production levels to respond to underlying (long-term) demand conditions rather than short-term fluctuations in the level of aircraft orders.

According to industry sources, fluctuations in the global economy affect the US aerospace industry because of the importance of the large civil aircraft sector (large aircraft account for about quarter of the total aerospace industry's output). Changes in passenger travel historically have been proportional to changes in GDP, and demand for large civil aircraft is directly proportional to demand for passenger travel (often with a lag of 3 to 4 years).

Interestingly, the demand for large commercial aircraft, equipped with the latest technology and manufactured to be highly fuel efficient, has appeared to become decoupled from the demand reducing influence of consistently higher fuel prices over the past 5 years. Both Boeing and Airbus have recorded significant increases in aircraft orders driven by the 787 Dreamliner (Boeing) and the A380 (Airbus), as both aircraft aim to increase the number of passengers carried and reduce fuel consumption. Airlines across the globe are ignoring record high oil prices and are aggressively renewing or expanding their fleets to take advantage of the new technology.

IBISWorld believes that the Civil Aerospace Product Manufacturing industry is currently in the mature phase of its economic lifecycle. The assertion is supported by data indicating industry value added to be slightly below the general US economy over the current performance period. This suggests that the saturation point has been reached and capacity for further sales is dependent on new products released to the market.
The industry is plague by limited new product development. Over the current performance period, most aircraft introduced to the market have been variations of existing airplanes. The variants were introduced to reduce operating costs. For instance, Boeing is planning to develop the 787; a wide-body plane that would seat more than 200 people and have lower operating cost. In addition, the Boeing 747 aircraft has gone through numerous modifications and facelift since its first launch in 1969. However, IBISWorld does believe that the business jet market is in its growth phase of its economic lifecycle as product development and customer acceptance of these products are increasing. The rise in interest for personal business aircraft through affordable financial facilities and fractional aircraft ownership promotions have provided an avenue for growth, however due to the large commercial airplane (LCA) sector dominating the market, the industry is deemed to be mature. The introduction of the new Boeing 787 in late 2009 may change the lifecycle back to a growth phase in the outlook period.

In the military market, the huge amount of research and development that goes into this industry does produce some growth in new product development however the need to maintain a competitive advantage has created constraints. The US is a leader in this industry however regulations that restrict the sale of new technological equipment to other countries (even to allied nations) have put a strain on value added. For example, the US B-2-Spirit stealth bomber manufactured by Northrop Grumman is only produced for the US and is not sold to other countries. Furthermore, legislations to protect the aerospace industry in some countries have

limited the amount of foreign sales into the country. Section 8159 of the Defense Appropriation Bill effectively limits the procurement choice of the Department of Defense to Boeing aircraft. These constraints put a threshold on value added and ultimately affect the lifecycle of the industry. Consolidation has also been prominent in this sector as mergers between civil and defense contractors provided the basis for players to utilize economies of scale and technology transfer (defense to civil) to maintain its lead in the industry. For example, Boeing was formed through mergers with McDonnell Douglas and North American.

Establishment numbers have also stagnated for most of the current performance period due to major manufacturers shifting its manufacturing base to low cost producing countries such as China and India (in addition to the high barriers of entry mentioned in this report).

It is important to note that while the whole industry is in its mature lifecycle stage, IBISWorld believes that certain product segments such as the large commercial civil aircraft manufacturing market is in the growth phase of its economic lifecycle.

Industry Outlook

During the 2008 to 2013 period, industry revenue is expected to rise from $139,961.1 million at end of 2008 to $175,038.5 million. This represents an annualized increase in revenue of 4.6%; above the US real GDP growth rate forecast over the same period. Revenue is predicted based on; (1) an increase in air passenger traffic; (2) increased demand resulting from technology advances; (3) reasonable growth in US defense budget; and (4) the introduction of unmanned combat aerial vehicles as strike aircraft.

The US Department of Transport, Federal Aviation Administration (FAA) stated in a 2004 report forecast that by 2015, US commercial air carriers will transport nearly 1.1 billion passengers (up 4.3% annually) just over 1.1 trillion passenger miles (up 4.8% annually). Growth in traffic is expected to continue especially on North Atlantic routes and in the near future Trans-Pacific routes as airlines fight for direct flights into China. The industry is also reliant on export sales especially in the LCA oligopoly market which is dominated by Boeing and Airbus. Forecast provided by Airbus shows that over the 2004-2023 period, world passenger traffic is forecast to increase by 5.3% per annum (slightly higher than US traffic). Exports are thus likely to increase in the outlook period especially amongst developing nations who are constantly improving their air transport infrastructure to cater for increasing air travel demand due to higher wealth.

IBISWorld believes that oil prices will range in-between $88 to $100 over the outlook period. The price of jet fuel is linked directly with crude oil but is more volatile as the cost of refining is higher. While the oil price is expected to stabilize somewhat, it will remain very high over the outlook period and will add pressure to airframe and engine manufacturers for more fuel efficient products and cause airlines to acquire larger capacity aircraft with lower fuel burn per seat. In addition, high fuel prices will have an impact on the aircraft retirement cycle retiring less fuel efficient types out of the market at a faster rate.

As mentioned earlier, advances in technology have increased the advantage of new aircraft over existing aircraft to the extent that airlines are undertaking significant fleet renewal programs in order to take advantage of advancements in aircraft fuel efficiency and lower operating costs. IBISWorld estimates that the fleet renewal process will continue to occur throughout the outlook period, and will be a strong source of growth throughout the industry. Worldwide GDP growth will ensure growth markets in the Asia Pacific region will continue to aggressively expand their fleet's sizes.

IBISWorld estimates that the US Department of Defense budget will grow at a reasonable pace over the outlook period. In 2005, US military spending totaled $420.7 billion with the next biggest country (China) coming in at just $61.9 billion. Planned expenditure at the Pentagon in 2007 is expected to be around $439.3 billion, which represents a 6.5% increase from 2006. Military procurement itself is expected to increase by 12.6%, however IBISWorld believes that the majority will be attributed to systems, communications equipment and unmanned aerial vehicles in preparation for the Future Combat System (FCS) project (prototypes are expected to be fielded in 2008 with full scale production by 2010). US army spending is expected to peak in 2008 and decline until 2011 due to decreased supplemental spending. Supplemental spending is in place primarily to pay for continuing military operations in Iraq and Afghanistan.
The next wave of aircraft will be unmanned combat aerial aircraft (UAV) headed by the US army FCS project. The US army's request for UAV procurement is expected to total $15,354.8 million between financial years 2005 to 2011. UAV's aircraft will be used for dull, dirty and dangerous missions although manned aircraft will still fly these missions. Helicopter sales are expected to stabilize after consecutive years of strong growth as demand will be determined by operations rather than war. In addition, the Federal Government in its 2007 budget has cleared funding for the acquisition of 183 F-22 fighters which can extend the production line of this model until 2012.

Overall, industry revenue is expected to record good growth in 2009 as a consequence of expected growth in domestic demand and exports. In addition, exports are expected to increase significantly when Boeing's 787 'Dreamliner' is introduced to the market. As a consequence, industry revenue is expected to increase by 4.5% in that year, followed by 5.2% in 2010, 6.3% in 2011, 3.4% in 2012 and by 3.5% in 2013. The civil sector is expected to outperform the military sector over the outlook period.

Boeing believes that Chinese airlines could be running more than 3,200 large passenger jets by 2025, up from the 600 or so aircraft in 2006 in its fleet. Boeing forecasts total volume growth for Chinese air transport over the next two decades of about 9.3% a year, more than double the global average. According to Boeing, China's airlines will need 2,612 new aircraft, worth $213 billion over the next 20-year period. Chinese aviation authorities have announced that they will buy up to 650 single aisle jet aircraft to 2010.

The newly liberalized aviation market in India is expected to be a fertile battle ground for commercial jet manufacturers. Indian airlines are expected to buy at least 280 new planes by 2010, worth an estimated $15 billion, and another $15 billion worth in the following decade.

Successful start-up airlines such as Bangalore based Air Deccan are expanding and there are a number of budget carriers looking to expand as India's air travel market is growing 25% annually. Deregulation of the aviation market in India has helped the bright outlook for commercial jet planes. For instance, the ceiling for foreign institutional investment in Indian airlines has been lifted from 40% to 49% and private domestic carriers are permitted to serve international destinations. Furthermore the Indian federal government has an "open skies" agreement with the US allowing airlines from each country unrestricted access to the other. The Indian Government has also signed agreements that will boost flights to Britain, China and Qatar.

Lockheed Martin is developing the Joint Strike Fighter, now named the F35 Lightening II, with a potential value of $200 billion. Lockheed Martin will build as many as 3,000 warplanes to replace US Air Force, Navy and Marines F-16, A-6, and F-14 fighters in the US and the GR-7 in Britain's Royal Navy. Lockheed's development phase will take eight years and be worth $19 billion. Full production will start in late 2008 and continue into the 2020s. Other military aircraft in various stages of development include Lockheed Martin's multi-billion dollar F-22 Raptor program to replace F-15s, large transports to replace the C-130s, and new bombers, helicopters and refuelers.
In June 2004, Boeing announced that it had won a contract to supply the U.S Navy with the next generation of submarine-hunting planes. The Navy's multi-mission maritime aircraft program, or MMA, is valued at an estimated $3.9 billion in the development phase but is potentially valued at more than $15 billion through the production of about 109 aircraft the Navy plans to order. Timing of deliveries start with the first five test-bed aircraft expected to be delivered in 2009, with the bulk of the deliveries beginning deliveries in 2013.

Boeing has allowed three Japanese contractors (Mitsubishi Heavy Industries, Kawasaki Heavy Industries and Fuji Heavy Industries) make the wings for its latest jetliner (787), moving production of the section overseas for the first time. The Japanese contractors want to produce more aircraft parts, rockets and other aerospace equipment where they hold the technological edge, to counter the loss of shipbuilding contracts to lower-cost manufacturers in South Korea and China. The three Japanese manufacturers and Boeing are major shareholders in Japan Aircraft Development Corp; a joint company that oversees local work on the US company's aircraft. Boeing's Japanese partners now build about 20% of Boeing's 777 aircraft and 15% of its 767s.

In August 2006, Honda Motor announced that it has established a wholly owned jet aircraft manufacturing subsidiary in Greensboro, North Carolina, to enter the global market for business jets. Honda aircraft is set to start mass-producing the delivering six to seven passenger jets per year from 2010 onwards. The jets are expected to retail under $4 million. Honda has been selling engines for use in small jets since 2004 via a joint venture with General Electric.

IBISWorld forecast that industry value added will increase from $44,087.7 million at the end of 2008 to $53,386.7 million in December 2013. This represents an annualized increase of 3.9%. The growth in value added reflects the increase in technology (hence depreciation) for the

development and production of new aircraft such as the Boeing 787 aircraft. The regional aircraft market is also expected to release new designs and models in the outlook period further contributing to value added growth. Profits will be the main contributor to value added. As new aircraft come to market, they will be able to command higher margins and this will lead to an increase in profits especially for Boeing. Net year orders for Boeing aircraft increased from 277 in 2004 to 1028 in 2005, and 1423 in 2007. This will translate to higher revenue and profits in the future.

Profits are likely to decrease slightly in the military sector as increasing program collaboration between allied nations to split the risk associated with new developments (e.g. F35 - Lightning Strike II - Joint Strike Fighter) will mean lower margins for companies when the manufacturing of such products take place. The mounting US budget deficit may also reduce the potential margins expected by prime contractors. Finally, wages as a proportion to revenue are expected to decrease in the outlook period as companies transfer operations to countries with low labor rates to reduce operating cost and utilize greater technology to improve efficiency.

IBISWorld believes that the number of new establishments will continue to rise marginally over the forecast period as demand for aircraft and parts increase. IBISWorld predicts that establishment numbers will increase by 0.1% annually to 1,540. However major industry players will begin to acquire smaller operators (more likely in the Other Parts and Auxiliary Equipment Manufacturing industry), or forcing them out of business. Some major players will also expand to states but they are more likely to expand to developing countries in order to increase production capacity and to lower production cost. It is anticipated that over the next 5-10 years, approximately two-thirds of the commercial aerospace market is forecast to be outside the United States.

With establishment growth set to continue (albeit at a slow rate), employment numbers and wage costs will follow suit. IBISWorld forecasts employment to increase by 1% in the outlook period with wages increasing at an annualized rate of 1.2%. In the coming years, the industry may face a shortage of skilled labor as demand for workers outstrips supply. This will cause an increase in training costs needed to bring less-skilled workers up to the requisite level to manufacture increasingly complex engines and avionics systems. Wages will increase to reflect supply shortages. Revenue per employee is forecast to increase to $491,949 by 2013.

Excerpts from Aircraft, Engine & Parts Manufacturing in the U.S., IBISWORLD Industry Report, July 2008

48819 – Airport Maintenance & Refueling Services

Companies in this industry provide a range of support services to air transportation operators, including refueling aircraft on a contract or fee basis, ferrying aircraft between departure gates and taxi-ways, and aircraft maintenance, repair and overhaul (MRO). This industry serves domestic and international, and commercial and private air carriers operating out of US airports. Many companies also supply services to the US military.

Demand for the services of the Aircraft Maintenance and Refueling Services industry is entirely dependent on the level of demand for air transportation services. Demand for air transportation is determined by:

- Real GDP Growth: the air transportation industry is highly sensitive to global economic conditions. When GDP growth is healthy, household and corporate income tend to be robust and confidence in future earnings tends to be high; these factors increase the likelihood of expenditure on air travel (which is a luxury, or discretionary, purchase).
- Business Expenditure: the corporate sector relies on aviation for travel to meetings, travel between offices/work sites and for the freight of cargo. As economic activity increases and business confidence rises (and competitive pressures increase), companies undertake more business travel and dispatch larger quantities of goods.
- Tourist Activity: an increase in domestic and international tourist activity boosts demand for scheduled aviation. Moreover, increased tourism may lead to an increase in the number of destinations to which a carrier flies as people seek new places to vacation in the US and abroad.
- Price: Air transportation services like any other industry is affected by price. When price is high, people will find other means of transportation to get to their destination, however when prices are low (either through discounted tickets or no frills airlines), consumers particularly household will likely travel more.
- Supply Chain Factors: The growth of global electronic commerce and manufacturing trends such as Just-In-Time delivery, which requires materials to be delivered rapidly, is likely to create demand for this industry.
- Safety and Geo-political Factors: unexpected safety problems or negative global political developments that affect an individual's perception of air travel will detrimentally affect demand for air transportation. The aviation industry is still recovering from the terrorist events of September 11, 2001.
- Factors that do not determine demand for air transportation services, but do affect demand for the support activities undertaken by industry operators include:
- Aviation Infrastructure: the older the (inter)national aircraft fleet, or the more often it is used (thereby quickening the time to scheduled maintenance work), the more it requires MRO from establishments in this industry.
- Outsourcing Activity: over the last five years airlines have sought to reduce head count and operational costs to protect profit (and often to fend off bankruptcy). This has boosted demand for companies that provide support and ancillary services. Major players in this industry have expanded the number of Fixed-Base Operations they run to exploit economies of scale and reduce costs when competing for commercial airline and government contracts during tender.
- Use of Non-scheduled Aviation: the private and non-scheduled aviation sector - which has experienced positive revenue growth over the current performance period - tends not to have the infrastructure and resources necessary to provide its own support services and therefore relies on firms in this industry for services and support.
- Military Action: a number of firms in this industry provide support services to the US military (in the US and at US bases abroad). During periods of sustained military activity

demand for support services increases as military resources are stretched and there is an increased demand for the movement of military personnel and equipment. Many government contracts are for products and services used for on-going routine military logistic support activities and are not vulnerable to the level of military action.

The life cycle of this industry is decline. The Aircraft Maintenance and Refueling Services industry is in the late growth phase of its economic life cycle. Over the past five years, revenue and value added growth have been on a par and have followed the trends of real US GDP growth on an annualized basis. Had the upstream air transportation industry seen improved performance, growth would have been more robust. Growth has been due to the increased rate of outsourcing activity by major airlines keen to cut costs in the wake of falling profits. Predictably, the number of establishments in the industry has increased (despite high barriers to entry) at a robust rate as new entrants seek to exploit revenue growth and the rapid increase in new contracts. However, the number of mergers and acquisitions has also increased during the current performance period as businesses (usually by foreign entities) acquire existing business to gain market share in the US. Between 2003 and 2008, the number of new establishments in the industry is expected to increase at an annualized rate of 1.8%.

As industry participants grow in size and airlines continue to shed non-core activities, the number of products supplied by the industry has increased. Firms in this industry provide services ranging from repair and maintenance work, pilot/aircraft leasing, aircraft ferrying, baggage handling and other ground work, re-fueling, cleaning and janitorial work, and lounge services. Over the outlook period, there is likely to be some rationalization of products as major players (especially) identify high-return activities. The introduction of technology has been relatively rapid with the industry keeping up pace with technological changes in the aerospace and defense sectors. The outsourcing of work suggests that customers have quickly accepted and trust the services offered by the industry.

Industry Outlook

Over the outlook period, industry revenue is expected to rise from $11,747.7 million at the end of 2008 to $13,396.3 million in 2013, representing an annualized increase in revenue of 2.7%, above forecast average real US GDP growth rate over the same period.

The price of oil and its effect on the operations of the major airlines is the biggest concern for the industry heading into the outlook period. Increasing oil prices have already led to a cutback in operations by many airlines and businesses are now less likely to use private aircraft to travel given the increased costs to run and operate private jets compared to public air transport. The fuel price is likely to abate from record highs, in excess of $140 per barrel, in the outlook period, which will encourage an increase in the number of flights and maintain the level of private business travel on smaller jet aircraft.

Per capita disposable income is expected to increase from 2010 to 2013 by about 1.8% each year. The increase in disposable income will encourage greater consumer expenditure and, hence, facilitate travel and tourism. Unlike earlier years, the airline industry now caters for every category of income earner. The aging of the population together with the growth of disposable

income among older people should increase the demand for air transportation services. Typically, a rise in disposable income also reflects a positive business environment. This, along with still strong US and world economies, should see business travel improve as world trade expands and companies continue to go global. The FAA predicts that US airlines will see a 64% increase in revenue passenger miles by 2012.

An increase in leisure time is predicted during the outlook period due to greater efficiencies in work processes. This will provide greater travel opportunities for individuals. Domestic travel is likely to increase as the US dollar further depreciates (making it more expensive to buy goods and services overseas) and as greater security checks at US international departure entry and exit points cause delays for travelers. The depreciating US dollar will also entice more overseas visitors into the country with tourists benefiting from conversion rates. The fear of further terrorist attacks has subsided somewhat given the greater security and presence of security personnel in public areas. Inbound travel and tourism has been increasing since 2003 and this will continue throughout the outlook period as long as worldwide, real GDP remains strong, providing further growth for airport support services.

The MRO services industry in the US is growing, given the rise in aircraft use in the commercial air transportation and corporate aviation sector. According to AeroStrategy, a management consulting firm, the worldwide MRO market is worth $36 billion and growing at a rate of 5% annual growth through 2014. The firm estimated that approximately 50% of worldwide commercial MRO is outsourced with the percentage increasing especially in North America. The reason for this increase, especially in relation to the US market is due to the rise in low cost carriers, which in recent years have the largest booking of new aircraft orders, thus providing opportunities for MRO outsourcing. Also, insourced maintenance typically attracts higher labor costs than independent contractors and independent repair centers provide "total component support contracts" such as those provided to the US military where contractors get a flat fee for supporting the aircraft. This, in turn, assures the client that work carried out and supply parts are reliable, saving money when problems arise and parts are returned for repair.

The emergence of low cost carriers and rise of international cargo traffic in recent years are expected to increase airport infrastructure and maintenance requirements. A study done by the US Department of Transport found that 23 airports in the US will need additional capacity over the next two decades. Increased traffic and aircraft fleet will require greater support staff such as baggage handlers, customer support service and ferrying services aside from basic MRO activities. In terms of the cargo sector, the FAA and Transportation Security Administration (TSA) increased security standards for transporting cargo after the September 11 attacks. This led to a portion of freight and mail cargo moving from passenger to all-cargo carriers, such as FEDEX. Growth in the world economy, development of global electronic commerce and manufacturing trends, and expansion in trade with open skies agreements will lead to an increase in resource requirements for this sector.

Industry revenue is forecast to recover in 2009, increasing at a growth rate of 2.1%. Revenue growth is predicted to be relatively stagnant at about 3% or below as a result of a cooling world

economy, and will be supported by increased outsourcing of MRO services. The introduction of new aircraft, such as the A380 and Boeing 787 Dreamliner that many air carriers are expected to take delivery of in 2009, will mean a larger aircraft fleet and, consequently, further demand for support services. Even though passenger air travel has eased recently, demographic and income trends indicate favorable conditions for leisure travel over the next decade.

Revenue expansion could be hampered by further problems at major commercial airlines. Many carriers have cut staff and aircraft numbers in response to the record high fuel prices and in an attempt to protect profitability. The industry could be negatively affected by any factor which causes a significant blow to consumer confidence (and finances). This may include increases in the international price of fuel, large interest rate increases (above 6%), a significant fall in capital market values, as interest rates rise and consumer spending slows, and any substantiated security threat against airlines. The final point remains the most severe and unpredictable risk. However, with improved security after September 11, terrorists may seek other ways of capitalizing on consumer uncertainty. Assuming there are no further terrorist attacks on US based air infrastructure, growth in this industry is forecast over the outlook period.

Industry value added will increase from $5,251.2 million at the end of 2008 to $5,974.7 million in December 2013. This represents an annualized increase of 2.7%. The growth figure reflects rising employment over the forecast period (the industry is labor intensive and greater demand leads to greater employment) and improving profitability thanks to service diversification and economies of scale as industry major players expand. The rate (which is lower than that of revenue growth) also reflects the fact that most companies will face competitive pressure from industry major players and new entrants. Moreover, the industry will continue to invest heavily in technology to reduce labor inputs and meet evolving safety legislation and technical specifications.

The number of new establishments will continue to rise at a healthy rate over the forecast period as the industry remains in the late growth phase of its economic life cycle, increasing by 1.8% annually to 11,167. However, major industry players will begin to consolidate holdings in specific geographic areas of the country, acquiring smaller operators (which struggle to exploit economies of scale) or forcing them out of business. As industry revenue growth rates begin to converge with overall economic growth (a symptom of the transition to a mature industry), fewer people will want to enter the industry as they could reap larger rewards in faster growing sectors.

With establishment growth set to continue, employment numbers and wage costs will follow suit. Employment is expected to increase by 1.4% with wages increasing at a slightly lower rate of 1.3%. In coming years the industry may face a shortage of skilled labor as demand outstrips supply. This will cause an increase in training costs needed to bring less-skilled workers up to the requisite level to service increasingly complex engines and avionics systems. Wages will also increase to reflect these shortages. The increase in employment will stem come from fresh graduates from universities and aircraft mechanic trade schools accredited by the FAA, with most job openings likely to be from smaller airlines and low cost carriers who typically pay less

than major airlines. As entities grow, industry productivity should improve due mainly to better economies of scale.

A company operating in this industry may be adversely affected as a result of general economic conditions, geo-political events, the commercial airline environment and other factors, including: (1) the declining ability of customers to meet their financial obligations (many airlines remain in deep financial trouble); (2) declining market values for aviation products and equipment; (3) difficulties in re-leasing or selling aircraft and engines that are currently being leased; (4) lack of assurance that sales to the US government, its agencies and its contractors will continue at levels previously experienced; (5) reduced access to debt and equity capital markets and the ability to draw down funds under financing agreements; (6) non-compliance with restrictive financial covenants contained in loan agreements; (7) changes in or non-compliance with laws and regulations that may affect certain aviation related activities that are subject to licensing, certification and other regulatory requirements imposed by the FAA and other regulatory agencies, both domestic and foreign; (8) competition from other companies, including original equipment manufacturers, some of which have large financial resources; (9) exposure to product liability and property claims that may be in excess of liability insurance coverage; and (10) the outcome of any pending or future material litigation or environmental proceedings.

Excerpts from Aircraft Maintenance & Refueling Services in the U.S., IBISWORLD Industry Report, October 2008

48851 – Freight Transportation Arrangement in the U.S.

This industry includes businesses that are primarily engaged in arranging transportation of freight between shippers and carriers. These businesses are usually referred to as freight forwarders, marine shipping agents, or customs brokers, and they offer a combination of services spanning multiple transportation modes.

The demand determinants for this industry include:

- Movements in trade volumes impact on the volumes available for freight transportation arrangements.
- Specifically, the manufacturing sector depends on timely and reliable deliveries of raw materials, or semi-finished products as inputs to further processing. It also requires finished products to be transported to warehouses or distribution centers. The freight forwarders may arrange for transportation to domestic or overseas markets.
- Apart from Government policies affecting industry protection and the exchange rate, the major determinant of manufacturing demand is movements in real private consumption and real gross fixed investments.
- The performance of the manufacturing sector is measured by movements in the industrial production index.
- Stock level of merchandise goods is also a determinant of demand. As stock levels decline, replenishment processes become the basis for demand.

- The life cycle stage of this industry is defined as mature.
- The industry can be described as changing from the traditional freight forwarding and customs brokerage role. It is entering another growth cycle through the provision of solutions to customer service requirements by collaborating with its users. This cycle although embryonic at present is expected to pick up in the next three to four years.
- New markets in the developing world, particularly in China, India and Latin America have contributed to significant growth in revenue and value added over the last five years. Over the current period industry value added is expected to grow at an annualized rate of 4.2%, while the US economy is expected to expand at an annualized rate of 2.7%.
- However, having said that, the industry has experienced significant mergers and acquisitions in the last five years, which implies its relatively mature stage.
- In addition, the uptake of technology has been slow, especially amongst the smaller players.
- In summary, the industry currently is at a mature stage of its lifecycle.

Industry Outlook

With a more favorable import profile in 2009, industry revenue is expected to increase by 4.2% and value added by 4.0%.

During 2009, larger players will use their economies of scale and scope to compete effectively against the smaller generalist service providers. Those players that have had good relationships built during economic downturns are expected to reap rewards during the forecast period to 2013.

Industry revenue growth rate is then expected to fluctuate between 2.1% and 3.8% over the last four years of the forecast period reflecting moderate growth in the US economy during the same period.

Over the period 2009 to 2013, real industry revenue is expected to increase by an annualized rate of 3.1% to $53.33 billion and value added by 2.7% to $20.93 billion, a same rate as GDP growth.

Industry employment is expected to grow throughout the forecast period to peak at 182,847 in 2013 from 179,020 in 2008, giving it an annualized growth rate of 0.4%. IBISWorld believes that as industry activity becomes more sophisticated, the labor market for skilled professionals in freight arrangement processes is likely to tighten with pressure on wage costs including incentive related costs to retain staff.

The industry is expected to deliver solutions to required customer service levels through process management with the aid of new technology. Therefore, sophisticated computerized customer service capabilities and a stable worldwide network have become significant factors in attracting and retaining customers. However a considerable indirect cost is associated with developing these systems and networks and can be prohibitive for smaller players. As a result, it is expected that the industry would consolidate over the forecast period. As a consequence further mergers and acquisitions are expected in the industry throughout the forecast period to 2013.

Freight rates are expected to begin declining and this will improve freight arrangers' profits, especially in international trade. However, fuel related surcharges for airfreight (particularly in the Asia-to-US trade lane) would continue to push freight rates higher. An increase in ocean freight capacity providers would have a positive impact on international freight forwarders over the outlook period.

On the domestic scene, truckload freight rates are expected to continue to increase due to a combination of factors, including new government regulations pertaining to hours-of-service (HOS) rules, carrier consolidation through carrier bankruptcies, higher fuel prices, and labor and equipment shortages take effect.

Environmental concerns are expected to impact on this industry and IBISWorld predicts that shippers are expected to increasingly demand from freight arrangement service providers that they select carriers that will allow shippers to manage their carbon footprints. The impetus for this is expected to be legislative driven in certain countries trading with the US.

Excerpts from Freight ***Transportation Arrangement in the U.S.***, IBISWORLD Industry Report, March 2008

48899 – Other Support Activities for Transportation in the U.S.

This industry includes businesses that are primarily engaged in providing support activities to transportation. It includes businesses that are engaged in the consolidation of freight consignments, trade document preparation, packing, crating and otherwise preparing goods for transportation, and logistics consulting services.

This industry - comprising other support activities - is dependent on the level of activity in upstream industries, namely the manufacturing, wholesaling, retailing, logistics and transportation industries. Trucks, trains and aircraft transport freight for export and for domestic consumption; goods are often packaged and/or put in cartons by operators in this industry. Operators may also be responsible for preparing documents (mainly for export). Domestic demand for goods is influenced by: (1) real US GDP growth; (2) the growth of household disposable income; and (3) consumers' propensity to save, amongst other things. Foreign demand for US goods is determined by: (1) economic growth in major trading partners; (2) world commodity prices; (3) relevant exchange rates; and (4) world stock levels.

Demand for the preparation of trade documentation is determined by: (1) the nature of the good being transported and the intricacy of trade-related regulations; (2) the level of regulation enforced by the importing country; (3) the extent to which the exporting company has in-house expertise (that would make doing the job in-house cost and time effective) and (4) the usage and acceptance of paperless (technology) online registration and documentation tools that would enable a customer to prepare documentation themselves. Demand for freight consolidation services is dependent on the value and volume of the exporter's goods relative to shipping/motor vehicle capacity at that time; freight volumes can differ dramatically and finding available space

can sometimes be difficult for a non-industry entity. Meanwhile, companies should keep four potential problems in mind when designing an export packaging: (1) breakage; (2) moisture; (3) pilferage; and (4) excess weight. Packaging and cartons that are light and slim will reduce freight costs as cost is usually determined by weight and volume. The type of packaging and carton demanded is dependent on price (a wooden box is more expensive than a cardboard box, for instance), and the nature of the good being shipped. Fragile, loose and small goods need more protection than such things as automobiles.

IBISWorld considers the Other Support Activities for Transportation Industry to be in the mature phase of its life cycle. This assessment is based on revenue and value added growth rates well below those of real GDP growth over the last decade (and declining rates over the current performance period). Growth in this industry is often dependent on the health of the other transportation industries and the willingness of those industries to out-source services. Despite falling industry revenue in the last five years, establishment numbers have increased at a robust rate due to the industry's generally low barriers to entry. However, growth has been driven by non-employing establishments that are poorly positioned to exploit economies of scale. Aside from mostly medium-sized companies, the majority of establishments are non-employers.

Most industry products are clearly segmented and stable. The out-sourcing of work from manufacturing, wholesaling, retailing and transportation operators may introduce some new products going forward, although this in itself is unlikely to boost industry revenue growth substantially as most out-sourced processes are low value added. Some opportunities may arise from inter-industry technology development that reduces the size and weight of packaging (without undermining quality), the development of electronic trade documentation platforms (i.e. paperless trade in a secure environment) and the packaging services sector (i.e. pallet and container pooling services industry which offers a lower cost option for customers). Over the outlook period, IBISWorld believes that the Other Support Activities for Transportation Industry will remain in the mature stage of its life cycle.

Industry Outlook

During the 2008 to 2012 period, industry revenue is expected to rise from $3934.5 million at the end of 2008 to $4180.0 million in December 2012. This represents an annualized increase of 1.5% - below IBISWorld's average real US GDP growth rate forecast over the same period. Revenue growth is predicated on: (1) a slow rise in disposable household income that facilitates goods purchases - IBISWorld estimates that disposable income per capital would rise at a slightly lower pace at 2.4% in 2008 as the economy cools; (2) buoyant world GDP growth (of around 4-4.5% on an annualized basis over the period); (3) the continued development of electronic trade documentation platforms that make the documentation process less labor intensive and more precise (over the medium term such facilities may encourage companies to complete their own trade documentation to the detriment of companies in this industry); (4) the continued need to operate small-scale industry service outlets in geographically remote parts of the country and along major freight routes; and (5) consolidation within the freight and logistics services industry.

Many freight and logistics companies have seen the benefits of electronic trade documentation platforms and this is expected to continue into the future. The International Air Travel Association (IATA) announced in September 2005 that they have launched a global cargo paperless environment program (IATA e-freight) designed to implement simpler, electronic, paper free air cargo shipping worldwide by 2012. Currently, it was highlighted that the average cargo consolidation shipment travels with up to 38 documents per master Air Waybill at a cost of $30, and at this rate, the industry ships the equivalent of 39 747-400s full of paper per annum. This move is designed to reduce cost and to compete more effectively with other modes of transport by increasing information transparency and reducing time needed to move cargo to its destination. IBISWorld believes that this should not have a negative impact on revenue but may reduce the number of companies and/or employees servicing this industry as a result of the simplified processes.

The increase in technology reliance will also provide opportunities for consulting services, in particular distribution and logistics consulting. Companies who had previously relied on traditional methods and are looking to keep up with technological trends will need to engage specialist consultants (technology appliances usually have to integrate with third party systems such as customs), hence providing a lifeline for this industry in revenue growth.
The downstream freight and logistics services industry is consolidating and this will likely have a negative impact on this industry. Large companies are engaged in mergers and acquisitions to expand the scope of their services and geographical presence. For example, APL Ltd. has used acquisitions to extend its geographical range while adding capabilities such as intermodal transportation, contract logistics, information systems and freight consolidation to become one of the biggest logistic suppliers. Another example is FDX, the parent of FedEx, who purchased Caliber Logistics, a third party logistics services provider and a ground package delivery service provider (RPS), to expand the scope of the services it can provide. Industry players will face major competition from third party logistics and will need to expand their services offered and provide greater value added support in order to compete.

IBISWorld forecasts that industry value added will increase from $1805.0 million at the end of 2008 to $1906.2 million at the end of 2012. This represents an annualized increase of 1.2%. The growth figure reflects greater profitability (almost solely for medium and larger sized firms) thanks to economies of scale. Investment in technology and other capital equipment will also be robust as a means of improving freight flow and service efficiency.

IBISWorld believes that the number of new establishments will rise at a slower rate over the forecast period compared to the current performance period. The number of establishments is expected to rise from 4323 (2008) to 4593 (2012), an increase of 1.2% per annum, much slower than the current performance. Large industry players will begin to consolidate holdings in specific geographic areas of the country, acquiring smaller operators (which struggle to exploit economies of scale), or forcing them out of business. Moreover, as industry revenue growth rates begin to fall further below overall economic growth (a symptom of the transition to a decline industry), fewer people will want to enter the industry as they could reap larger rewards in faster growing sectors. With establishment growth set to continue, employment numbers and

wage costs will follow suit, projected to rise at 1.3% and 1.5% respectively. Generally low job skills mean that labor supply will not be a problem and wage rate growth will not adversely affect profitability. Finally, as entities become larger, industry productivity should improve due mainly to better economies of scale. The Department of Labor, Bureau of Labor Statistics forecast that transportation and warehousing employment is expected to increase at a faster rate than employment as a whole up to 2012. It is estimated that employment growth within transportation and warehousing will grow by 22% compared with 15% growth in overall employment underlining employment opportunities in this industry.

A company operating in this industry may be adversely affected as a result of US and world economic conditions, the value (and volume) of US trade exports and the level of out-sourcing by upstream firms, as well as: (1) the declining ability of customers to meet their financial obligations; (2) declining market values for transportation-related services; (3) difficulties in purchasing, leasing or re-leasing equipment; (4) reduced access to debt and equity capital markets and the ability to draw down funds under financing agreements; (5) non-compliance with restrictive financial covenants contained in loan agreements; (6) changes in or non-compliance with laws and regulations imposed by the Department of Transportation or US Customs; (7) competition from other companies, including specialist service providers like freight forwarders and postal delivery companies, some of which have large financial resources; (8) exposure to product liability and property claims that may be in excess of liability insurance coverage; and (9) the outcome of any pending or future material litigation or environmental proceedings.

Excerpts from Other ***Support Activities for Transportation in the U.S.***, IBISWORLD Industry Report, November 2007

61151 – Technical & Trade Schools in the U.S.

This industry comprises establishments primarily engaged in offering vocational and technical training in a variety of technical subjects and trades. The curriculums offered by these schools are highly structured and specialized and lead to job-specific certification. Instruction may be provided in diverse settings such as the establishment's or client's training facilities, educational institutions, the workplace, or the home, and through correspondence, television, internet or other means. This industry includes cosmetology and barber schools, flight training, apprenticeship training and other technical training.

Demand determinants include:

- Tuition Costs - The price of tuition is a key factor affecting demand, and varies between different schools. The ability of students and their families to pay tuition costs influences demand for this industry.
- Government Funding - The availability of government funding to schools, and other forms of government financial support (e.g. loans, tax credits) influences demand, particularly for students from low-income families.
- Downstream Demand - Demand for workers with trade skills, and expected future demand affects demand for technical and trade schools. For example, if there is strong demand for workers with particular technical or trade skills, it is likely that demand for the relevant training programs will increase, leading to higher enrollments for the relevant courses and schools in this industry.
- Trends towards formal training - In many trades, such as automotive, there has been a shift away from apprenticeships (3-4 year programs), and towards formal vocational training programs instead, which are generally shorter and more intensive. This has increased demand for places at technical and trade schools.
- Technological Advances - An increase in the use of technology in many fields has led to a rise in demand for particular courses and schools in this industry. In many occupations, workers are now required to have more technical and technological knowledge than previously. For example, automotive mechanics may now also be expected to repair on-board computer systems in vehicles. In addition, a number of new jobs have been created in recent decades as technology has progressed, which has led to new job openings for positions such as medical technicians. This has increased the demand for the services of schools in this industry.

The life style stage for this industry is growth. This industry has been growing at a faster rate than GDP and is expected to continue growth through to the end of 2008. Over the five years to December 2008, industry value-added is expected to grow by 9.7% per annum.

The number of establishments in this industry has grown over the current performance period, due to new operators entering the industry, and existing enterprises expanding their operations into new locations.

Over the current performance period the industry has adapted to changes within the market place, therefore building on its customer base. For example, the method of training provided by this industry has changed. Previously having a strong emphasis on apprenticeships, training is now focused on formalized accredited and certified training courses, which provide intensive training over a shorter period of time.

The shift away from studying a large number of vocational educational courses at high schools has seen increased demand for training in this industry. The type of training provided has also changed, as the industry adapts to changes in the skill requirements of the workforce. For example, the industry now trains an increasing number of medical technicians, and traditional

trades, such as automotive mechanics, are now often required to undergo training in new technologies such as on-board computer systems.

Industry Overview

The Technical and Trade School industry is forecast to continue to grow over the outlook period, with industry revenue expected to grow at an annualized rate of 3.7% per annum from 2008 to 2013 to reach $17.6 billion. Wages are expected to continue rising over the next five years, which will cut into profits.

Revenue growth in this industry will be determined by downstream demand for different trades, which affect demand for training offered by this industry. The industry will also be affected by government policies pertaining to vocational education and more generally higher education.

Demand for workers in most trades is expected to grow over the outlook period, with job types such as electricians and health care workers expected to grow at a higher rate than general employment. Employment growth in trades will lead to higher demand for places at Technical and Trade Schools. The US economy is shifting from being predominantly manufacturing-based to services-based, and demand for training in service-based industries will be higher over the outlook period. Apprenticeship training and technical training in health-related fields are forecast to be the areas of highest growth. In particular, the vocations of medical technician, nurse's aide and dental hygienist are expected to experience strong growth, driven by an ageing population and increased use of technology in health care.

The flight training segment of the industry will be influenced by lower downstream demand for flight services, resulting from slowing economic growth and higher fuel prices. As customers try to find cheaper alternatives to travel, the demand for pilots may decrease in the short term. Demand for pilots in regional areas may mitigate this to some extent. FlightSafety asserts that demand for pilots in these areas remains strong, and backs this with plans to open a new training facility in St Louis, Missouri, in December 2008. The center is intended to provide support to Regional Airlines.

Establishments in the beauty and cosmetology segment of this industry will experience some growth due to rising per capita incomes increasing demand for their services. According to the job outlook published by the Bureau of Labor Statistics, published each year, growth for most of the vocation based jobs in the economy are expected to experience the economy wide average employment growth.

In many trades, requirements from employers that new employees hold formal certification will increase demand for this industry. The Bureau of Labor Statistics forecasts strong demand for those workers that have formal training. In the past, on-the-job training was often sufficient, so new certification requirements will generate a new revenue stream for establishments. The level of informal training is expected to fall and demand for accredited and certified courses increase.

The industry is expected to face increased competition from Junior Colleges in the future. Some of the courses currently offered as certificate programs are being increasingly offered as associate degree programs, as they become longer and more complex. T his will negatively affect this industry, which primarily offers job-specific certification. Technical and trade schools will have to expand their scope to include associate degrees or offer preparatory courses for students, facilitating their movement into higher level education industries.

Technical and trade schools have become more professional over the current performance period, and this trend is expected to continue over the outlook period. Schools will have a higher level of accountability, as State and Federal Governments continue to seek value for money from their financial contributions. Schools that are eligible for Government support will be required to demonstrate that they are operating efficiently, and offer training courses of a high standard. Prospective students are also paying closer attention to an institution's reputation when choosing a school.

Regulation of for-profit institutions is expected to increase in the early part of the outlook period, as State and Federal Governments seek to ensure the quality of training provided to students. In the latter years of the current performance period, federal and state investigators found that some career focused higher education institutions were using inappropriate enrollment practices, such as enrolling students that weren't capable of completing their course. Career Education Corporation is one such example (refer to Other Players for more details). These issues hurt the industry's reputation as a whole, and have led to increased scrutiny by regulators. It has also highlighted the importance for institutions to adhere to government regulations.

The industry will experience increased competition within the industry and some consolidation over the outlook period. Consolidation is expected to occur mostly in the medium to large-sized firms, with growth in all sized establishments still expected. IBISWorld forecasts that the number of establishments in this industry to grow by 2.1% per annum over the outlook period. Enrollments are expected to continue to increase, and while new entrants will enter the industry, the largest growth will be in the size of existing institutions. Medium to large institutions will increase the pace of expansion through the acquisition of other small to medium sized schools, in order to increase their administrative efficiency, raise their profit margins and compete more effectively (particularly with Junior Colleges).

Employment is expected to follow the same expansion trends of industry revenue and establishment numbers. Over the five years to December 2013, employment is forecast to grow by 3% per annum. Wages are forecast to grow at the higher rate of 4.1% per annum.

Excerpts from ***Technical & Trace Schools in the U.S.***, IBISWORLD Industry Report, November 2007

D.5.2 Corporate Training and Shared Services

Definition

NAICS Codes

51121 – Software Publishers
51821 – Data Processing Services
52211 – Commercial Banking
52221 – Credit Card Issuing
52231 – Mortgage and Nonmortgage Loan Brokers
52311 – Investment Banking and Securities Dealing
52312 – Securities Brokerage
52392 – Portfolio Management
52393 – Investment Advice
52411 – Direct Life, Health, and Medical Insurance Carriers
52412 – Direct Insurance (except Life, Health, and Medical) Carriers
52421 – Insurance Agencies and Brokerages
52511 – Pension Funds
56142 – Telephone Call Centers

Recommended Research Filters

When marketing to this industry, we recommend that England Airpark target companies within the following parameters.

Sales:	$20m minimum
Employment:	500 minimum
Geographic Scope:	National but south to start
Targeting Emphasis:	Multiple locations w/one or more locations in LA, Atlanta, GA, Memphis, TN, Dallas-Ft. Worth, TX, or Houston, TX
Growth:	10% in sales or employment (over two years)
Events:	Predictive events such as executive change, merger/acquisition, new markets, new products/services, new contract, and IPO.

Corporate Training and Shared Services Universe	
Companies within geographic scope (national)	612,012
With 500+ employees and $20m+ sales	2,121
With growth and/or events	882

Estimated with D&B Market Identifiers and Applied Marketing Sciences data.

Industry Importance Factors

The following site location factors and labor needs are most important to companies within this industry. They are based on our experience.

One of largest expenses and, therefore concerns, for financial and insurance companies are human resources. Though this industry is moving quickly to online and automated services, the industry is largely driven by customer relations. As the competition increases among and between all the sectors of financial and insurances services and as the lines of the different sectors continue to blur, the differentiating factor that companies will rely upon is their customer service. Access to a substantial base of experienced talent is of utmost importance to this industry. The industry needs access to college graduates with sophisticated customer service and operations center capabilities, especially within the financial planning and investment sectors.

When looking at the available workforce, the industry specifically needs executive, administrative, managerial, and support personnel. The cost of labor is also an important factor as well since human resource is likely the largest expense on the income state for these companies.

Another increasingly important site location factor includes telecommunications services and infrastructure. The financial and insurance services industry will continue to move their businesses to online business models, taking advantage of the speed and automation of information technology. Also driving the importance of telecommunications services and infrastructure is the trend to globalization of the industry and the need to connect to division, offices, and customers around the world.

Other significant locations factors considered by the financial and insurance services industry includes energy dependability, real estate availability and cost, quality of higher education, location transportation/commuting, and quality of like features like the area image, security, and cost of living. The real estate demands for FIRE depend on the type of operation. Higher end operations require more attractive office environments to recruit and retain the required higher skilled employees. On the other hand, traditional call center operations paying low wages may choose to locate in converted retail space. Quality of life features such as image, amenities, access to recreational/cultural opportunities will become increasingly important as executive levels rise within each company.

Labor Outlook

NAICS Code	Industry	1996 Jobs	2006 Jobs	2016 Jobs	1996-2006 Change	2006-2016 Change
516, 518, 519	Internet Services, Data Processing, and Other Information Services	372,000	469,200	536,400	26%	14%
521, 522, 525, 533	Credit Intermediation and Related Activities, etc.	2,391,100	2,958,300	3,196,100	24%	8%
523	Security, Commodity Contracts & Like Activity	589,600	816,300	1,192,400	38%	46%
5241	Insurance Carriers	1,381,600	1,427,700	1,462,900	3%	2%
5416	Management, Scientific, and Technical Consulting Services	517,100	920,900	1,638,700	78%	78%
5614	Office Administrative and Facilities Support Services	678,300	790,600	950,100	17%	20%

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, November 2007

51121 Software Publishers

This industry comprises establishments primarily engaged in computer software publishing or publishing and reproduction. Establishments in this industry carry out operations necessary for producing and distributing computer software, such as designing, providing documentation, assisting in installation, and providing support services to software purchasers. These establishments may design, develop, and publish, or publish only. The development and design of software yields an intangible product and therefore copyrights and patents are prevalent within this industry. Industry works are often passed on to reproduction manufacturers of optical media in order to mass produce copies of the original software program / application.

The demand determinants for this industry include the following:

Business profitability, which can influence technology spending - as a significant proportion of software is developed for business applications, business expenditure on software is an important demand side factor.

Real household disposable income - The level of income at the disposal of a household unit affects the level of expenditure on computer and software products by household consumers. During periods of low disposable income consumers may decide to wait to upgrade or purchase new software.

Internet Use - the growth in per capita use of the Internet creates a demand for browsing, search engine, web site development and virus protection software.

Product technology - advances in technology which lead to the release of new products or upgraded versions of software will increase the demand for products in this industry.

The demand for computers - as the installed base of computers increases so too will the demand for new or upgraded software.

Price - Declining real prices for computer hardware and software products has been a factor driving household and business demand for these goods.

The level of economic activity and capital investment expenditure - growth in business investment and in the service sector of the economy influences business demand for computers hardware and software.

Product advancements and enhancements. For example, the introduction of software with added features, faster processing speeds, greater capacity and new uses influences replacement (i.e. upgrades) and new demand.

The extent to which businesses and governments "off-the-shelf" software over internally developed customized software.

Specific Events. For example, the wake of the Year-2000 bug generated demand by to upgrade or purchase new software.

The growth stage of this industry is growth. This is due to:

- New software and hardware products are drivers of software demand.
- Industry expenditures on R&D are high, relative to revenue.
- Software prices are expected to fall, which will promote growth in demand volumes.
- The rapid uptake of new information technology indicates that the Software Publishing industry remains in a growth stage.
- While growth has slowed in recent years, the industry is still expected to grow at a pace that exceeds economic growth.
- While consolidation is occurring in some major segments of the industry, there are new entrants.

Industry Outlook

IBISWorld forecasts that industry revenue will grow at an average annualized real rate of 3.9% in the five years to December 31, 2013. Revenue growth during this period will be affected by: growth in economic activity; the level of technological change in information technology and communications; growth in demand for, and the installed base of, PCs and other hardware products with a computing component; and competitive conditions in the software publishing industry.

Technology spending by the business sector had recovered (both in the United States and globally) from the recessed levels of spending in the period 2001-2004. However, IBISWorld forecasts slower growth in the US economy in 2008 and 2009 (along with a contraction in economy-wide investment during this period) and the realization of this forecast would represent

a drag on industry growth. IBISWorld forecasts stronger growth in the US economy 2010 through 2013.

New innovations, along with falling prices for hardware and software, will tend to promote growth in demand volumes and provide a source of growth for the software industry. Compliance with new regulatory regimes, such as Sarbanes Oxley, Basel II and International Accounting Standards and the Health Insurance and Portability Act, will continue to be positive drivers for the software industry. Over the outlook period, the Software Publishers industry is expected to be in a moderate growth life cycle phase, with industry value added forecast to increase at an average annualized real rate of 3.8% in the five years to 2013 (exceeding real growth in US GDP, which is forecast to grow at an average rate of 2.3% per year).

Software will account for a rising share of business IT budgets, continuing a 15-year trend. Businesses and governments will continue a trend of adopting "off-the-shelf" and "on-demand" software in preference to internally-developed customized software. However, "on demand" software can allow companies to use only the required parts of software programs. While this will drive demand for a wider range of software products, it will also act to drive up competition and have a dampening effect on prices for packaged software.

A significant challenge for the software industry is to combat piracy of products (which has been a particular problem in less-developed countries, such as China). Governments, software companies and industry associations (including The Software & Information Industry Association) are actively involved in efforts to reduce piracy. Initiatives include litigation enforcement, legislative action, and education. While "on demand" computing and subscription sales of software distributed via Web browsers will tend to reduce software prices, it could also reduce piracy.

The number of personal computers worldwide will increase at around 8% per year over the outlook period. A large part of this growth will come from emerging markets, such as Asia and South America, and software companies will aim to develop solutions for these markets, with products that are economical and tailored for first-time users.

A positive trend for the software industry is the growing number of installed devices with computing capabilities. These devices include TV set-top boxes, electronic games consoles, PC entertainment centers, mobile devices (which include tablet PCs, cell phones and digital music players) and household goods (such as refrigerators).

The number of Internet users in the United States and globally will continue to increase, as will the intensity of use of the Internet. This trend will be mainly driven by: the rising availability and falling costs of Internet access in dial-up, broadband and wireless sectors; and the release of new web-based services. This will ensure growth in both the web browser and Internet security software markets, among other markets. Security concerns will promote growth in products offering virus protection, firewalls and anti-spam software to users.

Growth in the volume of data transmitted, stored, shared and manipulated will promote growth in sales of enterprise, storage and security software.

There is a shift underway among corporate software users, where companies are moving toward what is called service-oriented architecture ("SOA"), which allows companies to be much more flexible and responsive. Major players in the middleware market will benefit from growth in the global SOA market, which some analysts expect to more than double over the outlook period.

Additional key factors influencing growth in the Software Publishers industry over the outlook period are: renting of software over the Internet (Applications Service Providers), providing customers with savings on software license, hardware and installation costs; selling of software services on the Internet on a subscription use or transaction basis; and, increasing business to business e-commerce. Given these factors, many industry participants have re-evaluated their future direction, and have focused on the development of "web services" rather than the usual prepackaged software product. These developments will also reduce barriers to entry in some segments of the industry.

IDC predicted (2007) that worldwide revenue from stand-alone open source software (OSS) will grow from $1.8 billion in 2006 to $5.8 billion in 2011, representing average annualized growth of 26%. Growth in revenue from OSS will lag behind the growth in distribution of OSS, as many distributions of OSS are free (resulting in an accentuated displacement of proprietary software). OSS (such as the Linux operating system) will threaten some proprietary software (such as Windows), but will also tend to promote interoperability and new software developments. Sun Microsystems recently entered into an agreement with Microsoft that was intended to enable greater interoperability between the two companies' products. Legal requirements are forcing Microsoft to unbundle application software from its PC operating system and to offer interoperability information on its PC operating system to competitors (and in November 2005 Microsoft announced that it would make the software formats behind its Office programs an open standard).

OSS, along with an expected increase in interoperability between proprietary software, will tend to reduce barriers to entry for new nimble players in this industry (although patents are a major obstacle to growth in the open-source software space). Incumbents will need to develop business models that protect them, and take advantage of, the open-source trend. IBM and Sun Microsystems expect that their moves into OSS will generate additional revenue from hardware, service and support.

The software industry is undergoing a period of consolidation as software companies seek to offer a more extensive and complimentary range of products, as well as to gain larger customer bases. Some business customers are looking to reduce the complexity of their IT infrastructure and drive efficiency with fewer IT suppliers.

In the Internet space, the software and online media sectors have been converging. This has at least a few implications: firstly, some software-related activity of integrated companies will be

subsumed by other industries (such as by the Internet Service Provider and Web Search Portals industry and the Advertising Agency industry); and, secondly, some software companies will rely more on advertising revenue to subsidize software sales. Google Inc generates almost all of its revenue from advertising. In May 2007, Microsoft announced the acquisition of aQuantive (the acquisition was finalized in August 2007), a company that provides Internet tools and advertising agencies, for $6 billion. In October 2007, Microsoft announced that it would take a $240 million equity stake in Facebook, a social networking web site. Following the acquisition of aQuantive, Microsoft's Chief Executive stated that Microsoft will retain its software focus, and that if basic software can be "ad-funded in the way that it gets delivered to consumers, it probably will get ad-funded". In February 2008, Microsoft made a proposal to the Yahoo! Board of Directors to acquire Yahoo! for approximately $44.6 billion.

The software industry in the US will face increasing competition from software companies located in countries where IT labor costs are low (such as in India, which has a large pool of trained labor). For example, the German-based SAP has a software development presence in India. Indeed, some US software companies have established their own software development facilities in low-cost countries, such as India (sometimes benefiting from incentives provided by national, state and local governments). US companies are also outsourcing their IT functions (including software development) to companies in low-cost countries.

Excerpts from ***Software Publishers in the U.S.***, IBISWORLD Industry Report, May 2008

51421 Data Processing Services

This industry comprises establishments engaged in providing electronic data processing services. These establishments may provide complete processing and preparation of reports from data supplied by customers; specialized services, such as automated data entry services; or may make data processing resources available to clients on an hourly or timesharing basis.

The demand for the services of the data processing services industry is sensitive to developments in the worldwide information technology market, both in hardware and software, and including the Internet. The increased capacity of personal and mini-computers has had an effect on the need for some data processing services, as has software developments. The industry is also very sensitive to businesses and government organizations that outsource or sell their in-house data processing services or expertise to major operators and then contract back the required services. Some major outsourcing contracts are currently under review, due to some clients being disappointed with service levels and/or significant contract cost blowouts. However, outsourcing of highly technical tasks is increasingly common in a number of industries, particularly those in the finance, banking and insurance sector. Finally, the general economic situation is also important in terms of clients investing in new or enhanced IT services and in influencing the volume of business, government and household transactions serviced by data centers.

The life cycle stage for this industry is growth. This is due to:

- The industry is in a growth phase due to the on-going outsourcing of data processing and related services by governments and businesses and from changes in technology (including its price).
- To the early 1990s, the industry had been in decline, but this changed due to both the outsourcing of computer services by governments and business and from changes in technology and its costs. This included electronic and optical imaging, electronic data interchange, bar-coding of products etc. Also important was the availability of customized and packaged software, which also made it easier to transfer and analyze data and reduced the need for double handling at the input phase.
- The rapid adoption of web-based services in the mid- to late-1990s has created a growth boom for the industry, as firms and government agencies continue to increase the level of outsourcing of highly skilled tasks central to the IT Support, CRM & Data Processing Services industry.
- A current growth area is data warehousing and analysis (or data mining). Data warehousing involves collection of data, scrubbing it to ensure its integrity, establishing a common format so that different data sets can work together and storing it together in the one place. Data mining involves using artificial intelligence to run the data across a number of related and unrelated data sets to discover previously unknown relationships. This process has been used by a number of manufacturing firms and been trialed by financial and health research institutions and retail stores. It has huge possibilities in the market research and analysis areas.
- Households are also increasingly using electronic means of transactions to make payments and to do their banking on-line, a primary feature of most major industry players.
- There is, however, the possibility that some data centers will be re-located overseas as operators (and clients) seek continuing high quality service, but at cheaper prices. Data centers are expected to increasingly be opened in countries such as China and India.

Industry Outlook

In general, the industry is sensitive to the growth in outsourcing of data processing and the number of transactions occurring between the government and business sectors, as well as, now by households. Overall the industry is sensitive to the level of data and other transactions, among its largest clients, which tend to be concentrated in the banking, finance, insurance, retail and travel and hospitality industries.

These transactions may be by ATM, cell phone, internet/web-enabled e-commerce and netbanking systems, credit card or debit card or other like means. The industry is also becoming increasingly more sensitive to clients' desires to actually obtain cost reductions (as well as productivity enhancements), but with service standards being maintained as originally agreed.

This applies to both specialist consultancy contracts and/or outsourced data processing contracts. This trend is leading to the re-location or establishment of new data centers overseas, particularly

in China and India, to access a pool of highly skilled staff, but at a lower wage cost. Growth in 2009 is expected to be muted as client industries remain squeamish about expansive spending in the wake of the subprime affair, but over the outlook period, growth should be strong.

IBISWorld estimates that revenue will record continued strong growth, well ahead of forecast GDP growth, as increasing demand for electronic outsourcing, coupled with growing markets where data processing services are already in high demand. Also, increased outsourcing by the industry of jobs and technology to Asia is likely to drive prices down, encouraging further demand increases, leading to annualized revenue growth of 8.6% over the period from 2008 to 2013, finishing with revenue of $138.83 billion in 2013.

In 2009, the industry is expected to experience slower real revenue growth as compared to average rates over the current period, as well as in profits and employment (and therefore value added), as domestic and international economic growth is forecast to slow due to the lagged effects of the falling housing market in 2006 and early 2008. Also, losses incurred by the banking sector as a result of investing in subprime loans which were subsequently defaulted on mean growth will suffer somewhat in that year. Revenue is expected to grow 2.9% to $94.6 billion.

Continuing growth is expected from the outsourcing of data related services, but with clients now seeking greater returns from their expenditures. This will continue to place pressure on major operators to link onto cheaper wage-cost countries, to offset some of the continuing price-based competition and contract demands. It will also lead to increasing industry consolidation, as operators seek to improve their revenue growth and margins.

The forecast continuing stagnant economic growth from 2009 to 2013 is estimated to lead to relatively slower real industry revenue and value added growth than experienced in the 1990s, as demand slows slightly, and from the resulting slower growth in industry employment, and particularly, profitability. The process of both the outsourcing of data processing needs by governments and businesses will, however, continue, as will the re-location of some data centers and processes overseas and to actually accelerate over the outlook period.

As the US economy recovers from poor performances in 2008 and 2009, the industry is expected to recover concurrently, as improving business sentiment will lead to spending that was deferred originally being invested in large-scale outsourcing projects in 2010 and beyond.

One of the most critical factors is the development of strategic alliances and partnerships between companies in the software, hardware and computer consultancy services areas to be able to offer clients a comprehensive and a one-stop solution. This area is expected to be of continuing importance over the next five years. This will also extend to include having strategic alliances with internationally located companies to be able to provide cheaper contracted outcomes, but still to the high quality standards agreed.

Due to this, it is expected that exports will become increasingly more important over the outlook period as US companies seek further growth opportunities elsewhere. Globalization of this industry will also increase at a significant pace over the next 3 to 5 years. Increasingly major operators are expected to re-locate some of their operations to places like India and China, where there is a large number of highly skilled, but lower cost IT professionals. The trend may initially commence with some re-location of segments of a company's operations or certain existing or new clients, on a trial basis, before significant shifts occur.

Data warehousing and data mining opportunities are also expected to increase, as clients seek to use their in-house customer information in a more strategic manner to build stronger relationships and sales, without breaching privacy regulations. This will continue to be of importance in the retailing, financial services and banking industries, but also will extend to other major customer-service ones, including travel and hospitality.

Overall the industry will also continue to benefit from the spread of e-commerce and e-business processes by governments, businesses and increasingly by households. The allocation of resources dedicated to improving the security of these systems and data centers will also continue to be of high priority.

Over the period to 2013, the industry is expected to achieve a real annual average growth value added of around 7.2%, reaching $77.33 billion, compared with the forecast real growth in GDP of 3% per annum over the same period. Industry value added remains strong as falling technology prices ensure major players continue to maintain strong profit margins.

Value added will also be affected by falling wage levels, caused by the movement of industry jobs (especially lower-skilled jobs) to low-wage Asian countries such as China and India. Strong profit growth from this outsourcing of jobs is likely to be the driver behind value-added growth.

This drop in wage costs, while beneficial for profit levels, is likely to ensure that value added growth lags behind revenue growth, as distinct from the current period, where rising profits ensured value added grew more rapidly.

Establishment growth, while forecast to remain strong over the outlook period, is expected to be slower than the current period, which in turn was slower than the historical period between 1997 and 2001. While this occurs, establishment sizes are also expected to progressively shrink over the outlook, as more jobs are shipped overseas, and establishment growth centers on non-employers and other small firms with a specific geographic region to service. In 2013, there are expected to be 90,747 establishments, of which 68.7% will be non-employing.

Employment growth is expected to remain comparatively slow over the outlook period, due primarily to the aforementioned outsourcing of jobs to Asia and the increase in small firms requiring less staff. Total employment in 2013 is expected to reach 718,904, with 7.8%, or 56,074, to be non-employers, up from 7.3% in 2008. Wage growth is expected to be marginally

higher than employment growth, but still well down on the previous decade, as remaining staff are more likely to be more highly qualified, hence demanding greater wage levels.

Excerpts from ***Data Processing Services in the U.S.***, IBISWORLD Industry Report, June 2008

52211 Commercial Banking

This industry comprises establishments primarily engaged in accepting demand and other deposits and making commercial, industrial, and consumer loans. Commercial banks and branches of foreign banks are included in this industry.

The demand for bank deposits is affected by the real after-tax return on such deposits relative to alternative investments. Increased volatility of equity prices and deteriorating economic conditions boosts the demand for deposits, as the demand for liquidity increases. The overall level of household income, corporate profits and free cash flows will also determine the inflow of funds to bank deposits.

The demand for loans is determined by the real after-tax cost of debt relative to the cost of equity. The demand for debt financing typically falls as the real cost of such financing increases. Commercial and Industrial (C&I) loans depend on investment spending by businesses on plant and equipment and other capital goods, as well as financing related to mergers and acquisitions. C&I loans are quite cyclical and tend to fall as general economic activity slows and increase when the economy recovers again.

Commercial Real Estate loans are largely determined by investment in nonresidential structures, such as multifamily housing, construction and land development, where investments in multifamily housing tend to be more volatile.

The demand for consumer loans largely depends on consumer expenditure, and particularly durable goods expenditure. The level of securitization also determines the size of such loans on banks' balance sheets. A fall in the level of securitization, which results when the cost of funding these loans on the balance sheet declines relative to the cost of securitizing them, will boost the loans on banks' books. The housing market also largely impacts the demand for Real Estate loans, which again are driven by factors such as mortgage rates.

Commercial banking in the US has been in a mature stage of the life cycle since the early 1990s, with industry growth rates, as measured by Industry Gross Product, declining throughout the decade, reaching that of the general economy by the end of the 1990s. The industry has experienced increased competition in recent years, as regulatory requirements have become more relaxed. The following scramble for market share triggered considerable merger and acquisition activity, particularly in the five years to 2000. The result has been a slow decline in the number of businesses.

IBISWorld expects that industry revenue will have grown at an average real rate of 5.7% per annum in the five years to 2007, increasing from $569.96 billion in 2003 to an expected $751.17

billion by 2008. Industry gross product however is expected to have experienced a decline, averaging an annualized drop of 1.3% over the same five year period. Industry value added has declined from $311.1 billion in 2003, to an estimated $290.76 billion in 2008. In the final two years of the current performance period, industry profitability has been substantially affected by losses related to the subprime crisis, which has reduced value added growth. Although the negative average annualized value added figure would indicate that the banking industry is in decline, prior to the subprime crisis, profit growth has been relatively solid. IBISWorld is also forecasting that into the outlook period, the industry will recover, and experience more normal operating conditions and profit growth. Hence the industry is still considered to be in a maturity phase of its life cycle.

Industry Outlook

Industry revenue is expected to grow at an average real rate of 4% per annum in the five years to 2013, increasing from an anticipated $751.17 billion in 2008 to $912.89 billion by 2013. The growth is expected to be achieved on the back of solid growth in industry assets, expected to increase at an average real rate of 5.8% per annum, from $11.42 trillion in 2008 to $15.13 trillion by the end of December 2013. Industry gross product is expected to grow at an average real rate of 6.2% per annum over the same five-year period, increasing from $290.76 billion in 2008 to $392.05 billion in 2013.

As noted, IBISWorld expects a shaky 2008, where a relatively poor economic environment is expected. IBISWorld believes that there is a strong likelihood that a number of banking customers could become delinquent on their loans and other obligations that the Commercial Banking industry holds. This, in turn, is expected to result in a higher level of charge-offs and provision for credit losses, all of which will adversely affect the earnings for the Commercial Banking industry. As a result, IBISWorld has forecast that industry revenue will decline by around 8.7% in 2008, with value added falling by around 10.3%, as disruptions in the financial subprime market continues. IBISWorld forecasts that there is a strong likelihood that interest rates will fall further in 2008, which may be beneficial however also detrimental for the Commercial Banking industry. The detrimental side towards a lowering interest rate environment is that commercial banks will generate a lower level of interest income. Interest incomes are the primary source of revenue for many Commercial Banks, and a reduction here may mean a loss of downstream investment possibilities and also a loss of liquidity. However on the positive aspects, the lowering interest rate environment may help consumers who are close to foreclosure maintain their mortgages and loans, while also acting as a demand determinant to a greater customer base. The lower interest rate environment may act as a selling point, as potential customers can then afford loan repayments. This however is expected to only transpire into industry related revenue in the years to come, as there is a lag between when customers first take out their loans and when the banking industry will really begin to see financial gains. Also the continuing falling of house prices is not expected to translate into housing loans, despite the rapid drop in interest rates. It is expected that only in 2009 the US will begin to see housing sales on the rise once again.

As a result of the lowering of interest rates from 2007 and into 2008, it is expected that demand for credit into the mid-latter part of the outlook period will occur. As the US economy moves out of its subprime credit crisis and shaky economic situation, consumer and business confidence is set to rise, and the willingness to take out finance will increase. IBISWorld has therefore forecast that revenue growth will increase in 2009 (3.7%), before some more solid rates of expansion in 2010 and 2011, of 5.6% per year respectively. IBISWorld also forecasts that the industry will maintain growth (above 2%) for the remaining two years, to 2013.

Contributing further to this is the expected property dividend yields over the mid-latter part of the outlook period. IBISWorld expects that growth in property dividend yields will be substantial from mid-2009 onwards, after some years of decline. This will create demand for consumers to enter into mortgage loans as their relative investment will be less of a risk. This is expected to create demand and revenue gains for the Commercial Banking industry from 2009 onwards, in particular in years 2011 and 2012, as the lag times related to residential loans reach a peak in these years.

IBISWorld forecasts that over the five year period to 2013, industry value added will expand by an average real rate of 6.2%. As a percentage of revenue, industry value added will therefore increase from 38.7% at the beginning of the outlook period to 43% by 2013. The increase in industry value added as a percentage of revenue is expected to occur as the industry recovers from the lull experienced in 2008, where profits were expected to be at historical lows. The year of 2008 is expected to be a very poor year for commercial banks, and therefore the beginning of the outlook period should start off from a good base to launch returns. Consequently, IBISWorld is expecting that profits will expand by an average annual rate of 9.7%, rising from the $119.69 billion in 2008 to an estimated $190.25 billion by 2013. Rising interest rates, increased demand for housing loans, and fewer loan loss provisions are all expected to contribute to an enhanced profit environment in the outlook period.

Industry wages are expected to expand at a rate below that of industry revenue over the outlook period, which will therefore drag value added back slightly. IBISWorld is predicting that wage growth will be 3% over the five years, as the high unemployment rate (greater labor supply) at the beginning of the outlook period will mitigate wage growth over the next five years. Although working in the banking industry can be a highly skilled profession, the high level of qualified workers in this industry is expected to be high, and therefore lower than average wages is expected to be demanded. Also affecting industry value added, the levels of depreciation are expected to remain constant over the outlook period, hovering at around 5.5% of industry revenue.

As noted, IBISWorld expects that industry assets will expand by an average annualized rate of 5.8%, reaching $15.13 trillion by 2013. The growth in industry assets will mainly transpire from growth in the loan portfolio's over the outlook period. However, the structure of commercial banks' loan portfolio is expected to change as the demand for credit from the business sector is set to increase. Commercial and Industrial (C&I) loans are expected to become a bigger driver of total loan growth in the five years to 2013, whereas residential real estate finance is expected

to remain quite moderate. Residential finance is expected to be low in 2008, as the subprime credit crisis forces banks to become far more stringent on who they lend to. This has been emphasized through the September 3rd 2007 edition of Fortune, where John Mack, Chairman and CEO of Morgan Stanley stated that "investment banks and commercial banks will be much more conservative with their leveraged loans (for private equity buyouts)." Furthermore, the US economy is expected to be rather shaky over 2008, which will diminish the demand for credit, particularly among the residential mortgage market. Assets are expected to experience its strongest expansion in 2011, as the demand for mortgage loans increase strongly.

Many firms in the Commercial Banking industry are expected to benefit from a continued expansion of the branch network. Firms are increasingly being compelled to expand their geographic presence, making it easier and less demanding for customers to find their banking branch. As a result, IBISWorld expects that establishment numbers will grow by an average annualized rate of 0.7%, reaching 83,000 by 2013. However, industry consolidation is expected to continue in the five years to 2013, as the high levels of competition remain. This in turn is expected to reduce the level of enterprise numbers, while maintaining growth in establishments. The trend of consolidation and merger and acquisition activity is expected to be more prevalent in the small and mid-size banking organizations. As a result of the continued growth in competition levels, many enterprises will be forced to sell their operations, merge, or exit the industry (likely to be small to medium sized enterprises). Consequently firms are expected to expand in size and dominance, with the level of enterprises expected to decline by an average annualized rate of 1% over the five year period, to only 6,750. The growth in establishments however will lead to further demand in employment, where an estimated 2.01 million people will be employed in the Commercial Banking industry by 2013. Industry wages are therefore expected to reach $153 billion. An increased sales force and the opportunity to improve sales productivity and cross-selling in the banking branches are expected to help the Commercial Banking industry in the outlook period, however as mentioned loan and deposit spreads are expected to experience continued compression due to the interest rate and competitive environments, which will hinder industry value added growth.

Excerpts from ***Commercial Banking in the U.S.***, IBISWORLD Industry Report, March 2008

52221 Credit Card Issuing

This industry comprises establishments primarily engaged in providing credit by issuing credit cards. Credit card issuance provides the funds required to purchase goods and services in return for payment of the full balance or payments on an installment basis. Credit card banks are included in this industry. Credit cards issued in the United States are not issued directly by Visa, MasterCard or any other payments solution organization. Rather, Visa, MasterCard and other similar corporations provide the actual payments systems used when payments are made by credit card. These corporations are normally jointly owned by member financial institutions, and offer their payments solutions through these member institutions.

Demand for credit cards includes the following:

- The level of household disposable income affects the demand for credit cards. Higher income quintiles constitute the major market segments.
- The level of interest rates charged. Lower level of interest rates will encourage consumers to use credit cards, pushing up the demand for credit cards.
- Development of new products, such as teen credit cards introduced by American Express and Visa International. This opens up new consumer markets and creates demand for credit card issuing.
- The ease and convenience of credit card usage as compared to using cash or other means of payment. Credit card usage has increased from 15 percent of total consumer purchases in 1990 to 30 percent of total consumer purchases in 2001. It is estimated that credit card usage will grow to 50 percent within 10 years. This will have positive effects on the demand for credit cards.

The credit card issuing industry is at a mature stage in the life cycle, with signs of market saturation. Niche markets are explored by targeting consumer groups with affinity to membership organizations. Issuers are also targeting the teen-age market. Industry revenue is expected to grow at an average real rate of 1.3% per annum in the five years to 2008, increasing from $38.61 billion in 2003 to an expected $41.08 billion by 2008. Industry gross product is expected to grow at an average real rate of 2.4% per annum over the same period, increasing from $8.76 billion in 2003 to an anticipated $9.87 billion by 2008.

The use of credit cards is growing, seen by the rise in credit card debt in the 1990s. The result has been increased revenues for credit card companies, as a large percentage of credit card company profits come from vendors who pay to use the company's card and participate in the card's network. Hence, by issuing more cards, this increases the circulation of cards in the market; the more money it will make for the organizations.
The freedom and strength of some of the larger retailing merchants have managed to push down merchant fees and interchange fees for some credit card issuing companies. Increased competition is expected to further reduce profits over the outlook, with consolidation expected to grow, as industry growth slows.

Industry Outlook

Industry revenue is expected to grow at an average real rate of 2.7% per annum in the five years to 2013, increasing from an anticipated $41.08 billion at the end of 2008 to $46.82 billion by 2013. The growth in revenue is expected to be somewhat achieved on the back of solid growth in industry assets, expected to increase at an average real rate of 6.5% per annum, from $973 billion at the end of 2008 to $1.33 trillion by the end of December 2013. Industry gross product is expected to grow at an average real rate of 3.1% per annum over the same five-year period, increasing from $9.87 billion in 2008 to $11.46 billion by 2013.

As noted, IBISWorld expects a relatively shaky 2008, where a rather poor economic environment is expected. However into 2009 (the beginning of the outlook period) IBISWorld

believes that there is a strong likelihood that the US economy will have recovered from the subprime woes experienced in late 2007 and throughout 2008. Consequently, GDP growth is expected to rebound, averaging growth of between 2.6% and 2.8% throughout the five years to 2013. This is expected to provide growth opportunities for credit card issuers as consumers regain confidence and household expenditure continues to grow.

In 2009, revenue growth is expected to be at its weakest for the five years, with growth of only 0.6%. The low growth is expected to be a result of the fact that 2009 will be at the beginning of the rebound in consumer and business confidence after a year of global uncertainty from the subprime credit crisis. However, a low interest rate environment is expected to provide little burden on consumers interest payments, and therefore spending is expected to flow freely.

From 2010 to 2013, IBISWorld believes that revenue growth for Credit Card Issuers will be rather strong, averaging annualized growth of 3.2% over the four years. Backed by growing assets (revolving credit debt) over these years, the US consumer and business market is expected to utilize credit cards as a key means of spending. The average number of payment cards per person may increase to beyond 10 by 2013, as credit card issuers increasingly utilize the internet as a method of customer attainment. Over these four years, the convenience of online shopping is expected to boost the usage of credit cards, which will provide additional revenue sources for card issuing companies.

Despite these indications of increased spending on credit cards, there is a slight threat that the low interest rate environment (induced by the subprime crisis) may bring back demand for mortgages. The housing price corrections that occurred in 2007 and 2008 are expected to lead to increased demand for homes in the mid part of the outlook period, with consumers regaining confidence and taking advantage of a somewhat under priced housing market. This is expected to lead to a slight reduction in credit card usage and spending, as it was observed between 2003 and 2005, when consumers took out mortgage loans as opposed to increasing debt on their credit cards.

IBISWorld believes that industry value added will expand by an average real rate of 3.1% over the five years to 2013, reaching $11.46 billion. Growth in value added is expected to be strong in the first three years of the outlook, as credit card issuers regain losses during the 2007 and 2008 period. Loan loss provisions are expected to be minimal in the three years from 2009 to 2011, as a strengthening US economy observes reduced bankruptcies and delinquencies. In the final two years of the outlook period, IBISWorld believes that profits will begin to deteriorate, as the bargaining power of many of the larger merchants are able to demand lower interchange fees. If this is indeed the case, card companies may curtail their rewards programs and tighten terms, as reduced income streams force them to cut costs in order to maintain profits.

The amount of household debt - revolving credit - is expected to continue to expand over the outlook period. IBISWorld believes that growth in this area will average annualized 6.5% over the five years to 2013. The growth in assets is expected to follow historical trends of expansion, as consumers continue to spend on their credit cards, with rising average incomes. Furthermore,

the increasing number of average cards per person is expected to create additional growth in this area, with more debt being transferred from one credit card to another. This will continue to grow assets, and therefore provide credit card issuers with revenue streams in interchange fees, cardholder fees, and interest income.

IBISWorld expects that establishment numbers will continue to experience declines over the outlook period, with an average annualized decline of 0.5%, falling to 635. Industry consolidation is expected to continue in the five years to 2013, with high levels of competition remaining and the threat of large US merchants having greater freedom and bargaining power over credit card issuers will eliminate much of the growth for industry players. A trend of consolidation and merger and acquisition activity is expected to be more prevalent, with the larger corporations entering into merger and acquisitions, while the smaller players are expected to be bought out. As a result, competition amongst the larger players will remain, and concentration levels are expected to grow. Consequently firms are expected to expand in size and dominance, with the level of enterprises expected to decline by an average annualized rate of 2.3% over the five year period, to only 120. The growth in enterprise size however is expected to push slight growth in employment, where an estimated 62,000 people will be employed in the Credit Card Issuing industry by 2013 (average annualized growth of 0.7%). Industry wages are therefore expected to reach $4.3 billion.

The industry is facing serious challenges from credit card fraud, identity theft, and the need to secure confidential information. These challenges have always been an operational risk for the industry, but the problem has deepened, as large quantities of information are maintained in internet accessible systems. Here criminals are able to obtain and use this sensitive data, particularly as the criminals are becoming more sophisticated. This theft of sensitive information has cost the industry significant amounts of money, and now these problems have the potential to erode consumer confidence. Concerns about the security of credit cards and confidential information will need to be addressed, otherwise credit card usage may decline in the future and a new means of payment may arise.

Excerpts from ***Credit Card Issuing in the U.S.***, IBISWORLD Industry Report, March 2008

52231 Mortgage and Nonmortgage Loan Brokers

This industry comprises establishments primarily engaged in arranging loans by bringing borrowers and lenders together on a commission or fee basis.

The demand for mortgage and nonmortgage loan brokers is affected by industry specific factors, as well as being underpinned by the general demand for credit in the United States. The latter category includes demographic factors, which includes the size of various age groups within the population and changes in disposable income, as well as interest rates and the desirability of alternative investment options.

- The demand for mortgage brokers' services is mainly influenced by the demand for finance and the ability of brokers to provide competitively priced mortgages.

- Interest rate movements will affect the demand for this industry's services. A decline in interest rates will in most circumstances will result in increased demand for credit due to falling costs of borrowing; thus the higher the demand for mortgage brokers' services.
- Furthermore, a rise in the level of household real disposable income - either through a rise in gross income, through a decline in tax liabilities, or through a decline in inflation - will normally result in an increased demand for credit. Higher disposable income will influence the decision to acquire consumer durables, including property, and therefore on the decision to borrow funds as the more substantial consumer durables acquisitions mostly require a significant share of debt finance.
- Impacting both interest rates and disposable income, the rate of growth in the general economy is also an important factor. Increased economic growth will normally result in growing household disposable income, and thus on the demand for credit. If the increase in gross domestic product is pushed by increased demand for goods and services - as opposed to increased supply of goods and services - pressure on prices will start to mount. Responding to these pressures, the Federal Reserve will act as to increase interest rates, which eases the demand for credit.
- Industry specific factors having an effect on the demand for loan brokers includes the number of lenders available on a broker's panel of lenders, and consequently the number of products offered. This will determine the broker's ability to provide competitively priced products.
- The growth of residential housing prices will generally see a greater demand for mortgages and mortgage related products. As house prices increase, there is generally stronger demand for the use of mortgage brokers as they are able to source the best available loan option.

The life cycle stage of this industry is growth. Over the past five year period to 2008, IBISWorld estimates that the industry's gross product will have declined by an average annualized rate of 7.3%, which is far below that of the US economy as a whole. Although this would indicate that the industry is in decline, IBISWorld believes that it has entered a stage of maturity. Over this five year period, the housing market (for which this industry relies heavily on) has experienced declines, with total mortgage originations dropping after record sales were experienced in 2003. Furthermore, 2008 is expected to lead to a dramatic drop in industry gross product, as a subprime mortgage collapse is expected to lead to a drop of 16% in total mortgage originations. Collectively, this has generated an extremely poor 5 year period for the Mortgage and Nonmortgage Loan Broker industry; however IBISWorld believes that this does not solely suggest that the industry is in decline.

Over the past ten years, IBISWorld believes that industry gross product has expanded at a rate of 2.7% per annum, and over the five year outlook period IBISWorld forecasts that industry gross product will expand at a rate of 4.7%. This gives an indication that the period from 2003 to 2008 was a particularly poor period for the industry.

IBISWorld believes that the number of broker initiated mortgage originations has somewhat stabilized at around 75%. The use of a mortgage broker to find a borrowing customer for a

lending institution (i.e. a bank) increased substantially in the 1990s and continued into the early 2000s. However this has eased, and banks are now expected to hold around a 25% share of initial client contact originated customers (brokers will account for the remaining 75%). This is expected to lead to consolidation in the future, as loan brokers have traditionally been able to expand their business by a growing market. As this market matures further, establishments will find it difficult to grow their business (as competition increases and the use of a broker to 'originate' a loan stabilizes) and consolidation is expected to occur.

Traditional lending, particularly in consumer markets, has become increasingly competitive over the past decade. This level of competition has resulted in tremendous innovation in loan choices available to consumers, and has been particularly evident within the mortgage industry.

Industry Outlook

IBISWorld expects industry revenue to grow at an average real rate of 3.2% per annum in the five years to 2013, increasing from $15.76 billion in 2008 to $18.41 billion by 2013. The average annual real rate of growth of industry revenue is expected to pick up somewhat relative to that recorded in the five years to 2008, as the industry picks up after the two years of uncertainly and global turmoil following the subprime credit crisis. The extreme drop in revenue over the five years to 2008 was also suspected to have occurred after significant growth in mortgage originations in the three years prior to the current performance period. This was difficult to sustain in the five years to 2008, and therefore the outlook period it is expected to regain growth, coming off a 'low' base at the end of 2008 (due to subprime declines and the historic peak in 2003 mortgage originations).

Industry value added (IVA) is expected to experience an average annual growth of 4.7% in the five years to 2013, reaching $12.49 billion. Value added will follow growth trends in revenue, with an expansion in wages providing a positive impact on IVA, which will be supported through expected growth in industry employment and establishment numbers. The industry is expected to operate within a maturity lifecycle phase in the outlook period, despite the declines in revenue and value added observed in the current performance period - with product development and continued use of a broker in loan origination to support growth in the industry.

Revenue is expected to grow at a robust pace, generally believed to transpire as the real growth of debt is forecast to increase at a rather solid rate. The demand for credit is expected to be at a very low base at the beginning of the outlook period, after the subprime crisis bottoms out (expected to be in 2009). Consequently, the monetary policy will once again be at a stage with low interest rates, after the 75 basis point reduction in early 2008 and the expected 50 point reduction soon thereafter. This will have brought the federal funds rate to around 3%, which will once again spark interest in housing finance, mortgage debt, and other loan origination activities. Over the outlook period, mortgage rates are expected to remain low relative to historical standards, and to continue to stimulate home owners to refinance in order to consolidate debt and retire more expensive loans. However, this debt substitution is expected to occur at much more modest levels than those experienced in the three years to 2004, hence growth in revenue of only 3.2% average annualized over the five years to 2013. Additionally, the level of expansion by

mortgage brokers to originate home loans will not expand at such a brisk pace as previously observed, which will further mitigate growth opportunities for the industry, with the level of broker originated mortgages remaining around the 75%-80% mark.

Mortgage interest rates are expected to rise over the middle part of the outlook period which will provide a negative impact on the demand for credit. Higher mortgage rates are mainly expected to impact the industry through a decline in mortgage refinance applications and origination, however this is expected to be somewhat offset by increased consumer credit origination. The rise in mortgage rates is only expected to increase moderately over the middle part of the outlook, before declining again in the final two years. Rising interest rates are expected to lower home mortgage borrowing, and this will mostly affect the number of applications and thus reduce origination for mortgage and nonmortgage brokers.

IBISWorld expects total mortgage origination will drop by around 4.1% in 2009, however will begin to expand over the remaining four years to 2013, reaching an estimated $2.3 trillion by 2013. After the forecast decline of 4.1% in 2009, total mortgage origination is expected to increase by about 11.7% in 2010, before declining by around 2.4% in 2011. For the remaining two years, a positive economic environment and slightly declining interest rates is expected to increase total mortgage origination by around 2.4% and 9.5% per year respectively. In general, revenue growth is expected to remain strong in the five years to 2013, mainly influenced by continued growth in household debt. Revenue fluctuations is expected to follow the trends in mortgage originations, with a decline of 3% expected in 2009, and then strong growth of 7.6% and 5.5% in 2010 and 2011, before a modest slowdown of revenue growth of only 2.7% and 3.3% in 2012 and 2013 respectively, with revenue expected to reach $18.41 billion.

Industry value added is expected to expand at an average annualized rate of 4.7% per annum over the five years to 2013, reaching $12.49 billion. IBISWorld believes that profit margins will be squeezed in the face of increased competition, where IBISWorld expects an average annualized decline in profits of 1.6%. Industry profits are expected to fall to around 9.5% as a percentage of revenue, falling from the 12% expected in 2008. Value added will be primarily bolstered by growth in wages, expected to average an annualized 6.1% over the five years, to $10.65 billion. Overall, IVA will expand from 63% of revenue in 2008 to an expected 67.8% by the end of 2013.

Mortgage and nonmortgage brokers are expected to be faced with increased competition over the outlook. Competition will not only come from traditional sources, but is increasingly expected to originate outside credit intermediaries. Deregulation in the banking sector over the years has enabled non-banking, and even non-financial, corporations to enter the finance and insurance industries. Increased use of e-commerce over the outlook will be a contributing factor to increased competition, and will prove to be a low-cost distribution channel. A result of increased capacity in the loan brokerage industry downward pressure on commissions, origination fees, application fees and fees associated with the servicing of mortgages is expected to occur.

IBISWorld expects that loan brokers, in the face of increased competition, will increasingly turn to commercial and corporate clients. This is expected to transpire for two reasons. Firstly, business investments have grown significantly on the back of the domestic economic recover from the 2001 recession and the significant improvements in business profits, and secondly, business investments are expected to grow strongly over the outlook.
Small and medium sized businesses are more likely to utilize loan offices and brokers in sourcing their funds. Large corporations normally have good access to capital markets, where funds are readily available. Mortgage and nonmortgage brokers are also likely to turn increasingly to corporate clients in the face of increased competition in traditional mortgage markets. In spite of being branded as a less competitive and more lucrative market, business loans have virtually been ignored by traditional loan brokers. However, those brokers who originate equipment leases earn commissions in the range from 3% - 10%, which compares to a 4% average commission on consumer loans.

Strong growth in both revenue and profits over the late 1990s and early 2000s has resulted in ample organic growth opportunities for industry participants as well as for new entrants. Consequently, industry participants have not yet reached a merger and acquisition phase. The ratio of enterprises to establishments is expected to be around 97.7% at the end of 2008, meaning that nearly every enterprise operates with only one establishment. There is opportunity for establishments to build a strong market presence in this industry if they are to expand and become a dominant, well recognized loan broker operating throughout the US. Customers may often prefer to deal with a well recognized industry player, rather than a sole operator. This may lead to increased consolidation in the future.

Excerpts from ***Mortgage and Nonmortgage Loan Brokers in the U.S.***, IBISWORLD Industry Report, March 2008

52311 Investment Banking and Securities Dealing

This industry comprises establishments primarily engaged in underwriting, originating, and/or maintaining markets for issues of securities. Investment bankers act as principals (i.e., investors who buy or sell on their own account) in firm commitment transactions or act as agents in best effort and standby commitments. This industry also includes establishments acting as principals in buying or selling securities generally on a spread basis, such as securities dealers or stock option dealers.

The major determinants for securities dealing include the volume of transactions and level of commissions charged.

For investment banks, major determinants include the volume of transactions of financial assets dealings (i.e. security options, derivatives, and warrants), the volume of IPOs, underwritings and introduction and acceptance of new financial instrument products. Demand for underwriting services is principally influenced b the underlying strength of equities and debt markets. Issuing companies seek to raise capital when the cost of that capital is low, mainly to maximize the proceeds from an issue.

The volume of sales is influenced by the actual and anticipated prices of the securities in the equities market, which is affected by the economic activity, interest rates and company profits. Privatization and liberalization of businesses and markets can boost the base of equities and futures markets, as well as trading, the demand for venture capital and the demand for underwriting.

IBISWorld believes that the Investment Banking and Securities Dealing industry is in the mature phase of its economic lifecycle.

The industry experienced strong growth in the demand for its products and services throughout the 1990s, which followed from the rapid innovation in financial products over the same period. As financial products and services evolved, investors became increasingly sophisticated.

The industry continues to offer new services and products. The growing range of services related to wealth and asset management are an increasing source of revenue for industry players. This is expected to continue, with the ageing of the US population increasing demand for these services. The range of derivative based products offered by investment banks is increasing, and until the recent difficulties in the credit market, the range of debt products was also increasing. It is expected that innovation in the range of financial products provided to private clients and institutions will continue to increase. Improvements in technology, particularly use of the internet and advances in electronic trading and capital flows will provide new avenues for growth of services and products.

The industry is undergoing a period of consolidation as the size of firms, both in terms of assets and their geographic spread, increase. Industry revenue depends upon economic and financial market conditions. The growth in the emerging economies of China, India, Russia and Brazil, and well as opportunities in Eastern Europe and the Middle East are expected to provide an ongoing source of industry revenue growth.

Industry Outlook

This industry is expected to experience low net revenue growth over the early part of the outlook period. Low growth is forecast due to the expected continued weak GDP growth, lingering difficulties in the credit market, and the impact of more accurate pricing of risk. Low levels of economic activity and higher borrowing costs are likely to impact upon the level of activity in financial markets.

This is expected to result in slow growth in the value of underwriting, particular for initial public offerings and debt products in the US over 2009. The level of mergers and acquisitions in the US is expected to decline. Trading volumes of private clients may also fall.

With an environment of generally lower returns in the US, investment banks are expected to continue to direct resources to opportunities in more strongly performing global markets. This

will support the growth of net revenue over the period 2009-2010, when the US is expected to underperform the global economy.

In the later part of the outlook period, investment banking and securities dealers' revenue is expected to recover, although growth is expected to be somewhat slower than in the period 2004-2006. Net revenue will be lifted by solid secondary equity market activity, as well as modest activity levels in merger and acquisition activity and advice. Placements of share are often restricted to a limited number of potential investors, typically made to the larger institutions such as mutual funds. The expected growth in mutual fund assets in the five years to 2013 is expected to result in a growing demand for a variety of financial products.

Activity in the debt market is expected to begin to recover in 2009, with revenue generated by this sector returning to more normal levels in 2010.

In the later part of the outlook period, it is expected that GDP growth will improve, assisted by a low interest rate environment. Net revenue growth is expected to recover to levels prior to the impact of the sub-prime mortgage problems and fall in GDP growth. Any continued weakness in the level of US economic growth will delay the recovery of net revenue growth by this industry. Growth will range from a low of 1% at the beginning of the outlook period to high of 5.6% at the end of the outlook period.

The wealth management segments of investment banks have performed well over the current period, and are expected to continue to perform over the five year outlook period. Wealth management includes asset management and financial advisory services to private clients. The expected long term growth in this segment can be attributed to the aging and retirement of the population driving demand for these services. Fees from the growing value of assets under management are expected to providing an increasing share of net revenue for this industry.

Over the outlook period, a growing share of net revenue for this industry is expected to come from outside the US. Given current trends, it is likely that over the next five years, the US share of global market capitalization will decrease. The Hong Kong Stock Exchange has now surpassed the NYSE as the second biggest market for IPOs after London. US investment banks have benefited from some of the large initial public offerings, corporate activities and strong stock market performance in emerging markets. These markets, such as China, Russia, the Middle East and Eastern Europe are expected to continue to provide investment opportunities. It has been suggested that in five years time, up to 75% of revenue growth for this industry will come from outside the US.

Consolidation within this industry is expected to continue. Industry players who have managed to avoided major losses through exposure to sub prime mortgages have been able to increase their market share. These industry players may be in a strong position to acquire part or all of the business of firms affected by losses.

IBISWorld forecasts that industry value added (IVA) will increase from $90.7 billion in 2009, to $116.4 billion in 2013. Industry value added growth is expected to exceed revenue growth over the outlook period. The growth in value added will be represented by higher profits. This growth will come from the increasing size of corporate deals in the outlook period, attracting more fees and charges. The development of new products and securities will also attract higher margins and hence profits. With continuing technology improvements and competition between exchanges, transaction fees are expected to continue to decrease, lowering trading costs. Wages as a proportion of revenue however are expected to remain relatively constant.

Establishment numbers are projected to increase by 1.3% in the outlook period to 5,400. The small rise in numbers will be due to the slowdown in industry revenue over the early part of the outlook period. Consolidation in the industry is likely to continue in the outlook period. Employment is expected to fall in the outlook period due to slower revenue growth and weak real GDP growth, most notably in the first half of the outlook period. Consolidation activities in the outlook period may also reduce the employment pool in this industry over the next five years.

Excerpts from ***Investment Banking and Securities in the U.S.***, IBISWORLD Industry Report, March 2008

52312 Securities Brokerage

This industry comprises establishments mainly engaged in acting as agents (i.e., brokers) between buyers and sellers in buying or selling securities on a commission or transaction fee basis.

The demand for the services of securities brokerage firms is determined mainly by:

- The volume of trading undertaken by retail investors, and
- The volume of trading undertaken by institutional investors.

Discount and on-line brokerage services are used predominately by retail investors. Institutional investors such as mutual funds and hedge funds predominately use brokerage services associated with the larger financial service organizations, such as investment banks.

The volume of trading varies with:

- The level of direct and indirect share ownership. In 2002, 29% of the total US population, and 42% of the adult population held shares either directly or indirectly. The level of both direct and indirect shareholdings is estimated to be increasing.
- The performance of the stock market. Trading volumes include both the sale and purchase of shares. Trading volumes tend to be higher over periods of strong stock market performance.
- Investor confidence. Investor confidence is a proxy measure of investors' willingness to take risks, based on their assessment of the market. The demand for a securities brokerage increases when investor confidence is high. This is generally fueled by

macroeconomic factors such as real GDP growth, the level of employment and disposable income and corporate earnings. Investor confidence is expected to fall over 2008.

- The level of interest rates. The level of interest rates will affect the performance of the stock market relative to other investments. During periods of low interest rates, investors are more likely to increase their level of margin lending, and so the level of funds they have available to invest in the stock market.
- The value of holdings in mutual funds, pension funds and other vehicles which pool investor funds for investment in a variety of securities. The volume of trading undertaken by these funds depends on the value of the assets they hold and how they are managed i.e. actively managed or tracking the market. Assets in these types of funds have increased from around $8.1 trillion at the end of 2003 to $11.6 trillion by end 2008. This represents an annualized increase of 7.5%.
- The general level of economic and financial market activity. The level of institutional trading is impacted by the amount of merger and acquisition activity, arbitrage opportunities, market volatility and the demand for hedging or other activities. This in turn is related to the level of US and global economic growth.

The life cycle stage of this industry is growth. The US securities brokerage industry is showing signs of maturation. IBISWorld believes that the Securities Brokerage industry is currently in the late growth phase of its economic lifecycle. The industry has displayed significant growth throughout the 1980s and the 1990s. This has been driven in part by the increase in the range of securities traded, the increase in assets under management, and improvements in technology. The industry is expected to continue to benefit from these trends.

The industry is undergoing a period of consolidation which is expected to continue into the outlook period. The capacity of trading systems has been increasing, providing growing economies of scale and scope for the trading of financial instruments. The range of financial services provided by firms is also increasing, leading to pressure for smaller firms to further consolidate. The financial difficulty experienced by some financial firms due to the sub-prime crisis may temporarily accelerate the trend for smaller firms to be acquired by larger operators. This is expected to occur within both full-service and discount on-line brokerages.

Industry Outlook

During the five year period 2009 to 2013 the Securities Brokerage industry is forecast to have:

- Average annualized real revenue growth of 5.2%
- Average annualized real industry value added (IVA) growth of 7.8%

IBISWorld forecasts that average annualized US GDP growth over this same period will be 2.7%.

It is expected that trading volumes and value will resume a trend of strong growth over the five-year forecast period, after an expected decline in 2008. Other sources of revenue for securities

brokerage firms, such as underwriting, are also expected to improve in 2009. Revenue growth is expected to be tempered if inflationary pressures in the early part of the outlook period, and any resulting interest rate increases, impact upon the performance of the stock market.

IBISWorld believes that industry revenue will continue to grow strongly in 2010 and 2011, as the US economy accelerates. Revenue growth is then expected to decline somewhat over the remainder of the outlook period.

Other factors providing a possible boost to revenue:
There are a number of factors that could be expected to increase the level of retail shareholdings. The range of sophisticated investments and managed funds is expected to increase over the outlook period. Retail investors may be inclined to increase their investment weighting away from property investment and toward exchange traded assets and mutual funds, following a period of deflating house prices. Changes in saving patterns are also likely over the outlook period, due in part to the aging of the population and greater levels of retirement, increasing the number of retail clients investing in the market.

The upward trends in both family incomes and retirement savings, has seen the share of financial assets in households' total assets grow steadily, with direct and indirect holdings of stocks the most important factor in the rising share of financial assets. The growth has been concentrated among stocks, mutual funds, tax-deferred retirement accounts and other managed assets. These assets account for more than 70% of financial assets, which compares to less than 50% 10 years ago. The large increase in stocks and mutual funds as a share of total financial assets has increased the demand for securities brokerage services in the 10-15 years to 2007, a trend that is expected to continue over the 5-year outlook.

The value of gross transactions in foreign stocks by US investors has been increasing over several decades, and this trend is expected to continue at a growing rate. This trend is assisted by the increasing globalization of financial markets, cross-border mergers of stock exchanges, and the prospects of strong growth in the markets of developing countries. Trading in overseas stock is conducted by US brokerage firms.

The managed funds industry in the US has also been growing strongly and has contributed to revenue growth by the larger firms in the Securities Brokerage industry. This is due to the fact that institutional investors tend to favor traditional brokerage houses to undertake transactions. It is expected that the growth in managed funds will continue as investors look to diversify their investments to reduce the level of risk, and seek higher returns than from traditional fixed deposit rates.

IBISWorld forecasts that industry value added will increase at an annualized real rate of 7.8%. Value added growth is expected to be above revenue growth over the outlook period. Strong IVA growth is expected to be driven by increasing profits. On-line brokers are expected to increase their profits over the outlook period as the trend for consolidation continues. Further consolidation will allow on-line brokers to reduce their costs, as they trade higher volumes with

little additional expenses due the scalability of trading platforms. As the industry consolidates, it is possible that the competition responsible for the lowering of commission over the last two decades will decrease. This may enable on-line brokers to stabilize commission levels over the outlook period.

Retail trading is sensitive to the performance of the stock market. In the past, it has taken retail activity twice as long to recover, on average, than the overall market itself. This suggests that the volume of retail trading may take time to recover from the fall in the stock market, which began in October 2007.
Smaller full-service brokers are expected to continue to expand the range of financial services provided, including investment advice and portfolio management. Fees can be charged on the value of the client's assets, rather than a commission on trading undertaken. Any move to increasingly replace commissions with fees is likely to improve profitability.

Establishment numbers are projected to increase by a mere 0.2% in the outlook period. The small rise in forecast establishment numbers is due to the expected continuing consolidation in the industry, as smaller players who are not competitive are taken over by major players in this industry. This trend may be assisted by some firms experiencing difficulties due to sub-prime related exposure. The growth in on-line trading is expected to continue, reducing the need for establishments to meet the demand of some retail investors.

Employment will increase only marginally by 0.8%. The growth in employment will be spurred on by advisory rather than transaction services. A large share of wage expenses, particularly for larger brokerage firms, is not related to broker-dealer compensation, but administrative staff. It is expected that there will be further use of information technology to replace some of the administrative tasks related to clearing and settlement of trades.

Excerpts from ***Securities Brokerage in the U.S.***, IBISWORLD Industry Report, March 2008

52392 Portfolio Management

This industry comprises establishments primarily engaged in managing the portfolio assets (i.e., funds) of others on a fee or commission basis. Establishments in this industry have the authority to make investment decisions, and they derive fees based on the size and/or overall performance of the portfolio. Industry participants manage the money invested in various funds. Normally, portfolio managers are hired by the directors of the fund (organized as a business, trust, or similar structures). Portfolio managers are given authority over the investment decision, implying that they invest the money in the fund. However, the investment decision has to be in accordance with the fund prospectus. The prospectus will identify whether the fund is a diversified fund, income fund, growth fund, etc.

The demand for Portfolio Management has largely been driven by the demand for funds management. Strong demand for pension and health and welfare funds has pushed revenue higher for this industry. The increasingly important role played by pension funds in recent years is a direct result of the attitudinal changes in securities investment by retail investors.

Volatility in debt and equity markets impacts on the flow of funds into managed investments. Falling share prices normally results in a redirection and, more often than not, leads to actual declines in the flow of funds into mutual funds. Volatility in fixed income markets often has the same effect on the flow of funds. Movements in interest rates will impact the flow of funds into investment portfolios, the total of funds under management and the level of activity of portfolio managers. Improved performance of alternative, non-financial investment vehicles, such as real estate and other tangible assets, often results in a contraction in the flow of funds into managed investments.
The demand for portfolio management services is also determined by the historical performance of portfolio managers. Historical returns are no indication or guarantee for future returns, but they do impact on the reputation and, subsequently on the flow of funds received for investment purposes.

Assets under management is largely influenced by the level and growth in economic activity. In recessional periods the flow of funds into mutual funds and defined contribution funds tend to slow. In economic downturns unemployment tends to increase, which puts a strain on household disposable income. Lower disposable income results in less income available for saving and investment.

Generally, the factors that will affect demand in this industry are:

- Economic activity and household incomes. This influences the level of household income available for investment, which will affect the demand for portfolio management, especially on retail investors.
- Investors who seek to reduce their level of exposure and risk will likely seek financial advice and thus create demand for such services.
- The complexity and range of investment markets and products make managed funds and easier alternative for investors to allocate their assets. The different asset classes are stocks, bonds, real-estate and commodities. The exercise of allocating funds among these assets (and among individual securities within each asset class) is what investment management firms are paid for. Asset classes exhibit different market dynamics, and different interaction effects; thus, the allocation of monies among asset classes will have a significant effect on the performance of the fund and demand.
- The introduction and the range of services and investment products available to clients, such as margin lending, equity warrants, derivatives, financial planning, etc has also increased the demand for portfolio management.
- The attractiveness of the equities market compares to alternative forms of investment, in particularly investments in real assets, such as property, business investment, art, etc, will affect the demand of this industry's services. The relative return on financial assets compared to alternative investments, such as real property investments, business investments and investments in other real assets, affects the demand for funds management. The comparable real return is largely influenced by inflation levels.

Portfolio management has three goals to satisfy. It aims to maximize the value of the portfolio, provide balance, and support the strategy of the enterprise.

The life cycle stage of this industry is growth. IBISWorld believes that the industry is in its growth phase of its economic lifecycle. The industry has grown at a rate faster than that of the overall economy in the five years to 2007 (at 2006 constant) and is expected to continue this trend in 2008. Overall, industry value added is expected to grow by 8.9% in the five years to 2008. After recording a small decline in value added in 2002, value added has been increasing at a robust phase, and is expected to continue in 2008. The strong growth rates have emerged as the community awareness of managed funds has increased. IBISWorld believes that the industry was not adversely affected by the sub-prime crisis in the US in 2007. The primary reason is due to the fact that investment in managed funds is seen as a way to mitigate risk. In a market where volatility is high, many investors turn to managed funds rather than direct investment to reduce risk. This however is partially offset by a reduction in performance fee as managers find it harder to achieve returns above benchmark rates.

The growth in both the US and global financial markets as a result of robust real (global) GDP growth, strong increase corporate profits and disposable income have created the demand for investments. Many individuals are now more educated and seek alternative ways to increase their financial wealth through financial instruments (rather than traditional fixed deposits). There have also been a number of new products introduced on the market to suit different needs of individuals. This has also broadened the different types of managed funds available to investors and contributes to the growth lifecycle of this industry. In turn, this has created the demand for fund managers to manage the different financial products available depending on an investor's risk preference.

There has been a rapid advancement in technology, such as investors are able to access and do basic administration and transactions on-line. The shift in investments towards the use of telecommunication services, information technologies and electronic distribution technologies is expected to continue. Asset managers use portfolio management solutions to invest a fund's assets, implement its investment strategy, and manage day-to-day trading.

Industry Outlook

During the end 2008 to 2013 period, industry revenue is expected to rise from $132,639.3 million at end of 2008 to $167,558 million. This represents an annualized increase in revenue of 4.8%; above the US real GDP growth rate forecast over the same period. The growth in industry revenue is predicted based on modest economic and financial market conditions expected in the US in the outlook period. Revenue is predicted based on:

- Modest real GDP growth in the US offset by a robust world economy;
- The need to mitigate risk especially in the first half of the outlook period;
- Volatility in the equities market will make managed funds a preferred choice for investors;
- Continuous growth in funds under management; offset partially by

- The affects of sub-prime on the financial markets.

The world economy is expected to continue to grow robustly in 2008 and 2009, with a modest deceleration from the rapid pace of 2006 bringing growth more in line with potential and helping to contain inflationary pressures in the remaining years of the current expansion. The slowdown in year-over-year growth in 2008 would be most pronounced in the US, although the economy should gather momentum in the course of the year and into 2009 as the drag from the housing sector moderates. IBISWorld believes that real GDP growth in the US will be at around 2 to 2.5% in 2008-09.
The volatility in the financial markets witnessed in 2007 will likely lead to stronger demand for managed funds/portfolio management. High and reasonably consistent investment returns has resulted in a growing awareness of the advantages of fund management products over more traditional savings vehicles. The main advantage associated with the Portfolio Management industry is diversification. Managed funds allow even small investments exposure to a range of asset classes, providing investment opportunities that would be unavailable to individuals. Diversification is also not limited to asset class, but across different fund managers and markets. Furthermore, returns are usually steady without the need to constantly monitor market developments.

The investor demand for stock funds is expected to remain strong due to continued sound economic activity and growth both in the domestic and global economies over the outlook. Stable or slightly lower interest rates and the cumulative effects of several years of tax cuts is expected to continue to maintain economic growth. Rising corporate profits along with the growing strength of the economy (albeit at moderate rates) is expected to further boost stock prices worldwide. Assets held in stock funds are expected to fall in the first half of 2008 before recovering in the second half. IBISWorld estimates that assets held in stock funds will grow at around 7% over the outlook period.

Growth in bond fund assets are expected to remain solid in the five years to 2012. Official interest rates are approaching a more neutral level, implying that the most recent tightening cycle may be nearing the end. Stabilization and possible modest declines in interest rates is expected to impact bond prices over the outlook. As interest rates stabilize, net inflows to bond funds are expected to improve. Assets of bond funds are expected to grow at an average real rate of 6.9% per annum over the outlook period.

Hybrid funds are, like bond funds, primarily driven by interest rates. However, the convertibility feature of hybrid funds results in an exposure to the performance of equity markets, which impacted the growth of assets held in hybrid funds in the five years to 2007. Stable, relatively low interest rates and continued growth in equity prices over the outlook is expected to provide a good back-drop for continued growth in the value of hybrid funds, expected to average about 7.1% per annum over the outlook period.

The percentage of retirement assets invested in mutual funds is expected to grow throughout the outlook, from its current one-third to about 40% in 2013. This development will underpin the

robust growth in mutual fund assets and industry revenue due to the popularity and strong asset growth of defined contribution retirement plans.

Institutional, regulatory and market changes throughout the 1990s has altered the context in which families plan their finances. The expanded offerings of tax-deferred retirement accounts combined with increasing community awareness about the need to provide for own retirement, has seen consistent growth in savings for retirement-related reasons. The upward trends in both family incomes and retirement savings, has seen the share of financial assets in households' total assets grow steadily, with direct and indirect holdings of stocks the most important factor in the rising share of financial assets. The growth has been concentrated among stocks, mutual funds, tax-deferred retirement accounts and other managed assets. These assets account for more than 70% of financial assets, which compares to less than 50% 10 years ago. The large increase in stocks and mutual funds as a share of total financial assets has increased the demand for portfolio management services in the 10-15 years to 2008, a trend that is expected to continue over the 5-year outlook.

The housing market downturn has been deeper than projected and residential investment was a substantial drag on US GDP in the second half of 2006. In the first quarter of 2007, there were some tentative signs of stabilization at least on the demand side, as sales of existing homes, mortgage applications, and potential homebuyer intentions have generally steadied or improved. However, the housing correction still has a way to run. Housing starts and permits are still heading downward, while inventories of unsold new homes are at their highest levels in 15 years. The key question is whether the continuing difficulties in the housing sector will begin to have a broader impact on the U.S. economy. House prices have continued to decelerate nationally, with outright price declines in many metropolitan areas. Nonetheless, household finances still look solid. Equity gains over the past year have brought household net worth back up to previous peaks.

In the period from late 2006 through the first half of 2007, more than 20 sub-prime lenders have closed. Other financial intermediaries with exposure to this market have also been affected, most notably the investment banks that have extended lines of credit to sub-prime mortgage lenders, have their own sub-prime lending subsidiaries or hold an investment position in related securities. While low variable interest rates encouraged the initial rise in sub-prime lending, the surge in the share of the sub-prime mortgages in 2006 appears primarily to have reflected a loosening of credit standards to maintain loan volumes as demand from prime borrowers slowed.

There are varying views as to the potential effect of these developments on the broader US economy. Three main risks have been identified: a generalized tightening in credit standards leading to a credit crunch; an overly aggressive regulatory response by state and federal agencies which could also cause a decrease in credit provision; and a deepening of the ongoing contraction in residential construction and stagnation in house prices. The problems appear to be confined to the sub-prime market with little evidence of spill-over to other areas. Moreover, a number of institutions are coming forward to buy the sub-prime loan books of some of the troubled lenders at a discount, regarding it as a reasonable buying opportunity.

IBISWorld forecasts that industry value added will increase from $64,993.3 million to $81,768.3 million. This represents an annualized increase of 4.7%. Value added growth is expected to be slightly below revenue growth over the outlook period. It will be fueled by a small rise in profits. Depreciation will likely to be stable whereas wages as a proportion of revenue will continue to decline. Profit growth will be lower than the current performance period as fees (performance, commission, etc.) are expected to fall. Portfolio managers will find it more difficult to achieve higher returns due to volatility in the financial marketplace.

Establishments over the outlook period are expected to increase by 0.4%. Establishment growth is expected to be lower than the current performance period due to a reduction in revenue as new participants seek other industries that are more attractive. High competition in this industry will also limit growth in new establishments.

With the increase in establishments, employment over the outlook period is also expected to increase by 0.5% to 206,269. Employment growth will be driven by increasing levels of investment in securities and commodities in the global marketplace, as well as the growing need for diversification and investment advice. Advances in telecommunications and computer technology will continue to shape the industry as companies look for faster and more secure ways to perform tasks. Computer programmers and information systems managers will continue to have important roles in this industry as trading and the recordkeeping that supports trading become more automated, while the jobs of brokerage clerks will become less clerical and have more high-level tasks. This may reduce the reliance on labor, especially for administrative tasks. As a result, revenue per employee is expected to increase from $659,800 to $812,300 in 2013. Wages too are expected to increase by 1.3% on an annualized basis over the outlook period.

Excerpts from ***Portfolio Management in the U.S.***, IBISWORLD Industry Report, February 2008

52393 Investment Advice

This industry comprises establishments primarily engaged in providing customized investment advice to clients on a fee basis, but do not have the authority to execute trades. Primary activities performed by establishments in this industry are providing financial planning advice and investment counseling to meet the goals and needs of specific clients. Establishments providing investment advice in conjunction with their primary activity, such as portfolio management, or the sale of stocks, bonds, annuities, and real estate, are classified according to their primary activity.

Demand for this industry is based upon this industry:

The demand for investment advice can fall into two categories: (1) offering advice directly to individuals or businesses; and (2) offering asset management advice to corporate clients, hedge funds and/or mutual funds and in some cases towards retail investors. Advice can be charged as a fee basis based on the value of the assets under management or an annual basis at a flat fee.

- Economic activity and household incomes. This influences the level of household income available for investment, which will affect the level of demand for investment advice. On the institutional side, higher levels of mergers and acquisitions and initial public offerings activities will lead to demand for investment advisory services. Fees charged in this segment are high, even-through transaction volumes are low compared to retail segment.
- The complexity and range of investment markets and products, which will affect the demand for specialized investment advisory services.
- Banks and fund managers perceive financial planning as a valuable distribution channel for their products.
- The aging population will also influence the demand for investment advice, as people reach retirement age, there is a need to seek financial advice.
- Consumer awareness also has an effect on the demand for investment advice. As people become more aware of the need to plan their finances to achieve their financial goals, the need arises for the services of investment advisers.
- Investment advice has increasingly become synonymous with financial planning, indicating that a growing number of individual investors have a detailed financial plan. These plans are often comprehensive and complicated to put together, and are rarely undertaken by individuals without the expertise of advisers. Consequently, the knowledge of financial advisors over and above that of individual investors constitutes an important demand determinant.

The growth industry for this industry is growth:

- IBISWorld believes that the Investment Advice industry is in its growth phase of its economic lifecycle. The industry has grown at a rate faster than that of the overall economy in the five years to 2008 (at 2006 constant) and is expected to continue into 2009. Industry value added is expected to grow at an annualized rate of 14.5% over the current performance period. After recording a small decline in value added in 2001, value added has been increasing at a robust phase, but is expected to slowdown slightly in the latter half as a result of the 'credit crunch' in the US. This will be offset by moderate revenue growth over the same period, largely pushed by increased use of financial advice in association with retirees.
- The Economic Growth and Tax Reconciliation Act (EGTRA) of 2001 has encouraged more investments for retirement, investments, and college funds. The latter type of investment plan has experienced significant growth in the five years to 2007. Flows into other investment plans have varied considerably over the same period. This has made it difficult to measure any effects from EGTRA. However, recent improvements in financial markets have resulted in a significant boost to flows into investment funds.
- The complexity of retirement savings, tax and social security issues has led more and more people to seek financial and investment advice. This has led to a large increase in demand for this industry's services for the past few years.
- There have been a consistent number of players entering the industry, especially small players. This industry is dominated by large corporations such as Merrill Lynch and

TIAA-CREF. There is still room in the niche areas for players that offer services to the smaller investors. Based on the latest data available, firms of between one and five employees who perform investment advisory function increased slightly between 2006 and 2007 (by 0.2%), but the percentage of firms employing more than 500 persons also rose by 0.08%.

- Rapid changes in technology by offering extra services and products such as accessing to client accounts on 24-hour basis, research reports online, real time data on managed funds prices and share prices through the Internet are part of the company's strategy to remain competitive.
- The growth in both the US and global financial markets as a result of robust real (global) GDP growth, strong increase corporate profits and disposable income have created the demand for investments. Many individuals are now more educated and seek alternative ways to increase their financial wealth through financial instruments (rather than traditional fixed deposits). The availability of a diverse range of financial instruments and investment mechanisms available in both the domestic and overseas markets have created the demand for investment advice.

Industry Outlook

During the end 2008 to 2013 period, industry revenue is expected to rise from $32,338.8 million at end of 2008 to $40,746.6 million. This represents an annualized increase in revenue of 4.7%; above the US real GDP growth rate forecast over the same period. The growth in revenue is predicted based on:

- Moderate real GDP growth in the US offset slightly by a robust world economy;
- The need to mitigate risk especially in the first half of the outlook period;
- Further increases in assets under management especially discretionary assets;
- Shift towards more advisor oriented products; offset by
- The affects of sub-prime on the financial markets.

The world economy is expected to continue to grow robustly in 2008 and 2009, with a modest deceleration from the rapid pace of 2006 bringing growth more in line with potential and helping to contain inflationary pressures in the remaining years of the current expansion. The slowdown in year-over-year growth in 2008 would be most pronounced in the US, although the economy should gather momentum in the course of the year and into 2009 as the drag from the housing sector moderates. IBISWorld believes that real GDP growth in the US will be at around 2 to 2.5% in 2008-09.

Fears of a US recession especially in 2008 will have a negative bearing in the financial markets as write-down of assets by major financial institution continues. However, IBISWorld predicts that while the overall demand for investment advice will fall, the volatility and uncertainty in markets can maintain a certain level of demand for this industry. Many investors view diversification as a means to reduce the level of risk. Investment into alternative assets such as commodities and currencies will warrant the need for investment advisers as individual investors do not have a direct access to these markets. Similarly, investors that wish to venture into

overseas markets and/or utilize specialized financial instruments such as options, warrants and forwards will need to seek advice from specialists prior to execution. This segment of the market will especially be relevant for high net worth individuals and large corporations. It is worthwhile to note that assets managed by hedge fund adviser specialists continued to grow from $1.67 trillion in 2006 to $2.18 trillion in 2007 (during the period when sub-prime issues emerged).

Institutional, regulatory and market changes throughout the 1990s has altered the context in which families plan their finances. The expanded offerings of tax-deferred retirement accounts combined with increasing community awareness about the need to provide for own retirement, has seen consistent growth in savings for retirement-related reasons. The upward trends in both family incomes and retirement savings, has seen the share of financial assets in households' total assets grow steadily, with direct and indirect holdings of stocks the most important factor in the rising share of financial assets. The growth has been concentrated among stocks, mutual funds, tax-deferred retirement accounts and other managed assets. These assets account for more than 70% of financial assets, which compares to less than 50% 10 years ago. The large rise in stocks and mutual funds as a share of total financial assets has increased the demand for portfolio management services in the 10-15 years to 2008, a trend that is expected to continue at moderate rates over the 5-year outlook. It is important to note that many of the advisory fees associated with a managed fund are factored into the administrative and performance charges associated with the funds under management. IBISWorld believes that assets under management held by SEC registered investment advisers will increase at an annualized rate of 4.3% in the outlook period to $49.6 trillion.

Over the past two years, the market has seen a shift in investment products and this will likely continue in the outlook period. Products expected to see the most dramatic increase in market share as indicated by Cogent Research include exchange traded funds (ETFs). These are typically open-ended investment companies that can be traded at any time throughout the course of the day. They try to duplicate a portfolio, index or a market sector and have proliferated in 2006 from under one hundred in number to almost four hundred by the end of the year. The benefits are such that it allows for a diversified, low cost, low turnover index investment and would appeal to both institutional and retail investors for long term holding and for selling short and hedging strategies.

The sub-prime crisis in the US will have a material affect for the Investment Advice industry. Uncertainty about the US economy and below expectation performances from major corporations will make retail investors become more risk-adverse and reduce the demand for advice. Write-downs of assets especially from collateralized debt obligations and the shortage of liquidity in the financial markets have made investors turn bearish. This in turn has the potential to hurt other areas of the economy, reducing employment and corporate profits, which are key factors for investor confidence. Advisors in the US believe that Japan, Hong Kong and Singapore are the top up and coming developed international markets, whereas China and India are cited as the emerging markets that will perform the best in the immediate outlook period.

On the upside, in China investment could be even higher than projected, in part reflecting abundant banking system liquidity. More broadly in emerging markets, a return to calmer global financial conditions could presage a resurgence of portfolio inflows, which could foster easy monetary conditions, a rebound in asset prices, and a further strengthening of domestic demand. The intervention by overseas investors to help provide liquidity to US banks (e.g. Singapore Investment Corporation and Kuwait Investment Authority to Citigroup in January 2008) in the wake of the 'credit crunch' indicates that many countries (especially in Asia) are still financially sound and could potentially bring back investor confidence at a faster rate than expected.
Revenue is expected to grow at declining rates to 2010. Due to volatility and uncertainty in the financial markets, many investors will stay away from the markets. However, there will still be revenue growth in the industry due to the availability of new products in the market place and high net worth clients. IBISWorld believes that industry revenue growth rates will range between 2.4% and 6.8% over the outlook period. The industry is correlated to real GDP growth which affects company profits and consumer sentiment, in turn investor confidence.

IBISWorld forecasts that industry value added will increase from $18,433.1 million to $23,470.1 million. This represents an annualized increase of 5%. Value added growth is expected to be slightly below revenue growth over the outlook period. It will be fueled by a small rise in profits. Depreciation will likely to be stable whereas wages as a proportion of revenue will continue to decline. Profit growth will be lower than the current performance period as fees (performance, commission, etc.) are expected to fall. Investment advisors will find it more difficult to achieve higher returns for their clientele due to volatility in the financial marketplace. Wages as a proportion of revenue also likely fall in the outlook period.

Establishments over the outlook period are expected to increase by 1.5%. Establishment growth is expected to be lower than the current performance period due to a reduction in revenue as new participants seek other industries that are more attractive. High competition in this industry will also limit growth in new establishments. IBISWorld believes that the proportion of larger corporations will increase in the outlook period, fueling consolidation in the industry.

Employment too will increase only marginally by 2.2%. The growth in employment will be spurred on by advisory rather than transaction services. It is important to note that not all investors have the same investment goals. On the basis of each customer's objectives, securities and commodities sales agents furnish information about the advantages and disadvantages of an investment. They also supply the latest price quotes on any securities, as well as information on the activities and financial positions of the corporations issuing the securities. In addition, as the type of securities traded increase, such as bonds and over-the-counter stocks, individual brokers are required to perform the trade. As the financial services industry continues to deregulate, the distinctions among sales agents are becoming less clear as securities firms, banks, and insurance companies venture further into each other's products and services. The agents' jobs also are becoming more important as competition between the firms intensifies. Wages too will increase accordingly, at a rate of 3.6% per annum on an annualized basis.

Excerpts from ***Investment Advice in the U.S.***, IBISWORLD Industry Report, February 2008

52411 Direct Life, Health, and Medical Insurance Carriers

This industry comprises establishments primarily engaged in initially underwriting (i.e., assuming the risk and assigning premiums) annuities and life insurance policies, disability income insurance policies, accidental death and dismemberment insurance policies, and health and medical insurance policies.

Life insurers have, for the last one and a half decades, increasingly shifted their focus away from traditional death benefit products into the pension market. An increasing community awareness of the need to contribute to own retirement has increased the popularity of annuities, separate accounts and other deposit-type products. Life insurers' investment performance, relative to that of substitute savings products, has emerged as a key demand determinant following this shift. The demand for life insurer's products is also largely determined by the overall level of household savings, which is influenced by the level of general economic activity, growth in real wages, employment growth and after tax investment returns. This also leaves demand for life insurance products subject to federal and state taxation policies, both the general taxation of wages and the taxation of deposit-type products. Currently, savings for retirement is enjoying a tax-deferral status, which acts as to raise the demand for pension products.

Major demand determinants for health and medical insurance products are costs of health care, the price of health insurance and the age distribution of the population. The United States has been subject to a major demographic change in recent years in that its population is ageing. The "baby boomers" have now started to enter retirement age.

The demand for health care services is largest among people aged 65 and over, so the effect of an ageing population has been raising health care expenditures. With an increased privatization of health services, the bill has largely been passed on to consumers. Higher health care expenditure has increased the demand for health and medical insurance. The age group 65 years and older are also more likely to have health insurance - 99.3 percent of the age group 65 and older had health cover compared to 72.7 percent for people 18 to 24 years old.

The life cycle stage of this industry is mature:

- Increased consolidation with many of the major players, in particular, MetLife and Prudential making a number of smaller sized acquisitions during the outlook period. MetLife also acquired Travelers in 2005 for $11.8 billion, which has been one of the larger transactions in recent years. Further consolidation is expected; however, concentration is likely to remain at a low level, which will be characterized by the top four industry participants accounting for less than 40% of industry revenue. Presently they account for around 15%. It should also be noted that enterprise numbers have remained fairly consistent in the eight years to 2007, largely ranging between 1,900 and 2,000. This suggests that despite some consolidation, some smaller players may have entered the market.

- Direct life, health and medical insurance products have reached a high level of acceptance in the US market, and is nearing saturation, with more than 85% of the American population covered by health insurance. The capacity for further gains becomes increasingly difficult.
- In the five years ending 2007, IBISWorld expect industry value added to increase by an annualized real rate of 1.7% per annum compared to real GDP growth of 2.8% per annum. The respective growth rates imply that the industry is not keeping pace with the overall economy, which is indicative of a mature market.
- Many of the new products are variations of existing products and changes and innovation have largely been cosmetic in nature. There has not been a new product in recent years that has led to a significant up-take of policies and demand.

Industry Outlook

IBISWorld forecast revenue in the Direct Life, Health and Medical Insurance Carriers industry to increase by 2.3% per annum to $1.08 trillion by 2012. Revenue growth will be driven by an increase in premium revenue, changes in demographics and increased net investment income, though the latter is subject to market fluctuations and hence can be volatile and de-stabling to industry revenue. IBISWorld forecast industry assets to exhibit growth of 6% per annum, to $6.75 trillion by 2012.

In 2008, IBISWorld anticipate that revenue growth will slow to 2.8%, though there remains further downside risk to this forecast given that domestic economic conditions are weakening and the full effect of sub-prime is still unknown. More specifically, some industry participants could be affected either directly or indirectly through their investment holdings.

The fallout from sub-prime relates to mortgages that were taken out by individuals and households that typically found it difficult to acquire finance. The loans were priced at introductory rates, but would reset to higher rates after the end of the introductory period. This is where the problem lies, as defaults have increased as the "honeymoon" rates have begun to reset. Given that credit checks on many of these loan applicants were not as stringent as they should have been it is not a surprise that loan delinquencies have increased substantially putting further strain on an already weak housing market.

Housing inventories continue to build while prices continue to fall. Construction and the wealth effect associated with rising house prices is critical to the domestic economy and by all measures, weakness will remain pronounced throughout much of 2008 despite the Federal Reserve continuing to cut interest rates. A number of commentators including Alan Greenspan suggest that the US is teetering on the brink of a recession, which is defined as two consecutive quarters of falling GDP.

Furthermore, many of the sub-prime loans were repackaged and passed off to various investors as investment grade, when it was in fact not. Given that the securitized loans have been repackaged, the values of these loans have been determined by financial models and not by market forces/prices. In effect, the mark-to-model as opposed to mark-to-market has resulted in

over-valued assets on many balance sheets and part of the crisis in financial markets relates to write-downs on these assets that have collectively passed $100 billion, with the ultimate total likely to be much higher.

Though it is difficult to quantify, it is likely that this industry will suffer some loss from sub-prime loans given the high share of assets in corporate and foreign bonds. While the conservative nature of this industry class suggests that losses will be limited, there is the prospect that not only will investment returns be weaker in 2008 and 2009, putting downward pressure on industry revenue, but any asset write-downs will affect industry profitability.

Analysis of the industries asset holdings shows that collectively corporate and foreign bonds and equities account for around 70% of total industry assets, while life insurance mortgage assets totaled $316.3 billion as at 30 September, 2007. State regulations stipulate that insurance companies must diversify their assets in order to meet policyholder obligations and there is no question that as a whole this requirement has been met, which is fortunate given that it would preclude many insurance companies from suffering the losses that have been incurred by many of the large investment banks.

As mentioned the full effect of sub-prime cannot be ascertained as yet because the crisis has not ended, as more sub-prime loans are set to have their rates reset at the higher price, which could increase delinquencies even further. The Government is attempting to heed off this challenge through initiatives that will freeze loan rates for a longer period; however, most of the damage has already been done.

In 2005, around 84% (latest available information) of the US population had some form of health or medical cover, which was relatively in line with the 84.7% of the population that had cover in 1995. Health and medical coverage is expected to keep rising as the population continues to age and to move slowly towards 90% of the total population. There is a positive correlation between insurance coverage and the level of insurance to a person's age, which points to demographics being a key industry growth driver during the outlook period.

Non-employment based coverage as a percent of total coverage is expected to fall, however, as an increasing part of the population is expected to have employment-based coverage (which is referred to in NAICS 52512 - Health and Welfare Funds) following further strength in the labor market. In 2005, 79.5% of the population with health cover received employment-based cover, which compares to 72.2% in 1995 and 70.1% in 1990, while 85% of employees had access to employer-sponsored health cover

Furthermore, an increasing share of the population is taking out plans with Health Maintenance Organizations (which is referred to in NAICS 62149 - Other Individual and Family Services). The impact of these trends is to reduce direct health and medical cover reducing the share of Direct Health and Medical Insurance Carriers' share of industry revenue, leaving direct life insurance carriers as the major market segment.

A further driver of growth for industry revenue will be growth in premium rates, with health insurance premiums the major contributor. In the 1970s and 1980s, lengthy periods of double digit premium increases was the norm, and although there are no signs that these growth rates have returned, the growth rate of health insurance premiums have increased in recent years and this trend is expected to continue over the outlook period.

There are several factors that are fuelling, and will continue to fuel, health insurance premiums, but the main reason for premium increases is the growing cost of health care itself. The cost of certain categories of benefits is rising dramatically. Prescription drug costs have grown more rapidly than all other major categories of health spending over the past few years. Driven by both increased prices and increased use, drug spending has been projected, by the Insurance Information Institute, to grow at an annual average rate of 11% to 2010. Hospital and physician costs, while not growing as rapidly as pharmaceuticals, comprise the largest share of the nation's health spending and continue to outpace inflation.

The explosive pace of technology advancement implies that medical science is able to offer care for conditions considered to be untreatable just a few years ago. While these are positive breakthroughs, they constitute additional growth to health spending. This will be exacerbated by rapidly changing demographics, as the nation ages and the baby boomers reach their retirement years.

The extent of contingent commission is thought to be quite common and has resulted in a growing demand for answers by the nation's 50 state-level insurance regulators. This conflict of interest has been known to regulators for years, but they have failed to probe industry practices seriously. The inability of state regulators to oversee the insurance industry, which is dominated by some of the biggest companies in the US, adds to a strong case for Congress to create a federal regulator to monitor the industry nationwide. Although contingent commission practices have been widely abolished in the past year, IBISWorld expects that pressures for a single regulatory body will grow over the outlook period.

Excerpts from ***Direct Life, Health, and Medical Insurance Carriers in the U.S.***, IBISWORLD Industry Report, February 2008

52412 Direct Insurance (except Life, Health, and Medical) Carriers

This industry comprises establishments primarily engaged in initially underwriting (i.e., assuming the risk and assigning premiums) various types of insurance policies (except life, disability income, accidental death and dismemberment, and health and medical insurance policies). Industry participants generally assume risks associated with the loss of or damage to the property of individuals, corporations, and other institutional clients for an annual fee or premium. Also included in this industry are insurance carriers assuming casualty risks, except life, disability, and accidental death and dismemberment insurance. Industry participants also assume risks associated with mortgages, other real estate-related risks, such as title insurance, and other warranty risks.

Demand is sensitive to the level of overall economic activity. Economic growth affects the demand for insurance through a general increase in aggregate demand. However, increased employment and associated growth in real incomes, flows through to the insurance industry in the form of higher spending on policies. Increased economic activity has a positive effect on household wealth. The demand for insurance tends to grow with wealth, as the cost of loss or damage to property rises with the value of this property. In general, during times of strong economic growth, customers increase their outlays on insurance, and asset growth (and inflation) will act to increase overall coverage.
Long-term demand is affected by technological developments, legal, social and environmental developments. These factors affect the level of actual or perceived insurable risks, as well as the rate of insurance claims.

The growth stage of this industry is mature. This is due to a large number of businesses within the industry which creates an oversupply of direct insurance products, the market is very competitive, and there has been little product innovation over the years.

Industry Outlook

IBISWorld forecast revenue in the Direct Insurance Carriers industry to increase by 16.9% between 2008 and 2012, to $609.35 billion, which will represent an annualized increase of 3.2% per annum. Revenue volatility is expected to reduce, as the industry continues to build its surplus in line with a more conservative framework and continued underwriting gains during the outlook period.

Presently the industry is exhibiting softer conditions highlighted by weak premium growth across most of the market; however, IBISWorld anticipates that the next cycle will commence by around 2010 and continue through to 2016-17.

Over the outlook period ending 2012 IBISWorld expects the following trends to become/remain pertinent to the Direct Insurance Carriers industry:

- Softening conditions set to continue in the short to medium term as domestic economic conditions weaken (2008 to 2009/10) and over-capacity alleviates premium pricing pressure;
- This will be followed by harder market conditions post 2010 as insurance coverage becomes increasingly restrictive leading to a cyclical upswing in premium pricing once excess capacity dissipates;
- Underwriting gains set to continue notwithstanding any mega-catastrophes that may occur similar to 2005;
- Increased M&A activity, with major players seeking to build scale and increase their industry share in a mature market;
- Substantial short-term weakness in title insurance in line with a weak housing market;
- Profits will moderate at a higher level compared to the previous five year period given the shift from underwriting losses to underwriting gains;

- Top-line revenue growth will be limited given that insurer's will seek to maintain credit ratings by holding a higher level of capital, thereby limiting their ability to write new business following amendments to models post 2005 that have lowered the risk-profile of direct insurers;
- Operating costs will rise in the short-term, as favorable combined ratios "hide" operating cost increases by recording overall increased underwriting gains. Higher operating costs will come into focus following an industry trigger such as an above-average year of catastrophic losses that will distort the trend of underwriting gains causing renewed vigor amongst management to trim excess operating costs.
- Management will continue to utilize technology, principally the internet to lower labor intensity and drive productivity and efficiency gains. Labor personnel per establishment will trend lower during the outlook period; and
- IBISWorld anticipates that there will be changes to industry regulations within the next five years, which may include national regulation and a focus on reinsurance.

During the five year period ending 2012, IBISWorld estimates that overall industry profitability will improve relative to the previous five-year period. Clearly this assumes that catastrophic losses will remain around their ten-year average, though there is sufficient capacity to support an increase in the aforementioned average and still outperform the previous five year period. The key reason for improved industry profitability will be continued gains made from underwriting, which is a relatively new trend following the poor investment gains made in the immediate years after 2001.

With the industry seeking to limit their reliance on net investment gains, underwriting gains become increasingly important and IBISWorld anticipates overall gains to be made during the next five years despite the possibility of substantial catastrophic losses destabilizing this new trend.

Other key areas that will drive profitability include:

- Subrogation, which refers to insurance companies seeking a reimbursement from a third party for a claim that has been paid. Insurance companies will continue to focus on minimizing overall losses by claiming costs wherever possible; and
- Utilizing the internet as a key product distribution portal. In 2005, 30% of consumers shopped for insurance policies online and with internet penetration continuing to increase, the internet opportunity is and will help to lower the cost of sales by reducing commission costs and lowering labor intensity.

One key variable that affects this industry is the number and severity of catastrophes in the US. These may range from hurricanes, floods and fires to man-made disasters such as terrorism. There is no way to accurately forecast catastrophes though there are a number of things to consider when looking forward.

Firstly, over the ten years ending 2006, catastrophic losses have averaged almost $17 billion per annum. It should be noted that during these ten years, only three years exceeded this average

and the overall average was highly skewed by $61.9 billion in losses during 2005, which was the highest amount of catastrophic losses ever incurred by the insurance industry in the US.

A report by the Brookings Institute in March 2006 noted that despite the record losses incurred in 2005, a similar catastrophe in another part of the US could create even greater loss to property. Some key examples include category 5 hurricanes in Houston ($40 billion loss in 2005 constant dollars), Tampa ($65 billion loss), Miami ($155 billion loss) and New York ($96 billion loss).

A 7+ earthquake in Los Angeles would result in a $140 billion loss whilst an 8+ earthquake in San Francisco would result in a $200 billion loss. While most of these may never eventuate, there always remains the possibility that a mega-catastrophe will occur, which will be in addition to any other losses that the industry exhibits during the rest of the year.

With asset values generally rising over time, the average loss from catastrophes will also increase, which is the view that is being taken by credit rating agencies, which are requiring insurance companies to hold more surplus in the event of substantial or multiple catastrophic losses in a given year.

Excerpts from ***Direct Insurance (except Life, Health, and Medical) Carriers in the U.S.***, IBISWORLD Industry Report, January 2008

52421 Insurance Agencies and Brokerages

This industry comprises establishments primarily engaged in acting as agents (i.e., brokers) in selling annuities and insurance policies. Industry participants earn commission income, mostly as a percentage of the premium of policies sold. They also earn some fee income for risk management consulting and other value-added services.

The demand for insurance agency and brokerage services is largely determined by the underlying demand for insurance products.

Insurance products are largely influenced by general economic activity. In periods of lower-than-average activity, both businesses and individuals re-evaluate their insurance needs and reduce their spending on insurance products. Life insurers have, for the last one and a half decades, increasingly shifted their focus away from traditional death benefit products into the pension market. An increasing community awareness of the need to contribute to own retirement has increased the popularity of annuities, separate accounts and other deposit-type products. Life insurers' investment performance, relative to that of substitute savings products, has emerged as a key demand determinant following this shift. The demand for life insurers' products is also largely determined by the overall level of household savings, which is influenced by the level of general economic activity, growth in real wages, employment growth and after tax investment returns. This also leaves demand for life insurance products subjected to federal and state taxation policies, both the general taxation of wages and the taxation of deposit-type products. Currently, savings for retirement is enjoying a tax-deferral status, which acts as to raise the demand for pension products. Major demand determinants for health and medical

insurance products are costs of health care, the price of health insurance and the age distribution of the population. The United States have been subjected to a major demographic change in recent years in that its population is ageing. The "baby boomers" have now started to enter retirement age. The demand for health care services is largest among people aged 65 and over, so the effect of an ageing population has been raising health care expenditures. With an increased privatization of health services, the bill has largely been passed on to consumers. Higher health care expenditure has increased the demand for health and medical insurance. The age group 65 years and older are also more likely to have health insurance - 99.3 percent of the age group 65 and older had health cover compared to 72.7 percent for people 18 to 24 years old. Property/Casualty (P&C) insurance covers the property and liability losses of businesses and individuals, ranging from damage and injuries resulting from car accidents to the cost of lawsuits stemming from faulty products and professional misconduct. Private auto insurance is the single largest line of business, and the demand for such insurance is directly impacted by economy-wide factors such as economic growth, real disposable income growth, interest rates and consumption. These factors will also impact the industry indirectly through the demand for automobiles.

Commercial lines of insurance are offered to businesses, governments, and other organizations. In the commercial market, policy holders insure against a number of risks ranging from natural and man-made disasters through to professional indemnity. The largest commercial line of insurance is workers' compensation, only marginally ahead of commercial multiple peril and commercial auto insurance. The demand for commercial P&C insurance is largely impacted directly by general economic activity as it affects the demand for insurance products. However, economic activity also impacts the demand for commercial lines through business activity levels.

Prior to the 1990s, P&C insurance was sold almost exclusively by agents, either by captive agents or independent agents representing several insurance companies. In the 1990s, these distinctions blurred as insurers began to use multiple channels, including the use of banks, direct sales to groups through professional organizations and workplaces, as well as through the Internet. The demand for brokerage and agency services is therefore impacted by the willingness of insurance carriers to utilize these organizations as a means of distributing risk products.
When there is a high level of uncertainty about risk, insurers will increase premiums in order to balance their level of risk exposure by increasing capital reserves. When this happens, insurance products are generally in short supply. For example, in 2005 and 2006 post hurricanes Katrina and Rita, US property catastrophe reinsurance premium rates increased significantly due to risk uncertainty, which limited capacity in the reinsurance market and thus supply.

During a soft market, insurance agents and brokers derive a smaller commission from each policy sold. Therefore during this time industry revenue generally exhibits softer growth, although soft pricing conditions can sometimes lead to higher premiums volumes partly offsetting this loss in commission per policy. Alternatively, during a hard market, insurance agents and brokers derive a higher commission from each policy sold. Therefore during this time industry revenue generally exhibits stronger growth, although hard pricing conditions can sometimes lead to lower premiums volumes partly offsetting this gain in commission per policy.

The life cycle stage of the industry is mature. This due to 1) the number of new players entering the industry is increasing; 2) the industry has been growing slower than the general economy; 3) industry margins reflect the relative strength in primary insurance markets; and 4) there is scope for increased merger and acquisition activity.

Industry Outlook

IBISWorld forecast revenue in the Insurance Brokers and Agencies industry to increase by 16.1% between 2009 and 2013, to $142.56 billion, which will represent an annualized increase of 3.8% per annum. Revenue volatility is expected to remain low and the state of primary insurance markets will continue to have a strong bearing on the industry's prospects for the next five years.

Unlike other insurance industries, industry revenue is largely derived from commissions and fees. Agents and brokers do not derive revenue from investment activities associated with this industry class, which reduces earnings volatility and lowers the risk profile of the industry. Though it should be noted that the performance of investment markets has a large bearing on the conditions for agents and brokers, with large investment gains often boosting profits or subsidizing underwriting losses for insurance carriers, which can ultimately affect premium prices, which is what drives revenue in this industry class.

The state of the Insurance Brokers and Agencies industry is dependent on conditions in primary insurance market, particularly, P/C, life and health insurance. Overall, the insurance sector has fundamentally changed since 2001. Prior to 2001, insurance carriers would often incur underwriting losses but subsidized this with large gains from investments, which were funded by premiums. Carriers would focus on generating cash flow to put towards investments and this created significant capacity and hence, soft conditions.

However, with financial markets exhibiting large falls in 2001, insurance carriers had to re-think their operational strategies. Instead of focusing on generating cash, carriers started to improve their underwriting performance. This was also encouraged by ratings agencies and regulators which sought to increase capital adequacy for insurance carriers to protect policyholders.

The result was that risk was priced to market and premiums subsequently increased indicating hard market conditions. With risk priced appropriately, combined ratios fell and the general insurance industry achieved an underwriting profit for the first time in many years in 2004, signified by a ratio less than 100%. Since 2004, combined ratios for primary insurance markets have trended lower with the exception of 2005 for reinsurance carriers following the devastation of the hurricanes. Regardless, stronger underwriting performances have increased profits for insurance carriers and softer conditions have ensured, with capacity in non-catastrophe related insurance lines abundant.

As a result of this the Insurance Brokers and Agencies industry is in the midst of a soft market and there is nothing to suggest that hardening conditions can or will commence before 2010 given the outlook on profits for insurance carriers.

Economic conditions are expected to remain subdued during the first half of the outlook period, as the housing market reaches its nadir and the labor market encounters some weakness, which should weaken overall consumption growth. A weak housing market will also reduce household wealth, which reduces consumer sentiment and can result in lower insurance volumes and/or lower coverage.

Present forecast from the National Realtors Association suggests that new and existing home sales will increase by 9.1% and 3.6% in 2009 respectively. Though this may seem like strong growth, both rates will be off a low base. Reduced activity in the housing market also reduces demand for key personal property and casualty lines in an already depressed market.

With the exception of a black swan event, there is not much evidence to support a material weakening in insurance profits, particularly underwriting performances. A black swan event is usually something that has never occurred and something that falls outside the scope of actuarial models. The $61.9 billion in damages caused by the hurricanes in 2005 was considered a black swan event given that the previous maximum was less than half that total.

As such, higher industry profits and more players entering the market suggests the scope for premium increases are limited. As such the scope for above-average growth in this industry class is also limited. With that being said, it is expected that insurance brokerages and agencies will experience some organic growth over the outlook period, as brokerages and agencies improve their retail presence. Primary insurance underwriters are expected to further their focus on risk assessment, leaving an increased share of insurance policies to be written through agencies and brokerages.

A positive factor impacting business volumes over the outlook is the trend of continued growth in medical expenses associated with longer life spans. Health and medical coverage is expected to keep rising as the population continues to age. IBISWorld expects health coverage as a percent of the total population to move slowly towards 90%, which will bode well for industry participants.

There are several factors that are fuelling, and will continue to fuel, health insurance premiums, but the main reason for premium increases is the growing cost of health care itself. The cost of certain categories of benefits is rising dramatically. Prescription drug costs have grown more rapidly than all other major categories of health spending over the past few years. Driven by both increased prices and increased use, drug spending has been projected, by the Insurance Information Institute, to grow at an annual average rate of 11% to 2013. Hospital and physician costs, while not growing as rapidly as pharmaceuticals, comprise the largest share of the nation's health spending and continue to outpace inflation, with forecasts suggesting that growth will be around 6% to 7% per annum in the five years to 2013.

The explosive pace of technology advancement implies that medical science is able to offer care for conditions considered to be untreatable just a few years ago. While these are positive breakthroughs, they constitute additional growth to health spending. This will be exacerbated by rapidly changing demographics, as the nation ages and the baby boomers reach their retirement years.

Continued increases in life expectancy, consumer trends to shift to more investment types of life insurance products, and decreases in public funding for social programs present increased opportunities for insurance agencies and brokerages. The current interest rate on traditional saving vehicles is low, which makes life insurance more attractive.

The extent of contingent commission is thought to be quite common and has resulted in a growing demand for answers by the nation's 50 state-level insurance regulators. This conflict of interest has been known to regulators for years, but they have failed to probe industry practices seriously. The inability of state regulators to oversee the insurance industry, which is dominated by some of the biggest companies in the US, adds to a strong case for Congress to create a federal regulator to monitor the industry nationwide. Although contingent commission practices have been widely abolished in recent years, IBISWorld expects that pressures for a single regulatory body will grow over the outlook period

Excerpts from ***Insurance Agencies and Brokerages in the U.S.***, IBISWORLD Industry Report, June 2008

52511 Pension Funds

This industry comprises legal entities (i.e., funds, plans, and/or programs) organized to provide retirement income benefits exclusively for the sponsor's employees or members.

Contributions to pension plans are voluntary in the U.S., limited to a maximum amount or percentage of gross salaries. The level of contributions is influenced by the levels of household disposable incomes, non-retirement savings and investments, pension fund returns, corporate profits and the level of taxation imposed on these earnings (relative to non-pension returns).

The life cycle stage of this industry is growth. This is because 1) pension funds are growing at a rate faster than the overall economy; 2) the number of new players in the industry is increasing; 3) there continues to be a rapid introduction of new products; and 4) the ageing population is contributing to a renewed focus on retirement savings products and services.

Industry Outlook

IBISWorld forecast pension fund reserves to increase by 7.0% per annum to $18.73 trillion by 2013. Pension fund reserves will be driven by the solid performance of the US and global economy during the outlook period, particularly in the second half of the five year period, which is expected to lead to increased investment returns. The flow of funds into various DC, DB and IRA plans will also increase as the population continues to age and a greater emphasis is put on

various retirement savings. IBISWorld also believe that the enactment of the Pension Protection Act of 2006 will also have a significant positive effect on asset growth over the outlook period.

IBISWorld forecast industry revenue growth of 11.3% per annum for the five years ending 2013. This compares favorably to the 3% per annum decrease in the five years to 2008 and will reflect two points of the new business cycle, with conditions in 2008 expected to be weak compared to stronger conditions, and hence revenue, in 2013.

Industry revenue, which is defined as net investment returns plus member contributions have increasingly been skewed towards investment returns. What this means is that industry revenue is becoming more closely aligned with the performance of investment markets, which explains the volatility that has occurred in previous years. Whilst present forecast suggest that overall the US and global economy are expected to remain fairly strong, there are likely to be factors that will affect investment returns that are presently unforeseen. This will lead to increased revenue volatility.

It is this factor that makes this particular industry inherently difficult to forecast given its alignment to investment markets; however, it is more important to recognize the effect that the market(s) have on industry revenue.

IBISWorld expects pension fund contributions to increase during the outlook period, as the Baby Boomer generation in particular age and retire. Driving the growth in total pension funds will be the increased flow of funds into Individual Retirement Accounts (IRAs), state and local government employee retirement funds and defined contribution (DC) plans.

Plans with a 401 (k) feature are expected to continue to receive interest over the outlook period, with investors hoping to gain from growth in equities. Assets of 401 (k) plans are expected to grow at an average real rate of 8.6% per annum, whilst 403(b) and 457 plan asset growth is expected to achieve average annual real growth of 9.1% per annum. Total DC plan assets are expected to grow at an average real rate of 8.1% per annum, lifting the value of DC plan assets by year-end 2013.

Growth in IRA assets is expected to contribute the most to the growth in total retirement plan assets. IRA participation is expected to grow significantly over the outlook period, with plan assets expected to grow at an average real rate of 11.2% per annum. State and local Government employee funds are expected to exhibit asset plan growth of 7.1% per annum over the same five-year period.

There are a few trends that will aid the expected growth in defined contribution plan assets. Firstly, as the US economy is increasingly moving from a manufacturing based to a service based economy, the number of participants and assets held in existing defined benefit plans of the mature manufacturing industries will decline. More recently established service-based industries are more likely to nominate defined contribution plans as their preferred retirement fund.

Secondly, the growing number of families with two wage earners is likely to increase the number of defined contribution plan participants as well as the rate of growth of plan assets. Families with two wage earners are likely to choose a retirement plan where assets from both wage-earners can be pooled into one fund, without having to be employed by the same employer, in order to more rapidly accumulate wealth.

Not entirely unrelated to the previous point is the growing trend of the number of part-time and temporary workers in the US economy. The mobility pattern of some workers has also increased in recent years. Hence, coverage under defined contribution plans may better meet the needs and interest of both new start-up firms and new entrants into the workforce.

The proposed creation of Lifetime Savings Accounts and Retirement Savings Accounts has been strongly supported by industry professionals and peak industry bodies. These plans would greatly simplify retirement savings. The new plan would be simpler for employers to administer, implying that employers without the resources for administering plans will be more likely to offer a retirement savings program for their employees. The package promotes savings by removing the current law penalty on savings. The after-tax return to savings is increased through greater access to tax preferred savings. Furthermore, the simpler and more uniform rules for individual savings vehicles, combined with lower costs for setting up and maintaining employer plans, will encourage more savings.

The enactment of the Pension Protection Act in August 2006 is anticipated to have a significant positive impact on the demand for pension products, both employer-sponsored and non-employer related products. The legislation came into effect in 2006, with some positive changes taking place in 2007. IBISWorld expected this Act to help drive retirement asset growth post 2008.

Starting in 2008, funds in qualified retirement plans will be able to be rolled over directly to Roth IRAs. Prior to this, rollovers had to go through traditional IRAs. Such transfers will be allowed in 2008 and 2009 only for individuals eligible to convert to Roth IRAs, which are those with modified adjusted gross income of no more than $100,000. From 2010, there are no income limits.

Many favorable retirement plan rules, such as increased contributions limits to 401(k) and other qualified plans, the existence of Roth 401(k) plans, and the tax credit for small employers to start retirement plans, were scheduled to expire at the end of 2010. The Pension Protection Act permanently allows for Roth 401 (k) and Roth 403 (b) plans. Under previous tax law, Roth-type 401 (k) and 403 (b) plans were not allowed after 2010. The new law removes this sunset provision. Like a Roth IRA, an individual makes post-tax contributions to a Roth 401 (k) or Roth 403 (b) plan, up to the plan limits. The assets grow tax-deferred and may be withdrawn tax-free in retirement. Companies that had been apprehensive of adopting Roth 401(k)s because of their temporary nature, might consider offering this option to employees.

The Pension Protection Act allows employees to contribute money on an after-tax basis so that earnings can become entirely tax free later on. Moreover, owners and other individuals in a

position to fully utilize contribution limits will be able to invest more money on a tax-advantaged basis in qualified retirement plans and IRAs.

Specifically, IRA contributions will be $4,000 in 2007, $5,000 in 2008, and adjusted for inflation after 2008. Catch-up contributions for individuals age 50 or older will be $1,000 for IRAs, $2,500 for SIMPLE-IRAs, and $5,000 for 401 (k) plans. IRA catch-up contribution limits, however, will not be adjusted for inflation. SIMPLE and 401 (k) catch-up contributions will be adjusted in $500 increments based on inflation.

Contributions will also be driven by the aging of the population. As the Baby Boomer generation in particular, near their retirement age, the value of funds flowing to various retirement vehicles is set to increase as a greater awareness on what is needed for retirement as opposed to what many individuals have will dawn on older Americans. As highlighted in the table below, Census population projections show that the share of the population aged 65 years or more is expected to increase from 12.9% in 2009 to 13.9% in 2013. This may not seem like a large change; however, on a population in excess of 300 million it does become significant and adds perspective to the many studies that suggest that present retirement assets will not be sufficient for the amount of people expected to retire in the next five to fifteen years in particular. By 2030, those aged 65 years or more will account for almost 20% of the population, which implies that the focus on retirement assets will intensify leading to greater contributions towards this industry class.

Excerpts from ***Pension Funds in the U.S.***, IBISWORLD Industry Report, May 2008

56142 Telephone Call Centers

This industry comprises (1) establishments primarily engaged in answering telephone calls and relaying messages to clients and (2) establishments primarily engaged in providing telemarketing services on a contract or fee basis for others, such as promoting clients' products or services by telephone; taking orders for clients by telephone; and soliciting contributions or providing information for clients by telephone. Telemarketing establishments never own the product or provide the service that they are representing and generally can originate and/or receive calls for others.

Demand determinants for the industry include:

IBISWorld analysis indicates that call centers have been around in one form or another for many decades. For instance, many market research companies undertaking telephone surveys of households and clients have been operating in a call center environment for many years.

On the supply side, however, it has only been through recent changes in both telecommunications and IT hardware and software that has allowed the contemporary call center industry to evolve and be able to grow rapidly.

On the demand side, there is a continuing search by major companies to improving client access, service and product information levels by certain industries (particularly in the computer software and hardware, banking, finance and insurance areas - but also many others), and be delivered in a cost effective manner.

Also, customers have now become used to having instant access to services to handle their inquiries, sometimes on a 24-7 basis, or at least for extended periods beyond standard business ones. In many cases, they now expect these services to be available, when required, and have demanded it.

In terms of this industry - the outsourced or specialist component of the wider call center activity has increased, in recognition of both the rapid changes in technology (and the need for significant and frequent upgrades of equipment and therefore capital expenditure). There is also the need to find, hold and continually train suitable staff in an industry which has a very high labor turnover rate, due to the common complaints of stress, burn out, lack of career paths and variety in work and low pay.

A further factor which has affected demand has also been the recognition that call centers need not only be a cost, but can also be used to generate revenue and sales through tele-sales and promotion of products to customers, using existing staff and customer data base information.

The latter points are possibly the key areas for the increasing demand for call centers. It is estimated by industry sources that outsourced services can provide savings of only 8 to 10 % below an in-house call center cost, due to the necessary high labor input in both cases.

Recently, domestic demand and growth in call centers has slowed and which resulted from the recognition that due to changes in telecommunications (including switching) technology, that call centers can now be located internationally, and still provide the service levels required by clients and customers, but at a lower cost.

The life cycle stage of this industry is mature:

- Life cycle measures the development phase of an industry.
- IBISWorld analysis indicates that the domestic component of this industry is now in a mature phase of its lifecycle. This is due to changes in both IT and telecommunications technology, together with a desire by firms and governments to increase service and information levels to households/clients, but increasingly centers and services are being relocated internationally.
- Tele-sales: while call centers are increasingly being used to generate tele-sales for clients, there are increasing government regulatory constraints being imposed on the hours at which calls can be placed to households and a register of households who do not want to be called has been established and must be abided by all operators.

- Outsourcing: the outsourcing of in-house call/help centers has in the past assisted industry growth, however, many new centers are being re-located overseas, and major operators are acquiring operators with internationally located centers.
- Technology: the technology and systems are also now capable of being transferred overseas and used to service domestic clients. While this may lead to revenue and employment growth for companies, the domestic industry is expected by IBISWorld to contract over the longer term.
- International Outsourcing: industry growth is being affected by the trend towards international outsourcing of call centers, due to relative labor cost considerations, and improving technology and telecommunications systems.

Industry Outlook

Over the five year period to 2013, real industry revenue is expected by IBISWorld to increase at an average annual real rate of 2.2%, with this relating to:

- Forecasts of continuing subdued domestic economic growth, particularly in 2009, but also right throughout this period, resulting in many clients reviewing their client care contracts and service needs;
- Increasing price-based competition for remaining and any new contracts; and
- Significantly increasing outsourcing of contracts from the US to India and China and other lower labor cost countries, to reduce contract costs to clients.

Over the same period, industry employment is expected by IBISWorld to decrease at an average annual rate of 1.7% to 379,372, relating to:

- Forecast continuing sluggish growth in industry revenue;
- Continuing industry consolidation; and
- Increasing use of casual and part-time staff to cover peak customer service periods.

Real industry value added growth to 2013 is expected by IBISWorld to increase at an average annual rate of 1.9%, which is lower than the expected 2.3% real growth for GDP over the same period. This mainly relates to falling industry employment, together with continuing pressure on industry profitability, despite technological improvements. The main cause of this low growth will, however, continue to be the transfer of some contracts by US operators to overseas call centers. Industry competition will remain very high, along with clients' demand for a continual reduction in contract costs, but with little change (but more likely ever increasing and improving) service levels.

Increasingly, there are moves by many major operators to expand internationally, as well as to establish joint ventures with other companies in countries such as India, Mexico, Argentina and the Philippines, to provide services in existing markets, including domestically, due to relative wage cost considerations.

By the end of the outlook period, it is expected that the use of interactive voice response technology and web-enabled call centers will be in wide use. The cost of implementing these changes may be too expensive for some in-house call/help centers and is, therefore, expected to lead to further significant industry growth, as more of these services are outsourced or the management contracted out to specialist companies. However, some of these benefits will continue to flow overseas (to China, India and the Philippines, and other relatively lower labor cost destinations), as major operators seek out cheaper locations from which to service their domestic clients, but to the same quality.

The industry is also expected to implement significant changes to payment rates, work practices and responsibilities for agents to reduce stress and in an effort to retain employees. This will eventually lead to reduced training costs, as labor turnover rates decline.

2009

The forecast of marginal economic growth, together with the industry's continuing international outsourcing, particularly for larger call center contracts, is expected by IBISWorld to result in no real growth in industry revenue.

Significant technological change as well as high levels of price-based competition on contracts, is expected to lead to further increases in domestic call centers being relocated internationally, to service local clients.

2010 to 2013

The forecast of continuing sluggish, but gradually improving, economic growth from 2010 to 2013, is expected to also lead to subdued growth in demand from both new and existing clients. This will actually result in acceleration in the servicing of contracts from internationally located call centers, but which are owned and operated by major US operators. Industry consolidation at all levels and firm sizes is expected to accelerate during this period, as price-based competition increases and as profit margins continue to be squeezed, especially for the domestic-based operations.

The expansion of major operators overseas and the increasing globalization of this industry is expected to continue in the outlook period. This is attributable to the technological changes, and further expansion into areas such as tele-sales for clients, to become a profit center rather than just being perceived as a cost.

Excerpts from ***Telephone Call Centers in the U.S.***, IBISWORLD Industry Report, June 2008

D.5.3 Rail Car-Related Cluster

Definition

Primary NAICS Code

33651 – Train, Subway & Transit Car Manufacturing

Supplier NAICS Codes:

33121 – Metal Pipe & Tube Manufacturing
33151 – Ferrous Metal Foundry Products
33272 – Screw, Nut & Bolt Manufacturing
33299 – Ball Bearing, Ammunition and Other Metal Product Manufacturing
33531 – Electrical Equipment Manufacturing

Recommended Research Filters

When marketing to this industry, we recommend that England Airpark target companies within the following parameters.

Sales:	$10m minimum
Employment:	100 minimum
Geographic Scope:	National with emphasis on the Upper Midwest and Northeast
Growth:	10% in sales or employment (over two years)
Events:	Predictive events such as executive change, merger/acquisition, new markets, new products/services, new contract, and IPO.

Rail Car-Related Cluster Universe	
Companies within geographic scope (national0	20,132
With 100+ employees and $10m+ sales	987
With growth and/or events	286

Industry Importance Factors

Most of the significant site location factors revolve around labor and workforce for the manufacturing industry. It would follow then that available education and training in disciplines, such as various engineering, precision manufacturing, and robotics, would be paramount. Worker compensation costs and unemployment insurance costs are usually of significant concern as well since much of manufacturing production work is done with complex machinery.

Other critical site location factors considered by the manufacturing industry include energy dependability, access to intermediate manufactured products, and the cost to transport goods. All are important factors are most manufacturing intensive industries. Reliable and high-quality energy is a far greater consideration than the cost of energy since disruptions are very costly in lost production time and machinery configurations. Also, easy access to production inputs become more important as the number of parts and required components grows. Many manufacturers have a high number of parts to track and assemble.

For the most part, quality of life and business incentives are not one of the main site location criteria. The quality of life consideration will become more important if top level executives are locating with the new site. Business incentives for locating a plant will only come into consideration at the end of a decision process. Also, incentives may have less of an impact on

the overall decision since the capital investment required for the location of a manufacturing facility is very high. Construction costs, built space cost and availability are other site factors that deserve a mention as having importance for the manufacturing industry.

Labor Outlook

NAICS Code	Industry	1996 Jobs	2006 Jobs	2016 Jobs	1996-2006 Change	2006-2016 Change
3365	Railroad Rolling Stock Mfg.	33,400	28,000	23,300	-16%	-17%
3312	Steel Product Mfg.	70,100	59,900	51,800	-15%	-14%
3315	Foundries	215,800	162,100	119,800	-25%	-26%
3327	Machine Shops Mfg.	342,600	352,000	283,000	3%	-20%
3329	Misc. Fabricated Metal Products	317,700	287,000	251,500	-10%	-12%
3353	Electrical Equipment Mfg.	217,000	155,600	126,300	-28%	-19%

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, November 2007

33651 Train, Subway & Transit Car Manufacturing

Firms in this industry manufacture and/or rebuild locomotives, locomotives frames and parts; railroad, street, and rapid transit cars for freight and passenger service; and rail layers, ballast distributors, rail tamping equipment and other railway track maintenance equipment. According to industry data, products manufactured by firms in this industry include industrial, mining, and railroad locomotives; railroad, light rail, subway, and transit cars; railroad rolling stock; and railroad equipment.

Demand determinants include:

- Product and service demand within this industry is strongly influenced by the level of activity, financial condition and capital spending plans of the global railroad industry.
- In turn, rail traffic, in terms of both freight and passengers, is a key factor underlying the demand for the financial condition and capital spending plans of the railroad industry. This demand affects the products and services provided by firms in this industry.
- Although financial funding to the railroad systems by private and public sources is important, the industry is also dependent upon public funding for infrastructure investment within the US and throughout the world.
- Demand for products is influenced by the introduction and/or expansion of alternative transportation systems. Product and market developments in competing air, sea and land transportation systems, reduce the utilization of rail transportation systems, and therefore demand.
- A change in government policies or an adverse economic environment (such as that which has occurred in Southeast Asia) in any of the regions or principal countries in which industry participants does business can have an adverse effect upon demand because it reduces public and private sector expenditure.

- Due to the relatively long lapse of time between placement of orders and shipments, manufacturing backlogs are important to assess the state of the industry. Demand is cyclical in nature.

The life cycle stage of this industry is mature:

- As a mature industry, this industry exhibits the following characteristics: market growth is slowing as the market for products have almost reached saturation, larger global firms have increased market share, and firm profitability has reached a high point.
- Establishment numbers have stabilized around internationally prominent companies/brand names. The more prominent include: ALSTOM, Bombardier, and General Electric.
- A number of firms are subsidiary companies of overseas corporations with large budgets and R&D expenditure. As a result, these companies benefit from economies of scale, combined R&D, overseas distribution and sales networks.
- The industry is characterized by well-established products. Industry products are divided into clearly segmented products groups. Introduction of new products undergo a series of test before they can be placed on the market. Once they are launched the readily achieve worldwide market acceptance.
- Technological innovation is characteristic of this industry. As a result, products undergo frequent product changes with product design and development keys to success. Technological advancements and changing product lines have helped the industry avoid product and market saturation by making existing products outdated.
- Greater levels of industry consolidation are reducing customer markets as more unprofitable firms exit the industry. The US railroad industry is heavily dependent on the mining sector with coal being the major commodity hauled. There have been no new products made available to its clients.
- Technological change and development is another indicator of life cycle development or contraction. In this context, technological change is lagging well behind that is occurring in Europe. The slowdown in technological/systems change is a further indicator of a mature industry structure.

Industry Outlook

Product and service demand within this industry is influenced by the level of activity, financial condition and capital spending plans of the global railroad industry. In turn, rail traffic, in terms of both freight and passengers, is a key factor underlying the demand for the financial condition and capital spending plans of the railroad industry. This demand affects the products and services provided by firms in this industry.

The Railroad Rolling Stock Industry has been improving since the second half of 2004 and this trend is expected to be arrested for the first three years of the outlook period with revenue growth between 2008 and 2010 at best, stagnant. Some industry participants have suggested that they expect continued revenue growth, which has been at a sustained level in the Transport market, to

continue as a result of fundamental changes in the rail industry in recent years in terms of customer base, customer behavior and product and/or service requirement.

In the short term, drivers that are likely to increase growth for this industry include:

- Deregulation of the rail markets. Many rail infrastructures are currently still government owned and moving towards privatization, presenting major opportunities for development such as outsourcing equipment services and maintenance.
- Environmental concerns. Many countries prefer environmentally means of urban and freight transport such as tramways, freight trains and locomotives which will reduce traffic, noise and pollution levels. Recent rise in energy prices such as fuel is likely to provide greater opportunities for players in this industry.
- Urbanization - Demand for mass transit systems and integration solutions to ease traffic congestions and environmental concerns.
- Emphasis on security, reliability and efficiency - In the US alone, industry sources revealed that for the past 24 years, the rail industry has reduced accident rates by 63% and employee injury rates by 77%. This trend is expected to continue into the future. Furthermore, the September 11 incident had made security one of the highest priorities for this sector.
- Railway operators have been characterized by their need for government funding. As a result, rolling stock orders can depend on the level of government support to railways, and order selection may favor suppliers with local manufacturing bases sustaining local employment.
- Operators are showing interest in the benefits of new train control and management systems, including increased safety, higher rail traffic density, lower maintenance costs and greater international harmonization. As a result, the signaling market still continues to benefit from annual volume growth.

IBISWorld estimates that the industry revenue will grow by an annualized rate of 0.7% from end-2007 to end-2012 with strong growth in the latter stages of the forecast period. Transportation uses the percentage-of-completion method to recognize revenue and order backlogs are a good indication of revenues that will be earned during the future period. Many major players are currently experiencing strong growth in orders, which gives a good indication towards the short term trend for this industry.

Industry revenue is expected to increase from $10,740.6 million at end 2007 to $11121.1 million by 2012. IBISWorld believes that the industry maintained a growth rate of 6.0% in 2007 before slowing down the following year due to major transport players having upgraded their rolling stock and a fall in the utilization rate of railcars.

The industry is going to be driven by both local and international demand. On the local front, Global Insight, an independent industry research firm, has estimated that US carload traffic will grow by 1% to 1.5% per year through 2009. Increasing rail traffic in the US should spark another key driver of new railcar demand, the need to improve productivity and efficiency

through the replacement of older, smaller, inefficient units. Industry sources indicated that the average age of the North American freight car fleet is approximately 19.5 years, with over 38% older than 25 years. In addition, approximately 30% of the North American metro fleet is above replacement threshold age (estimated to be at 30 years). Industry participants believe each of these factors will be key drivers of increased railcar sales going forward. Global Insight has estimated railcar deliveries for the industry to increase by approximately 55,000 units per year for 2008-2009. Infrastructure investment is also increasing, with the Association of American Railroads announcing that major freight railroads investing $8.4 billion in 2008, higher than the $7.4 billion average in previous years.

International demand for Railroad Rolling Stock manufacturing is also likely to increase in the future with Europe, Middle East (Saudi Arabia) and Asia the driving factors. The European rail market is expected to be the largest market over the next few years, especially to countries like Italy, Spain, France and Germany. One of the factors is the Trans-European Network, a program to improve overall transportation conditions in Europe until 2020. For Saudi Arabia, increasing growth and development is creating opportunities in the system and signaling such as unattended train operation in high traffic and urban areas. In Asia, the market will depend on the development of the Chinese market. Industry sources have indicated large orders for locomotives, urban and intercity transit trains and high-speed trains to complement their growing economy. This is anticipated to affect US exports for railroad rolling stock which is expected to increase from $2,584.7 million in 2007 to a high of $3,094.5 million in 2009 before decreasing to $2,844 million in 2012 as demand slows.

Industry Gross Product is expected to increase by IBISWorld at an annualized rate of 0.5% from $3,671.7 million to $3,757.5 million, lower than industry revenue. The development of products and the continuous improvement of current rail technologies will lead to higher purchases over the next few years. Furthermore, price which has been increasing over the past two years is likely to continue with raw materials such as steel and iron increasing. The market is also concentrated, with the top four competitors accounting for approximately 62% of market share. All these factors will see profits grow with major players looking to increase profit margins over the next two to four years.

Establishment numbers are expected to increase in 2008 before consolidating further. The increase in outsourcing services will fuel some growth in establishments but railroad rolling stock manufacturing businesses that provide products and services to larger businesses on a contractual basis will become vertically integrated business units. In this scenario, as some businesses become integrated, other local and regional firms will create or defend their positions in smaller product and market segments.

IBISWorld estimates small decrease in employment by less than 0.1% per annum. Growth should be limited by the trend towards fulfilling an expected increase in customer orders and by the trend towards outsourcing of repairs and maintenance. The automation of production technologies is a key factor towards limited employment growth. In the long run however, employment is projected to fall. Wages are expected to increase at an annualized rate of 0.3%

per annum with revenue per employee increasing during the period reflecting an increase in productivity and efficiency. Productivity as measured by value added per employee is expected to rise at an annualized rate of 0.5% over the forecast period.
Excerpts from ***Train, Subway & Transit Car Manufacturing in the U.S.***, IBISWORLD Industry Report, December 2007

D.5.4 Supply Industries

33121 – Metal Pipe & Tube Manufacturing

This industry consists of firms mainly engaged in manufacturing welded, riveted or seamless pipes or tubes from purchased iron or steel. Firms do not manufacture the steel themselves; rather they purchase it as an input material to their own manufacturing process.

Demand determinants include:

- The major uses for pipes and tubes include: the mains distribution and reticulation of water and gas; the pipeline transportation of crude oil, natural gas and other petroleum products; construction; and the manufacture of motor vehicles and consumer goods.
- In most of these applications, steel pipes and tubes compete against products made from other materials, such as plastic, iron, concrete and earthenware. Accordingly, key determinants of the demand for steel pipes and tubes are the levels of activity in these sectors, and the availability and competitiveness of pipe made from other materials.

The life cycle stage of this industry is decline:

- This industry's product and the technology used to manufacture it are well-established. The rate of technological change is low.
- In recent years, the industry has been characterized by consolidation and the rationalization of operations. Despite this, it has had difficulty in meeting import competition and received additional protection against imports in the early 2000s (removed in late 2003).

Industry Outlook

The oil exploration and production, transport equipment manufacturing, equipment manufacturing, water and gas reticulation, pipeline, construction, and consumer goods manufacturing industries will remain key sources of demand for steel producers. Iron and steel pipes and tubes already face strong competition from other materials and, more particularly, imports, in all these markets.

US iron and steel pipe and tube manufacturers will continue to face considerable challenges during the outlook period. The rising cost of pensions and health care will have an impact on industry players, as will high steel input costs. Conditions are not expected to be as buoyant as in the mid 2004 and 2005, reflecting generally moderate economic growth and uncertainty

regarding oil prices. In addition, merger and takeover activity may see firms shift from this industry to the larger Iron and Steel Mill and Ferroalloy Manufacturing industry, as was the case in 2006 and 2007. Nonetheless, real industry revenue is expected to rise at an average rate of about 1.3% per year over the five years ending in 2013, with value added increasing at a somewhat faster pace of 1.6% per year.

The demand for the various steel pipes and tubes manufactured by the industry will vary according to the performance of the key using industries. Anticipated growth in spending on water supply systems over the next few years is expected to augur well for firms producing the large diameter pipes used by these systems. Similarly, a return to firmer growth in industrial production is expected to boost the demand for a range of smaller diameter pipes, while stronger construction activity will lead to higher demand for structural pipe and tube.

The greatest uncertainty hangs over oil country tubular goods. Following the US-led invasion of Iraq and the removal of the regime headed by Saddam Hussein, oil prices fell markedly. However, the decline was short-lived; the uncertain political climate in the Middle East in general and Iraq in particular once again drove prices higher. The average oil price rose substantially over 2003 to 2007 and is expected to increase again in 2008, reflecting the continued uncertain political climate in the Middle East in general and Iraq in particular, surging demand for oil from China and relatively subdued growth in production.

In the early years of the outlook period, new capacity is expected to come on stream in several oil producing countries, including Saudi Arabia, reducing price pressures. At the same time, the growth in oil demand is expected to slow, reflecting both the high prices of the mid 2000s and more moderate global economic growth. Although the average oil prices achieved by US producers are expected to ease early in the outlook period (reaching $70 per barrel in 2010) as the supply/demand balance moves more closely into line, the process will be slow and prices will still remain relatively high in historical terms. In part, the expected continued weakness of the US dollar will also play a role in holding up oil prices, which are denominated in that currency. Some of the additional OPEC crude oil becoming available during this period will be of the lighter and sweeter grades most sought after by refineries.

The growth in crude oil supply over the last three years of the outlook period is expected to once again lag demand growth, pushing up prices (to about $77.5 per barrel by 2013). Within this overall outlook there is always the potential for political events or natural disasters to give rise to sharp and substantial, if short-term, movements in oil prices. In a climate of relatively finely balanced supply and demand, buyers are likely to respond to disruptions in supply by bidding prices up.

Taken alone, see-sawing and somewhat lower oil prices could be expected to lead to less drilling activity in the United States and reduced demand for oil country tubular products. However, gas consumption is expected to rise strongly over the outlook period, pointing to higher production levels and increased demand for oilfield related products.

Excerpts from ***Metal Pipe & Tube Manufacturing in the U.S.***, IBISWORLD Industry Report, May 2008

33151 Ferrous Metal Foundry Products

Firms in this industry are primarily engaged in pouring molten iron and steel into molds of a desired shape to make castings. The castings are made from purchased metals or in integrated secondary smelting and casting facilities. Foundries manufacture cast iron brake shoes, cast iron pipe and pipe fittings, malleable iron castings, unfinished iron castings, ductile iron castings and steel ingot molds and castings. Investment castings use a mold that has been produced by surrounding an expendable pattern with refractory slurry, which sets at room temperature. The pattern is then melted or burned out, leaving the mold cavity.

Demand determinants include:

- The demand for ferrous foundry products is a derived demand; the castings made by the industry are used as an input to other manufacturing industries (most notably the production of cars and other transport equipment) and in construction. As a result, the factors affecting demand for ferrous castings include the price of end products in which the castings are used and consumer tasters regarding goods such as cars, as well as the price of ferrous castings themselves.
- Ferrous castings are used in virtually all industrial/manufacturing applications. Over 80% of manufactured goods and capital equipment in the US use castings as engineered components (or rely on castings for their manufacture).
- Supply arrangements with motor vehicle manufacturers in the US account for the great bulk of sales (over 75% in most product categories). The manufacturing of components used in automobiles is driven by the normal peaks and valleys associated with the automotive industry.
- Falling motor vehicle production since the early 2000s has reduced the demand for most metal castings in the US. In addition, motor vehicle manufacturers have been switching from iron to aluminum castings.
- In the construction market, the construction and renovation of housing, as well as commercial and/or industrial premises drives the demand for ferrous castings. Key demand determinants for this market include: growth in residential and nonresidential construction; growth in public infrastructure; need for repairs and maintenance work; and demographic factors.
- The demand for ferrous castings from the US construction industry has been firm over the past five years, reflecting increased capital spending, public sector infrastructure projects and, most particularly, rising residential construction activity.

The life cycle stage of this industry is mature:

- The value added generated by the Ferrous Metal Foundry Products industry is expected to expand by about 3.9% per year, compared with expected average annual growth in US GDP of about 2.5% for the same period. Although the industry has outpaced the overall

economy, this reflects steel price rises well above the general level of inflation, rather than strong demand.

- Competition from international manufacturers of ferrous castings has increased over the past five years, as shown by the rising importance of imports in domestic demand.
- Establishment numbers and enterprise numbers in this industry have fallen over the past five years in response to declining profitability. Some firms have left the industry, while others have merged or acquired other players in order to extend product or market spread.
- Some technological advances have been made, typically in relation to computer control of machinery and equipment. Reliance on technology is only moderate in some segments whilst other industries view it as a key input into the production process.

Industry Outlook

The outlook for the Ferrous Metal Foundry Products industry is primarily dependent upon demand from the key transportation and construction markets.

Ferrous castings will continue to face considerable competition from castings made from non-ferrous materials, especially aluminum or aluminum alloys, as well as from plastic in some applications (such as water conveyance). In addition, local ferrous foundries will continue to face strong competition from suppliers based overseas, especially for high volume, low margin products. US foundries are expected to continue moving into product lines less vulnerable to price competition. Examples include catering for small production runs, focusing on high technology products and specializing in the casting of larger, more intricate items. This last category includes products with intricate shapes, greater core complexity, tighter dimensional tolerances and the use of ultra-clean iron or exotic steels. Similarly, parts requiring a high degree of technical collaboration with customers or flexible lead times are less vulnerable to competition on price alone. Overall, the demand for ferrous castings is expected to expand modestly over the outlook period.

Somewhat lower fuel prices after 2009 will help the demand for and sales of cars to expand from current low levels. Ferrous foundries will benefit from this growth, although challenges will remain. Firms will face ongoing pressure to provide increasing levels of design and technological input as automotive manufacturers attempt to pare their own costs.

The construction sector is another important market for ferrous foundries. Residential construction spending fell in 2006 and 2007 and is expected to fall again in 2008, before returning to growth in 2009 and continuing to expand over the remainder of the outlook period. Non-residential investment in construction and machinery is expected to continue growing solidly. This outlook suggests that construction sector demand for ferrous castings (typically in the form of pipes and pipe fittings) will pick up during the outlook period.

The price and availability of iron and steel also play important roles in influencing industry performance. Iron and steel (including stainless steel) are the most significant inputs into the Ferrous Metal Foundry Products industry. High steel prices have a mixed effect on industry performance. Firms able to pass on rising materials costs typically perform well; while those

caught between substantially higher input costs and less flexible pricing face difficulty. Firms will almost invariably reserve the right to apply materials surcharges in the event of sharp price movements (as is usual in the non-ferrous sector). A less volatile price climate is expected to prevail over the outlook period, although steel prices will continue to rise in 2009 before easing. The high steel prices of recent years have encouraged steel producers worldwide to lift production, a move that will see prices ease during the outlook period. Nonetheless, prices are still expected to remain relatively high in historical terms.

Fuel is another substantial cost for firms engaged in ferrous casting. The lower fuel prices anticipated over most of the outlook period will also assist the industry in efforts to contain costs.

The price of ferrous castings is expected to continue rising in 2009, before starting to edge down as input costs retreat. Real industry revenue will drift lower, declining at an average annual rate of about 0.3%, but value added is expected to edge up by about 0.1% per year, as costs fall more markedly than revenue. In part, lower costs will reflect the continued emphasis placed on securing productivity gains and a consequent slight fall in industry employment.

Excerpts from ***Ferrous Metal Foundry Products in the U.S.***, IBISWORLD Industry Report, June 2008

33272 – Screw, Nut & Bolt Manufacturing

This industry comprises establishments primarily engaged in (1) machining precision turned products or (2) manufacturing metal bolts, nuts, screws, rivets, and other industrial fasteners. Included in this industry are establishments primarily engaged in manufacturing parts for machinery and equipment on a customized basis.

Demand determinants include:

- Demand corresponds to industrial production in the Manufacturing sector. The industrial market reflects the growth of the manufacturing economy (the industrial market has been cyclical, experiencing higher growth rates during periods of economic expansion).
- Economic activity in the Manufacturing sector, in particular the Primary and Fabricated Metal Product Manufacturing sub sector, is expected to have impacted demand in the five years to December 2007. Lower than expected capital expenditures in customer industries have impacted industry growth.
- Lower capital expenditure has trended with the general economic slowdown affecting the US manufacturing sector. The effect of the economic slowdown was to reduce capital expenditure in the Manufacturing sector by over 20%, from $150.3 billion in 1999 to an expected $120 billion in 2006.
- Changes in current and future business expectations in customer markets influence product demand by reducing or delaying capital expenditure. Customers respond to worsening economic conditions by reducing inventories and reducing production, which translates into reductions in purchasing activity.

- Changes in the level of economic growth, interest rates, and future financial and economic expectations also influence demand. The more income spent on automobiles, agricultural equipment, and aerospace products, the greater the demand for metal service equipment and machinery.
- The OEM supplier industry is highly cyclical and, in large part, dependent upon the overall strength of consumer demand for light trucks and passenger cars. There can be no assurance that the automotive industry, for which the Turned Product, Screw, Nut and Bolt industry supplies a large number of components, will not experience downturns in the future. A decrease in overall consumer demand for motor vehicles in general, or specific segments, could have a material adverse effect on the industry's financial condition and results of operations.
- Demand for products associated in this industry is directly related to conditions in the domestic automotive industry, which is affected by a variety of factors, including regulatory requirements, international trade policies, and consumer spending and preferences. The domestic automotive industry is characterized by significant overcapacity, fierce competition and significant pension and healthcare liabilities, and automotive production in the US has declined between 1999 and 2005. Certain domestic automakers and component suppliers are financially distressed or may become financially distressed. Recently, many fastener manufacturers' gross margins have been negatively impacted in part due to the declines in domestic automotive production. Any further decline in the domestic automotive industry could have a material adverse effect on the industry.

The life cycle stage of the industry is decline:

- A factor impacting on industry growth in this period has been a reduction in home demand in the US as manufacturers move offshore. In particular, the American Auto Industry continues to outsource foundry and related metalworking services to offshore countries.
- As with most other primary and fabricated metals industries, profitability of firms has come under pressure. Increasing steel prices and lower prices received for manufactured products, along with higher health care costs have reduced profit margins.
- Industry analysis indicates that technological change and development is medium. Most production processes within this industry are well established; although change does occur in response to environmental requirements.
- There is a mass market for nut, bolt and screw products, and there appears to have been little change in the size of the market for turned product and screw, nut and bolt products over the past five years.

Industry Outlook

IBISWorld forecasts that industry sales will fall to $17.1 billion over the five years to 2012. During this five year period, this is an average annualized decline of 1.1%, which is a worse outcome than over the previous five year average annualized decline (0.3%). IBISWorld believes that the diminishing sales growth over the last two years of the current performance

period will flow into industry performance for the outlook period. Growth over the outlook period is expected to decline each year, falling between 0.8% and 1.4%. Industry data suggests that a number of demand variables will experience mixed outcomes, which will counteract growth opportunities in this industry.

IBISWorld believes that a strong supportive factor, which will strengthen the potential for growth in this industry, is that of the expected growth in US GDP. Between 2008 to 2012, growth rates are forecast to be above 2% for all years, with a high of 2.9% in 2009. GDP growth over the period will fuel both consumer and business confidence, in which many industries will benefit from the continued positive economic environment. IBISWorld also believes that over the period, the growth of domestic goods price in steel metals will not be as excessive as that experienced in the current performance period, however is expected to continue growing. Overall, these conditions should provide the industry with the potential to achieve solid revenue figures, however, expected volumes are forecast to be lower as continued price increases may dismiss volume growth.

Over the five years, despite the strong economic forecasts IBISWorld believes many downstream demand industries will experience mixed growth outcomes. Some industries, mainly aerospace, truck manufacturing, and engine, turbine, and power transmission equipment will observe strong growth; however, other industries are expected to experience only modest and extreme negative average annualized growth. The contradictions in growth within these key downstream industries over the outlook period will diminish the potential for the Turned Product and Screw, Nut and Bolt manufacturing industry to achieve some solid industry revenue growth outcomes over the five years to 2012.

IBISWorld forecasts that value added for the Turned Product and Screw, Nut, and Bolt Manufacturing industry will decline at an average annual rate of 0.8% over the five years to 2012, falling to $10.47 billion.

IBISWorld believes that as industry revenue continues to decline each year over the forecast period, value added will experience similar results. However, organizations are expected to be more profitable in the outlook period as reduced volatility in material cost increases and improved organizational cost structures developed since 2004's cost inflation, will enhance firms' performances. Furthermore, IBISWorld believes that consolidation will continue, which will lead to larger companies, and these manufacturers are expected to become more involved in the global arena, seeking export business and extending their acquisitions from domestic locations to foreign locations.

Over the five years, IBISWorld expects that value added will increase from 60.3% of industry revenue in 2007, to 61.2% by 2012.

Industry Operation Issues

As mentioned, to compete successfully in the global marketplace, the industry is shifting its focus to the development of highly engineered, technologically advanced fasteners and fastening

systems. North American fastener manufacturers are also continuing to seek ways to offer an ever increasing array of value-added services and capabilities.
The US manufacturing base, of which the turned product and fastener industry is a good example, underpins the US's standard of living and their economic and national security. While the economy appears to be improving in the short term, manufacturing faces fundamental challenges, which if left unaddressed, could result in the erosion of the US industrial leadership. A public policy environment that fosters the re-emergence of North America as a pre-eminent, cost-competitive, high-quality, manufacturing power is needed. Manufacturing has a greater effect on economic growth than any other sector: a dollar's worth of manufactured goods generates an additional $1.50 in other economic activities. It is similar with employment, as nearly 15 million manufacturing jobs create an additional 8 million jobs in non-manufacturing sectors like retail, wholesale, and finance. If the US manufacturing base continues to shrink at its present rate, manufacturing innovation processes will shift to other global centers, and a decline in the US will result.

In the outlook period, the interaction of competitive forces will determine the ability of companies within the industry to earn an excess rate of return. Apart from the introduction of new products, companies will continue to compete on the basis of cost leadership as prices and margins continue to fall in the face of lower cost imports. Firms will try to obtain low operating costs in all market segments in which they operate (businesses will survive on the competitiveness of their quotes). These cost advantages will arise from economies of scale, implementation of technological systems and design, and cheaper access to raw materials. Companies that can achieve cost advantages and command industry-average prices will earn above average profits in the period ahead. These firms will also exhibit strong cash flows and growing return on capital employed.

As has happened over the current performance period, the output of domestically produced nuts and bolts will continue to be influenced by growing import penetration, increasing use of alternative joining technologies, improved fasteners, and the development of products (in customer industries) requiring fewer fasteners. In this regard, customers will seek low cost supplies in order to compete with competitors from the Asia-Pacific region. Industry participants suggest that the newly industrialized countries in the Pacific Rim are entering the fastener market, and expanded export opportunities both to and from Mexico and Canada as well as Europe and South America will occur.

It is expected that employment and inventories in industry will continue to contract. It is anticipated that because of rising productivity, employment numbers will grow more slowly than the average for all occupations over 2000-12. Productivity gains are expected to result from the increased use of computer-controlled machine tools and new technologies, such as high-speed machining, which reduce the time required for machining operations. The introduction of machinery and equipment will allow for fewer machinists to accomplish the same amount of work. Companies operating in the Turned Product and Screw, Nut and Bolt Manufacturing in the US will be forced to cut costs and improve capital productivity in light of growing price pressures.

Excerpts from ***Screw, Nut & Bolt Manufacturing in the U.S.***, IBISWORLD Industry Report, August 2007

33299 Ball Bearing, Ammunition, & Other Metal Product Manufacturing

Firms in this industry manufacture a range of metal products via a process referred to as metal fabrication. Metal fabrication involves the construction of equipments, machines and structures from various raw metal materials. It usually involves the building of machines and structures by cutting, shaping and assembling components made from raw materials. Ball bearing products manufactured by firms in this industry include, among others, annular ball bearings, cylindrical roller bearings, linear ball bearings, and tapered rolled bearings. Ammunition and ordnance products manufactured by this industry include cannons, tank artillery, howitzers, rocket launches and torpedo tubes. Other metal products manufactured by firms in this industry include small arms (gun barrels, pistols, rifles and shotguns); metal pipe and pipe fittings (pipe bends, pipe coils, pipe couplings, pipe manifolds, steel pipes and tubing); aluminum ladders; automobile frames; bank chests; chains and shower rods; and steel wool.

Demand determinants include:

- The majority of product demand is related to construction, manufacturing, and transportation markets. The value of products to customers derives from the need to construct buildings, machinery, automobiles, trucks, trains and other products requiring ball bearings, ammunition or other metal products produced by firms in this industry. The conditions affecting demand for products manufactured in this industry include price, the overall level of economic growth, and consumer tastes and preferences.
- Demand increases for most products manufactured in the industry reflects growth in the US economy through variables such as higher levels of capital spending, public sector infrastructure projects, and demand for residential and building construction.
- Amongst others, the key demand determinants from the construction sector (aluminum ladders, chains, chests, safe and vault doors, fireplace fixtures, shower rods, stepladders, toilet ware, metal pipe and pipe fitting products) include: growth in residential, nonresidential, commercial, and industrial construction; growth in public infrastructure; and the need for repairs and maintenance work. The recent downturn in the US housing construction market (as a result of the sub-prime mortgage market crisis) is a significant factor that will adversely impact demand for metal products manufactured for the construction sector (which accounts for about 10% of the major markets served by this industry).
- Ball and roller bearings are used in virtually all industrial and manufacturing applications (with the Machinery Manufacturing sub sector and the Transportation Manufacturing sub sector being the most important downstream customers for this industry). More than 80% of manufactured goods and capital equipment in the US use ball and roller bearings and engineered components in their production.
- In most segments of the market firms that operate in the service market concentrate on the industrial aftermarket mainly via a network of distributors (internal and externally

employed). Sales to the service market (aftermarket) are comparatively more profitable for businesses across the industry and in particular the ball and roller bearing product segment. In order to remain viable in the medium to long term, manufacturers must invest in more advanced engineering and machining capabilities to meet increasingly sophisticated customer requirements.

The life cycle stage of this industry is decline:

- Over the past decade, growth in industry revenue has slowed to a level below the overall economy (in all years except 2005 and 2006). Over the same period, industry value added growth has been below the level of the overall economy (in all years except 2002 and 2006)..
- Establishment numbers have stabilized around internationally prominent companies/brand names (imports comprise over 33.9% of domestic demand). T he more prominent firms include SKF, NSK, American Roller Bearing, and General Bearing Company. A stable number of industry establishments and well-defined major players are indicative of an industry in the decline phase of its life cycle.
- Products are used in a wide range of industrial applications; however product categories have been very stable for the past decade, suggesting that the industry is well into the decline phase of its life cycle. Demand increases for most products reflects economic growth in the manufacturing, construction and government sectors of the economy, rather than innovation on the part of industry producers.
- Although enterprise and establishment numbers domestically are relatively stable, the number of foreign players is increasing and consequently there is a declining customer base for firms in this industry, characteristic of an industry in decline.

Industry Outlook

IBISWorld forecasts that industry sales will reach $41.76 billion by the end of 2013. Over the five year period, this will represent an average annualized change of 2.3% per year, slightly lower than that of the previous five years (2.7%).

The outlook in the industry remains positive as downstream demand for products is expected to remain robust and industry revenue is expected to observe positive growth through the outlook period. Downstream demand industries such as Aircraft, Engine & Parts Manufacturing, Construction Machinery Manufacturing, Automobile Steering & Suspension Components Manufacturing and Truck & Bus Manufacturing are expected to support growth in manufactured products in the industry. Each of these industries are forecast to experience modest to strong growth over the next five years, which will support manufacturers of ball bearings, ammunition and other metal products. Business and consumer sentiment is expected to be adversely affected by the downturn in the US economy in 2008, though this is not expected to result in declining industry revenue into the outlook period as profits from export growth (largely the result of a relatively low US dollar) will support manufacturers in the forecast period (2009-2013).
Products manufactured in this industry are used in a large number of industrial applications (such as manufacturing, repair and maintenance) in many international markets. Due to the breadth in

sources of demand for products manufactured in this industry, future product and market demand will largely rely on conditions in downstream industries, which, as mentioned, are forecast to perform well. Industrial Building Construction is an exception to this, with slight declines forecast from 2011; however IBISWorld expects that given construction accounts for just 10% of the markets served by the Ball Bearing, Ammunition & Other Metal Product Manufacturing industry, this will not significantly adversely affect the industry. Similarly, slight declines (of between 0.2% and 0.9% are expected in the Train, Subway & Transit Car Manufacturing industry, though the overall impact of this on the Ball Bearing, Ammunition & Other Metal Product Manufacturing industry is expected to be slight due to strong expected growth in Truck & Bus Manufacturing (between 2.4% and 7.4% over the forecast period) and Aircraft, Engine & Parts Manufacturing (3.8% to 6.0% over the same period) which will contribute to growth in domestic demand.

In addition to robust domestic demand conditions, positive growth in major NAFTA (North American Free Trade Agreement) export markets (Canada and Mexico) will support industry revenue. Exports are expected to increase at an average annualized rate of 9.5% in the five years to December 2013, due to stronger demand from Canada and Mexico, as well as rapid growth in demand from China. In particular, the strong growth of the middle class in China is expected to fuel demand for products such as motor vehicles, thus also stimulating demand for component manufacturers, such as firms in the Ball Bearing, Ammunition & Other Metal Manufacturing industry.

Imports over the five years to December 2013, are expected grow at 8.1% per annum, reaching $19.2 billion. This will see the industry's trade deficit shrink to its lowest level since 2001, with a difference between imports and exports of $472.38 million expected by 2013 (compared to $1.8 billion in 2008). Import growth is expected from both low cost manufacturing countries (namely China, and also Taiwan) and developed nations, such as Germany, Italy, France and Spain. The combined effect of a lower US dollar, the increasing economic strength of the European Union (EU), as well as more comparable product standards between the EU and US, is expected to result in growth in imports from these established European nations.

Industry value added is expected to reach $24.24 billion by the end of 2013, with an annualized average growth rate of 2.1% over the outlook period. This is slightly lower than the expected annualized US real GDP growth of 2.5% over the outlook period. The ball and roller bearing industries are expected to largely contribute to the increase in value added, due largely to continued improvements in plant production processes generating economic efficiencies and technological advances improving labor productivity.

IBISWorld expects the number of establishments will grow very slightly at an average annualized rate of 0.1% over the outlook period. Industry consolidation through merger and acquisition activity is expected to contribute to this stagnation in establishment numbers, as the major players increase their market share. Employment growth is forecast to decline by 0.3% over the outlook period. Due to competitive pressures placed on firms from the emergence of low cost foreign manufacturers (in markets such as China and Mexico), growth in employment is

expected to be constrained. Furthermore, improvements in work processes and advances in technology in the ball and roller bearing segment is expected to lead to lower labor requirements.

Over the outlook period, there may be growing interest in wind-power generation (a potential, growth industry for ball and roller bearing manufacturers). Wind turbine bearings may provide growth opportunities for producers prepared to invest in innovative product designs. In addition, low friction suction motor bearings that contribute towards greater energy conservation in automobiles are being considered. These bearings will provide a 30% energy reduction for operation. Development of long life ball bearing for traction motor of railway rolling stocks also presents a growth opportunity for firms in this product segment.

Excerpts from ***Ball Bearing, Ammunition & Other Product Manufacturing in the U.S.***, IBISWORLD Industry Report, May 2008

33531 Electrical Equipment Manufacturing in the U.S.

This industry comprises establishments primarily engaged in manufacturing power, distribution, and specialty transformers; electric motors, generators, and motor generator sets; switchgear and switchboard apparatus; relays; and industrial controls. Electrical equipment manufacturers distribute their products to other manufacturing industries as well as wholesalers and the construction industry. Other manufacturing industries use the products as inputs for their finished goods. Materials used in the production of industry goods include metal, plastic and rubber.

Demand determinants for this industry include:

- Demand for Power, Distribution and Specialty Transformer products is impacted by: growth in demand for electricity (affected by economic growth); levels of profitability and capital expenditures in the power industries; the age of existing infrastructure and demand for reliable supplies; and demand for, and investment in, renewable energy.
- The demand for Motor and Generator products is impacted by economic growth, capital spending and industrial production; and consumer spending (e.g., for motors used in consumer products such as appliances).
- The demand for Switchgear equipment (equipment that protects the integrity of the power system) is impacted by spending on transmission network substations (high and medium voltage switchgear) and by building construction/renovation activity (low voltage switchgear). The demand for Switchboard Apparatus (equipment that directs electricity from one source to another) is impacted by building construction and renovation activity; and industrial production.
- Relay and Industrial Control products are used for automation and optimization of industrial and commercial processes, and demand for these products is primarily driven by growth in industrial production (automation solutions) and building construction (e.g., controls for automating and regulating heating, ventilation and air conditioning, and electricity and lighting).

- Government laws, regulations and policies impact demand for industry products. For example, the Energy Efficiency Act of 2005 requires the Federal Energy Regulatory Commission reduces the tax life of transmission assets (refer to Industry Assistance for additional information of the Energy Efficiency Act of 2005).

The life cycle stage of this industry is mature:

- IBISWorld forecasts that industry value added (IVA) will grow at an average annualized rate of 2.3% in the five years to 2008, while US GDP will grow at an average annualized real rate of 2.6%.
- Data from the Census Bureau indicates that there was a significant decline in the number of industry establishments and firms between 1998 and 2005; and IBISWorld forecasts a further decline in the number of industry establishments through 2008.
- The industry is characterized by well-established and stable products, with clearly segmented product groups. This is a characteristic of a mature market.
- IBISWorld forecasts the value of imports of industry products will grow at an average annualized real rate of 9.1% in the five years to 2008, with imports gaining market share over this period.

Industry Outlook

IBISWorld forecasts that industry revenue will grow at an average annualized real rate of 3.9% in the five years to December 31, 2013. As a percentage of revenue, industry value added is forecast to decrease modestly.

IBISWorld forecasts that industry revenue will be positively affected by a real increase in domestic demand for industry products (averaging 3.9% per year) and by strong growth in exports (averaging 8% per year).

While the rate of real growth in industry exports is forecast to be strong over the outlook period, it is lower than the forecast rate of real growth in industry exports in the five years to 2008 (averaging 10.5% per year). During the outlook period, industry exports are expected to be promoted by continuing growth in the global economy and by a depreciation of the US dollar.

However, growth in industry revenue is forecast to be negatively impacted by an increase in import penetration (rising from 46.2% in 2008 to 53.2% in 2013). Imports will also put pressure on unit selling prices in the US market.

Data from the Census Bureau indicates that the US Electrical Manufacturing industry reduced capital expenditures between 2002 and 2006 (to low levels). If low levels of capital expenditures are sustained beyond 2006, this could drag down industry growth going forward.

Domestic Demand

Economic conditions in the US should support reasonable growth in domestic demand for electrical equipment. Sales should also be promoted by demands among users of electrical

power and electrical products for: enhanced energy and environmental performance; and increased electrical current quality.

Spending on power infrastructure is expected to grow at a strong pace over much of the outlook period due to: ageing infrastructure; growth in the demand for energy; investment in alternative power generation, stimulated by rising energy costs and security of supply; demands for improved energy reliability; and increased demand for, and investment in, renewable energy.

A presentation by ABB in November 2006 listed some market drivers that will impact demand for power infrastructure, including:

- Load growth in cities and suburbs, driving system replacements and expansion.
- Brownout and blackout incidents related to ageing infrastructure, sporadically creating short-terms demand for equipment.
- Power generation additions; especially wind power, creating a need for transmission.
- Enhanced national standards will be set by the new North American Electric Reliability Organization (NERC).
- Department of Energy will designate National Interest Electric Transmission Corridors in 2007.

Utility regulators are now incorporating incentives for energy efficiency in utility rate determinations, creating opportunities for infrastructure improvements.

The Federal Energy Regulatory Commission (FERC) is establishing new business entities (called Regional Transmission Organizations), which will operate the transmission portion of the electrical system in the United States. Among the expectations of these new entities are for an improvement in power grid reliability (and higher standards), reductions in discriminatory transmission practices, and an increase in investments in transmission infrastructure.

Energy-efficiency standards will have a positive effect on demand for some types of electrical equipment. For example, the Department of Energy initiated new regulations mandating that after January 23, 2006, air conditioning and heat pump manufacturers can produce only components that meet a 13 SEER (Seasonal Energy Efficiency Ratio) or higher rating. The 2007 Energy Bill, which becomes effective December 2010, raises the industrial electric motor efficiency standards set in 1992 and extends coverage to many motors not previously covered.

Building construction activity affects demand for electrical equipment, particularly in the Switchgear & Switchboard segment and, to a lesser extent, in the Relay & Industrial Control segment. In addition, HVAC systems and appliances incorporate electric motors, and building activity is a driver of demand for HVACs and appliances.

Following a contraction in the number of housing starts in recent years, IBISWorld forecasts a strong increase in the number of housing starts in 2009 through 2011, with growth continuing but

easing in 2012 and 2013. The desire for more comfort in homes and for safety/security products will also have a positive effect on demand for electrical equipment in residential homes.

There are, however, some downside risks associated with the level of housing construction activity over the outlook period. In the US, the home ownership rate and the home rental unit vacancy rate are at relatively high levels (i.e., when compared with historical rates). There has been a decline in first home affordability in the US. Any rise in interest rates or any slowdown in employment growth would tend to adversely affect demand for new housing.

The commercial and institutional building industry is forecast by IBISWorld to produce stable growth conditions over the outlook period, albeit with varying growth rates by building sector. IBISWorld projects growth across all key commercial and institutional building markets early in the outlook period. Recent improvements in office vacancy rates and hospitality occupancy rates will likely promote construction activity in those sectors. However, the pace of expansion is likely to moderate in the retail and warehouse building sectors due to slower growth in consumer spending over the outlook period.

Downside risks for commercial and institutional building construction activity include: any sustained weakness in the labor market; any significant weakening in consumer spending in the US; and any significant slowdown in economic growth.

The level of industrial production in the US affects domestic demand for industry products, particularly in the Motor & Generator and Relay & Industrial Control segments and, to a lesser extent, in the Switchgear & Switchboard segment and other segments. IBISWorld forecasts stable growth in US industrial production over the outlook period. Competitive pressures will drive US companies to spend on electrical equipment that facilitates automation and energy conservation.

Excerpts from ***Electrical Equipment Manufacturing in the U.S.***, IBISWORLD Industry Report, April 2008

D.5.5 Plastics Manufacturing

Definition

NAICS Codes

32521 – Plastic, Resin & Rubber Manufacturing in the U.S.
32611 – Plastic Film, Sheet & Bag Manufacturing
32612 – Plastic Pipe & Parts Manufacturing
32614 – Polystyrene Foam Product Manufacturing
32615 – Urethane Foam Product Manufacturing
32616 – Plastic Bottle & Container Manufacturing

Recommended Research Filters

When marketing to this industry, we recommend that England Airpark target companies within the following parameters.

Sales:	$10m minimum
Employment:	100 minimum
Geographic Scope:	National with emphasis on the Upper Midwest and Northeast
Growth:	10% in sales or employment (over two years)
Events:	Predictive events such as executive change, merger/acquisition, new markets, new products/services, new contract, and IPO.

Plastics Manufacturing Universe	
Companies within geographic scope (national)	6,908
With 100+ employees and $10m+ sales	572
With growth and/or events	135

Industry Importance Factors

Based on our experience, the following site location factors and labor needs are most important to the logistics industry.

The most evident site location factors are related to the area's access to markets. These factors include geographic proximity, the cost of services to transport goods, the availability of services to transport goods, and telecommunications. Obviously, distribution companies need to be close to their customers. The ultimate goal is for companies to increase profit margins by delivering goods as timely and efficiently as possible. Access to a wide variety of transportation alternatives will be increasingly important as inter-modal, containerized shipping proliferates. For trucking, easy access to the interstates and major roadways is vital. Also, there will be an ever increasing need for reliable, redundant telecommunications infrastructure as shipment tracking and supply chain management via the Internet increase throughout the distribution industry.

Other significant location factors considered by the distribution industry include land availability, land cost, built space cost, and construction costs. Transportation companies are typically asset-heavy and spend a large portion of their revenue on equipment and facilities. The availability of large buildings or sites would also be paramount for distribution companies as they build for economies of scale. Another moderate location factor in the distribution industry is the dependability of energy.

Labor is another major expense for the transportation industry. When looking at the available workforce, the industry specifically needs transportation and material moving workers. The cost of both skilled and unskilled labor is also a vital factor as well for these companies as they attempt to remain competitive.

Quality of life factors are relatively unimportant to the distribution industry. However, transportation intermediary companies such, as third-party logistics companies are largely office workers and managers. Quality of life factors would be highly important to this sector of the industry.

Labor Outlook

NAICS Code	Industry	1996 Jobs	2006 Jobs	2016 Jobs	1996-2006 Change	2006-2016 Change
3252	Resin and Rubber Mfg.	140,900	105,100	83,700	-25%	-20%
3261	Plastic Product Mfg.	920,000	796,900	764,300	-13%	-4%

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, November 2007

32521 – Plastic, Resin & Rubber Manufacturing in the U.S.

This industry comprises management units primarily engaged in the manufacture of synthetic resins and plastic materials (i.e. polymers) and/or synthetic rubber. These manufacturing activities may be undertaken on both a customized or non customized basis. Key product groups include thermosetting resins, thermoplastic resins and synthetic rubber. Raw material inputs are sourced from other components of the chemical industry as well as from those industries involved in the production of petroleum based feedstocks. Industry products are then sold to a variety of downstream industries including packaging, chemicals, construction, and transportation.

The products produced by this industry are intermediate products utilized in the production of a wide variety of products including consumer products, automotive components and various durable and non-durable goods. For example, polypropylene (PP) resins are used in flexible and rigid packaging applications, in textile applications, in electrical/electronic applications and in the automotive industry; in the latter case PP accounts for 50% of all plastics used in passenger cars. Thus variables influencing the level of demand for various plastic materials, resins and synthetic rubbers include the following:

- Growth in the domestic economy as a whole, which in turn influences the level of demand from user industries and final consumers. Note given the role that exports play as well as the global nature of the industry, global economic prospects can also influence the level of demand;
- Growth of, and developments in, major user industries can also affect demand for the industry's products. These include production levels as well as other factors, such as substitution possibilities and technological developments.
- Technological advancements within the industry can also influence demand. For example, technological advancements within the polypropylene segment have seen manufacturers switch from high performance engineering plastic resins to special PP resins and compounds which offer lower cost performance, easier processing abilities and which can also meet recycling requirements. Basell in particular has sought to

continuously develop and reinvent polypropylene's properties and applications, often displacing traditional materials (including other plastics) in the process.

- The price of plastic materials and resins relative to other manufacturing inputs. Note some industry products can also be used as substitutes for each other; for example when natural gas costs are high, oil based polypropylene materials may be favored over natural gas based polyethylene resins.
- Environmental pressures may also influence the level of demand. For example, producers of acrylonitrile-butadiene-styrene (ABS) are benefiting from ecological concerns over the use of polyvinyl chloride (PVC).

The life cycle stage of this industry is mature:

The industry is characterized by its mature phase in the life cycle. This is evidenced by the industry's moderate growth rate which is in line with that of the general economy; in the decade to 2007 growth in value added averaged 4.2% per annum. The existence of clearly defined segmented product groups and user industries, and the fairly stable nature of industry products, brands and ownerships also suggest that the industry is in the mature phase of its current life cycle. This is particularly true for those involved in the manufacture of synthetic rubber, particularly emulsion grade styrene butadiene rubber.

However despite the maturity of the industry, the demand for many synthetic resins continues to grow given their versatility in the manufacture of a wide variety of products from flexible packaging for foodstuffs to automotive components to electrical appliances. For example while most markets for ABS (acrylonitrile-butadiene-styrene) are mature, ABS products are finding new applications prompted in part by the replacement of coating products in end markets such as the automotive industry. Other ABS producers are looking at the coextrusion of ABS with the likes of Bayer looking to target new areas by replacing fiberglass with co extruded ABS. This trend is expected to continue over the outlook period as is the move towards recycling plastics, both of which will provide growth opportunities for the industry.

Industry Outlook

The US Resin and Synthetic Rubber Manufacturing Industry will continue to be characterized by its volatile nature. In the immediate future natural gas and crude oil prices will remain volatile as will the pricing structure for a number of products. During 2008 it will be interesting to see what (if any) price increases can be pushed through by various industry participants; in recent times price increases have been cost-push driven (reflecting the fact that petrochemical derived feedstocks currently account for the bulk of a product's cost structure) and this scenario is expected to hold in the immediate future. Indeed the cost of energy will still continue to play a key role in the cash cost of polyolefins over the outlook period. This does not bode well for US resin manufacturers relative to their rivals in the Middle East who is expected to retain its sizeable cost competitive advantage in the production of polyethylene.

Cyclical economic factors will also influence the performance of the industry over the outlook period as will specific chemical industry conditions; while the global chemical industry is

currently characterized by relatively strong demand combined with tight supply in a number of product areas, it remains to be seen how sustainable this is, particularly as new capacity additions (predominantly located in the Middle East and Asia) come on stream later in the decade. Thus as a mature industry, cyclical supply and demand imbalances within both the industry as well as in downstream user industries will continue to affect industry performance. Moreover as before, prices will fluctuate in line with demand and changes in capacity utilization.

Thus in the medium term future, the industry will be affected by the level of economic activity in general and in various downstream industries such as the plastics industry in particular. Supply/demand balances and raw material volatility will also continue to influence the industry as may the potential enactment of new energy legislation designed to promote environmentally friendly and efficient energy processes; in late 2007 the Senate passed energy legislation (H.R. 6) which is designed to obtain improved vehicle fuel efficiency, greater use of bio fuels, and more energy-efficient products.

Therefore in view of the above annual growth rates are now expected to average 3.3% per annum to reach $97,500 million by 2013. In a number of instances year on year growth rates in a number of individual product segments are still expected to exceed GDP growth. In other product segments, such as various synthetic rubbers, the growth rates may be lower.

Growth in industry value added is anticipated to fluctuate in line with industry revenue. Relative to the previous period, growth is expected to be less volatile as feedstock costs exhibit a lower degree of volatility later in the period. Over the five year period to 2013 average annual growth rates are also expected to be in the order of 3.4%, bringing value added levels to an estimated $37,250 million by the end of the outlook period.

Both imports and exports will continue to play a relatively significant role in the US Resin and Synthetic Rubber Manufacturing Industry over the outlook period. In particular it will be interesting to note the fate of US exports in the face of increased competition from rival Middle Eastern and Asian petrochemical complexes who are proving to be increasingly serious contenders in view of their large-scale, low-cost structures which are oriented towards the global market. (In comparison US participants are relatively high cost, globally uncompetitive producers). In addition, petrochemical capacities within these regions are expected to increase further over the outlook period as the geography of the ethylene supply base continues to shift away from its traditional base. Of note is the fact that China Petroleum Chemical Corp. along with PetroChina Co have announced plans to commission as many as 12 crackers (each with a capacity in excess of 1 million tons a year) between 2007 and 2011. Thus while the recent growth in polyethylene consumption in the Asia Pacific region is expected to continue within the foreseeable future, there are no guarantees that the benefits of this growth will be captured by US exporters. Further uncertainty and /or volatility in natural gas prices will be to the detriment of US exporters.

At the same time, it is anticipated that imports will continue to grow in importance, satisfying an increasing percentage of domestic demand. It will be interesting to note whether any substantial

growth in PVC imports occurs over the outlook period given the expected growth in disparity between the operating costs associated with the US's vinyls chain as opposed to lower cost Asian rivals including China's growing acetylene-based PVC capacity; according to research consultancy company CMAI (Chemical Market Associates, Inc.) the changing energy dynamics has lead to a change in regional competitiveness within the vinyls chain industry which in turn is now being reflected in changing global trade patterns. Also of note will be the impact of the continued capacity PVC additions that are expected to occur within the Asia region on the international prices for PVC, EDC and VCM. Japanese subsidiary Shintech is due to bring on a new vinyls facility either in late 2007 or early 2008.

Given the mature nature of many of the products produced by the US Resin and Synthetic Rubber Manufacturing Industry, industry participants will continue to expand the range of processing and mechanical processes of plastic materials and resins to be used in an ever increasing array of applications and end uses. For example, this will then see the development of new grades of polyethylene and polypropylene using new polymerization catalysts and reactor processes; in June 2006 Basell launched its first North American offering of polypropylene based resin grades for frozen food packaging manufacturers.

The outlook period will also witness continued changes to the type and form of polymers demanded partly in line with increased demand for quality, efficiency and ecology. This last variable in particular will be of key importance as mounting environmental concerns with regards to the downstream use of plastics will have a number of implications for the industry. As manufactures are increasingly made responsible for the recovery, recycling and disposal of their product, there will be an increased focus on technologies designed to increase the recyclability of polymer products and utilize sustainable production processes. Thus environmental issues (including the need for reduced cost, solvent free and reduced VOC resins) will continue to underlie technological innovations which may revolutionize the manufacture of plastics in general. The possible increased use of methanol will also have implications for the type of technologies utilized by the industry.

It is interesting to note reports that Microsoft has recently stopped using PVC clamshell packs in its packaging of new software products while other PC makers such as Apple, Dell, Hewlett-Packard, Sony, sharp and Samsung are also looking into new packaging alternatives. Even the likes of Wal-Mart as well as Johnson & Johnson are seeking to eliminate the use of PVC in primary packaging. Trends such as these will of course have adverse implications for various industry participants. At the same time it is also interesting to note the findings of a recently released report by the Freedonia Group which states that US demand for plastic containers will grow by nearly 5% per annum to 2010 which in turn will create the demand for over 14 billion pounds of polyethylene-based polymers and other resins.

Further industry rationalization is expected to continue over this period, with a number of the older, less efficient plants being decommissioned. In the case of polypropylene (PP) further consolidation is expected as smaller plants are forced to close. This in turn will help promote the process of globalization, an increasingly important characteristic of the industry. A similar

scenario is applicable for polystyrene (PS), a product for which global demand is currently deemed to be soft despite the strong economic growth occurring in China, one of the key consuming regions. In 2006, further PS capacity was closed within the North American region in line with the shift of both styrene and polystyrene capacity from higher cost facilities and/or regions to lower cost regions. It is interesting to note recent comments made by an executive of Basell who spoke of the polyolefins world as being one of change as market dominance shifts from the "west" to the "east" and as supply dominance shifts from the markets to the feedstock. According to Basell, production leadership is shifting from the traditional albeit mature markets to those areas of the world that possess low cost feedstock reflecting the fact that cash cost leadership now lies with the feedstock owning nations. The point was also made that the industry is beginning to see the ascendance of new players (many of which are coming from new geographies) with the simultaneous departure of the traditional North American and European integrated petrochemical companies.

Continued developments in the Middle Eastern and Asian chemical industries will also have a number of implications for the US Resin and Synthetic Rubber Manufacturing Industry. Recent years have seen the construction of a number of large scale petrochemical plants, often employing the latest technology. Additional plants are expected to be built or come on stream over the outlook period. These developments will serve to further increase the competitive pressures faced by the local industry. In the case of polypropylene, the number of US producers (as well as European and Japanese producers) will continue to fall while the number of major Asian and Middle Eastern producers will increase. It is anticipated that the largest PP expansion will occur within the Middle East to the extent that eventually the Middle East will become the ultimate source of a number of key polyolefins for the world. Note that another outcome of this development will again be a gradual change in trade patterns not only for polypropylene and polyethylene resins but also for the finished plastic goods themselves. Also of note is the announcement in late 2007 that Dow Chemicals is to sell a 50% interest in five of its global chemical and plastics business to Kuwaiti based Petrochemical Industries Co, (a subsidiary of state-owned Kuwait Petroleum Corp) for $9.5 billion as it forms a new joint venture which is expected to have annual sales in excess of $11 billion and employ over 5,000 people. Designed to be a leading global petrochemicals company, the jv is to manufacture and market polyethylene, polypropylene, polycarbonates, ethylenamines and ethanolamines. The deal is to give Dow access to cheap natural gas; indeed the jv will build upon PIC's feedstock position. Subject to the completion of definitive agreements and regulatory approvals, the transaction is anticipated to close in late 2008.

It is possible that global players may actually seek to close US production facilities in favor of lower-cost facilities located within the fledging petrochemical industries of Southeast Asia. For example, BASF is to significantly cut its North American investment rate (by about 50% of its five year average) and will focus instead on new investments with the Asia Pacific region. (It is also in the process of restructuring its business including its Plastics business and may in fact sell its styrenics business). Other players are planning to invest more money into the Asia Pacific region in an attempt to even out regional production shares; for example in September 2007 ExxonMobil Chemical Co announced that it was to build a second integrated steam

petrochemical plant (with an ethylene steam cracker, two polyethylene units, a polypropylene unit and a specialty elastomers unit) in Singapore which is due to come on line in early 2011. Developments such as these will have fundamental, albeit gradual, implications for the future of the industry.

US producers will also have to contend with the increasing commoditization of their products, a development which will add further pressures to already weak margins. They will also remain vulnerable to periodic energy pricing shocks. The American Chemistry Council recently made the point that if natural gas prices remain at projected levels, then `demand destruction' may occur as industrial users are priced out of the US market. In response to the current scenario a number of the larger integrated chemical companies are presently reviewing the sustainability of their US operations; as part of this process they make seek to enact yet further cost-cutting measures with a view to improving to energy efficiency levels; for example in late 2007 Dow announced plans to cut 1,000 jobs as it seeks to rationalize its operations. More drastic measures however may see the closure of various North American plants which are deemed to be inefficient as resources are shifted to other regions which offer a competitive advantage re natural gas supplies. On a related note it is interesting to see that Wellman (who has not returned a net profit since 2001) is putting itself up for sale as the North American PET resin industry adds new capacity which is expected to outstrip demand.

In view of the variables outlined above further consolidation is expected within the US petrochemicals industry. Of note is Basell's acquisition (owned by the privately held industrial group Access Industries and the world's largest PP producer) in late 2007 of Lyondell Chemicals (North America's second largest ethylene and propylene producer) for $12 billion which has seen it gain ownership of a number of large US petrochemical complexes. This follows on from its unsuccessful attempt to purchase Huntsman Chemicals for $9.6 billion in June 2007 with Huntsman Chemicals instead being acquired by Hexion Specialty Chemicals (which claims to be the world's largest producer of thermosetting resins). Additional acquisitions amongst other major chemical/petrochemical players should they follow suit may have long term implications for the industry.

It is therefore anticipated that the US Resin and Synthetic Rubber Manufacturing Industry will continue to evolve over the outlook period in line with its changing operating environment.

Excerpts from ***Plastic, Resin & Rubber Manufacturing in the U.S.***, IBISWORLD Industry Report, February 2008

32612 – Plastic Pipe & Parts Manufacturing in the U.S.

Operators within this industry manufacture a range of plastic pipes, plastic fittings for those pipes, and plastic profile shapes such as rods and plates. The pipe products are sold to customers with fluid handling requirements such as water treatment plants, oil rigs, farmers etc.

The major demand determinants include:

- The level of residential and non-residential construction activity affects demand for water, sewerage and gas pipelines. The level of interest rates, population growth, household formation and government expenditure on infrastructure and other buildings.
- The level of public construction activity is affected by economic activity, environmental considerations, changes in industry cost structures (i.e. gas, water), and new products associated with technological advances (e.g. broadband telecommunications and underground cable).
- Investment conditions in farming and mining industries, influenced by commodity prices and weather, affect the demand for pipes used for irrigation and the transfer of water, other liquids, slurry and gases. Large polyethylene bore pipes are used in the mining industry for slurry and water reticulation.
- Household consumption expenditure on home improvement and high value consumer goods, such as refrigerators and automobiles. An increase in demand for refrigerators and automobiles, in turn, increases demand for pipes and ventilation hoses.
- Replacement demand. This is influenced by the age and condition of existing major pipe systems and the maintenance/replacement decisions made by organizations responsible for the pipeline.
- Product innovation giving rise to new applications for plastic pipes and shapings. For example, the development of higher molecular weight materials in polyethylene pipes has enabled these pipes to handle higher pressures, making them particularly useful in situations where larger diameters or thin walled pipes are required.

The life cycle stage of this industry is mature:

Over the past five years, the industry has experienced moderately high value added growth; however industry performance remains subject to broader economic determinants. The industry has obtained a high penetration of plastic materials in its major market segments (e.g. pipes), with growth now dependent in the level of activity in end-use markets. Growth in the industry will be determined by the performance of the construction and manufacturing sectors.

There is a trend towards consolidation present within the industry. Anecdotal evidence suggests increasing merger and acquisition activity, while the number of establishments and enterprises steadily decreases. This is reflected by ADS's purchase of Hancor in 2005, and PW Eagle's acquisition of Uponor Aldyl (see Major Players section).

Industry Outlook

IBISWorld expects the Plastic Pipe, Pipe Fitting, and Unsupported Profile Shape Manufacturing (PPU) industry to outperform the broader manufacturing sector over the next five years. Short term growth will continue to be supported by high plastic resin prices, while the medium term performance will see growth moderate in line with business infrastructure investment.

High plastic prices are expected to persist throughout 2008 and 2009, driving industry revenues upwards. IBISWorld forecasts that industry revenue will increase by 7.5% in 2008 and 6% in 2009. Lower plastic prices and slower economic growth will reduce industry revenue over the final three years of the outlook period. IBISWorld forecasts that industry revenue will increase by 2.5%, 1.5%, and 1.2%, respectively, in 2010, 2011, and 2012.

While the risk of a broader economic downturn in the US will have a significant impact on the PPU, there are a number of risks that have been identified that relate specifically to the PPU industry:

- A cyclical decline in the housing market, which began in mid-2006, threatens to constrain demand for PVC piping from the construction sector.
- While the level of import competition the PPU faces is not high, it is currently being protected to some degree by the low US dollar. The vast majority of import competition comes from Canada, a change in the US/Canadian dollars exchange rate will significantly increase the competitiveness (in terms of price) of the Canadian product.
- The broader manufacturing sector is currently facing fierce competition from emerging nations, particularly from Asia. Further deterioration of the manufacturing sector could have a significant impact on the PPU industry. For example, the PPU industry supplies the US automotive industry with plastic unsupported profile. The automotive industry is facing extremely tough international competition, and the future of the industry is uncertain.
- Evidence that economic growth appears to be slowing in the US.

The PPU has always been very active in the research and development of products that can substitute for more expensive metal or concrete products. This continues to be an important theme for the industry. The current high price of many metals gives the industry the opportunity to further infiltrate into what have traditionally been metal dominated markets. Developing cheaper methods of production will be a very important factor, as competition remains strong particularly from light weight aluminum and steel.

Further, demand from the agricultural sector is expected to increase. The combination of drought and salinity issues has made farmers aware of the importance of watering more efficiently in agriculture. As a result, in years to come, flood irrigation will cease, causing farmers to invest in spray irrigation systems which apply water more efficiently. The lowest-cost spray irrigation alternative to farmers is a system using plastic pipes and fittings.

Excerpts from ***Plastic Pipe & Parts Manufacturing in the U.S.***, IBISWORLD Industry Report, November 2007

32614 – Polystyrene Foam Product Manufacturing in the U.S.

This industry comprises establishments primarily engaged in manufacturing polystyrene foam products.

The major demand determinants include:

- The level of household consumption expenditure. Household consumption expenditure drives demand for polystyrene foam products used as an input by manufacturers of consumer goods, household appliances, furnishings, safety helmets and motor vehicle components, and used by wholesalers and retailers for packaging of fresh fruit and vegetables, and by fast food outlets for food and drinks containers.
- Demand for polystyrene foam food and beverage containers is positively affected by growth in the fast food and takeaway restaurant markets. These containers can also offer superior insulating and molding qualities.
- Residential and non-residential construction activity. In addition, the level of activity in the building industry affects demand for polystyrene foam used in thermal and thermo-acoustic insulation products, and in void fillers.

The life cycle stage of this industry is mature:

- IBISWorld estimates that the real value of industry shipments grew at an average annualized rate of only 0.4 percent in the five years to December 31, 2005.
- There has been a significant decline in this industry's capital expenditures in recent years.
- New applications for polystyrene products have slowed.
- Some industry products are supplied as intermediate products (e.g., packaging) to manufacturers that are, in turn, in industries that are growing slowly or are subject to significant import competition.
- Technological changes have slowed and are not significant, compared to other plastic converting industries. Technological changes are largely introduced by the suppliers of machines and raw materials.
- Paper products have made some inroads into some food packaging segments (partly due to environmental concerns relating to the disposal of plastic materials).
- Strong levels of home building activity in the United States in the five years to December 31, 2005 positively affected demand for building insulation, as well as products used in household durables. An increase in the average size of new homes also bolstered demand for insulation, as did State energy codes that promoted insulation.

Industry Outlook

IBISWorld forecasts that industry value added (IVA) will grow at an average annualized real rate of 2.2% between 2008 and 2012, while GDP will grow at an average annualized real rate of 3%. IBISWorld forecasts that the rate of average annualized real growth in IVA will exceed the rate of average annualized real growth in the value of industry shipments (2.1%) over the same period of time.

A downturn in capital expenditures by this industry in recent years indicates that little additional capacity has been added. This also indicates that at least some industry players may have forecast that growth and profitability will slow relative to that experienced in the 1990s.

There is some uncertainty around the future level of end-product prices due to the influence of volatile crude oil prices on plastic resin (input) prices and on distribution costs. IBISWorld believes that the pricing of industry products over the outlook period will reflect more closely the prices of raw material - and this will benefit margins (and value added) and more so if raw material prices decline.

Growth in sales values will come from underlying volume growth, albeit moderate. Innovations in polymers and manufacturing processes will enable polystyrene foam manufacturers to moderately reduce the volume of raw materials per unit of production.

IBISWorld forecasts that foam cup segment demand will grow at an annual rate of 2.8%, between 2008 and 2012, benefiting from growth in demand for large cups, in the take-out market and in casual dining.

There are threats to growth in demand for some industry products, including from the environmental lobby (refer below). Suppliers of packaging to U.S.-based consumer electronics, appliance and glassware manufacturers would be adversely affected by any increase in import penetration on those packaging-user industries.

IBISWorld forecasts that economy-wide consumer spending will ease over the outlook period, growing at an average annualized real rate of 2.8%. This is lower than the average annualized real rate of growth in the five years to 2007 (3.3%). Moreover, there is a risk that consumer spending could be hit by a decline in asset prices (such as in equity or housing prices) and, if such an outcome were to eventuate, IBISWorld would revise down its forecast levels of consumer spending (as well as spending on this industry's products). Moreover, high gasoline and energy prices would, if sustained, dampen consumer spending on other goods and services.

Packaging is a major application for polystyrene foam products. A trend of growth in single person households is one factor that should bolster demand for packaging materials, particularly for take-away and prepared foods. This should provide a source of growing demand for expanded polystyrene foam (EPS) packaging. However, environmental interests may act to reduce demand for EPS packaging in some food applications (McDonalds, for example, has previously reduced the use of EPS packaging). The industry is promoting collection centers and recycling to counter this threat.

The level of building construction activity, particularly housing, affects demand for insulation and other polystyrene building products, as well as the demand for packaging. IBISWorld forecasts that the growth in housing construction activity will slow over the outlook period, relative to the previous five years (refer to Table below). This follows very strong levels of housing construction activity, and activity should slow as interest rates rise, as the economy weakens, and as growth in the US population slows. The pace of growth in non-residential construction activity is also forecast to moderate between 2008 and 2012. The principal factors weakening the outlook for non-residential construction activity include the slower pace of

general economic and employment growth over the full outlook period, and high vacancy rates in some property markets early in the outlook period (notably office stock).

In the building insulation market, polystyrene foam should gain market share (mainly from fiberglass and mineral wool). New and growing building applications for plastic foams include void filling (e.g., under concrete slabs) and roofing materials.

Excerpts from ***Polystyrene Foam Product Manufacturing in the U.S.***, IBISWORLD Industry Report, August 2007

32615 – Urethane Foam Product Manufacturing in the U.S.

This industry comprises establishments primarily engaged in manufacturing plastic foam products (except polystyrene). These products are used to insulate objects or reduce shock. Plastic foam products are used in bedding, packaging, seat cushioning, carpet cushioning, car interiors, fluid filtration systems, anti-noise and vibration systems in aircraft, medical devices, and a number of consumer applications such as sponges, mops, paint brushes, and cosmetic applicators.

The major demand determinants include:

- Consumer spending, which influences demand for foam used by manufacturers of furniture, bedding and motor vehicles (and associated parts). Consumer spending on furniture, bedding and insulation is also influenced by residential construction activity and household formation.
- Construction activity levels in the United States affect local demand for insulation. Levels of non-residential construction activity and private and public infrastructure expenditure can affect demand for some other products (e.g. foam used for public seating).
- Competitiveness with substitute products. Some customers require foam products that deliver very high performance (such as high fire retardant qualities), particularly customers providing seating and other accommodation to the public (such as transport authorities).
- Intermediate demand is also affected by the competitiveness of US-based manufacturing customers. Where manufacturing customers lose market share to imports, this will adversely affect their sales and hence their demand for foam inputs.

The life cycle stage of this industry is mature:

- The industry has a dominant position in some major market segments (e.g. furniture and bed padding), where growth is largely dependent on the level of activity in end-use markets (which are cyclical).
- There is excess capacity in this industry. This, along with competitive pressures in the industry, has made it difficult to raise selling prices.

- A significant proportion of industry products are supplied as intermediate products to manufacturers that are in industries that are cyclical, growing slowly and/or are subject to significant import competition.
- Technological changes can be significant, compared to other plastic converting industries. Technological changes are largely introduced by the suppliers of machines and raw materials, with such technology usually widely available to competing plastic foam manufacturers.
- The use of plastic composite materials, which can offer increased utility to customers, is expected to increase in some foam padding applications.

Industry Outlook

Between 2009 and 2013, IBISWorld forecasts that:

- Industry revenue will increase at an average annualized rate of 6.3%.
- Domestic demand for polyurethane products will increase at an average annualized rate of 7.7%.
- The value of polyurethane products imported into the economy from abroad will increase at an average annualized rate of 8.1%.
- The value of polyurethane products exported abroad will increase at an average annualized rate of 7.7%.

Domestic demand for units produced will be driven by the value of construction put in place which is forecast to grow at an average annualized rate of 5.8% (up from an estimated 5.2% between 2004 and 2008). The level of building construction activity affects demand for insulation, as well as demand for bedding, furnishings and packaging. In the building insulation market, polyurethane foam should gain market share (mainly from fiberglass and mineral wool). New and growing applications for foam include void filling (e.g. under concrete slabs) and roofing materials. Construction is forecast to grow due to lower interest rates, more affordability and increased growth in the population and in household formation as a result of increased migration to the US.

Automotive production is forecast to grow at an average annualized rate of 2.2% over the forecast period (up from a decline of 3.4% per annum between 2004 and 2008). However, suppliers to the automotive and furniture industries in the United States will be adversely affected by a forecast increase in import penetration in those US industries. In addition, IBISWorld believes that new innovations should moderately expand the usage of industry products in building, furniture, bedding, packaging and automotive markets.

Industry selling prices have, in the past, been highly correlated to the movement of crude oil prices. Between 2004 and 2008, crude oil prices are expected to increase at an average annualized rate of 7.7% (down from an estimated 22.2% between 2004 and 2008).

Large companies in the manufacture of polyurethane foam products will be in a better position to devote resources toward R&D,, and toward developing global R&D alliances. New technology

is important in improving product quality and characteristics, and in driving productivity gains (which can all help to boost profit margins), as well as in winning market share from substitute products.

IBISWorld believes that it will become increasingly difficult for smaller players in this industry to survive. To succeed, smaller players should have a strong focus in niche markets, and should have strong R&D activities or, alternatively, seek to license technology from larger operators in the US or from overseas.

The occurrence of certain events in the future which are out of the industry's control pose a threat to this forecast. They include:

- The rate of recovery of the residential construction market.
- The rate of resurgence of consumer spending after a series of interest rate reductions by the Federal Reserve
- The volatility of crude oil prices.
- Environmental lobbying to reduce the consumption of some polyurethane packaging products.

The industry faces the following challenges moving forward:

- The maintenance of selling prices at a level that accommodates raw material and energy cost increases.
- To increase production efficiency.
- To develop new products that will increase the usage of polyurethane products in building, automotive and consumer markets.
- Increased control over both production and non-production labor costs, and manufacturing overhead costs.
- To better adjust manufacturing volumes to changing downstream demand to avoid oversupply.

Excerpts from ***Urethane Foam Product Manufacturing in the U.S.***, IBISWORLD Industry Report, February 2008

32616 – Plastic Bottle & Container Manufacturing in the U.S.

Operators within the industry manufacture a range of bottles from different plastic compounds depending upon their end-use. These bottles are then on-sold to beverage and food manufactures to be used to package soft drinks, milk, and ketchup.

The major demand determinants include:

- The price and performance of plastic bottle products relative to alternative materials (i.e. glass and aluminum).

- The level of household expenditures on beverages, food, cleaning liquids and chemicals (e.g. soap, shampoo, floor cleaner and polisher) and pharmaceuticals which utilize plastic containers.
- Consumer preferences for alternative packaging solutions influenced by cost, perceptions of quality and the recyclability of the packaging material.
- The level of exports of US food and beverage products, which affects demand for plastic bottle products.
- Technological advances that extend the applications and use of plastic bottles. The development of oxygen scavenging techniques has made PET more suitable for beer containers, causing significant penetration of PET containers in the market.
- A number of major users of plastic bottles have begun producing their own plastic bottles (i.e. Coca Cola). This phenomenon causes a reduction in demand for plastic bottles from manufacturers that target external markets.

The life cycle stage of this industry is mature:

IBISWorld estimates that between 2004 and 2008, industry value added will grow at an average annualized rate of 1.3%, while real GDP is estimated to grow at 2.7% over the same period.

The market share gains made by plastic bottles over substitute products, such as glass, have now moderated. Much of these gains were made by the emergence of new barrier technology driven by the introduction of new beverage product lines. Consumer demand for these products has now moderated relative to when they were first introduced. IBISWorld believes that there is scope in the future for plastic bottles to gain market share over glass, however, this will only arise with new consumer product introductions.

Industry Outlook

Between 2009 and 2013, IBISWorld forecasts that:

- Industry revenue will grow at an average annualized rate of 4.1%
- Domestic demand will grow at an average annualized rate of 8.5%
- The value of plastic bottles imported into the US economy will grow at an average annualized rate of 3.7%
- The value of plastic bottles exported abroad will grow at an average annualized rate of 8.5%

Soft drink consumption in the US is forecast to decline at an average annualized rate of 0.7% (down from an estimated average decline of 0.5% per annum between 2004 and 2008). Bottle watered consumption which has grown at an average annualized rate of 2.2% over the five years preceding the outlook period is forecast to moderate, growing at 1% per annum between 2009 and 2013. Plastic resin prices are forecast to increase at an average annualized rate of 5.3% (down from an estimated average 8.8% per annum between 2004 and 2008).

The early part of the outlook period will be sluggish as consumer confidence improves in the wake of the sub prime financial crisis. Tax cuts and a fiscal stimulus package will increase

disposable income entering 2009. Together with rising resin prices and the continuation of the penetration of glass packaging markets by plastic bottles the industry will record solid growth.

IBISWorld forecasts that Europe, Canada and Japan will be the most important export markets to firms within the industry over the outlook period. China and Korea will provide the greatest import competition for industry firms over the same period.

IBISWorld forecasts that industry value added will increase at an average annualized rate of 1.3%, compared to an average annualized rate of GDP growth of 2.7% over the outlook period. Labor costs increasing faster than productivity after a period of low capital expenditure by the industry will result in the erosion of value added.

IBISWorld estimates that the number of industry establishments will expand at an annualized rate of 0.5% as firms locate manufacturing facilities closer to key markets to reduce transportation costs. Employment is forecast to decline at an average annualized rate of 0.4% and wages increase at an average annualized rate of 1.3%.

The continued substitutability of plastic for glass relies upon technological innovations that broaden the range of bottling uses for plastic. IBISWorld believes that the area with the greatest opportunity for growth continues to be the food and beverage market. There is particular scope for plastic packaging to substitute glass in food applications, such as salad dressings, ketchup and other commercially available sauces. Demand for plastic bottling for beer is forecast to expand over the next five years as breweries adopted the special technological processes requisite for the successful bottling of beer in plastic. Plastic beer bottles create an important export market which will drive industry growth in coming years.

IBISWorld predicts that increased competition in the soft beverage market will continue to fuel the trend for bottle manufacturers to locate on-site as soft beverage manufacturers seek to reduce their costs. This implies that plastic bottle manufacturers will need to exhibit increased flexibility, not only in terms of the location of their production lines, but also in terms of the ability of their production lines to produce a diverse range of products.

Excerpts from ***Plastic Bottle & Container Manufacturing in the U.S.***, IBISWORLD Industry Report, February 2008

D.5.6 Regional Distribution

<u>Definition</u>

NAICS Codes

423 – Wholesale Trade, Durable Goods
424 – Wholesale Trade, Nondurable Goods
484 – Truck Transportation
488 – Support Activities for Transportation

493 – Warehousing and Storage

Recommended Research Filters

When marketing to this industry, we recommend that England Airpark target companies within the following parameters.

Sales:	$5m minimum
Employment:	10 minimum
Geographic Scope:	Regional, including LA, MS, AR, TX, AL, OK, TN
Growth:	10% in sales or employment (over two years)
Events:	Predictive events such as executive change, merger/acquisition, new markets, new products/services, new contract, and IPO.

Regional Distribution Universe	
Companies within geographic scope	226,248
With 10+ employees and $5m+ sales	6,975
With growth and/or events	2,446

Industry Importance Factors

Based on our experience, the following site location factors and labor needs are most important to the logistics industry.

The most evident site location factors are related to the area's access to markets. These factors include geographic proximity, the cost of services to transport goods, the availability of services to transport goods, and telecommunications. Obviously, distribution companies need to be close to their customers. The ultimate goal is for companies to increase profit margins by delivering goods as timely and efficiently as possible. Access to a wide variety of transportation alternatives will be increasingly important as inter-modal, containerized shipping proliferates. For trucking, easy access to the interstates and major roadways is vital. Also, there will be an ever increasing need for reliable, redundant telecommunications infrastructure as shipment tracking and supply chain management via the Internet increase throughout the distribution industry.

Other significant location factors considered by the distribution industry include land availability, land cost, built space cost, and construction costs. Transportation companies are typically asset-heavy and spend a large portion of their revenue on equipment and facilities. The availability of large buildings or sites would also be paramount for distribution companies as they build for economies of scale. Another moderate location factor in the distribution industry is the dependability of energy.

Labor is another major expense for the transportation industry. When looking at the available workforce, the industry specifically needs transportation and material moving workers. The cost

of both skilled and unskilled labor is also a vital factor as well for these companies as they attempt to remain competitive.

Quality of life factors are relatively unimportant to the distribution industry. However, transportation intermediary companies such, as third-party logistics companies are largely office workers and managers. Quality of life factors would be highly important to this sector of the industry.

Labor Outlook

NAICS Code	Industry	1996 Jobs	2006 Jobs	2016 Jobs	1996-2006 Change	2006-2016 Change
42	Wholesale Trade	5,522,100	5,897,700	6,326,200	7%	7%
483	Water Transportation	51,000	64,100	76,200	26%	19%
484	Truck Transportation	1,282,400	1,437,200	1,594,900	12%	11%
488	Support Activities for Transportation	445,900	570,700	667,700	28%	17%
493	Warehousing and Storage	451,800	636,400	785,900	41%	23%

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, November 2007

48411 – General Freight Trucking, Local in the U.S.

This industry comprises establishments primarily engaged in providing local general freight trucking. General freight establishments handle a wide variety of commodities, generally palletized and transported in a container or van trailer. Local general freight trucking establishments usually provide trucking within a metropolitan area which may cross state lines. Generally the trips are same-day return.

Demand determinants:

- Demand determinants for motor carriers are movements in industrial production, retail and wholesale sales, personal consumption, construction, and international trade activity, in particular imports.
- The move by certain manufacturers to just-in-time inventory management has increased the activity of the road freight industry in that consignments are getting smaller but more frequent. This has led to many trucking operators forming close relationships with manufacturers which have developed into long-term contracts.
- Apart from government policies affecting trade barriers, the major determinant of manufacturing demand is movements in private consumption expenditure and in gross equipment expenditure, which affects the growth in the demand for manufactured products. The key determinants of wholesale and retail demand are movements in real household disposable incomes, interest rates and prices.
- Major determinants of the construction sector activity are: movements in real household income and general industry growth, level of net immigration, interest rates, and

Government policies (such as tax treatment), prices, occupancy rate and rates of return from other investment forms.

- Determinants for imports are: price differential with locally produced product and exchange rates impact on aggregate domestic demand.

The life cycle stage of this industry is defined as mature.

- The local trucking industry is a mature one. It moves closely in-line with general economic activity and usually is a good barometer of economic activity during a given period. Over the current period, industry gross product expanded by 1.8% on an annualized basis, while the US economy grew by 2.5%. The slower growth rate in industry value added has been due to an expected decline in 2008 and above average growth in 2003.
- Those operators that have invested in web-based value added services such as e-logistics can expect to grow faster than the rest of the participants in the industry.
- Little development of technology in the last five years to warrant a new growth cycle.
- In the last five years the industry has experienced significant mergers and acquisitions.

Industry Outlook

Overall, over the period 2009 to 2013, industry revenue is expected to increase by 2.6% per year and value added by 2.4%, slightly higher than US GDP annualized growth rate of 2.2% over the same period.

Freight volumes available to the Local Freight Trucking Industry are expected to expand only slightly in 2009 as the US economy grows by 1.3%. As a consequence, industry revenue is expected to increase by 1.8% and value added by 1.0%. The lower growth rate in value added is expected to be brought about by lower profitability as capacity exceeds demand and therefore applies pressure on prices.

IBISWorld forecasts industry revenue to expand by 2.4% and value added by 2.7% in 2010. The relatively stronger growth in revenue is expected to be due to increasing demand for long-distance trucking as the US economy expands by 2.2%. Some increases in prices are expected in 2010 as trucking capacity aligns itself with demand.

With the introduction of new hours of service regulations for drivers imposed by the Federal Government, truckload capacity is likely to tighten in 2010, which is expected to significantly raise carriers' costs. These increased costs are expected to be passed on as higher prices, with increases between 4% and 7%. A shift towards increasing in-house trucking capacity may bring about equilibrium between supply and demand for trucking services by the end of 2009.

Over the last three years of the outlook period, industry revenue growth rate is expected to increase gradually in-line with movements in GDP and is expected to reach $29.69 billion in 2013.

Over the outlook period, employment is expected to increase from 187,925 in 2008 to 189,717 in 2013, expanding at an annualized rate of 0.2%. The driver shortage constraint is expected to continue and therefore limit the capacity of this industry to grow to its full potential. The driver shortage issue will provide labor unions with added bargaining power to increase labor costs. The majority of the major players' employees belong to the International Brotherhood of Teamsters (IBT), which has won certain wage increases that are expected to increase labor expenses significantly during the forecast period. These increases in labor costs will translate to truckload rates increasing by 3% to 5% over the forecast period.

The global oil market is expected to remain fundamentally tight entering into 2009, despite a slowdown in US oil consumption and growing risks to global economic growth in the short-term. The combination of rising world oil consumption and low surplus production capacity is expected to put upward pressure on oil prices. Oil prices are expected to stabilize or even decline at the end of 2009 but remain historically high.

Stiffer environmental regulations are expected during the forecast period and beyond as the industry comes under increasing scrutiny as a generator of negative externalities such as atmospheric pollution and traffic congestion.

To this extent, the Environmental Protection Authority (EPA) has developed a voluntary initiative for the ground freight transportation industry. EPA's Ground Freight Transportation Initiative is a voluntary program aimed at reducing freight sector energy consumption and climate change emissions.

Companies meeting voluntary performance goals that demonstrate superior environmental leadership will be eligible to use EPA's SmartWay label, a trademarked brand label that identifies cleaner transportation options. The EPA has been developing the national SmartWay brand label to help businesses and consumers choose transportation products and services that have lower air pollution and climate change impacts.

The SmartWay label will be used to identify cleaner passenger vehicles and trucks, commuter benefits packages and variable priced insurance programs. Partners in other voluntary programs under development will be eligible to use the label in the future.

Participants in the voluntary Ground Freight Transportation Initiative are categorized into three different stakeholder groups: shippers, carriers and manufacturers of freight equipment and trucks. Each of the stakeholder groups will meet different performance goals that represent a high level of efficiency and environmental excellence for their freight transportation practices. Already, truck manufacturers such as Freightliner, International, Kenworth, Mack, Peterbilt and Volvo have signed-up to the program.

The role of third-party logistics (3PL) providers is expected to continue to grow throughout the forecast period. The growing need for businesses to grow and delegate as their supply chains become broader and more complex has validated the role of 3PLs in every aspect of logistics.

Modal share forecast prepared by Global Insight, indicate that total trucking tonnage share to rise from 67.5% in 2005 to 68.9% in 2011 and then to 69.5% in 2017.

Excerpts from ***General Freight Trucking, Local in the U.S.***, IBISWORLD Industry Report, May 2008

48412 – General Freight Trucking, Long Distance in the U.S.

The industry includes businesses that are primarily engaged in providing long distance general freight trucking. These businesses handle a wide variety of commodities, generally palletized and transported in a container or van trailer. Long distance general freight trucking businesses usually provide trucking between metropolitan areas which may cross North American country borders. Businesses operating as truckload (TL) or less than truckload (LTL) carriers are included in this industry.

The demand determinants for this industry include:

- Demand determinants for motor carriers are movements in industrial production, retail and wholesale sales, personal consumption and construction activity. To a lesser extent, volumes of imports and exports impact on the demand for long-distance trucking.
- Domestic production is more important to trucking activity than are imported goods, as a product completely produced in the United States has several more freight movements during the production process than does an import.
- The move by certain manufacturers to just-in-time inventory management has increased the activity of the road freight industry in that consignments are getting smaller but more frequent. This has led to many trucking operators forming close relationships with manufacturers which have developed into long-term contracts.
- Main reason for the growth profile of the long-distance trucking industry in the last five years over other modes is that it provides greater flexibility and a true door-to-door option at comparatively low costs.
- Apart from government policies affecting trade barriers, the major determinant of manufacturing demand is movements in private consumption expenditure and in gross equipment expenditure, which effects the growth in the demand for manufactured products. The key determinants of wholesale and retail demand are movements in real household disposable incomes, interest rates and prices.
- Major determinants of the construction sector activity are: movements in real household income and general industry growth, level of net immigration, interest rates, and Government policies (such as tax treatment), prices, occupancy rate and rates of return from other investment forms.

The life cycle stage of this industry is defined as mature:

- The long-distance trucking industry moves closely in-line with general economic activity and usually is a good barometer of economic activity during a given period. Over the

current period, industry gross product expanded by an annualized 2.2%, while US GDP grew at 2.5%.

- There is no expected introduction of new technologies and systems that could initiate another cycle.
- The industry has been in flux in the last five years with a number of mergers and acquisitions and incumbents have been reducing costs so as to improve margins.
- The industry has been servicing the traditional markets and customers. Although there has been some extension of services to these clients through logistics, the proportion is small compared to total industry revenue.

Industry Outlook

Overall, over the period 2009 to 2013, industry revenue is expected to increase by 2.5% per year and value added by 2.4%, slightly higher than US GDP annualized growth rate of 2.2% over the same period.

Freight volumes available to the Long-Distance Trucking Industry are expected to expand only slightly in 2009 as the US economy grows by 1.3%. As a consequence, industry revenue is expected to increase by 1.9% and value added by 1.6%. The lower growth rate in value added is expected to be brought about by lower profitability as capacity exceeds demand and therefore applies pressure on prices.

IBISWorld forecasts industry revenue to expand by 2.4% and value added by 2.5% in 2010. The relatively stronger growth in revenue is expected to be due to increasing demand for long-distance trucking as the US economy expands by 2.2%. Some increases in prices are expected in 2010 as trucking capacity aligns itself with demand.

With the introduction of new hours of service regulations for drivers imposed by the Federal Government, truckload capacity is likely to tighten in 2010, which is expected to significantly raise carriers' costs. These increased costs are expected to be passed on as higher prices, with increases between 4% and 7%. A shift towards increasing in-house trucking capacity may bring about equilibrium between supply and demand for trucking services by the end of 2009.

Over the last three years of the outlook period, industry revenue growth rate is expected to increase gradually in-line with movements in GDP and is expected to reach $142.65 billion in 2013.

Over the outlook period, employment is expected to increase from 817,682 in 2008 to 837,477 in 2013, expanding at an annualized rate of 0.5%. The market for qualified and experienced drivers is expected to remain tight and firms will need to address non-monetary aspects of long distance driving. Research has shown that major irritants for drivers are extended periods on the road away from home and unpredictable schedules for getting home. Firms that are impacted most are those with less flexibility to address this negative aspect of the long-haul truck driver's job. The loss in productivity that may result from designing schedules to get drivers home efficiently must be weighed against the high cost of driver turnover.

The global oil market is expected to remain fundamentally tight entering into 2009, despite a slowdown in US oil consumption and growing risks to global economic growth in the short-term. The combination of rising world oil consumption and low surplus production capacity is expected to put upward pressure on oil prices. Oil prices are expected to stabilize or even decline at the end of 2009 but remain historically high.

Stiffer environmental regulations are expected during the forecast period and beyond as the industry comes under increasing scrutiny as a generator of negative externalities such as atmospheric pollution and traffic congestion.

To this extent, the Environmental Protection Authority (EPA) has developed a voluntary initiative for the ground freight transportation industry. EPA's Ground Freight Transportation Initiative is a voluntary program aimed at reducing freight sector energy consumption and climate change emissions.

Companies meeting voluntary performance goals that demonstrate superior environmental leadership will be eligible to use EPA's SmartWay label, a trademarked brand label that identifies cleaner transportation options. The EPA has been developing the national SmartWay brand label to help businesses and consumers choose transportation products and services that have lower air pollution and climate change impacts.

The SmartWay label will be used to identify cleaner passenger vehicles and trucks, commuter benefits packages and variable priced insurance programs. Partners in other voluntary programs under development will be eligible to use the label in the future.

Participants in the voluntary Ground Freight Transportation Initiative are categorized into three different stakeholder groups: shippers, carriers and manufacturers of freight equipment and trucks. Each of the stakeholder groups will meet different performance goals that represent a high level of efficiency and environmental excellence for their freight transportation practices. Already, truck manufacturers such as Freightliner, International, Kenworth, Mack, Peterbilt and Volvo have signed-up to the program.

The issue of Mexican trucks on US roads continues to be controversial, with the US Senate intervening into the one-year trial program initiated by the Department of Transportation in allowing limited number of Mexican trucks to enter into the US. In September 2007, the Senate voted to ban Mexican trucks from US roadways, rekindling a more than decade-old trade dispute with Mexico. The ban prohibits the Transportation Department from spending money on a North American Free Trade Agreement pilot program giving Mexican trucks greater access to US highways. Supporters of the ban argued the trucks are not yet proven safe, while opponents argue that the US is applying tougher standards to Mexican trucks than to Canadian trucks and failing to live up to its NAFTA obligations.

The American Trucking Association has released a bullish report on trucking market share of the domestic freight task. According to its report, the trucking industry is expected to dominate

domestic freight transportation modes, increasing by 0.8 percentage points to 68.9% its share of all freight tonnage moved throughout the US by 2011 and then to 69.5% in 2017. Rail is forecast to move 14.7% of domestic tonnage (primarily bulk freight) by 2017 with the volume of freight carried by rail intermodal (shared container/truck movements) projected to be 1.4%. Pipeline is expected to transport 9.3% of freight volume and water passage's share is set to increase from 6.6% in 2005 by 2.6% a year until 2011 and then by 1.9% a year to 2017.

Forecasts from the US Department of Transportation indicate that by 2020, US freight tonnage is projected to increase nearly 70%.

Excerpts from ***General Freight Trucking, Long Distance in the U.S.***, IBISWORLD Industry Report, May 2008

48851 – Freight Transportation Arrangement in the U.S.

This industry includes businesses that are primarily engaged in arranging transportation of freight between shippers and carriers. These businesses are usually referred to as freight forwarders, marine shipping agents, or customs brokers, and they offer a combination of services spanning multiple transportation modes.

The demand determinants for this industry include:

- Movements in trade volumes impact on the volumes available for freight transportation arrangements.
- Specifically, the manufacturing sector depends on timely and reliable deliveries of raw materials, or semi-finished products as inputs to further processing. It also requires finished products to be transported to warehouses or distribution centers. The freight forwarders may arrange for transportation to domestic or overseas markets.
- Apart from Government policies affecting industry protection and the exchange rate, the major determinant of manufacturing demand is movements in real private consumption and real gross fixed investments.
- The performance of the manufacturing sector is measured by movements in the industrial production index.
- Stock level of merchandise goods is also a determinant of demand. As stock levels decline, replenishment processes become the basis for demand.

The life cycle stage of this industry is defined as mature.

- The industry can be described as changing from the traditional freight forwarding and customs brokerage role. It is entering another growth cycle through the provision of solutions to customer service requirements by collaborating with its users. This cycle although embryonic at present is expected to pick up in the next three to four years.
- New markets in the developing world, particularly in China, India and Latin America have contributed to significant growth in revenue and value added over the last five

years. Over the current period industry value added is expected to grow at an annualized rate of 4.2%, while the US economy is expected to expand at an annualized rate of 2.7%.

- However, having said that, the industry has experienced significant mergers and acquisitions in the last five years, which implies its relatively mature stage.
- In addition, the uptake of technology has been slow, especially amongst the smaller players.
- In summary, the industry currently is at a mature stage of its lifecycle.

Industry Outlook

With a more favorable import profile in 2009, industry revenue is expected to increase by 4.2% and value added by 4.0%.

During 2009, larger players will use their economies of scale and scope to compete effectively against the smaller generalist service providers. Those players that have had good relationships built during economic downturns are expected to reap rewards during the forecast period to 2013.

Industry revenue growth rate is then expected to fluctuate between 2.1% and 3.8% over the last four years of the forecast period reflecting moderate growth in the US economy during the same period.

Over the period 2009 to 2013, real industry revenue is expected to increase by an annualized rate of 3.1% to $53.33 billion and value added by 2.7% to $20.93 billion, a same rate as GDP growth.

Industry employment is expected to grow throughout the forecast period to peak at 182,847 in 2013 from 179,020 in 2008, giving it an annualized growth rate of 0.4%. IBISWorld believes that as industry activity becomes more sophisticated, the labor market for skilled professionals in freight arrangement processes is likely to tighten with pressure on wage costs including incentive related costs to retain staff.

The industry is expected to deliver solutions to required customer service levels through process management with the aid of new technology. Therefore, sophisticated computerized customer service capabilities and a stable worldwide network have become significant factors in attracting and retaining customers. However a considerable indirect cost is associated with developing these systems and networks and can be prohibitive for smaller players. As a result, it is expected that the industry would consolidate over the forecast period. As a consequence further mergers and acquisitions are expected in the industry throughout the forecast period to 2013.

Freight rates are expected to begin declining and this will improve freight arrangers' profits, especially in international trade. However, fuel related surcharges for airfreight (particularly in the Asia-to-US trade lane) would continue to push freight rates higher. An increase in ocean freight capacity providers would have a positive impact on international freight forwarders over the outlook period.

On the domestic scene, truckload freight rates are expected to continue to increase due to a combination of factors, including new government regulations pertaining to hours-of-service (HOS) rules, carrier consolidation through carrier bankruptcies, higher fuel prices, and labor and equipment shortages take effect.

Environmental concerns are expected to impact on this industry and IBISWorld predicts that shippers are expected to increasingly demand from freight arrangement service providers that they select carriers that will allow shippers to manage their carbon footprints. The impetus for this is expected to be legislative driven in certain countries trading with the US.

Excerpts from ***Freight Transportation Arrangement in the U.S.***, IBISWORLD Industry Report, March 2008

48899 – Other Support Activities for Transportation in the U.S.

This industry includes businesses that are primarily engaged in providing support activities to transportation. It includes businesses that are engaged in the consolidation of freight consignments, trade document preparation, packing, crating and otherwise preparing goods for transportation, and logistics consulting services.

This industry - comprising other support activities - is dependent on the level of activity in upstream industries, namely the manufacturing, wholesaling, retailing, logistics and transportation industries. Trucks, trains and aircraft transport freight for export and for domestic consumption; goods are often packaged and/or put in cartons by operators in this industry. Operators may also be responsible for preparing documents (mainly for export). Domestic demand for goods is influenced by: (1) real US GDP growth; (2) the growth of household disposable income; and (3) consumers' propensity to save, amongst other things. Foreign demand for US goods is determined by: (1) economic growth in major trading partners; (2) world commodity prices; (3) relevant exchange rates; and (4) world stock levels.

Demand for the preparation of trade documentation is determined by: (1) the nature of the good being transported and the intricacy of trade-related regulations; (2) the level of regulation enforced by the importing country; (3) the extent to which the exporting company has in-house expertise (that would make doing the job in-house cost and time effective) and (4) the usage and acceptance of paperless (technology) online registration and documentation tools that would enable a customer to prepare documentation themselves. Demand for freight consolidation services is dependent on the value and volume of the exporter's goods relative to shipping/motor vehicle capacity at that time; freight volumes can differ dramatically and finding available space can sometimes be difficult for a non-industry entity. Meanwhile, companies should keep four potential problems in mind when designing an export packaging: (1) breakage; (2) moisture; (3) pilferage; and (4) excess weight. Packaging and cartons that are light and slim will reduce freight costs as cost is usually determined by weight and volume. The type of packaging and carton demanded is dependent on price (a wooden box is more expensive than a cardboard box, for instance), and the nature of the good being shipped. Fragile, loose and small goods need more protection than such things as automobiles.

IBISWorld considers the Other Support Activities for Transportation Industry to be in the mature phase of its life cycle. This assessment is based on revenue and value added growth rates well below those of real GDP growth over the last decade (and declining rates over the current performance period). Growth in this industry is often dependent on the health of the other transportation industries and the willingness of those industries to out-source services. Despite falling industry revenue in the last five years, establishment numbers have increased at a robust rate due to the industry's generally low barriers to entry. However, growth has been driven by non-employing establishments that are poorly positioned to exploit economies of scale. Aside from mostly medium-sized companies, the majority of establishments are non-employers.

Most industry products are clearly segmented and stable. The out-sourcing of work from manufacturing, wholesaling, retailing and transportation operators may introduce some new products going forward, although this in itself is unlikely to boost industry revenue growth substantially as most out-sourced processes are low value added. Some opportunities may arise from inter-industry technology development that reduces the size and weight of packaging (without undermining quality), the development of electronic trade documentation platforms (i.e. paperless trade in a secure environment) and the packaging services sector (i.e. pallet and container pooling services industry which offers a lower cost option for customers). Over the outlook period, IBISWorld believes that the Other Support Activities for Transportation Industry will remain in the mature stage of its life cycle.

Industry Outlook

During the 2008 to 2012 period, industry revenue is expected to rise from $3934.5 million at the end of 2008 to $4180.0 million in December 2012. This represents an annualized increase of 1.5% - below IBISWorld's average real US GDP growth rate forecast over the same period. Revenue growth is predicated on: (1) a slow rise in disposable household income that facilitates goods purchases - IBISWorld estimates that disposable income per capital would rise at a slightly lower pace at 2.4% in 2008 as the economy cools; (2) buoyant world GDP growth (of around 4-4.5% on an annualized basis over the period); (3) the continued development of electronic trade documentation platforms that make the documentation process less labor intensive and more precise (over the medium term such facilities may encourage companies to complete their own trade documentation to the detriment of companies in this industry); (4) the continued need to operate small-scale industry service outlets in geographically remote parts of the country and along major freight routes; and (5) consolidation within the freight and logistics services industry.

Many freight and logistics companies have seen the benefits of electronic trade documentation platforms and this is expected to continue into the future. The International Air Travel Association (IATA) announced in September 2005 that they have launched a global cargo paperless environment program (IATA e-freight) designed to implement simpler, electronic, paper free air cargo shipping worldwide by 2012. Currently, it was highlighted that the average cargo consolidation shipment travels with up to 38 documents per master Air Waybill at a cost of $30, and at this rate, the industry ships the equivalent of 39 747-400s full of paper per annum. This move is designed to reduce cost and to compete more effectively with other modes of transport by increasing information transparency and reducing time needed to move cargo to its

destination. IBISWorld believes that this should not have a negative impact on revenue but may reduce the number of companies and/or employees servicing this industry as a result of the simplified processes.

The increase in technology reliance will also provide opportunities for consulting services, in particular distribution and logistics consulting. Companies who had previously relied on traditional methods and are looking to keep up with technological trends will need to engage specialist consultants (technology appliances usually have to integrate with third party systems such as customs), hence providing a lifeline for this industry in revenue growth.

The downstream freight and logistics services industry is consolidating and this will likely have a negative impact on this industry. Large companies are engaged in mergers and acquisitions to expand the scope of their services and geographical presence. For example, APL Ltd. has used acquisitions to extend its geographical range while adding capabilities such as intermodal transportation, contract logistics, information systems and freight consolidation to become one of the biggest logistic suppliers. Another example is FDX, the parent of FedEx, who purchased Caliber Logistics, a third party logistics services provider and a ground package delivery service provider (RPS), to expand the scope of the services it can provide. Industry players will face major competition from third party logistics and will need to expand their services offered and provide greater value added support in order to compete.

IBISWorld forecasts that industry value added will increase from $1805.0 million at the end of 2008 to $1906.2 million at the end of 2012. This represents an annualized increase of 1.2%. The growth figure reflects greater profitability (almost solely for medium and larger sized firms) thanks to economies of scale. Investment in technology and other capital equipment will also be robust as a means of improving freight flow and service efficiency.

IBISWorld believes that the number of new establishments will rise at a slower rate over the forecast period compared to the current performance period. The number of establishments is expected to rise from 4323 (2008) to 4593 (2012), an increase of 1.2% per annum, much slower than the current performance. Large industry players will begin to consolidate holdings in specific geographic areas of the country, acquiring smaller operators (which struggle to exploit economies of scale), or forcing them out of business. Moreover, as industry revenue growth rates begin to fall further below overall economic growth (a symptom of the transition to a decline industry), fewer people will want to enter the industry as they could reap larger rewards in faster growing sectors. With establishment growth set to continue, employment numbers and wage costs will follow suit, projected to rise at 1.3% and 1.5% respectively. Generally low job skills mean that labor supply will not be a problem and wage rate growth will not adversely affect profitability. Finally, as entities become larger, industry productivity should improve due mainly to better economies of scale. The Department of Labor, Bureau of Labor Statistics forecast that transportation and warehousing employment is expected to increase at a faster rate than employment as a whole up to 2012. It is estimated that employment growth within transportation and warehousing will grow by 22% compared with 15% growth in overall employment underlining employment opportunities in this industry.

A company operating in this industry may be adversely affected as a result of US and world economic conditions, the value (and volume) of US trade exports and the level of out-sourcing by upstream firms, as well as: (1) the declining ability of customers to meet their financial obligations; (2) declining market values for transportation-related services; (3) difficulties in purchasing, leasing or re-leasing equipment; (4) reduced access to debt and equity capital markets and the ability to draw down funds under financing agreements; (5) non-compliance with restrictive financial covenants contained in loan agreements; (6) changes in or non-compliance with laws and regulations imposed by the Department of Transportation or US Customs; (7) competition from other companies, including specialist service providers like freight forwarders and postal delivery companies, some of which have large financial resources; (8) exposure to product liability and property claims that may be in excess of liability insurance coverage; and (9) the outcome of any pending or future material litigation or environmental proceedings.

Excerpts from ***Other Support Activities for Transportation in the U.S.***, IBISWORLD Industry Report, November 2007

49311 – General Warehousing and Storage

Businesses within this industry are primarily engaged in operating merchandise warehousing and storage facilities. These businesses generally handle goods in containers, such as boxes, barrels, and/or drums, using equipment such as forklifts, pallets, and racks. They are not specialized in handling bulk products of any particular type, size, or quantity of goods or products. The warehouses that are operated by players in this industry cater mainly for non-bulk products.

The demand determinants for this industry include:

- Demand for general warehousing is determined in aggregate by the level of domestic demand in the US. The industries which predominantly utilize general warehousing services can be grouped into the wholesale and retail sectors, manufacturing sector and imports.
- The major factors affecting the performance of the wholesale and retail sectors are the growth in real household distribution income, interest rates and consumer confidence.
- The performance of the manufacturing sector is dependent on the level of domestic demand for manufactured products, the import penetration in the domestic market and to some extent the export capabilities of firms.
- Contract distribution growth is dependent on the level of outsourcing by manufacturers, wholesale and retail traders. Of late, contract distribution has been growing strongly following the demonstrated ability by third party logistics providers to reduce distribution costs by introducing innovative cost reduction solutions.

The life cycle stage of this industry is mature:

- The trend towards outsourcing has been steadily growing as manufacturers, wholesalers and retailers tend to concentrate on their core activities. Innovative solutions by third

party logistics providers, in reduction of inventory costs and enhancing customer service levels have been the key driving forces.

- The larger players have embraced new technology which has led to automation of warehouses.
- There have been no new geographical locations with traditional distribution centers being located strategically close proximity to final demand.
- Owing to the growth in contract warehousing, there have been some in-roads made by foreign owned third party logistics providers.

Industry Outlook

The major users of warehousing services are the manufacturing, wholesale and retail sectors. The outlook of the general warehousing industry in recent times can be linked to movements in industrial production, which acts as a proxy for domestic manufacturing; real private consumption expenditure, which acts as a proxy for the retail sector; and imports, which acts as a proxy for the wholesale sector. These proxies are necessary so that a time series in industry revenue could be developed from weighted indices of industrial production, real private consumption expenditure and imports. In addition, the impact of outsourcing the distribution function to contract warehousing and the growth of third party logistics providers has also been incorporated in developing industry revenue outlook.

Moderate growth in the US economy in 2008 is expected to drive import volume growth by 4.9% and industrial production is expected to slow and grow by 2.1%. Real private consumption expenditure is expected to grow more strongly by 3.0% as employment outlook improves. As a consequence, industry revenue is expected to expand by 2.9% in 2008. The smaller warehouse operators that depend on overflow from private warehouse operations are expected to experience reduced profitability with value added growing by 3.0% in 2008.

Industry revenue growth rate for the next four years is expected to fluctuate between 3.4% and 2.3% owing to steady, but unspectacular growth in import volumes, industrial production and real private consumption expenditure.

Contract warehouse operators are expected to take market share from private warehouse operators as third party logistics providers continue to develop innovative cost reduction solutions by utilizing cutting-edge technology such as Voice Recognition and Radio Frequency Identification (RFID) in material handling activities.

Advances in real time data collection, which allows vendors to predict demand fluctuations accurately, and development of rapid track and trace technology, may reduce the use of warehouses in the longer-term as transportation could become the mobile warehouse. However, inventory will always be required and the task in efficient warehouse operations is to know the level of inventory required to minimize stock outs.

Smaller players are expected to continue serving market niches that are geographic specific and have very good relations with local customers.

A trend that is expected to continue is the value-adding processes provided by warehouse operators to its clients through product postponement. The process involves delaying the final assembly, configuration, and/or packaging of a product until after an order has been received, often just before a product is shipped to the customer. According to a study conducted by the International Warehouse Logistics Association (IWLA) in the first-half of 2004, 11% of its members offer manufacturing services, up from 2% in 1994. 74% provide assembly services (up from 69% in 1994), and 74% provide packaging services, compared to 17% in 1994.

General warehouse operators are expected to increasingly provide a total distribution package to its clients that involves additional activities such as packaging and transportation.

The uptake of RFID technology is expected to increase in the next two years according to research commissioned by the Computing Technology Industry Association (CompTIA). According to the research, the automotive, consumer goods and transportation and logistics industries will lead the way in implementing radio frequency identification (RFID) technology solutions over 2008 and 2009. Much of the RFID adoption in the US is being driven by mandates and directives from key organizations, including the US Department of Defense, the Food and Drug Administration and Wal-Mart.

The global RFID market is expected to increase to $26 billion in 2016, compared to $3.0 billion in 2006. In addition the number of tags delivered in 2016 is expected to be over 450 times the number delivered in 2006 according to research conducted by ID TechEx, a Cambridge England, based consultancy.

Tag and RFID System costs are significant impediments to a faster roll-out globally. Tag costs are typically not quoted by manufacturers since the total cost depends upon volumes purchased, and on the capability and reach of the tags themselves. Prices of passive RFID tag costs have approached 7 cents each in the US, 10 cents in Europe, and 25-30 cents in Asia. In the US, the average retailer spends more than $500,000 for RFID hardware and software, including chips, inserts, printers, tags, antennae, readers, data aggregations and filtering systems, middleware, and directory services. In Japan, the Hibiki project, a government-backed initiative by Japan's Ministry of Economy, Trade and Industry, led to the development of the mu-chip Hibiki. The mu-chip sells for 8 cents, and Hitachi, its manufacturer, hopes to drive unit costs toward 4 cents per tag, based on monthly utilization of more than 100 million tags by 2008.

Over the forecast period to 2012 industry revenue is expected to increase on average by 2.8% per year and value added by 2.8% per year. Employment level is expected to expand by 0.1% per year to be 88,250 in 2012. US GDP is expected to expand at an annualized rate of 2.6% over the forecast period.

Excerpts from ***General Warehousing and Storage in the U.S.***, IBISWORLD Industry Report, January 2008

49312 – Refrigerated Warehousing and Storage

The industry includes businesses that are primarily engaged in operating refrigerated warehousing and storage facilities. Temperature controlled services include blast freezing and tempering.

The demand determinants for this industry include:

- Demand for refrigerated warehousing is primarily determined by domestic consumption of food products and secondarily by consumption of other perishables such as pharmaceuticals and flowers; and the exports of perishables. Food products for the domestic market include dairy products, fruit, seafood, meat products, frozen and fresh vegetables, and confectionery and pastry products.
- The industries, which predominantly utilize public refrigerated warehousing services can be grouped into the horticultural, wholesale and retail sector, manufacturing sector and trade in perishables.
- The major factors affecting the performance of the wholesale and retail sector are the growth in real household disposable income, interest rates and consumer confidence.
- The performance of the manufacturing sector is dependent on the level of domestic demand for manufactured products, the import penetration in the domestic market and to some extent the export capabilities of firms.

The life cycle stage of this industry is defined as mature:

- The trend towards outsourcing has been steadily growing as manufacturers, wholesalers and retailers tend to concentrate on their core activities. Innovative solutions by third party logistics providers, in reduction of inventory costs and enhancing customer service levels have been the key driving forces.
- The larger players have embraced new technology which has led to automation of refrigeration warehouses.
- There have been no new geographical locations with traditional distribution centers being located strategically close proximity to final demand.
- Owing to the growth in contract warehousing, there have been some in-roads made by foreign owned third party logistics providers.

Industry Outlook

The major users of refrigerated warehousing services are the food manufacturing, wholesale, retail and horticultural sectors. The outlook of the refrigerated warehousing industry in recent times can be linked to movements in food production, which acts as a proxy for domestic manufacturing; real personal consumption expenditure on food, which acts as a proxy for the retail sector; and food imports, which acts as a proxy for the wholesale sector. These proxies are necessary so that a time series in industry revenue could be developed from weighted indices of food production, real private consumption expenditure on food and imports. In addition, the impact of outsourcing the distribution function to contract warehousing and the growth of third party logistics providers has also been incorporated in developing industry revenue outlook.

Food production is expected to strengthen during 2009 as the US economy grows at a moderate rate. Import volumes are expected to grow by 4.5%, while real private consumption expenditure is expected to grow by 2.6%, a growth rate lower than that experienced in 2007 owing to a softening of employment levels and associated disposable incomes. Given this scenario, industry revenue is expected to increase moderately by 2.8% to $3.99 billion. The smaller warehouse operators that depend on overflow from private warehouse operations are expected to experience reduced profitability with value added growing by 2.7% in 2009 to $2.96 billion.

A more robust US economy in 2010 is expected to drive import volume growth by 5.4% and food production is expected to recover and grow by 3.2%. Real personal consumption expenditure on food is expected to grow more strongly by 3.3% as income outlook improves. As a consequence, industry revenue is expected to grow by 2.9% in 2010.

Industry revenue growth rate for the next three years is expected to fluctuate between 2.0% and 2.8% owing to steady, but unspectacular growth in import volumes, production and real personal consumption expenditure.

Contract warehouse operators are expected to take market share from private refrigerated warehouse operators as third party logistics providers continue to develop innovative cost reduction solutions by utilizing cutting-edge technology such as Voice Recognition and Radio Frequency Identification (RFID) in material handling activities.

Advances in real time data collection, which allows vendors to predict demand fluctuations accurately, and development of rapid track and trace technology, may reduce the use of warehouses in the longer-term as transportation could become the mobile warehouse. However, inventory will always be required and the task in efficient warehouse operations is to know level of inventory required to minimize stock outs.

Refrigerated Warehouse operators are increasingly providing value added services to their clients to ensure the process of postponement is met. Postponement involves delaying the final assembly, configuration, and/or packaging of a product until after an order has been received.

Smaller players are expected to continue serving market niches that are geographic specific and have very good relations with local customers.

AmeriCold Logistics, LLC, in July 2004 signed a construction management agreement and a ten-year warehouse management agreement with Rich Products Corporation for a 120,000 square foot distribution center. The facility included 12,000 pallet positions, 10 dock doors, and trailer spots for 18 drop trailers. There is a temperature controlled palletizing room and a refrigerated system capable of maintaining temperatures as low as minus 20 degrees Fahrenheit.

Employment levels during the forecast period are expected to increase moderately along with demand for the services of this industry. Over the forecast period, employment levels are expected to increase at an annualized rate of 0.3%.

The uptake of RFID technology is expected to increase over the next five years. For example, US Cold Storage is working with IT services provider, Cognizant Technology Solutions to establish an RFID solution center in the Dallas/Fort Worth, Texas area. This RFID Solution Center will demonstrate US Cold Storage's ability to provide business solutions that fulfill the RFID mandates and requirements of large global retailers, manufacturers and other supply chain partners.

Over the period 2009 to 2013, industry revenue is expected to increase on average by 2.6% per year and value added by 2.6% per year. Industry revenue is expected to expand to $4.42 billion by the end of the forecast period and value added to increase to $3.27 billion. Over the forecast period the US economy is expected to expand at an annualized rate of 2.7%.

Excerpts from ***Refrigerated Warehousing and Storage in the U.S.***, IBISWORLD Industry Report, February 2008

D.5.7 Homeland Security

Definition

This target will focus on defense related industries including Unmanned Aerial Vehicles (UAV), Radio Frequency Identification (RFID), software, and security focused products and services. The majority of Homeland Security businesses will fall into the following North American Industry Classification System (NAICS) Codes. However, when targeting, we recommend using key word searching and business description analysis it identify the proper companies.

33421 – Telecommunication Networking Equipment Manufacturing
33422 – Communication Equipment Manufacturing
33441 – Semiconductor & Circuit Manufacturing
33451 – Navigational, Measuring, Electromedical and Control Instruments
33641 – Aircraft, Engine & Parts Manufacturing
33911 – Surgical and Medical Instrument and Appliance Manufacturing
51121 – Software Publishers
51821 – Data Processing Services
54151 – IT Consulting
54171 – Scientific Research & Development

Recommended Research Filters

When marketing to this industry, we recommend that England Airpark target companies within the following parameters.

Sales:	$10m minimum
Employment:	100 minimum
Geographic Scope:	National
Growth:	10% in sales or employment (over two years)

Events: Predictive events such as executive change, merger/acquisition, new markets, new products/services, new contract, and IPO.

Homeland Security Universe	
Companies within geographic scope (national)	309,111
With 100+ employees and $10m+ sales	5,380
With growth and/or events	2,111

Industry Importance Factors

For many companies within this industry, the cost of skilled labor, reliability and the availability of professional and technical skilled employees are of high importance. Along the same line, secondary and higher education quality is a significant concern. Also, access and proximity to a research university or institutions may play a role in location decision.

Geographic proximity to a supplier and customer base and transportation costs of goods are important factors, while the availability of air services holds moderate importance. Energy dependability is ranked high as manufacturing companies are undertaking very precise, high-tech production operations in many cases. Access to production inputs, specifically intermediate manufacturing products, is also ranked high across the board. Regulatory policies as well as taxes, worker compensation costs, and unemployment insurance costs are of moderate importance to the industry. Quality of life factors, as with healthcare services, are becoming more and more key to location and expansion decisions. Attracting the skilled labor needed for this industry is linked to the available quality of life.

The cost of labor is a major expense and therefore a priority for all companies. Additionally, an available quality educational program is an important factor. Another increasingly important site location factor includes telecommunications services and infrastructure. Driving the importance of telecommunications services and infrastructure is the trend towards globalization of the industry and the need to connect to division, offices, and customers around the world.

Labor Outlook

NAICS Code	Industry	1996 Jobs	2006 Jobs	2016 Jobs	1996-2006 Change	2006-2016 Change
3342	Communications Equipment Mfg.	237,600	144,400	145,000	-39%	.004%
3344	Semiconductor and Circuit Mfg.	606,600	462,800	399,200	-24%	-14%
3345	Navigational Equipment Mfg.	489,100	437,500	417,800	-11%	-5%
3364	Aircraft, Engine & Parts Mfg.	514,200	471,600	496,900	-8%	5%
3391	Medical Equipment Mfg.	297,600	308,800	312,400	4%	1%
5112	Software Publishers	174,800	243,400	321,300	34%	32%
516, 518,	Internet Services, Data	372,000	469,200	536,400	26%	14%

519	Processing, and Other Information Services					
5415	Computer Systems Design	701,400	1,278,200	1,767,600	82%	38%
5417	Scientific Research & Development	472,500	593,400	648,800	26%	9%

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, November 2007

33421 Telecommunication Networking Equipment Manufacturing

This industry comprises establishments primarily engaged in manufacturing wire telephone and data communications equipment. These products may be standalone or board-level components of a larger system. Examples of products made by these establishments are central office switching equipment, cordless telephones (except cellular), PBX equipment, telephones, telephone answering machines, and data communications equipment, such as bridges, routers, and gateways.

Demand determinants include:

- Capital investment plans of telecommunications service providers (influencing demand for public network switching and transmission products) and other users of communications equipment, in turn also affected by many of the following factors:
- Demand for telecommunications services and associated infrastructure. It was stated in the past that demand for infrastructure and services could be unsatisfied due to incumbent telecommunications service providers delaying the introduction of new services that may cannibalize existing services. However, the liberalization of telecommunications services markets allowed new players to introduce new services. This liberalization also saw new players introduce new infrastructure and services that contributed to a build-up of excess capacity, which has recently resulted in a large fall in demand for telecommunications equipment.
- Demand for computer connections to public and private communications networks. Growth in demand for intranets, extranets and Internet connections, along with rising levels of data traffic, has, in the past, boosted demand for data communications equipment.
- New products (or technologies) that provide users with lower costs or additional functionality. New technologies have allowed more efficient use of networks, which can also drive data traffic volumes (which can require further infrastructure investment). However, the introduction of digital technologies and the development of software can have a dampening effect on the demand for some types of hardware.
- New applications and industries. Communications technologies have fostered new applications and industries, in turn driving demand for new equipment. Examples include e-commerce and call centers.
- Standardization efforts that impact the deployment of new equipment; and new legislation and regulations affecting the equipment sold.

- The life cycle of existing telecommunications services, affecting demand for access equipment. New services typically have a slow initial uptake, followed by a rapid uptake and then followed by slowing growth.
- The price and quality of products. Prices tend to be high for new products based on new technology, and fall as new suppliers enter the market (competition) with lower prices causing demand to rise.

The life cycle stage of this industry is mature:

- IBISWorld believes that this industry is in a mature phase in the United States, with US manufacturers finding it difficult to compete on costs (and price) with manufacturers located in low labor-cost countries. Indeed, US companies have relocated some production capacity from the US to low-cost countries.
- The industry will be in a cyclical upturn in the five years to 2008; however IBISWorld forecasts that there will be slow real growth in industry value added in the five years to 2013 (meaning that this industry will account for a declining share of the US economy over this period).
- Due partly to move to digital technologies, software development is increasingly forming a major component in networks.
- However, high growth in data traffic in the United States (and globally) will generate demand for new infrastructure and equipment.
- Advances in communications technology mean that there will be new products.
- Industry players cooperate on standards for new products.
- FCC regulations generally promote growth in customer industries (although at times the reverse can apply).
- Expenditure in the United States on communications technology research and development is high compared to other OECD countries, and deep capital markets in the US tend to assist finance growth.

Industry Outlook

IBISWorld forecasts that industry value added (IVA) will grow at an average annualized real rate of 1.7% in the five years to December 31, 2013, compared to forecast average annualized real growth in GDP of 2.7%. IBISWorld forecasts that, over the outlook period, the average annualized real rate of growth in IVA will be marginally lower than the average annualized real rate of growth in industry revenue (1.9%), due in large part to competitive pressures on selling prices.

Activity in this US industry will be adversely affected by a trend for US brand owners to relocate production capacity to low-cost countries or to outsource to contract manufacturers that may or may not be located in the United States. Some local contract electronic equipment manufacturers do not have communications product manufacturing as their major activity, and to the extent that work is outsourced to these manufacturers, some activity may move from this NAICS industry to other NAICS industries (e.g., computer manufacturing). Contract manufacturers operate on low margins, partly due to lack of ownership of intellectual property

and distribution. The size and scope of their manufacturing operations enables some contract manufacturers to obtain economies in purchasing and production. Locally-made communications equipment will incorporate an increasing proportion of imported components and software.

In terms of value-added contribution, software will become an increasingly important component in many communications networks; and the digitization of communications networks will mean that service providers will spend more on software (relative to hardware) to deliver enhanced services and to operate more efficiently. There is a trend among firms that design communications equipment in United States to develop software in-house, and outsource the equipment manufacturing.

Strong global competition, the emergence of Chinese companies with low cost structures (such as Huawei and ZTE), along with technological innovations and commoditization, will be factors that will tend to keep down prices for communications equipment. Pressure on selling prices will dampen growth in industry revenue and profits.

IBISWorld forecasts that domestic demand for industry products will grow at an average annualized real rate of 5% in the five years to 2013 (compared with average annualized real increase in domestic demand of 14.2% in the previous five years).

In the future, telecommunications network capacity will not be built well in advance of market demand, as was the case before 2001.

On the other hand, expanding consumer and enterprise reliance upon voice, video and data communications has increased demand for carrier network bandwidth, absorbing previous excess capacity. In addition, communications service providers have sought to augment and replace traditional revenue by offering a broader mix of new revenue-generating services. Newer technologies are providing opportunities for service providers to reduce costs and expand the range of services offered. Expenditures on new technologies will, however, cause equipment manufacturers to lose sales in traditional products, such as products incorporating circuit switching technologies.

Revenue opportunities and actual (or the threat of) competition in the service provider market should ensure that communications service providers increase the availability of broadband services. There will be a migration to next-generation networks, which are packet switched networks, often based on Internet Protocol (IP) or Ethernet, which can deliver all services (voice, data, video and other media). This type of network will allow services to be provided at low, often flat rate, prices over any medium anytime and anywhere.

While it is widely believed that disparate communications networks will converge into simplified, multi-service infrastructures, there are differing views regarding how this convergence will be achieved. Some envisage that the converged network will be based on a completely new network infrastructure. Others believe that the transition to a converged, all

service network will be an evolutionary process, one in which service providers will seek to maximize the value of their existing network.

There were around 65 million cable TV subscribers in the United States in 2007, down from 66 million in 2003. Cable operators will focus more on expanding the range of services offered (which may also positively affect subscriber growth). Most cable systems can now deliver digital video, and many systems are able to deliver cable modem and/or cable telephone service. Motorola's Connect Home segment reported a 16% increase in revenue in 2006. Cable systems are beginning to introduce, or experiment with, advanced service offerings such as high definition TV, video-on-demand and IP-telephony over cable systems, and this will provide a source of demand for communications equipment.

Corporate demand for data communications products picked up in recent years due to: a stronger economy; business sector initiatives utilize new information technologies to reduce costs and bolster revenue; and business concerns about network reliability, security and business continuity. More companies are introducing their own IP telephony systems, as well as private converged voice and data IP networks. Following three years of sluggish or negative growth, Cisco recorded relatively strong growth in net sales in the four fiscal years ended July 31, 2007. Similarly, Avaya Inc has posted growth in revenue following a significant decline in revenue was recorded by the company in the year ended September 30, 2003. A downturn in the US economy in 2008 will have an adverse impact on corporate demand for IT equipment, although the business sector is expected to continue initiatives utilize new information technologies to reduce costs, and improve network reliability and security.

To compete in this industry, firms will generally need to: have a critical mass, including making large R&D investments; and have the ability to market and deliver on a global scale. The recent merger of Alcatel and Lucent, the acquisition by Ericsson of Marconi's telecommunication assets and the combination of the Siemens and Nokia network units were all largely predicated on: reducing unit costs; building scale; and broadening product portfolios.

The convergence of fixed and mobile networks will produce opportunities for organizations to deliver converged solutions. Larger operators should also be well placed to participate in the market for managed services, which is growing at a strong rate.

Mergers of communications carriers will further reduce the number of potential customers seeking to purchase networking equipment from vendors, thereby concentrating purchasing power. This could contribute to downward pressure on the price of network equipment; which could be a factor driving further consolidation in this industry, as well as more strategic alliances.

Equipment suppliers, such as Cisco, will focus more on the service provider market in order to generate growth in revenue, and this will add to competition in this market place. There is also expected to be growing competition from firms that have traditionally been outside this industry, but have capabilities that provide them with opportunities in this industry. Such capabilities

include software, computer hardware and integrated circuits (such as Microsoft, Hewlett Packard and Intel).

Excerpts from ***Telecommunication Networking Equipment Manufacturing in the U.S.***, IBISWORLD Industry Report, March 2008

33422 – Communication Equipment Manufacturing

This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment. Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.

Demand determinants include:

- Capital investment plans of communications and broadcasting service providers, in turn also affected by many of the following factors:
- Demand for communications and broadcasting services. For example, strong growth in the number of mobile subscribers and in network usage can promote the construction of additional network capacity as well as competing infrastructure. New services typically have a slow initial uptake, followed by a rapid uptake and then followed by slowing growth. Technological advances in, along with falling prices of, receiving equipment (such as in mobile telephones and PDAs) can act to promote infrastructure spending decisions. In the past, however, high levels of mobile wireless infrastructure investment led to a build-up of excess capacity in some markets.
- Regulations. For example, the ability to provide new communications and broadcasting services (and enabling equipment) can be dependent on the allocation of spectrum. Also, regulations can affect the structure of, and competition within, the communications and broadcasting industries, which also affects the dynamism of these industries (for example, affecting capital investment, R&D and new product releases).
- New technologies can spin-off new equipment, which allows service providers to offer new services. For example, third generation wireless networks allow new data services to be offered. Technological advances can also spin-off more new equipment that provides productivity gains for service providers, promoting replacement spending. New technologies can also spin-off new services that use equipment manufactured by other NAICS industries. For example, regional telephone companies are implementing and supporting digital video compression over existing telephone lines.
- Product standardization efforts that make communication and broadcasting services more attractive and cheaper, hence driving demand for the services and enabling equipment.
- The price and quality of products. Prices tend to be high for new products based on new technology, and fall as new suppliers enter the market (competition), with the resulting fall in prices causing demand to rise.

The life cycle stage of this industry is mature:

- IBISWorld believes that, globally, this industry is in a long-term growth phase; but the industry in the United States is believed to be mature (due in large part to a relatively soft US market, and a transfer of production capacity to low-cost countries).
- Advances in communications technology means new products.
- Subscriber growth in mobile wireless.
- Industry players cooperate on standards for new products.
- FCC regulations generally promote growth in customer industries.
- However, due partly to move to digital, software development is increasingly forming a major component in networks and handsets.
- Production is increasingly being outsourced to specialist contract electronics manufacturers, usually located in low labor-cost countries.

Industry Outlook

IBISWorld forecasts that the value of industry shipments will grow at an average annualized real rate of 0.5% in the five years ended December 31, 2013. IBISWorld forecasts that industry value added will grow at an average annualized rate of real rate of 0.4% over the same period, a rate of growth that is roughly comparable with that forecast for industry revenue; and the maintenance of IVA as a percentage of revenue is expected to occur despite pressure on prices and margins and an increase in outsourcing of manufacturing capacity, due to firms in this industry concentrating more on higher margin products.

A major product segment is wireless infrastructure equipment supplied to communications service providers. Capital spending decisions by wireless communications service providers will be affected by: capacity requirements; growth in the number of wireless subscribers; network operating costs; expectations of demand for new mobile services; the development of technologies and standards; and competitive factors.

Wireless services providers are looking to apply technologies to grow product portfolios and revenue streams, as well as to compete more effectively in their markets. Service providers are responding to the demand for wireless Internet access and the transfer of images and data by migrating from second-generation (2G) wireless technologies to 2.5G, 3G and broadband (4G) wireless packet switching technologies (which provide faster transfer rates).

Capital expenditures on wireless infrastructure beyond 2008 will be heavily influenced by the level of migration to, and consumer demand for, 3G and broadband (4G) technologies. 3G services are now widely available in the United States, although most voice and SMS services are provided by 2G circuit switched networks. Presently, emerging 3G services have achieved encouraging levels of subscriber growth, although this has been from a low base.

A 4G wireless network has not been accurately defined as yet, but it is generally accepted that 4G will offer high speed transfer rates and a seamless interface with wireline backbone networks (and will most probably be Internet Protocol based). Sprint Nextel was expecting to invest $1

billion in 2007 and between $1.5 billion and $2 billion in 2008 in developing and deploying a "next generation" or "4G" nationwide broadband mobile network. Sprint Nextel's announcement was somewhat surprising given that 3G penetration in the US was quite low at the time.

In September 2006, the Chief Technology Officer of Verizon Wireless, Dick Lynch, stated that he did not see a need for his company to build a next generation network although "the day will come". Following the examination of various 4G technologies, such as WiMax, EV-DO Revision C and Long Term Evolution (LTE), Verizon announced in November 2007 plans to develop and deploy its 4G mobile broadband network using LTE - with a trial plan to commence in 2008 (with trial suppliers including Alcatel-Lucent, Ericsson, Motorola, Nokia-Siemens and Nortel).

To effectively compete in the market for products that enable migration to 3G and 4G networks, equipment manufacturers need to have access to the requisite technologies and experience and skills in deployment.

The migration from 2G to 2.5G and 3G technologies is largely based on a transition from circuit switching technologies in 2G core networks to packet networking technologies. This means that equipment vendors with expertise in packet switching networking (most probably gained from wireline network applications) should be in a relatively strong position.

To compete in the wireless infrastructure industry, firms will generally need to have a critical mass. Larger companies will be in a better position to: make large R&D investments; provide a broad range of products; market and deliver on a global scale; and obtain economies in manufacturing and purchases. The recent acquisition by Ericsson of Marconi's telecommunication assets, the merger of Alcatel and Lucent, and the combination of the Siemens and Nokia network units are all largely predicated on: reducing unit costs; building scale; and broadening product portfolios.

The convergence of fixed and mobile networks will produce opportunities for organizations able to deliver converged solutions. Larger operators should also be well placed to participate in the market for managed services, which is growing at a strong rate.

Demand for cellular handsets will also be supported by wireless network subscriber growth; although subscriber growth is slowing in the US as penetration rates in the US reach higher levels (US wireless subscriber penetration rates are expected to rise from 83% in 2007 to over 89% by 2012). An increasing proportion of handset sales are represented by replacement sales. Demand for wireless handsets in the United States will also be influenced by the degree to which consumers respond to an increasing number of products with color and multimedia messaging capability. The 3G and, later, 4G networks will herald in lower prices for voice calls, and this will also promote migration to these networks. IBISWorld forecasts that real growth in consumer spending will slow in the five years to 2013 (compared with growth in the previous five years); and slower growth in overall consumer spending will tend to have a negative effect on the rate of growth in demand for wireless handsets.

Wi-Fi (Wireless Fidelity) is a technology that allows wireless access to the Internet within the range of a wired network connection or a base station. Wi-Fi operates in unlicensed (and free) radio bands. It has proven to be a popular technology. Communications service providers are building base stations (hot spots) to allow wireless access outside users' home bases. While generating demand for Wi-Fi connection devices and base station equipment, the technology may also adversely affect cellular 3G network usage and deployments. Moreover, new networks incorporating Mobile WiMAX technologies, which have greater reach compared with W-Fi, will affect 3G network and Wi-Fi usage.

The Federal Communications Commission (FCC) has adopted a plan that will give consumers access to digital programming over television by requiring off-air digital TV (DTV) tuners on nearly all new TV sets by 2007. The mandated progression to digital TV will provide strong demand for digital broadcasting and receiving equipment. However, in the interim, growth will also be affected by the rate at which consumers take-up digital TV and the level of programming that is broadcast digitally, largely determined by the price of equipment. An expected fall in the retail price of high definition TVs, particularly as economies of scale are accrued, should bolster demand among consumers for digital broadcasts.

There should be strong demand for equipment used to receive Direct Broadcast television services (DBS) over the outlook period. DBS is a nationally distributed subscription service that delivers programming via satellite to a small parabolic "dish" antenna located at the viewer's home. In June 2001, DBS had over 16 million subscribers in the United States. Paul Kagan Associates predicted that the total number of DBS subscribers would increase to almost 26 million in 2005 and to over 28 million in 2010.

There were around 65 million cable TV subscribers in the United States in 2007, down from 66 million in 2003. Capital spending by cable operators will pick up as cable operators focus more on expanding the range of services offered (which may also positively affect subscriber growth). Most systems can now deliver digital video, and many systems are able to deliver cable modem and/or cable telephone service. Cable systems are beginning to experiment with the deployment of other advanced service offerings such as video-on-demand and Internet-protocol telephony over cable systems. Motorola's Connected Home Solutions segment reported a 16% increase in revenue in 2006, driven by increases in both ASP and unit shipments of digital set-top boxes.

Excerpts from ***Communication Equipment Manufacturing in the U.S.***, IBISWORLD Industry Report, March 2008

33441 Semiconductor & Circuit Manufacturing

This industry comprises establishments primarily engaged in manufacturing semiconductors and related device manufacturing. Examples of products within this segment include: integrated circuits, memory chips, microprocessors, diodes, transistors, solar cells and other optoelectronic devices.

Demand determinants include:

- Prices and Performance: Improvements in the price and performance of microprocessors, memory and other PC components, as well as in software operating systems and applications, have increased demand for PCs and, in turn, for PC components. Similar dynamics apply in the case of other products that incorporate semiconductors (such as consumer electronics products and communication equipment).
- Technological changes: Demand increases with the development of new products that utilize semiconductors (such as cell phones, PDAs and consumer electronics products). Semiconductors are becoming a more important part of many electronic products - according to iSuppli, the semiconductor content of electronic systems, as measured by cost, has been increasing and now stands at 21.6% (Semiconductor Industry Association, February 2, 2007).
- Lifespan: The short life-span of semiconductors (which can average 3 to 5 years and sometimes as little as 18 months) and of electronic products incorporating semiconductors. Depending on the product, the technological life span of a good influences the need for replacement.
- Public and private equipment expenditure: The level of funding towards semiconductor technology and innovations by government and the private sector influences the degree of new product development.
- Research and development expenditure: In 2005, the semiconductor industry invested 14% of sales into research and development, higher than any other American industry and approximately three times the industry average. In this high-tech industry, large R&D investments are necessary to allow for US manufacturers to remain competitive. In addition, the private sector and universities are increasingly forming research partnerships to keep abreast the rapid technological changes faced by the industry and to ensure that there is a sufficient pool of educated individuals, which is essential to the long-term competitiveness of this high-tech industry.
- Product innovation: The ability to patent new product innovations and other intellectual property rights. Protection of intellectual property encourages new product development.
- Domestic and international policies: such as export control policies and federal tax policies. Currently, the US government restricts the export of certain high capacity and certain general purpose chips in an attempt to protect US national security. This can impact industry growth by constraining the exportation of selected industry products. The current tax laws can also constrain industry growth. Current tax laws require depreciation of semiconductor manufacturing equipment over a five-year period even though the economic life of this type of equipment is only three years. Japan and many nations in Europe allow for a more rapid depreciation on this equipment. As a result,

foreign competitors have an advantage and participants wishing to locate facilities in the US are disadvantaged.

- Growth in economic activity: During strong economic growth, downstream industries increase their demand for goods manufactured by this industry. Additionally growth in economic activity affects consumer spending, which affects demand for consumer goods that use semiconductor, such as cell phones, PC's, digital cameras, and motor vehicles.
- Outsourcing: The percentage of chips produced by independent manufacturers (foundries) has grown over the last several years as the cost to build a new fabrication plant has increased enormously. Many semiconductor makers are "fabless" and focus their efforts on design and marketing of the products rather than the production of the good itself

The Semiconductor & Circuit Manufacturing industry in the US is believed to be in a cycle of decline (although the industry globally is in a growth phase), for the following reasons:

- The real values of industry output and industry value-added are forecast to decline in the five years to 2008 and, again, in the five years to 2013.
- Capital spending in this industry declined significantly in the five years to 2006.
- Rationalization and consolidation has been occurring in the US and global industries in the past 10 years.
- A number of significant US semiconductor companies have chosen a "fabless" strategy. Many of the US companies that do have wafer fabrication facilities are increasing their reliance on external suppliers of wafers. In addition, most US semiconductor companies outsource production of assembly and packaging. (usually to companies located in low wage-cost countries).
- The electronics manufacturing sector (purchasers of semiconductors) is tending to move production to low wage-cost countries.
- On the other hand, most companies in this industry spend significant amounts on Research and Development (R&D). The high levels of R&D expenditure in this industry enable the generation of high-tech advancements.

Industry Outlook

IBISWorld forecasts that industry revenue will decrease at an average annualized real rate of 0.1% in the five years to December 31, 2013. Forecast revenue will decrease from $68.6 billion in 2008 to $68.2 billion in 2013 (values expressed in constant 2007 prices). Industry value added is expected to decline marginally as a percentage of revenue over the outlook period, due to an increase in outsourcing and competition from lower-priced competing imports.

Industry revenue will be negatively affected by: a decline in average unit selling prices for comparable products; and a trend of outsourcing semiconductor and related device production to third-parties, which will usually be located outside the United States.

IBISWorld forecasts that the US and global economies will grow in each of the five years to 2013, with such growth being supportive of domestic and global demand for semiconductors.

IBISWorld forecasts that the average rate of growth in the US economy over the outlook period will be comparable with the average rate of growth in the US economy recorded in the five years to 2008. There will, however, be a moderate slowdown in the rate of growth in consumer spending in the US over the outlook period, compared with the previous five years. On the other hand, private investment in the US is forecast to be strong over the outlook period.

A significant end-market for semiconductors is data processing and related products. A large proportion of these end-products are manufactured and/or assembled outside the US, so that a significant proportion of sales of semiconductors used in the manufacture of these products will be made in markets outside the US. Global sales of computers during the outlook period are expected to be promoted by: growth in the global economy and in global investment; growth in the volume of information across information networks; demand for miniaturization and portability; the demand for enhanced security; new software products (such as Microsoft's Windows Vista) that promote hardware system upgrades; and the demand for computers offering lower power consumption.

One growth market for semiconductors is consumer electronics such as multipurpose cell phones, digital cameras, and digital entertainment devices for the home and the car. Sales of semiconductors used in certain consumer electronics, such as digital TV, digital set-top boxes, DVD recorders, video game consoles and MP3 players, are expected to grow at over 10% per year. Semiconductor vendors with a competitive product offering in the consumer electronics sector are likely to benefit from growth in this market.

Semiconductor sales to industrial markets will grow. The use of electronics in the automotive industry (such as in safety, comfort and infotainment) is increasing due in part to substitution of mechanical devices. Use of electronics in other industrial sectors is also increasing, partly due to investments in automation and in producing energy savings.

Currently, the most significant market for light-emitting diodes (LEDs) is for illumination purposes in mobile products, including LCD, backlighting, keypad illumination and flash units for camera phones. The markets for LEDs are expected to expand due in part to the competitive dynamics in the illumination market, including: the long life and energy efficiency of LEDs for some applications, compared the life and energy efficiency of incandescent bulbs and fluorescent bulbs (some government have decided to ban sales of incandescent bulbs in the future); the ability to dim LED lights (fluorescents cannot be dimmed); technological advances that will increase the brightness of LEDs; and falling unit selling prices for individual LEDs (driven in part by rising production volumes).

The price for solar panels is expected to decline, promoting demand for these products and, in turn, for solar cells and photovoltaic devices. Solar panel manufacturers are standardizing products, which is reducing manufacturing costs. A paper published by Applied Materials (January 22, 2007) stated that the size of manufacturing solar panels is now a match with the process equipment available from parallel industries such as flat panel and glass coating; and that low-cost capital equipment sets from these industries "are ideal for thin solar manufacturing".

The United States will lose share in the global Semiconductor & Circuit Manufacturing industry. IBISWorld believes that US semiconductor companies will continue a trend of outsourcing the production of their advanced semiconductors to third-parties as part of an initiative to reduce capital requirements. Some US companies that continue to invest in wafer foundries will increase the proportion of their production that is outsourced (usually to specialist foundries, the largest of which are located in Asia). In addition, most of the major US semiconductor companies outsource a significant proportion of product testing and assembly (usually to companies located outside the United States).

"Fabless" companies, which design and market semiconductor products, will represent an increasing proportion of the US and global semiconductor industry. Sales by these companies are more appropriately classified as wholesale sales, rather than manufacturing sales.

Original equipment manufacturers (OEMs) of electronic systems are increasingly outsourcing to suppliers the integration of the semiconductor and software components of their products. OEMs are also increasingly adopting complete system-level solutions that integrate the functionality of multiple integrated circuits required to operate a system on a "system-on-a-chip". These trends benefit semiconductor companies that possess strong system-level expertise, software capabilities, validation and testing capabilities, fully functional reference designs and the detailed knowledge of specific end-markets to successfully provide system solutions. These trends will also promote consolidation of suppliers.

Increasingly, consumer electronics products incorporate similar functionality (e.g., video and audio). Consumers expect applications across home, mobile and automobile platforms to have a similar look and feel. These trends benefit semiconductor companies with broad technology portfolios that are applicable in multiple markets as they can leverage their intellectual property, systems-level expertise and R&D investments in multiple markets.

There is a possibility that anti-monopoly regulators in some countries and regions could act against any anti-competitive behavior in certain semiconductor and related product markets and such action could potentially result in downward pressure on selling prices in the affected markets. On July 27, 2007, the European Commission confirmed that it had charged Intel with violating EU competition rules by abusing its dominant position "with the aim of excluding its main rival, AMD, from the x86 computer processing units market". The EU specified that the charges against Intel covered: the provision by Intel of rebates and payments to Original Equipment Manufacturers; and the offer of CPUs on average below cost to strategic customers in the server market.

Some US semiconductor companies have a technological lead in some markets. US companies will need to maintain significant R&D spending to compete with overseas-based companies.

Excerpts from ***Semiconductor & Circuit Manufacturing in the U.S.***, IBISWORLD Industry Report, April 2008

33451 Navigational, Measuring, Electromedical and Control Instruments Manufacturing

This industry comprises establishments primarily engaged in manufacturing navigational, measuring, electromedical, and control instruments. Examples of products made by these establishments are aeronautical instruments, appliance regulators and controls (except switches), laboratory analytical instruments, navigation and guidance systems, physical properties testing equipment, and watches and clocks.

The major determinants of demand for the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry include:

- Technological changes. Demand increases with the development of new products, which can replace the functions of earlier equipment much more efficiently.
- The age of the capital equipment in hospitals research laboratories, industry, schools, and tertiary institutions.
- The short-life span of equipment, averaging 3 to 5 years and sometimes as little as 18 months. Depending on the product, the life span of a good influences the need to replace that particular good.
- The health of the general population. With conditions such as heart disease, cancer, aids, and hepatitis on the increase, the demand for specialized instrumentation and equipment such as ultrasonic, laser, cardiographic and laboratory equipment has increased.
- Public and private equipment expenditure. The level of funding towards navigational, measuring, medical, and control instrument technology and innovations by government and the private sector influences the degree of new product development. At present the majority of funding is derived from private enterprise however the government also plays a significant role in the funding of startups and the expansion of the industry.
- The ability to patent new product innovations and other intellectual property rights. Protection of intellectual property encourages new product development.
- Changes in domestic and international regulations, such as more vigorous compliance and enforcement activities that may delay or prevent the approval of new products, can impact on export and import demand.

The life cycle stage of this industry is mature:

- Despite frequent technological advancements in this industry and considerably high levels of R&D expenditure, the US Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry is in the mature phase of its lifecycle.
- Industry gross product grew by an annualized 2.2% in the current performance period, similar to GDP growth.
- The Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US is the global leader in medical device and technological innovation. Dominating in worldwide sales, the US searches to find new opportunities by supplying to developing markets abroad.

- The majority of participants have large budgets and R&D expenditure. These companies benefit from economies of scale and have the ability to purchase smaller startup companies in the industry.
- Over the past five years the number of establishments has diminished, falling by an annualized rate of 0.5%.
- The industry experiences intense competition both domestically and internationally and many companies participate in price competition.
- Introduction of new product developments take approximately 2 to 5 years before they can achieve worldwide market acceptance, as products.

Industry Outlook

IBISWorld forecasts that industry revenue will decrease at an annualized rate of 1% during the five years to 2012. Increased competition from products from low labor cost countries towards the end of the period is forecast to result in negative growth in these years. During the outlook period, IBISWorld estimates that the following factors will influence growth in the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US: the overall reduction in import penetration, the health and age of the population; and advances in navigational, measuring, medical, and control instrument technology.

R&D expenditure is forecast to rise at a healthy rate at least until 2012. The demand for product improvements and innovation will require testing and measuring equipment. Areas of the economy that are forecast to be important in the future are energy, health, biotechnology, electronics and conservation. Within the electromedical and electrotherapeutic apparatus segment the pressure to provide cost-effective and efficient devices, which could effectively treat more patients, has led to industry participants spending more R&D dollars on developing computer-assisted equipment. However, as other countries begin to produce this type of equipment, and other types of industry products, this will continue to lower industry growth.

The industry is forecast to enter a period of negative revenue growth from 2007. Increased levels of imports from China and other low labor-cost countries, as well as declining export income, are expected to push industry revenue down by 1.5% during the year to $110.24 billion. Lower prices and volumes are expected to result in value added falling by 1.7% to $70.04 billion.

During the remaining years of the outlook period IBISWorld forecasts that the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US is expected to continue to experience negative growth in revenue. In 2009 industry revenue is expected to fall by 0.9% to $107.22 billion for the year as pricing and import pressures continue. In 2011, revenue is estimated decline by 1.2% to $104.57 billion, while in 2012 revenue is forecast to increase slightly by 0.4% for the year as exports decrease and imports increase. Value added is forecast to decline by 1% during the year to $66.15 billion and then rise by 0.9% to $66.75 billion in 2012.
Over the period it is expected that the Search, Detection and Navigational Instrument segment in the US will contribute much of the growth in industry revenue. Advancements in technology in

this segment combined with increased government and private equipment expenditure will add to industry demand.

In the five years to 2012, the Navigational, Measuring, Electromedical, and Control Instrument Manufacturing industry in the US is expected to move into a decline phase of its life cycle. Value added is forecast to decrease by an annualized rate of 1%, which is below the overall level of expected economic growth of 3.1% per annum during the same period. Employment levels, establishment numbers and total industry wages are expected to decline due to consolidation within the industry and cost-cutting by individual firms.

Excerpts from ***Navigational, Measuring, Electromedical and Control Instruments in the U.S.***, IBISWORLD Industry Report, November 2007

33641 – Aircraft, Engine & Parts Manufacturing

This industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing complete aircraft; (2) manufacturing aircraft engines, propulsion units, auxiliary equipment or parts; (3) developing and making prototypes of aircraft; (4) aircraft conversions (i.e., major modification to systems); and (5) complete aircraft overhaul and rebuilding (i.e., periodic restoration of aircraft to original design specifications).

Demand determinants include:

- Price and Credit Terms: The price of aircraft is expensive compared to other modes of transportation. The biggest customer of this industry is commercial airline passenger companies. The improvement in aircraft fleet is based upon the price of the aircraft and the level of credit and funding available. The currency crisis in Asia brought about a significant retrenchment by Asian airlines, causing the elimination of many international flights and decisions to delay delivery or cancel high-value orders for LCA. Another consequence of the economic crisis and currency devaluation in eastern Asia for the aerospace industry has been the reduction of funding for these markets from financial institutions. Japanese banks in part also have less capacity to lend then they previously did as a result.
- Household Disposable Income: Many airlines improve and/or expand their aircraft fleet based on the level of demand from passengers (based on household disposable income). The increase in disposable income will lead to greater spending on air travel over other products. Disposable income is influenced by domestic interest and tax rates, employment levels and household savings rate. Household disposable income also determines the amount of leisure time and activity taken by an individual. Changes in passenger travel historically have been proportional to changes in GDP, and demand for large civil aircraft for example is directly proportional to demand for passenger travel (often with a lag of 3 to 4 years). Demand for business aircraft will also increase during periods of robust real GDP growth as it correlates with strong business sentiment.
- Global Oil Prices: An increase in the price of aviation fuel will make it more costly for operators to run their aircraft fleet and put off purchases for new airplanes.

- Abnormal events: Events such as the terrorist attacks on the US on September 11, 2001 and the recent attempt by suicide bombers to blow up aircraft traveling to the US from the UK (in 2006) can have a detrimental impact on confidence to consumer aviation services. However, it may increase the demand for defense equipment. Acquisitions of military aircraft and rotorcraft by the US Department of Defense (DoD) increased as a result of the terrorist attacks.
- Level of defense spending: Governments that allocate a large amount of funding to defense will likely buy more aircraft and defense systems to protect their nation.
- Funds allocated to research and development: As more funds are allocated to research and development, the greater the likelihood that new aerospace products will be commercialized in the future. The launch of the Boeing 'dreamliner' aircraft due in 2009 has led to an increase in orders. Many innovations are as a result of research and development, improvements in aviation infrastructure and support by governments for their aerospace industries which is important towards higher downstream demand.
- Technological Innovation: The improvement and release of new aircraft models and defense systems will tend to lead to a surge in demand. Worldwide military forces constantly upgrade their aircraft and defense equipment to counter new threats. This may however be limited by restrictions by some governments in allowing foreign countries to get access to their technology such as the US B-2 Stealth Bomber.
- Security and Defense: The industry is an important contributor to national defense and is crucial for security as well as providing the capabilities for realizing policy aims in neighboring and distant countries around the world.
- Globalization: Increase in globalization is fueling the demand for air transport. As companies and businesses expand beyond their region, the demand for transportation, especially air transport will increase.

Historically, the demand for air transport has been closely linked to the level of world economic activity. It follows that the demand for aircraft is also heavily influenced by short term changes in activity. However, civilian aircraft are very costly long-lived capital goods. As a result, purchases are typically based on expectations of long-term growth in air transport and replacement of older aircraft, rather than short-term conditions. Therefore, in response to short-term declines in air-travel, airlines typically postpone rather than cancel orders of new aircraft. Together with the lead time between the ordering and delivery of aircraft this has allowed production levels to respond to underlying (long-term) demand conditions rather than short-term fluctuations in the level of aircraft orders.

According to industry sources, fluctuations in the global economy affect the US aerospace industry because of the importance of the large civil aircraft sector (large aircraft account for about quarter of the total aerospace industry's output). Changes in passenger travel historically have been proportional to changes in GDP, and demand for large civil aircraft is directly proportional to demand for passenger travel (often with a lag of 3 to 4 years).

Interestingly, the demand for large commercial aircraft, equipped with the latest technology and manufactured to be highly fuel efficient, has appeared to become decoupled from the demand

reducing influence of consistently higher fuel prices over the past 5 years. Both Boeing and Airbus have recorded significant increases in aircraft orders driven by the 787 Dreamliner (Boeing) and the A380 (Airbus), as both aircraft aim to increase the number of passengers carried and reduce fuel consumption. Airlines across the globe are ignoring record high oil prices and are aggressively renewing or expanding their fleets to take advantage of the new technology.

IBISWorld believes that the Civil Aerospace Product Manufacturing industry is currently in the mature phase of its economic lifecycle. The assertion is supported by data indicating industry value added to be slightly below the general US economy over the current performance period. This suggests that the saturation point has been reached and capacity for further sales is dependent on new products released to the market.

The industry is plague by limited new product development. Over the current performance period, most aircraft introduced to the market have been variations of existing airplanes. The variants were introduced to reduce operating costs. For instance, Boeing is planning to develop the 787; a wide-body plane that would seat more than 200 people and have lower operating cost. In addition, the Boeing 747 aircraft has gone through numerous modifications and facelift since its first launch in 1969. However, IBISWorld does believe that the business jet market is in its growth phase of its economic lifecycle as product development and customer acceptance of these products are increasing. The rise in interest for personal business aircraft through affordable financial facilities and fractional aircraft ownership promotions have provided an avenue for growth, however due to the large commercial airplane (LCA) sector dominating the market, the industry is deemed to be mature. The introduction of the new Boeing 787 in late 2009 may change the lifecycle back to a growth phase in the outlook period.

In the military market, the huge amount of research and development that goes into this industry does produce some growth in new product development however the need to maintain a competitive advantage has created constraints. The US is a leader in this industry however regulations that restrict the sale of new technological equipment to other countries (even to allied nations) have put a strain on value added. For example, the US B-2-Spirit stealth bomber manufactured by Northrop Grumman is only produced for the US and is not sold to other countries. Furthermore, legislations to protect the aerospace industry in some countries have limited the amount of foreign sales into the country. Section 8159 of the Defense Appropriation Bill effectively limits the procurement choice of the Department of Defense to Boeing aircraft. These constraints put a threshold on value added and ultimately affect the lifecycle of the industry. Consolidation has also been prominent in this sector as mergers between civil and defense contractors provided the basis for players to utilize economies of scale and technology transfer (defense to civil) to maintain its lead in the industry. For example, Boeing was formed through mergers with McDonnell Douglas and North American.

Establishment numbers have also stagnated for most of the current performance period due to major manufacturers shifting its manufacturing base to low cost producing countries such as China and India (in addition to the high barriers of entry mentioned in this report).

It is important to note that while the whole industry is in its mature lifecycle stage, IBISWorld believes that certain product segments such as the large commercial civil aircraft manufacturing market is in the growth phase of its economic lifecycle.

Industry Outlook

During the 2008 to 2013 period, industry revenue is expected to rise from $139,961.1 million at end of 2008 to $175,038.5 million. This represents an annualized increase in revenue of 4.6%; above the US real GDP growth rate forecast over the same period. Revenue is predicted based on; (1) an increase in air passenger traffic; (2) increased demand resulting from technology advances; (3) reasonable growth in US defense budget; and (4) the introduction of unmanned combat aerial vehicles as strike aircraft.

The US Department of Transport, Federal Aviation Administration (FAA) stated in a 2004 report forecast that by 2015, US commercial air carriers will transport nearly 1.1 billion passengers (up 4.3% annually) just over 1.1 trillion passenger miles (up 4.8% annually). Growth in traffic is expected to continue especially on North Atlantic routes and in the near future Trans-Pacific routes as airlines fight for direct flights into China. The industry is also reliant on export sales especially in the LCA oligopoly market which is dominated by Boeing and Airbus. Forecast provided by Airbus shows that over the 2004-2023 period, world passenger traffic is forecast to increase by 5.3% per annum (slightly higher than US traffic). Exports are thus likely to increase in the outlook period especially amongst developing nations who are constantly improving their air transport infrastructure to cater for increasing air travel demand due to higher wealth.

IBISWorld believes that oil prices will range in-between $88 to $100 over the outlook period. The price of jet fuel is linked directly with crude oil but is more volatile as the cost of refining is higher. While the oil price is expected to stabilize somewhat, it will remain very high over the outlook period and will add pressure to airframe and engine manufacturers for more fuel efficient products and cause airlines to acquire larger capacity aircraft with lower fuel burn per seat. In addition, high fuel prices will have an impact on the aircraft retirement cycle retiring less fuel efficient types out of the market at a faster rate.

As mentioned earlier, advances in technology have increased the advantage of new aircraft over existing aircraft to the extent that airlines are undertaking significant fleet renewal programs in order to take advantage of advancements in aircraft fuel efficiency and lower operating costs. IBISWorld estimates that the fleet renewal process will continue to occur throughout the outlook period, and will be a strong source of growth throughout the industry. Worldwide GDP growth will ensure growth markets in the Asia Pacific region will continue to aggressively expand their fleets sizes.

IBISWorld estimates that the US Department of Defense budget will grow at a reasonable pace over the outlook period. In 2005, US military spending totaled $420.7 billion with the next biggest country (China) coming in at just $61.9 billion. Planned expenditure at the Pentagon in 2007 is expected to be around $439.3 billion, which represents a 6.5% increase from 2006. Military procurement itself is expected to increase by 12.6%, however IBISWorld believes that

the majority will be attributed to systems, communications equipment and unmanned aerial vehicles in preparation for the Future Combat System (FCS) project (prototypes are expected to be fielded in 2008 with full scale production by 2010). US army spending is expected to peak in 2008 and decline until 2011 due to decreased supplemental spending. Supplemental spending is in place primarily to pay for continuing military operations in Iraq and Afghanistan.

The next wave of aircraft will be unmanned combat aerial aircraft (UAV) headed by the US army FCS project. The US army's request for UAV procurement is expected to total $15,354.8 million between financial years 2005 to 2011. UAV's aircraft will be used for dull, dirty and dangerous missions although manned aircraft will still fly these missions. Helicopter sales are expected to stabilize after consecutive years of strong growth as demand will be determined by operations rather than war. In addition, the Federal Government in its 2007 budget has cleared funding for the acquisition of 183 F-22 fighters which can extend the production line of this model until 2012.

Overall, industry revenue is expected to record good growth in 2009 as a consequence of expected growth in domestic demand and exports. In addition, exports are expected to increase significantly when Boeing's 787 'Dreamliner' is introduced to the market. As a consequence, industry revenue is expected to increase by 4.5% in that year, followed by 5.2% in 2010, 6.3% in 2011, 3.4% in 2012 and by 3.5% in 2013. The civil sector is expected to outperform the military sector over the outlook period.

Boeing believes that Chinese airlines could be running more than 3,200 large passenger jets by 2025, up from the 600 or so aircraft in 2006 in its fleet. Boeing forecasts total volume growth for Chinese air transport over the next two decades of about 9.3% a year, more than double the global average. According to Boeing, China's airlines will need 2,612 new aircraft, worth $213 billion over the next 20-year period. Chinese aviation authorities have announced that they will buy up to 650 single aisle jet aircraft to 2010.

The newly liberalized aviation market in India is expected to be a fertile battle ground for commercial jet manufacturers. Indian airlines are expected to buy at least 280 new planes by 2010, worth an estimated $15 billion, and another $15 billion worth in the following decade. Successful start-up airlines such as Bangalore based Air Deccan are expanding and there are a number of budget carriers looking to expand as India's air travel market is growing 25% annually. Deregulation of the aviation market in India has helped the bright outlook for commercial jet planes. For instance, the ceiling for foreign institutional investment in Indian airlines has been lifted from 40% to 49% and private domestic carriers are permitted to serve international destinations. Furthermore the Indian federal government has an "open skies" agreement with the US allowing airlines from each country unrestricted access to the other. The Indian Government has also signed agreements that will boost flights to Britain, China and Qatar.

Lockheed Martin is developing the Joint Strike Fighter, now named the F35 Lightening II, with a potential value of $200 billion. Lockheed Martin will build as many as 3,000 warplanes to

replace US Air Force, Navy and Marines F-16, A-6, and F-14 fighters in the US and the GR-7 in Britain's Royal Navy. Lockheed's development phase will take eight years and be worth $19 billion. Full production will start in late 2008 and continue into the 2020s. Other military aircraft in various stages of development include Lockheed Martin's multi-billion dollar F-22 Raptor program to replace F-15s, large transports to replace the C-130s, and new bombers, helicopters and refuelers.

In June 2004, Boeing announced that it had won a contract to supply the U.S Navy with the next generation of submarine-hunting planes. The Navy's multi-mission maritime aircraft program, or MMA, is valued at an estimated $3.9 billion in the development phase but is potentially valued at more than $15 billion through the production of about 109 aircraft the Navy plans to order. Timing of deliveries start with the first five test-bed aircraft expected to be delivered in 2009, with the bulk of the deliveries beginning deliveries in 2013.

Boeing has allowed three Japanese contractors (Mitsubishi Heavy Industries, Kawasaki Heavy Industries and Fuji Heavy Industries) make the wings for its latest jetliner (787), moving production of the section overseas for the first time. The Japanese contractors want to produce more aircraft parts, rockets and other aerospace equipment where they hold the technological edge, to counter the loss of shipbuilding contracts to lower-cost manufacturers in South Korea and China. The three Japanese manufacturers and Boeing are major shareholders in Japan Aircraft Development Corp; a joint company that oversees local work on the US company's aircraft. Boeing's Japanese partners now build about 20% of Boeing's 777 aircraft and 15% of its 767s.

In August 2006, Honda Motor announced that it has established a wholly owned jet aircraft manufacturing subsidiary in Greensboro, North Carolina, to enter the global market for business jets. Honda aircraft is set to start mass-producing the delivering six to seven passenger jets per year from 2010 onwards. The jets are expected to retail under $4 million. Honda has been selling engines for use in small jets since 2004 via a joint venture with General Electric.

IBISWorld forecast that industry value added will increase from $44,087.7 million at the end of 2008 to $53,386.7 million in December 2013. This represents an annualized increase of 3.9%. The growth in value added reflects the increase in technology (hence depreciation) for the development and production of new aircraft such as the Boeing 787 aircraft. The regional aircraft market is also expected to release new designs and models in the outlook period further contributing to value added growth. Profits will be the main contributor to value added. As new aircraft come to market, they will be able to command higher margins and this will lead to an increase in profits especially for Boeing. Net year orders for Boeing aircraft increased from 277 in 2004 to 1028 in 2005, and 1423 in 2007. This will translate to higher revenue and profits in the future.

Profits are likely to decrease slightly in the military sector as increasing program collaboration between allied nations to split the risk associated with new developments (e.g. F35 - Lightning Strike II - Joint Strike Fighter) will mean lower margins for companies when the manufacturing

of such products take place. The mounting US budget deficit may also reduce the potential margins expected by prime contractors. Finally, wages as a proportion to revenue are expected to decrease in the outlook period as companies transfer operations to countries with low labor rates to reduce operating cost and utilize greater technology to improve efficiency.

IBISWorld believes that the number of new establishments will continue to rise marginally over the forecast period as demand for aircraft and parts increase. IBISWorld predicts that establishment numbers will increase by 0.1% annually to 1,540. However major industry players will begin to acquire smaller operators (more likely in the Other Parts and Auxiliary Equipment Manufacturing industry), or forcing them out of business. Some major players will also expand to states but they are more likely to expand to developing countries in order to increase production capacity and to lower production cost. It is anticipated that over the next 5-10 years, approximately two-thirds of the commercial aerospace market is forecast to be outside the United States.

With establishment growth set to continue (albeit at a slow rate), employment numbers and wage costs will follow suit. IBISWorld forecasts employment to increase by 1% in the outlook period with wages increasing at an annualized rate of 1.2%. In the coming years, the industry may face a shortage of skilled labor as demand for workers outstrips supply. This will cause an increase in training costs needed to bring less-skilled workers up to the requisite level to manufacture increasingly complex engines and avionics systems. Wages will increase to reflect supply shortages. Revenue per employee is forecast to increase to $491,949 by 2013.

Excerpts from ***Aircraft, Engine & Parts Manufacturing in the U.S.***, IBISWORLD Industry Report, July 2008

33911 – Surgical and Medical Instrument and Appliance Manufacturing in the U.S.

This industry comprises establishments primarily engaged in manufacturing medical equipment and supplies. Examples of products made by these establishments are laboratory apparatus and furniture, surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, dentures, and orthodontic appliances.

The following factors determine demand for industry products:

- Population demographics
- Government expenditure
- Technological innovation

The aging American population and the trend towards more consumer-oriented health care products and devices is increasing the demand for the medical equipment and supply industry to develop technologies and products that enable patients to take a more active role in their own health care. The prevalence of conditions such as heart disease, cancer, aids, and hepatitis is increasing, which in turn increases the demand for specialized instrumentation and consumables.

This demand is derived from the health of the population and the methods employed by medical professionals to treat disease, illness and injury.

Advances in science and engineering involving microelectronics, biochips, genomics, and biomaterials allows for the development of new products, such as high performance synthetic materials, which can be produced in high volume and at a reduced cost.

The level of funding towards medical technology and innovations by government and the private sector influences the degree of new product development. At present the majority of funding is derived from private enterprises however the government also plays a role. Government programs in the US such as Medicare and Medicaid, private healthcare insurance and managed care plans subsidize income available for expenditure on medical services.

The life cycle stage of this industry is mature:

- Between 2003 and 2007, IBISWorld estimates that GDP grew at an average annualized rate of 3.1% while industry value added grew at an average annualized rate of 3.2% over the same period of time.
- Most product innovation within the industry enhances existing products rather than creating new markets. Introduction of product developments take approximately 2-5 years before they can achieve worldwide market acceptance, as products are subject to rigorous testing and pre-market approvals.
- The majority of participants have large budgets and R&D expenditure. These companies benefit from economies of scale and have the ability to purchase smaller startup companies in the industry.
- The industry experiences intense competition both domestically and internationally and many companies participate in price competition. In recent years foreign companies have gained greater domestic and worldwide market share.
- In 2006, Boston Scientific acquired Guidant Corporation, a manufacturer of cardiac and peripheral vascular repair systems. Boston Scientific was engaged in an intense battle with Johnson and Johnson for the ownership of Guidant.

Industry Outlook

IBISWorld forecasts that over the next five years, industry revenue will grow by 15.4%, growing at an average annualized rate of 2.9%.

The future of the Surgical and Medical Instruments and Appliances Manufacturing industry is primarily dependent upon technological innovation and an aging population.

A key driver of industry revenue growth is the number of surgical procedures performed in the US. This number is set to grow by 16.8%, from an estimated 33.4 million in 2007 to more than 39 million in 2012.

The baby-boomer demographic is set to become the industry's largest market over the five years ending 2012. The number of people over the age of 65 is forecast to grow at an average annualized rate of 2.4% over the five years to 2012, while the total US population is forecast to grow at an average annualized rate of 0.9% over the same period. This will translate into a significant proportion of the population over the age of 65 by 2012. The older the population the greater the dependence upon health services such as surgery.

Rapid economic growth of developing countries, China, India, Russia, will lead to the provision of improved healthcare services. Demand for surgical and medical instruments in these countries is forecast to increase substantially during the outlook period.

One of the greatest challenges for firms going forward will be cost containment. Government price controls with mandatory discounts, competitive pricing pressures, parallel imports from low-wage countries and increasingly stringent Government regulatory requirements.

Growth in plastic surgery procedures will also drive industry revenue growth. The average age of those undergoing such procedures is declining and the emergence of less invasive surgical means is making such procedures attractive to those who previously would not have considered undertaking it.

Greater education and improved drug therapies will reduce the number of stent inplantment procedures. Drugs such as Lipitor have proven successful in reducing blood cholesterol which leads to the buildup of plaque on artery walls eventually leading to stent inplantment or coronary by-pass surgery.

New product introductions which enhance existing products will boost industry revenue growth in 2008. During the year, IBISWorld forecasts that industry revenue will increase by 4.3%, and rise a further 0.5% in 2009. Between 2010 and 2012, industry revenue will be driven by the baby-boomer demographic. IBISWorld forecasts that industry revenue will increase by 4.1%, 1%, and 4.5% over this period.

The number of industry establishments is expected to continue to decline as the industry continues to consolidate. Over the outlook period, the industry is forecast to lose 1724 establishments, taking with them an estimated 30,358 jobs. However, IBISWorld forecasts that existing establishments will gain 53,535 jobs over the next five years as the industry continues to grow. In net terms, there will be an employment gain of 23,177 jobs within the industry, causing the average number of jobs per establishment to increase from 18 to 21, and the average real wage to increase by 2.5% over the outlook period.

Excerpts from ***Surgical and Medical Instruments in the U.S.***, IBISWORLD Industry Report, September 2007

51121 Software Publishers

This industry comprises establishments primarily engaged in computer software publishing or publishing and reproduction. Establishments in this industry carry out operations necessary for producing and distributing computer software, such as designing, providing documentation, assisting in installation, and providing support services to software purchasers. These establishments may design, develop, and publish, or publish only. The development and design of software yields an intangible product and therefore copyrights and patents are prevalent within this industry. Industry works are often passed on to reproduction manufacturers of optical media in order to mass produce copies of the original software program / application.

The demand determinants for this industry include the following:

Business profitability, which can influence technology spending - as a significant proportion of software is developed for business applications, business expenditure on software is an important demand side factor.

Real household disposable income - The level of income at the disposal of a household unit affects the level of expenditure on computer and software products by household consumers. During periods of low disposable income consumers may decide to wait to upgrade or purchase new software.

Internet Use - the growth in per capita use of the Internet creates a demand for browsing, search engine, web site development and virus protection software.

Product technology - advances in technology which lead to the release of new products or upgraded versions of software will increase the demand for products in this industry.

The demand for computers - as the installed base of computers increases so too will the demand for new or upgraded software.

Price - Declining real prices for computer hardware and software products has been a factor driving household and business demand for these goods.

The level of economic activity and capital investment expenditure - growth in business investment and in the service sector of the economy influences business demand for computers hardware and software.

Product advancements and enhancements. For example, the introduction of software with added features, faster processing speeds, greater capacity and new uses influences replacement (i.e. upgrades) and new demand.
The extent to which businesses and governments "off-the-shelf" software over internally developed customized software.

Specific Events. For example, the wake of the Year-2000 bug generated demand by to upgrade or purchase new software.

The growth stage of this industry is growth. This is due to:

- New software and hardware products are drivers of software demand.
- Industry expenditures on R&D are high, relative to revenue.
- Software prices are expected to fall, which will promote growth in demand volumes.
- The rapid uptake of new information technology indicates that the Software Publishing industry remains in a growth stage.
- While growth has slowed in recent years, the industry is still expected to grow at a pace that exceeds economic growth.
- While consolidation is occurring in some major segments of the industry, there are new entrants.

Industry Outlook

IBISWorld forecasts that industry revenue will grow at an average annualized real rate of 3.9% in the five years to December 31, 2013. Revenue growth during this period will be affected by: growth in economic activity; the level of technological change in information technology and communications; growth in demand for, and the installed base of, PCs and other hardware products with a computing component; and competitive conditions in the software publishing industry.

Technology spending by the business sector had recovered (both in the United States and globally) from the recessed levels of spending in the period 2001-2004. However, IBISWorld forecasts slower growth in the US economy in 2008 and 2009 (along with a contraction in economy-wide investment during this period) and the realization of this forecast would represent a drag on industry growth. IBISWorld forecasts stronger growth in the US economy 2010 through 2013.

New innovations, along with falling prices for hardware and software, will tend to promote growth in demand volumes and provide a source of growth for the software industry. Compliance with new regulatory regimes, such as Sarbanes Oxley, Basel II and International Accounting Standards and the Health Insurance and Portability Act, will continue to be positive drivers for the software industry. Over the outlook period, the Software Publishers industry is expected to be in a moderate growth life cycle phase, with industry value added forecast to increase at an average annualized real rate of 3.8% in the five years to 2013 (exceeding real growth in US GDP, which is forecast to grow at an average rate of 2.3% per year).

Software will account for a rising share of business IT budgets, continuing a 15-year trend. Businesses and governments will continue a trend of adopting "off-the-shelf" and "on-demand" software in preference to internally-developed customized software. However, "on demand" software can allow companies to use only the required parts of software programs. While this

will drive demand for a wider range of software products, it will also act to drive up competition and have a dampening effect on prices for packaged software.

A significant challenge for the software industry is to combat piracy of products (which has been a particular problem in less-developed countries, such as China). Governments, software companies and industry associations (including The Software & Information Industry Association) are actively involved in efforts to reduce piracy. Initiatives include litigation enforcement, legislative action, and education. While "on demand" computing and subscription sales of software distributed via Web browsers will tend to reduce software prices, it could also reduce piracy.

The number of personal computers worldwide will increase at around 8% per year over the outlook period. A large part of this growth will come from emerging markets, such as Asia and South America, and software companies will aim to develop solutions for these markets, with products that are economical and tailored for first-time users.

A positive trend for the software industry is the growing number of installed devices with computing capabilities. These devices include TV set-top boxes, electronic games consoles, PC entertainment centers, mobile devices (which include tablet PCs, cell phones and digital music players) and household goods (such as refrigerators).
The number of Internet users in the United States and globally will continue to increase, as will the intensity of use of the Internet. This trend will be mainly driven by: the rising availability and falling costs of Internet access in dial-up, broadband and wireless sectors; and the release of new web-based services. This will ensure growth in both the web browser and Internet security software markets, among other markets. Security concerns will promote growth in products offering virus protection, firewalls and anti-spam software to users.

Growth in the volume of data transmitted, stored, shared and manipulated will promote growth in sales of enterprise, storage and security software.

There is a shift underway among corporate software users, where companies are moving toward what is called service-oriented architecture ("SOA"), which allows companies to be much more flexible and responsive. Major players in the middleware market will benefit from growth in the global SOA market, which some analysts expect to more than double over the outlook period.

Additional key factors influencing growth in the Software Publishers industry over the outlook period are: renting of software over the Internet (Applications Service Providers), providing customers with savings on software license, hardware and installation costs; selling of software services on the Internet on a subscription use or transaction basis; and, increasing business to business e-commerce. Given these factors, many industry participants have re-evaluated their future direction, and have focused on the development of "web services" rather than the usual prepackaged software product. These developments will also reduce barriers to entry in some segments of the industry.

IDC predicted (2007) that worldwide revenue from stand-alone open source software (OSS) will grow from $1.8 billion in 2006 to $5.8 billion in 2011, representing average annualized growth of 26%. Growth in revenue from OSS will lag behind the growth in distribution of OSS, as many distributions of OSS are free (resulting in an accentuated displacement of proprietary software). OSS (such as the Linux operating system) will threaten some proprietary software (such as Windows), but will also tend to promote interoperability and new software developments. Sun Microsystems recently entered into an agreement with Microsoft that was intended to enable greater interoperability between the two companies' products. Legal requirements are forcing Microsoft to unbundle application software from its PC operating system and to offer interoperability information on its PC operating system to competitors (and in November 2005 Microsoft announced that it would make the software formats behind its Office programs an open standard).

OSS, along with an expected increase in interoperability between proprietary software, will tend to reduce barriers to entry for new nimble players in this industry (although patents are a major obstacle to growth in the open-source software space). Incumbents will need to develop business models that protect them, and take advantage of, the open-source trend. IBM and Sun Microsystems expect that their moves into OSS will generate additional revenue from hardware, service and support.
The software industry is undergoing a period of consolidation as software companies seek to offer a more extensive and complimentary range of products, as well as to gain larger customer bases. Some business customers are looking to reduce the complexity of their IT infrastructure and drive efficiency with fewer IT suppliers.

In the Internet space, the software and online media sectors have been converging. This has at least a few implications: firstly, some software-related activity of integrated companies will be subsumed by other industries (such as by the Internet Service Provider and Web Search Portals industry and the Advertising Agency industry); and, secondly, some software companies will rely more on advertising revenue to subsidize software sales. Google Inc generates almost all of its revenue from advertising. In May 2007, Microsoft announced the acquisition of aQuantive (the acquisition was finalized in August 2007), a company that provides Internet tools and advertising agencies, for $6 billion. In October 2007, Microsoft announced that it would take a $240 million equity stake in Facebook, a social networking web site. Following the acquisition of aQuantive, Microsoft's Chief Executive stated that Microsoft will retain its software focus, and that if basic software can be "ad-funded in the way that it gets delivered to consumers, it probably will get ad-funded". In February 2008, Microsoft made a proposal to the Yahoo! Board of Directors to acquire Yahoo! for approximately $44.6 billion.

The software industry in the US will face increasing competition from software companies located in countries where IT labor costs are low (such as in India, which has a large pool of trained labor). For example, the German-based SAP has a software development presence in India. Indeed, some US software companies have established their own software development facilities in low-cost countries, such as India (sometimes benefiting from incentives provided by

national, state and local governments). US companies are also outsourcing their IT functions (including software development) to companies in low-cost countries.

Excerpts from ***Software Publishers in the U.S.***, IBISWORLD Industry Report, May 2008

51421 Data Processing Services

This industry comprises establishments engaged in providing electronic data processing services. These establishments may provide complete processing and preparation of reports from data supplied by customers; specialized services, such as automated data entry services; or may make data processing resources available to clients on an hourly or timesharing basis.

The demand for the services of the data processing services industry is sensitive to developments in the worldwide information technology market, both in hardware and software, and including the Internet. The increased capacity of personal and mini-computers has had an effect on the need for some data processing services, as has software developments. The industry is also very sensitive to businesses and government organizations that outsource or sell their in-house data processing services or expertise to major operators and then contract back the required services. Some major outsourcing contracts are currently under review, due to some clients being disappointed with service levels and/or significant contract cost blowouts. However, outsourcing of highly technical tasks is increasingly common in a number of industries, particularly those in the finance, banking and insurance sector. Finally, the general economic situation is also important in terms of clients investing in new or enhanced IT services and in influencing the volume of business, government and household transactions serviced by data centers.

The life cycle stage for this industry is growth. This is due to:

- The industry is in a growth phase due to the on-going outsourcing of data processing and related services by governments and businesses and from changes in technology (including its price).
- To the early 1990s, the industry had been in decline, but this changed due to both the outsourcing of computer services by governments and business and from changes in technology and its costs. This included electronic and optical imaging, electronic data interchange, bar-coding of products etc. Also important was the availability of customized and packaged software, which also made it easier to transfer and analyze data and reduced the need for double handling at the input phase.
- The rapid adoption of web-based services in the mid- to late-1990s has created a growth boom for the industry, as firms and government agencies continue to increase the level of outsourcing of highly skilled tasks central to the IT Support, CRM & Data Processing Services industry.
- A current growth area is data warehousing and analysis (or data mining). Data warehousing involves collection of data, scrubbing it to ensure its integrity, establishing a common format so that different data sets can work together and storing it together in the one place. Data mining involves using artificial intelligence to run the data across a

number of related and unrelated data sets to discover previously unknown relationships. This process has been used by a number of manufacturing firms and been trialed by financial and health research institutions and retail stores. It has huge possibilities in the market research and analysis areas.

- Households are also increasingly using electronic means of transactions to make payments and to do their banking on-line, a primary feature of most major industry players.
- There is, however, the possibility that some data centers will be re-located overseas as operators (and clients) seek continuing high quality service, but at cheaper prices. Data centers are expected to increasingly be opened in countries such as China and India.

Industry Outlook

In general, the industry is sensitive to the growth in outsourcing of data processing and the number of transactions occurring between the government and business sectors, as well as, now by households. Overall the industry is sensitive to the level of data and other transactions, among its largest clients, which tend to be concentrated in the banking, finance, insurance, retail and travel and hospitality industries.

These transactions may be by ATM, cell phone, internet/web-enabled e-commerce and netbanking systems, credit card or debit card or other like means. The industry is also becoming increasingly more sensitive to clients' desires to actually obtain cost reductions (as well as productivity enhancements), but with service standards being maintained as originally agreed.

This applies to both specialist consultancy contracts and/or outsourced data processing contracts. This trend is leading to the re-location or establishment of new data centers overseas, particularly in China and India, to access a pool of highly skilled staff, but at a lower wage cost. Growth in 2009 is expected to be muted as client industries remain squeamish about expansive spending in the wake of the subprime affair, but over the outlook period, growth should be strong.

IBISWorld estimates that revenue will record continued strong growth, well ahead of forecast GDP growth, as increasing demand for electronic outsourcing, coupled with growing markets where data processing services are already in high demand. Also, increased outsourcing by the industry of jobs and technology to Asia is likely to drive prices down, encouraging further demand increases, leading to annualized revenue growth of 8.6% over the period from 2008 to 2013, finishing with revenue of $138.83 billion in 2013.

In 2009, the industry is expected to experience slower real revenue growth as compared to average rates over the current period, as well as in profits and employment (and therefore value added), as domestic and international economic growth is forecast to slow due to the lagged effects of the falling housing market in 2006 and early 2008. Also, losses incurred by the banking sector as a result of investing in subprime loans which were subsequently defaulted on mean growth will suffer somewhat in that year. Revenue is expected to grow 2.9% to $94.6 billion.

Continuing growth is expected from the outsourcing of data related services, but with clients now seeking greater returns from their expenditures. This will continue to place pressure on major operators to link onto cheaper wage-cost countries, to offset some of the continuing price-based competition and contract demands. It will also lead to increasing industry consolidation, as operators seek to improve their revenue growth and margins.

The forecast continuing stagnant economic growth from 2009 to 2013 is estimated to lead to relatively slower real industry revenue and value added growth than experienced in the 1990s, as demand slows slightly, and from the resulting slower growth in industry employment, and particularly, profitability. The process of both the outsourcing of data processing needs by governments and businesses will, however, continue, as will the re-location of some data centers and processes overseas and to actually accelerate over the outlook period.

As the US economy recovers from poor performances in 2008 and 2009, the industry is expected to recover concurrently, as improving business sentiment will lead to spending that was deferred originally being invested in large-scale outsourcing projects in 2010 and beyond.

One of the most critical factors is the development of strategic alliances and partnerships between companies in the software, hardware and computer consultancy services areas to be able to offer clients a comprehensive and a one-stop solution. This area is expected to be of continuing importance over the next five years. This will also extend to include having strategic alliances with internationally located companies to be able to provide cheaper contracted outcomes, but still to the high quality standards agreed.

Due to this, it is expected that exports will become increasingly more important over the outlook period as US companies seek further growth opportunities elsewhere. Globalization of this industry will also increase at a significant pace over the next 3 to 5 years. Increasingly major operators are expected to re-locate some of their operations to places like India and China, where there is a large number of highly skilled, but lower cost IT professionals. The trend may initially commence with some re-location of segments of a company's operations or certain existing or new clients, on a trial basis, before significant shifts occur.

Data warehousing and data mining opportunities are also expected to increase, as clients seek to use their in-house customer information in a more strategic manner to build stronger relationships and sales, without breaching privacy regulations. This will continue to be of importance in the retailing, financial services and banking industries, but also will extend to other major customer-service ones, including travel and hospitality.

Overall the industry will also continue to benefit from the spread of e-commerce and e-business processes by governments, businesses and increasingly by households. The allocation of resources dedicated to improving the security of these systems and data centers will also continue to be of high priority.

Over the period to 2013, the industry is expected to achieve a real annual average growth value added of around 7.2%, reaching $77.33 billion, compared with the forecast real growth in GDP of 3% per annum over the same period. Industry value added remains strong as falling technology prices ensure major players continue to maintain strong profit margins.

Value added will also be affected by falling wage levels, caused by the movement of industry jobs (especially lower-skilled jobs) to low-wage Asian countries such as China and India. Strong profit growth from this outsourcing of jobs is likely to be the driver behind value-added growth.

This drop in wage costs, while beneficial for profit levels, is likely to ensure that value added growth lags behind revenue growth, as distinct from the current period, where rising profits ensured value added grew more rapidly.

Establishment growth, while forecast to remain strong over the outlook period, is expected to be slower than the current period, which in turn was slower than the historical period between 1997 and 2001. While this occurs, establishment sizes are also expected to progressively shrink over the outlook, as more jobs are shipped overseas, and establishment growth centers on non-employers and other small firms with a specific geographic region to service. In 2013, there are expected to be 90,747 establishments, of which 68.7% will be non-employing.

Employment growth is expected to remain comparatively slow over the outlook period, due primarily to the aforementioned outsourcing of jobs to Asia and the increase in small firms requiring less staff. Total employment in 2013 is expected to reach 718,904, with 7.8%, or 56,074, to be non-employers, up from 7.3% in 2008. Wage growth is expected to be marginally higher than employment growth, but still well down on the previous decade, as remaining staff are more likely to be more highly qualified, hence demanding greater wage levels.

Excerpts from ***Data Processing Services in the U.S.***, IBISWORLD Industry Report, June 2008

54151 IT Consulting

This industry comprises establishments primarily engaged in providing expertise in the field of information technologies through one or more of the following activities: Writing, modifying, testing, and supporting software to meet the needs of a particular customer. Planning and designing computer systems that integrate computer hardware, software, and communication technologies, even though such establishments may provide custom software as an integral part of their services. On-site management and operation of clients computer systems and/or data processing facilities.

Demand determinants include:

- IT Products: The demand for the services of the computer services industry is sensitive to the development in information technology products - both hardware and software and the need to establish and upgrade customized software.
- Outsourcing of Services: Significant changes in industry demand is assisted by corporations and governments using contractors or companies to outsource their IT needs and services, initially, both due to cost considerations, as well as being able to access staff and skills required.
- Outsource versus In-house: More recently, however, some major outsourced contracts are being taken back in-house due to dissatisfaction with costs, service quality/outcomes and loss of in-house expertise and knowledge.
- International Outsourcing: the demand for US based services is being slowly affected by the increasing trend to outsourcing some software development and client services activities to highly skilled, but lower cost countries, such as India and China. This is in direct response to attempting to lower costs to clients and increasing price-competitive contracts and tenders. This practice is becoming increasingly common, as firms attempt to cut costs, driving prices down and stimulating demand.
- Business Profits/Confidence: the industry is significantly affected by the proliferation of computing technology, which industry is more inclined to invest heavily in when revenues are high and profit forecasts are optimistic. Specifically, the industry relies on the Banking, Finance and Insurance industries, which are subject to fluctuations in real per capita income and GDP growth.
- Technological Rate of Progress: As computer technology continues to improve at a rapid pace, the ability of users of that technology to maintain a working knowledge and understanding, along with an ability to properly utilize their available assets, leads to increased demand for systems designers with specialist skills.

The IT Consulting Industry is estimated by IBISWorld to be in the mature phase of its industry life cycle.

Over the current performance period, industry growth (even taking into account slow and negative growth after the technology crash of 2001-02) has remained close to US GDP, growing at an annualized rate of 3%, as opposed to GDP at 2.9%.

It is important to note that the poor growth during difficult economic environs in 2001-02 and the slowdown expected during the current subprime affair suggests that the industry is on the verge of entering its maturity, as the use of computers has become more pervasive. An industry in its growth phase is more likely to ride out poor economic conditions than be affected by them, indicating that the industry is now mature.

The emphasis now is on being much more oriented towards ensuring projects being guaranteed to meet the client's required productivity and profit outcomes. Also any agreed improvements need to be delivered within the required time and budget and to the desired and agreed quality

standards. Increasing technology in computing (either in size, mobility or processing power) is leading to increasing demand for specialists who can set up and maintain computer systems appropriate to firms and households more often utilizing this technology.

Forming strategic alliances with other major companies in this industry is now of greater importance in growing demand and sales and offering companies a one-stop solution. Industry growth from outsourcing will continue, but now with an increasing emphasis on using international skills and expertise located in high skill, low labor cost countries, such as India, for some software development activities. Software design and testing will largely remain in the US, but program development will be increasingly moved offshore for large projects.

The movement of work to Asian centers is often a sign of continuing growth in an industry, as the setup costs of relocating operations are high, and the company involved must feel confident that profits will remain high over the long term in order to justify the investment. Increasing revenue growth will also continue to occur from the defense and Homeland Security areas over the medium term.

Industry Outlook

The current performance period oversaw a significant change in the prospects of the IT Consulting industry, from one of the US's strongest growth industries, to, while still retaining growth levels above that of national GDP, now exhibits growth levels more appropriate to a mature growth industry. In fact, the industry remains in its growth phase primarily on the basis of continuing improvements in computer technology which will stimulate demand for industry services.

From end 2008 to 2013, IBISWorld forecasts annualized industry growth of 4.4%, increasing from $242.71 billion to $300.66 billion, with growth shared relatively evenly between employing and non-employing firms, remaining between 1.8% and 7.6% over the outlook period.

This growth estimate is based on forecast strong growth in the Banking, Finance and Insurance industries (the IT Consulting industry's largest consumer), along with strong growth in per capita personal disposable income, leading to continued growth in household expenditure on industry services. However, the growth in the banking and finance sector is expected to be deferred until 2010 at the earliest, as the sector struggles to maintain growth in the face of the current subprime crisis.

The subprime crisis is expected to have negative impacts on the industry and economy at large, as numerous sectors suffer from falling business and consumer confidence and a struggling housing sector reduce discretionary income and 'luxury' spending, as consultancy services often are, is put off until more stable economic climes.

Also, continued public, private and business adoption of newly developed computing technology, which is becoming increasingly mobile and widely utilized, will ensure demand for

the services of systems designers to create programs to properly manage and implement these new technologies will continue to grow over the outlook period.

Growth is unlikely to reach pre-2000 levels of over 10% due to:

- Private consumers remaining hesitant to invest too heavily in an industry which has garnered the reputation of instability.
- Continued competition from international competitors based in Asia, along with public mistrust, as more work is taken offshore in order to cut costs.
- Some measure of market saturation making the industry less efficient, as the rush of players entering the boom market in the 1990s to capitalize on record growth has resulted in an industry with numerous small competitors fighting for market share.

In 2009, clients will continue to evaluate the options associated with transferring some application tasks to highly skilled and lower labor cost countries. While strong growth in contracts is expected to occur from the Department of Homeland Security, this will be offset by the lagged effects on business confidence and economic activity. From 2010 onwards, the industry's real value added growth is expected to remain relatively low, compared to the 1990s, and due to the forecast continuing slow domestic economic growth.

One of the most critical factors is the development of strategic alliances and partnerships between companies in the software, hardware and computer consultancy services areas to be able to offer clients a comprehensive and a one-stop solution. This area is expected to be of increasing importance in the future.

Within this, some of the current growth areas include network management, security including developing firewall security systems for clients, spam controls, networks, internet site development, e-commerce and in the new area of installation of "thin servers" for clients to replace existing servers and possibly ISPs.

Areas of change which may affect this industry over time may also include:

- Networking and continuing moves towards more internet based servers and related software;
- Increasing security including from viruses, spyware, pop-ups, spam mail etc.;
- Renting of software over the internet (Applications Service Providers) saving software licenses and some hardware and installation costs;
- Selling of software services on the internet on a subscriptions, use or transaction basis;
- Continuing growth in entertainment software - video games and for music, movies etc.;
- Increasing business to business e-commerce;
- Data services via wireless (mobile) technology;
- Increasing broadband networks using cable modems, Digital Subscriber Lines (using existing copper wires, satellites, fiber optics);
- VoIP systems;
- Increasing middleware linkages; and

- In home networking of appliances and computers.

With the cost structure of the industry being high, partly due to the need for a significant and recurring research and development budget, the forecast initial slowing in demand for IT services will have to be watched carefully by all operators.

Mergers between and acquisitions of companies within the industry is expected to continue in the short term.

It is expected that exports will become increasingly more important over the outlook period as US companies seek further growth opportunities elsewhere. Globalization of this industry will also increase at a significant pace over the next 3 to 5 years. Increasingly major operators may re-locate some of their operations to places like India, where there is a large number of highly skilled, but lower cost IT professionals, as well as call center/customer service centers.

IBISWorld forecasts value added will increase from $168.14 billion at the end of 2008 to $205.65 billion in 2013. This represents an annualized increase of 4.1%. Value added growth is expected to lag behind revenue growth over the outlook period, as major players reduce their spending on staff as the number of projects falls. This will be remedied in around 2010, as many deferred projects are reinstated, requiring a sharp increase in staff numbers.

IBISWorld believes that many smaller companies will be unable to compete with the high-tech, integrated services offered by major players and that many will leave the industry or be forced to merge. This industry rationalization should reduce overhead costs and increase profitability. However, competition from the domestic market may be small in comparison to foreign competition.

In a global marketplace US businesses may struggle to compete with Asian graphic design firms, which can harness similar technology with similarly qualified employees at a fraction of the labor cost. Currently, US firms plan to compete with Asian and other international entrants to the industry on quality and service rather than price, however, over the long term, increased price pressure from Asian firms will undermine industry profitability, forcing wages back down, minimizing the increase in value added for the industry.

IBISWorld forecasts that establishment levels will grow at a level below that of industry revenue and value added, as a result of increasing market saturation, and a collective realization amongst smaller players that revenue growth is not at, and will not reach, the levels experienced prior to the technology crash in 2001, while employing establishment growth will remain low as many large firms attempt to expand operations into the cheaper regions, such as Asia.

IBISWorld estimates that in 2013, there will be 496,124 establishments, including 367,231 (or 74%) non-employing establishments, which are expected to exhibit moderately stronger growth than employers, despite the increase in market concentration. The difference in growth rate

between employers and non-employers is expected to be significantly less than during the current period.

Employment is expected to increase from 1,550,238 at end-2008 to an estimated 1,768,400 in 2013, an annualized increase of 2.7%, while average wages are expected to fall over the outlook period, once again due to large firms exporting work overseas as much as possible. The average wage is expected to increase early in the outlook period, as employment and wage growth remain strong.

However, as overseas outsourcing increases towards 2010-2013, wages are expected to fall sharply, while companies attempt to compete on price, a significant shift after several years' competing on quality of service. These wage drops are expected to be more keenly felt amongst larger employing firms, rather than non-employers, who will grow over the end of the outlook period at levels slightly below that of forecast US GDP despite threatening market saturation. As a result, wages are expected to increase by the comparatively slow amount of 0.4% on an annualized basis, to a forecast $98.67 billion, with growth slightly higher among non-employers (1.7%).

Overall wage growth is expected to be muted, averaging 1.4% per year over the outlook period. Coupled with stronger employment growth, the average industry wage is forecast to fall by 0.9% on an annualized basis, to $62,078. Growth in wages and employment are expected to be particularly stagnant early in the outlook period, as firms attempt to limit costs in the wake of the subprime affair.

Excerpts from ***IT Consulting in the U.S.***, IBISWORLD Industry Report, March 2008

54171 Scientific Research & Development

This industry comprises establishments primarily engaged in conducting research and development in the physical, engineering or life sciences, such as agriculture, electronics, the environment, biology, botany, biotechnology, computers, chemistry, food, fisheries, forests, geology, health, mathematics, medicine, oceanography, pharmacy, physics, veterinary and other allied subjects. Research can be carried out within a laboratory environment, or it may involve field studies. Research findings are used by industry, government, universities, colleges and other organizations.

The major determinants of demand for the Research and Development in the Physical, Engineering, and Life Sciences industry include:

- Cost: In its simplest formulation, ignoring taxes, the service value of an asset, including R&D, should equal the reduction in the value of the asset due to its use during the current period (depreciation) plus a net return equal to the current value the asset could earn if invested elsewhere (opportunity cost). According to the theory of the firm, investments will be made only if the expected gross return from those investments over the long-run at a minimum covers depreciation, plus a net return equal to the opportunity cost of the

funds. If in the long-run actual gross returns are less than depreciation plus a net return equal to opportunity cost of the funds, investments will no longer be made.

- Social Benefit: Government and other not-for-profit organizations conduct R&D to improve society, through advances in health (such as the mapping of the human genome) or environmental knowledge. The government will also undertake R&D to supplement national defense capabilities. Like private companies, the public sector will be more likely to undertake R&D when the economy is healthy; other social needs (such as current spending on health or education) will be prioritized when government income levels fall.
- Technological Advancement: The advent of new technology can create increased demand for research and development, particularly when it creates a variety of new product and service possibilities. The late 1990s saw the introduction of widely available online and digital technology, requiring the development of numerous logistics systems, such as shopping or email distribution.
- Proprietary Technology: Companies and other organizations engage in R&D activities if they can easily and cheaply patent technology and if they have confidence in the protection offered to the patented product. A company can use a patent to corner a particular market, or can earn money through licensing the patented technology.
- Resource and Technology Availability: R&D activity is more likely to be demanded if appropriate labor skills, materials and processes are available. Advances involving microelectronics, biochips, genomics and biomaterials allows for the development of new products that increase the capabilities and quality of research in other fields. Access to large quantities of liquid capital can also be of assistance, as research and development can be time consuming and costly.
- Government Incentives: Incentives to private firms such as tax exemptions and grants for R&D reduce the relative cost of research activity. In absolute terms the US spends more on R&D than any other country (it does not spend as high a proportion of its GDP on R&D as some other countries); often intellectual property will be transferred to affiliate companies abroad in order to exploit tax advantages.
- Geo-Political Conditions: Changes in the international political climate can impact on demand for research. The current war on terror has increased government spending on research and development in military technologies such as missiles and other hardware, along with software such as improved radar and clandestine digital monitoring systems and equipment. Also, increasing public awareness of global climate change has led to increased government and private funding into renewable energy research.

IBISWorld believes that the Scientific Research & Development industry is in the growth phase of its economic life cycle. Over the past five years, revenue and value added growth have outstripped real US GDP growth by a significant level (annualized growth in the industry for the 5 years to 2006 is 8.5%, while GDP growth over the same period is expected to be 2.9%).

This rapid growth is due to the increased out-sourcing of activities by major IT companies keen to cut costs, and in the wake of buoyant demand from the public sector, especially for research in the defense sector, as a result of increased military action. There will always be federal

obligations to maintain high levels of research and development activity in order to maintain a superior level of economic growth, to increase national productivity and to address health, environmental and defense issues.

Predictably, the number of establishments in the industry has increased rapidly as new entrants seek to exploit high growth rates and the rapid increase in new contracts. Between 2001 and 2006 the number of new industry establishments increased at an annualized rate of 4.3%. The number of new entrants would in all likelihood have been much greater were the barriers to entry in this industry not so high.

As industry participants are growing in size and the public and private sectors continue to fund research and development activity, the number of products supplied by the industry has increased. Firms in this industry provide services ranging botany research to cancer and HIV/AIDS research, from communications equipment to communications monitoring equipment, from guided missile research to nuclear device detection equipment.

Industry Outlook

During the 2008 to 2013 period, industry revenue is expected to rise from $103.11 billion to $146.5 billion. This represents an annualized increase in revenue of 7.3%, more than double IBISWorld's average real US GDP growth rate forecast over the same period.

The revenue growth forecast is based on:

- Economic Growth: A continued rise in corporate profitability, household disposable income and leisure time. These things encourage the consumption of, and investment in, R&D-intensive goods. Investment is particularly important in the automotive, pharmaceutical, consumer electronics and telecommunications industries as first to market products have a significant sales advantage. Moreover, US industries must continue to invest in the development of high-value equipment and processes that negate the affects of low wage producers in developing and competing economies (such as China).
- Long-Term Growth: Increasing government expenditure on R&D, especially in the defense, health and environmental segments. Governments of all political color are required to invest in new processes that boost economic growth and the living standards of US citizens. US research and development spending accounts for around 38% of the global total, however, this has declined from the 40% during most of the 1990s. Moreover, there has been a rapid increase in investment from such major players as China (to around 15% of total in 2004 adjusted for purchasing power). IBISWorld expects, as the Chinese and Indian economies tend to exhibit substantial growth levels, this trend to continue, increasing the need for US investment in research and development, not only to maintain share of the research market, but to remain competitive on a more general economic level in the long-term.
- Geo-politics and National Security: Global political instability caused by the clash of religious, political and economic ideologies. Instability will lead to the critical appraisal

of US defense capabilities (especially important following recent combat), the need to research potential improvements for future conflict and the need to improve US homeland security. Recent high international oil prices and the devastating effects of hurricanes Katrina, Rita and Wilma will increase pressure on current and future administrations to tackle environmental problems, such as global warming, not to mention lack of access to oil reserves. Firms conducting research into logistics concerning the management of security forces and emergency services will see increased demand over the next 2 years at least.

- Ageing Population: Increasing demand for medical and pharmaceutical products will be caused by the affects of an aging US population. In 2000 12.4% of the US population was aged 65 years or over, by 2020 this proportion will have increased to 16.3%, or an additional 19 million elderly people compared to the year 2000. The government will also be forced to invest in the development of policies to combat hospital shortages and pension system problems.
- Intellectual Property Rights Legislation: Better enacted and policed IPR legislation around the world - especially in developing markets (such as Eastern Europe and Latin America) - will increase the profitability of investment for US firms selling abroad.

Industry-specific fields of research important to future growth include:

- Nanotechnology: The production of machines and devices at the molecular level is seen as one of the most important strands of research for the next 10 years. If successful, this technology will revolutionize medicine, warfare, and communications, among several other vital services.
- Materials technologies: Such as the development of materials that can survive hostile environments, such as devices used as medical implants or that operate under sea, at ultra-high temperature, or in high radiation or corrosive situations, and materials of greater strength-to-weight ratios. Materials with energy saving applications or positive environmental affects will also be of significant importance to the industry.
- Medical diagnostic imaging: Including the development and introduction of equipment for speedy and cost effective, non-invasive medical diagnoses and treatment. Such equipment is linked to the extent of bio- and nano-technology research.
- Anti-terrorism technologies: Aimed at identifying, isolating and deactivating materials, systems or devices that can produce physical, economic and psychological disruption. Also, the development and deployment of non-invasive security equipment to monitor inbound passengers and freight, as well as international communications.
- Environment: Such as the development of production techniques and goods that reduce the speed of global warming, as well as the development of devices or strategies to mitigate the current process of global warming; the development of renewable and/or low-waste production of energy, including nuclear options, bio-energy, hydrogen and other fuel cells is paramount over the long term.
- Information mining and assessment: Emphasizing the importance of data in a service-based industry, the development and expansion of techniques for gathering information and the capacity to rapidly analyze and store content will be vital.

Industry revenue faces a challenge over the outlook period, as the possibility of a Democratic Party representative being elected President, coupled with a Democratic majority in Congress, is likely to lead to a substantial reduction in the level of Federal Government funding for defense-related research, as the Democratic Party has campaigned (and it is assumed will continue to campaign) on an anti-Iraq-war platform. Even in the event of the election of a Republican to the Presidency, popular opinion is likely to drive down government investment in research and development over the outlook.

As a result, IBISWorld forecasts high revenue growth over 2007-2008, the final two years of the Bush Presidency, as final efforts are made to secure the Iraq situation, and then sharp drops in government funding will lead to slower growth for the remainder of the outlook.

IBISWorld forecasts that industry value added will increase from $74.79 billion at the end of 2008 to $106.27 billion in 2013. This represents an annualized increase of 7.0%. The growth figure reflects rising depreciation and improving profitability thanks to service specialization, increased demand for more cutting edge products and processes and the economies of scale that industry major players can exploit as they take more business from in-house R&D departments.

This growth will take place despite continued slow wage growth, as costs are kept low in order to compete with an emerging Asian market. However, the rate (which is marginally lower than that of revenue growth) also reflects the fact that most companies will face competitive pressure from industry major players and new entrants. Moreover, the industry will continue to invest heavily in technology to reduce labor inputs and meet evolving technical specifications and regulations.

IBISWorld believes that the number of new establishments will continue to rise at a healthy rate over the forecast period as the industry remains in the growth phase of its economic life cycle, increasing 4.1% on an annualized basis to 49,688. However, major industry players will begin to consolidate holdings in specific geographic areas of the country (and around the globe, taking advantage of low cost science graduates in developing countries and the fact that a significant slice of US manufacturing has moved offshore), acquiring smaller operators (which struggle to exploit economies of scale), or forcing them out of business. Subsequently, growth in establishments over the outlook period will not match the level of revenue or value-added growth.

Moreover, as industry revenue growth rates begin to level off (beyond the forecast period, a symptom of the transition to a mature industry), fewer people will want to enter the industry as they could reap larger rewards in faster growing sectors.

Employment and wage growth will also continue to grow, however, the high level of consolidation and in the workforce, higher reliance on technology for data and analysis and increasing price pressure from burgeoning research industries overseas will result in wage growth eventually slowing towards the end of the outlook period, as employers continue to keep staff levels under control, outsourcing and bringing in specialized staff on a contract basis. Employment growth is likely to remain moderately strong until 2013, increasing to 809,331, an

increase of 4.3% on an annualized basis. Finally, as entities become larger, industry productivity should improve further due mainly to better economies of scale.

Excerpts from ***Scientific Research & Development in the U.S.***, IBISWORLD Industry Report, March 2008

Tables

Table D-6 All Businesses Located Near Airports (70 or more businesses).

NAICS Code	Description	Number of Businesses	Average Sales	Average Employment at Location
561499	All Other Business Support Services	540	$108,424.2	2
722110	Full-Service Restaurants	295	$2,662,640.6	23
813110	Religious Organizations	248	$420,944.1	5
488510	Freight Transportation Arrangement	216	$2,635,139.2	16
524210	Insurance Agencies and Brokerages	195	$3,661,356.5	13
236115	New Single-Family Housing Construction (except Operative Builders)	186	$255,894.8	2
561720	Janitorial Services	160	$5,128,337.6	8
722211	Limited-Service Restaurants	157	$467,416.7	16
721110	Hotels (except Casino Hotels) and Motels	155	$1,468,188.4	37
621111	Offices of Physicians (except Mental Health Specialists)	146	$597,291.7	7
531210	Offices of Real Estate Agents and Brokers	141	$230,029.0	3
541618	Other Management Consulting Services	138	$279,840.6	4
541611	Administrative Management and General Management Consulting Services	131	$11,299,458.9	6
812990	All Other Personal Services	130	$91,054.3	3
238220	Plumbing, Heating, and Air-Conditioning Contractors	122	$988,432.8	12
453220	Gift, Novelty, and Souvenir Stores	122	$195,308.3	5
453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)	118	$306,531.0	3
541990	All Other Professional, Scientific, and Technical Services	112	$156,473.2	3
812112	Beauty Salons	112	$44,063.6	3
484110	General Freight Trucking, Local	101	$500,426.8	7
531110	Lessors of Residential Buildings and Dwellings	101	$267,223.0	5
541330	Engineering Services	96	$1,187,255.5	10
532111	Passenger Car Rental	90	$2,226,763.1	30
541512	Computer Systems Design Services	86	$2,351,264.1	15
238210	Electrical Contractors	85	$2,009,385.3	18
624410	Child Day Care Services	84	$109,395.1	8
811111	General Automotive Repair	79	$156,500.0	3
481111	Scheduled Passenger Air Transportation	78	$29,947,492.0	91

NAICS Code	Description	Number of Businesses	Average Sales	Average Employment at Location
541110	Offices of Lawyers	78	$227,218.3	4
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	75	$488,422.5	3
423830	Industrial Machinery and Equipment Merchant Wholesalers	73	$2,419,578.9	12
445110	Supermarkets and Other Grocery (except Convenience) Stores	73	$1,322,126.8	15
561320	Temporary Help Services	72	$7,385,947.3	16
561730	Landscaping Services	71	$125,424.8	4
488119	Other Airport Operations	70	$31,227,663.2	88

Source: Applied Marketing Sciences and Dun and Bradstreet

Table D-7 Manufacturing Businesses Located Near Airports (5 or More Businesses)

NAICS Codes	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
339999	All Other Miscellaneous Manufacturing	35	$322,942.9	5
323110	Commercial Lithographic Printing	30	$860,731.6	9
339950	Sign Manufacturing	25	$760,280.0	16
323119	Other Commercial Printing	19	$2,963,517.3	23
332312	Fabricated Structural Metal Manufacturing	17	$2,889,492.9	24
332710	Machine Shops	17	$1,109,587.9	11
311811	Retail Bakeries	16	$136,500.0	5
326199	All Other Plastics Product Manufacturing	14	$8,050,865.8	88
323114	Quick Printing	10	$942,862.6	12
334413	Semiconductor and Related Device Manufacturing	10	$11,171,125.0	20
321918	Other Millwork (including Flooring)	9	$464,875.0	5
334210	Telephone Apparatus Manufacturing	9	$10,282,332.5	81
336411	Aircraft Manufacturing	9	$25,071,000.0	380
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	9	$51,561,111.1	659
339920	Sporting and Athletic Goods Manufacturing	9	$1,158,555.6	3
321920	Wood Container and Pallet Manufacturing	8	$213,333.3	4
327320	Ready-Mix Concrete Manufacturing	8	$36,900,000.0	59
333999	All Other Miscellaneous General Purpose Machinery Manufacturing	8	$3,944,504.6	35
325910	Printing Ink Manufacturing	7	$5,188,424.4	8
327390	Other Concrete Product Manufacturing	7	$5,501,428.6	57
334290	Other Communications Equipment Manufacturing	7	$2,437,235.9	9
334310	Audio and Video Equipment Manufacturing	7	$30,494,664.0	14
334419	Other Electronic Component Manufacturing	7	$7,142,857.1	41
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	7	$781,428.6	10
336399	All Other Motor Vehicle Parts Manufacturing	7	$40,902,857.1	22
336612	Boat Building	7	$1,511,857.1	2
327215	Glass Product Manufacturing Made of Purchased Glass	6	$1,383,333.3	1
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring	6	$2,166,166.7	7
333319	Other Commercial and Service Industry Machinery Manufacturing	6	$470,000.0	6

NAICS Codes	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	6	$965,000.0	15
334412	Bare Printed Circuit Board Manufacturing	6	$1,411,333.3	25
339992	Musical Instrument Manufacturing	6	$2,289,833.3	75
312130	Wineries	5	$620,000.0	6
313311	Broadwoven Fabric Finishing Mills	5	$187,834.0	4
325412	Pharmaceutical Preparation Manufacturing	5	$1,816,000.0	22
332322	Sheet Metal Work Manufacturing	5	$18,856,000.0	244
333415	Air-Conditioning and Warm Air Heating Equipment and Commercial and Industrial Refrigeration Equipment Manufacturing	5	$2,632,800.0	29
334119	Other Computer Peripheral Equipment Manufacturing	5	$2,007,265.3	7
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	5	$2,850,000.0	38
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	5	$321,600.0	4
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	5	$622,400.0	9
334612	Prerecorded Compact Disc (except Software), Tape, and Record Reproducing	5	$2,939,000.0	4
336412	Aircraft Engine and Engine Parts Manufacturing	5	$1,103,800.0	11
336991	Motorcycle, Bicycle, and Parts Manufacturing	5	$356,000.0	6
337110	Wood Kitchen Cabinet and Countertop Manufacturing	5	$194,800.0	3
339113	Surgical Appliance and Supplies Manufacturing	5	$21,347,500.0	208
339932	Game, Toy, and Children's Vehicle Manufacturing	5	$32,800.0	1

Source: Applied Marketing Sciences and Dun and Bradstreet

Table D-8 Transportation and Warehousing Businesses Located Near Airports (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
488510	Freight Transportation Arrangement	216	$2,635,139.2	16
484110	General Freight Trucking, Local	101	$500,426.8	7
481111	Scheduled Passenger Air Transportation	78	$29,947,492.0	91
488119	Other Airport Operations	70	$31,227,663.2	88
484121	General Freight Trucking, Long-Distance, Truckload	67	$1,430,846.4	15
488999	All Other Support Activities for Transportation	47	$159,869.6	3
488190	Other Support Activities for Air Transportation	33	$118,885,666.7	38
481112	Scheduled Freight Air Transportation	24	$12,768,596.8	109
488111	Air Traffic Control	24	$2,706,000.0	62
485999	All Other Transit and Ground Passenger Transportation	16	$1,015,800.0	38
488410	Motor Vehicle Towing	16	$329,187.5	7
481219	Other Nonscheduled Air Transportation	12	$2,535,833.3	25
485310	Taxi Service	11	$5,428,512.3	9
485320	Limousine Service	10	$236,250.0	10
488210	Support Activities for Rail Transportation	10	$820,600.0	10
481211	Nonscheduled Chartered Passenger Air Transportation	8	$3,906,813.0	17
482111	Line-Haul Railroads	6	$249,000.0	3
484220	Specialized Freight (except Used Goods) Trucking, Local	6	$2,963,666.7	22
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance	6	$417,666.7	6
481212	Nonscheduled Chartered Freight Air Transportation	5	$3,568,000.0	33
484210	Used Household and Office Goods Moving	5	$915,395.0	9
485119	Other Urban Transit Systems	5	$80,000.0	2
488490	Other Support Activities for Road Transportation	5	$3,616,250.0	73
488991	Packing and Crating	5	$579,000.0	10

Source: Applied Marketing Sciences and Dun and Bradstreet

Table D-9 Wholesale Trade Businesses Located Near Airports (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
423830	Industrial Machinery and Equipment Merchant Wholesalers	73	$2,419,578.9	12
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	50	$363,591.4	3
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	43	$6,018,561.4	23
423690	Other Electronic Parts and Equipment Merchant Wholesalers	40	$3,337,366.7	20
423990	Other Miscellaneous Durable Goods Merchant Wholesalers	38	$734,571.4	6
423840	Industrial Supplies Merchant Wholesalers	37	$6,043,731.9	19
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	35	$1,523,665.7	12
423850	Service Establishment Equipment and Supplies Merchant Wholesalers	29	$2,575,965.5	7
423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers	26	$3,934,877.0	21
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	22	$9,951,658.7	28
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	19	$3,831,052.6	25
423510	Metal Service Centers and Other Metal Merchant Wholesalers	19	$3,336,397.5	12
423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	19	$11,910,462.0	24
423420	Office Equipment Merchant Wholesalers	17	$2,031,771.5	23
424410	General Line Grocery Merchant Wholesalers	17	$3,746,764.7	15
424490	Other Grocery and Related Products Merchant Wholesalers	16	$7,246,875.0	38
424210	Drugs and Druggists' Sundries Merchant Wholesalers	15	$3,007,857.1	15
423210	Furniture Merchant Wholesalers	14	$3,293,372.6	5
423220	Home Furnishing Merchant Wholesalers	14	$1,171,428.6	9
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers	14	$5,582,142.9	8
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	14	$8,849,328.4	20
423320	Brick, Stone, and Related Construction Material Merchant Wholesalers	13	$1,316,923.1	7
423710	Hardware Merchant Wholesalers	13	$1,432,623.6	9
424120	Stationery and Office Supplies Merchant Wholesalers	13	$2,540,000.0	17
423720	Plumbing and Heating Equipment and Supplies (Hydronics) Merchant Wholesalers	12	$3,368,000.0	16
424130	Industrial and Personal Service Paper Merchant Wholesalers	12	$2,456,383.9	10
423620	Electrical and Electronic Appliance, Television, and Radio Set Merchant Wholesalers	11	$4,499,000.0	20
423910	Sporting and Recreational Goods and Supplies Merchant Wholesalers	11	$1,250,363.6	5

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
424720	Petroleum and Petroleum Products Merchant Wholesalers (except Bulk Stations and Terminals)	11	$10,970,740.4	48
424920	Book, Periodical, and Newspaper Merchant Wholesalers	11	$1,558,272.7	12
423440	Other Commercial Equipment Merchant Wholesalers	10	$1,241,000.0	10
423110	Automobile and Other Motor Vehicle Merchant Wholesalers	9	$7,023,333.3	30
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers	9	$2,305,444.4	11
423920	Toy and Hobby Goods and Supplies Merchant Wholesalers	9	$2,361,333.3	22
423930	Recyclable Material Merchant Wholesalers	9	$5,759,666.7	14
423940	Jewelry, Watch, Precious Stone, and Precious Metal Merchant Wholesalers	9	$12,518,333.3	32
424690	Other Chemical and Allied Products Merchant Wholesalers	9	$983,449.0	6
424470	Meat and Meat Product Merchant Wholesalers	8	$26,515,000.0	21
424610	Plastics Materials and Basic Forms and Shapes Merchant Wholesalers	8	$4,202,932.4	5
424340	Footwear Merchant Wholesalers	7	$1,248,142.9	5
424460	Fish and Seafood Merchant Wholesalers	7	$1,964,285.7	10
423130	Tire and Tube Merchant Wholesalers	6	$1,268,333.3	9
423490	Other Professional Equipment and Supplies Merchant Wholesalers	6	$2,681,666.7	21
424910	Farm Supplies Merchant Wholesalers	6	$25,420,948.0	16
423140	Motor Vehicle Parts (Used) Merchant Wholesalers	5	$455,041.6	4
423330	Roofing, Siding, and Insulation Material Merchant Wholesalers	5	$5,270,000.0	27
424110	Printing and Writing Paper Merchant Wholesalers	5	$47,556,000.0	43
424420	Packaged Frozen Food Merchant Wholesalers	5	$2,798,000.0	11
424450	Confectionery Merchant Wholesalers	5	$4,391,778.0	20
424480	Fresh Fruit and Vegetable Merchant Wholesalers	5	$34,068,345.4	70

Source: Applied Marketing Sciences and Dun and Bradstreet

Table D-10 Professional Services Businesses Located Near Airports (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
561499	All Other Business Support Services	540	$108,424.2	2
524210	Insurance Agencies and Brokerages	195	$3,661,356.5	13
531210	Offices of Real Estate Agents and Brokers	141	$230,029.0	3
541618	Other Management Consulting Services	138	$279,840.6	4
541611	Administrative Management and General Management Consulting Services	131	$11,299,458.9	6
531110	Lessors of Residential Buildings and Dwellings	101	$267,223.0	5
541330	Engineering Services	96	$1,187,255.5	10
541512	Computer Systems Design Services	86	$2,351,264.1	15
541110	Offices of Lawyers	78	$227,218.3	4
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	75	$488,422.5	3
561320	Temporary Help Services	72	$7,385,947.3	16
522310	Mortgage and Nonmortgage Loan Brokers	67	$374,524.6	5
541511	Custom Computer Programming Services	60	$2,069,201.8	20
561510	Travel Agencies	58	$9,452,857.1	21
541219	Other Accounting Services	57	$470,178.6	5
523999	Miscellaneous Financial Investment Activities	54	$192,396.2	2
541690	Other Scientific and Technical Consulting Services	53	$617,640.5	6
522110	Commercial Banking	52	$5,085,025.6	28
523910	Miscellaneous Intermediation	48	$208,297.9	2
561110	Office Administrative Services	47	$54,138,531.4	23
518210	Data Processing, Hosting, and Related Services	44	$2,788,886.4	21
541810	Advertising Agencies	40	$6,039,852.9	19
541320	Landscape Architectural Services	39	$84,686.4	2
541613	Marketing Consulting Services	37	$977,189.2	11
561310	Employment Placement Agencies	35	$1,004,647.1	9
541410	Interior Design Services	34	$80,515.2	2
541430	Graphic Design Services	32	$178,093.8	3
541211	Offices of Certified Public Accountants	31	$172,790.8	4

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
541612	Human Resources and Executive Search Consulting Services	30	$726,758.6	8
518111	Internet Service Providers	29	$4,332,878.4	27
551112	Offices of Other Holding Companies	29	$127,724.1	3
522390	Other Activities Related to Credit Intermediation	28	$270,111.1	4
541310	Architectural Services	25	$140,041.7	2
523930	Investment Advice	24	$224,441.3	4
522291	Consumer Lending	22	$1,939,263.2	24
522298	All Other Nondepository Credit Intermediation	22	$570,947.4	4
523120	Securities Brokerage	22	$352,763.9	4
524126	Direct Property and Casualty Insurance Carriers	22	$15,799,047.6	66
531190	Lessors of Other Real Estate Property	22	$132,772.7	3
541820	Public Relations Agencies	21	$1,113,783.6	18
541910	Marketing Research and Public Opinion Polling	19	$6,035,176.5	19
541213	Tax Preparation Services	18	$64,352.9	3
541860	Direct Mail Advertising	18	$640,444.4	10
522292	Real Estate Credit	16	$32,921,382.6	177
524113	Direct Life Insurance Carriers	15	$52,073,392.3	62
522130	Credit Unions	14	$2,397,828.5	18
541710	Research and Development in the Physical, Engineering, and Life Sciences	14	$1,015,360.6	17
561599	All Other Travel Arrangement and Reservation Services	14	$3,774,853.8	19
541191	Title Abstract and Settlement Offices	13	$858,461.5	6
561421	Telephone Answering Services	13	$546,615.4	4
523991	Trust, Fiduciary, and Custody Activities	12	$140,083.3	2
531130	Lessors of Miniwarehouses and Self-Storage Units	12	$856,583.3	17
541890	Other Services Related to Advertising	12	$623,833.3	7
522120	Savings Institutions	10	$29,793,083.1	31
524291	Claims Adjusting	10	$1,341,400.0	6
531320	Offices of Real Estate Appraisers	10	$154,800.0	3
561520	Tour Operators	10	$333,000.0	2
524298	All Other Insurance Related Activities	9	$369,285.7	4

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
541380	Testing Laboratories	9	$310,351.0	4
541620	Environmental Consulting Services	9	$289,111.1	8
541840	Media Representatives	9	$2,258,333.3	9
524114	Direct Health and Medical Insurance Carriers	8	$696,250.0	5
541370	Surveying and Mapping (except Geophysical) Services	8	$438,204.3	10
561440	Collection Agencies	8	$343,750.0	11
522220	Sales Financing	7	$804,285.7	8
522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	7	$1,915,166.7	56
525930	Real Estate Investment Trusts	7	$1,650,000.0	17
541350	Building Inspection Services	7	$79,714.3	1
561611	Investigation Services	7	$201,714.3	14
519190	All Other Information Services	6	$93,200.0	3
541214	Payroll Services	6	$757,166.7	15
541614	Process, Physical Distribution, and Logistics Consulting Services	6	$84,333.3	4
561210	Facilities Support Services	6	$917,500.0	6
561410	Document Preparation Services	6	$55,666.7	2
561450	Credit Bureaus	6	$105,000.0	2
523920	Portfolio Management	5	$183,333.3	2
541720	Research and Development in the Social Sciences and Humanities	5	$181,000.0	5
561422	Telemarketing Bureaus	5	$15,066,200.0	45
561492	Court Reporting and Stenotype Services	5	$191,250.0	6

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-2 Anchorage International Airport - Anchorage, AK

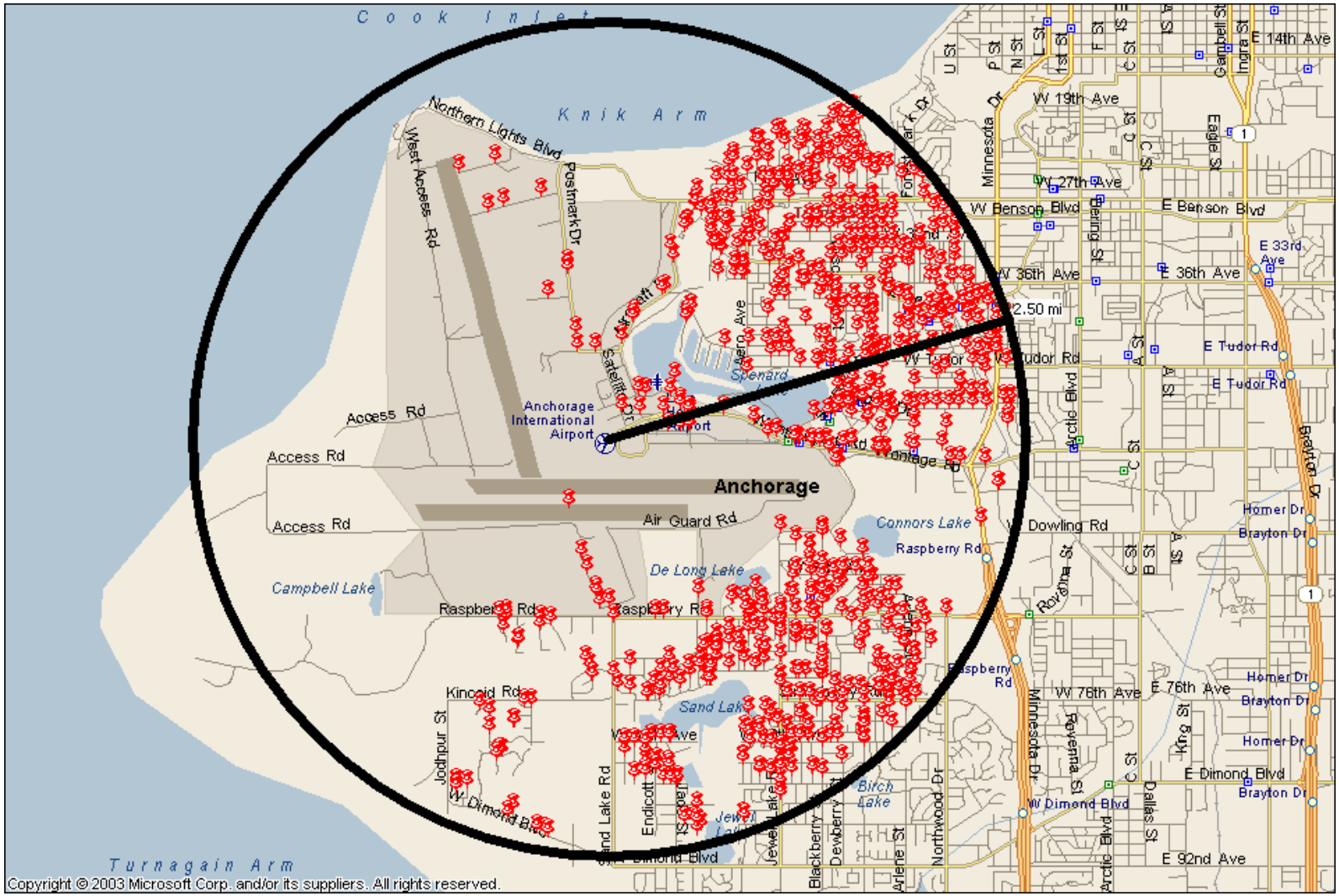

Table D-11 Anchorage International Airport - Anchorage, AK (5 or More Businesses)

NAICS Codes	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
561499	All Other Business Support Services	47	$71,204.5	1
813110	Religious Organizations	28	$186,214.3	6
236115	New Single-Family Housing Construction (except Operative Builders)	25	$277,400.0	2
561720	Janitorial Services	25	$86,680.0	3
481111	Scheduled Passenger Air Transportation	24	$17,260,236.5	140
541330	Engineering Services	21	$601,659.4	5
722110	Full-Service Restaurants	21	$549,600.0	14
721110	Hotels (except Casino Hotels) and Motels	20	$767,963.8	18
721191	Bed-and-Breakfast Inns	19	$89,263.2	2
541618	Other Management Consulting Services	18	$119,388.9	1
238220	Plumbing, Heating, and Air-Conditioning Contractors	17	$477,937.5	6
488510	Freight Transportation Arrangement	16	$4,218,978.7	39
488119	Other Airport Operations	15	$4,665,333.3	53
531210	Offices of Real Estate Agents and Brokers	15	$130,133.3	2
484110	General Freight Trucking, Local	14	$524,785.7	9
541990	All Other Professional, Scientific, and Technical Services	14	$56,642.9	1
488190	Other Support Activities for Air Transportation	13	$297,861,615.4	49
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	13	$147,076.9	2
532111	Passenger Car Rental	13	$2,092,538.5	20
531110	Lessors of Residential Buildings and Dwellings	11	$157,000.0	4
541611	Administrative Management and General Management Consulting Services	11	$141,000.0	6
624410	Child Day Care Services	11	$117,400.0	8
238320	Painting and Wall Covering Contractors	10	$87,400.0	2
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	10	$197,294.8	3
541219	Other Accounting Services	10	$47,400.0	1
611110	Elementary and Secondary Schools	10	$1,769,584.1	58
236210	Industrial Building Construction	9	$2,803,190.2	12
512110	Motion Picture and Video Production	9	$132,888.9	1

NAICS Codes	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
561510	Travel Agencies	9	$1,496,666.7	5
561730	Landscaping Services	8	$94,000.0	3
713990	All Other Amusement and Recreation Industries	8	$130,500.0	4
722211	Limited-Service Restaurants	8	$184,333.3	7
813410	Civic and Social Organizations	8	$223,666.8	5
813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	8	$99,750.0	3
236220	Commercial and Institutional Building Construction	7	$1,955,571.7	6
238210	Electrical Contractors	7	$455,714.3	3
238910	Site Preparation Contractors	7	$1,508,571.3	5
481112	Scheduled Freight Air Transportation	7	$34,187,018.6	278
481211	Nonscheduled Chartered Passenger Air Transportation	7	$2,075,142.9	8
492110	Couriers	7	$976,666.7	8
532411	Commercial Air, Rail, and Water Transportation Equipment Rental and Leasing	7	$494,285.7	6
541110	Offices of Lawyers	7	$100,428.6	2
541511	Custom Computer Programming Services	7	$199,857.1	3
611610	Fine Arts Schools	7	$27,428.6	2
713940	Fitness and Recreational Sports Centers	7	$91,142.9	4
811490	Other Personal and Household Goods Repair and Maintenance	7	$44,857.1	1
812990	All Other Personal Services	7	$100,000.0	3
238160	Roofing Contractors	6	$234,166.7	2
238990	All Other Specialty Trade Contractors	6	$280,833.3	3
453220	Gift, Novelty, and Souvenir Stores	6	$797,500.0	18
481219	Other Nonscheduled Air Transportation	6	$2,453,333.3	22
488111	Air Traffic Control	6		52
541211	Offices of Certified Public Accountants	6	$68,666.7	2
541310	Architectural Services	6	$101,166.7	2
621111	Offices of Physicians (except Mental Health Specialists)	6	$241,333.3	3
711510	Independent Artists, Writers, and Performers	6	$36,500.0	1
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	6	$915,333.3	13
812112	Beauty Salons	6	$36,166.7	2

NAICS Codes	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
812199	Other Personal Care Services	6	$106,000.0	3
236118	Residential Remodelers	5	$374,879.0	2
238130	Framing Contractors	5	$111,600.0	2
423830	Industrial Machinery and Equipment Merchant Wholesalers	5	$370,000.0	3
423850	Service Establishment Equipment and Supplies Merchant Wholesalers	5	$795,200.0	7
531190	Lessors of Other Real Estate Property	5	$87,200.0	2
541430	Graphic Design Services	5	$56,600.0	1
541690	Other Scientific and Technical Consulting Services	5	$124,000.0	1
611620	Sports and Recreation Instruction	5	$43,400.0	1
611699	All Other Miscellaneous Schools and Instruction	5	$28,400.0	1

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-3 Columbia Metropolitan Airport - Columbia, SC

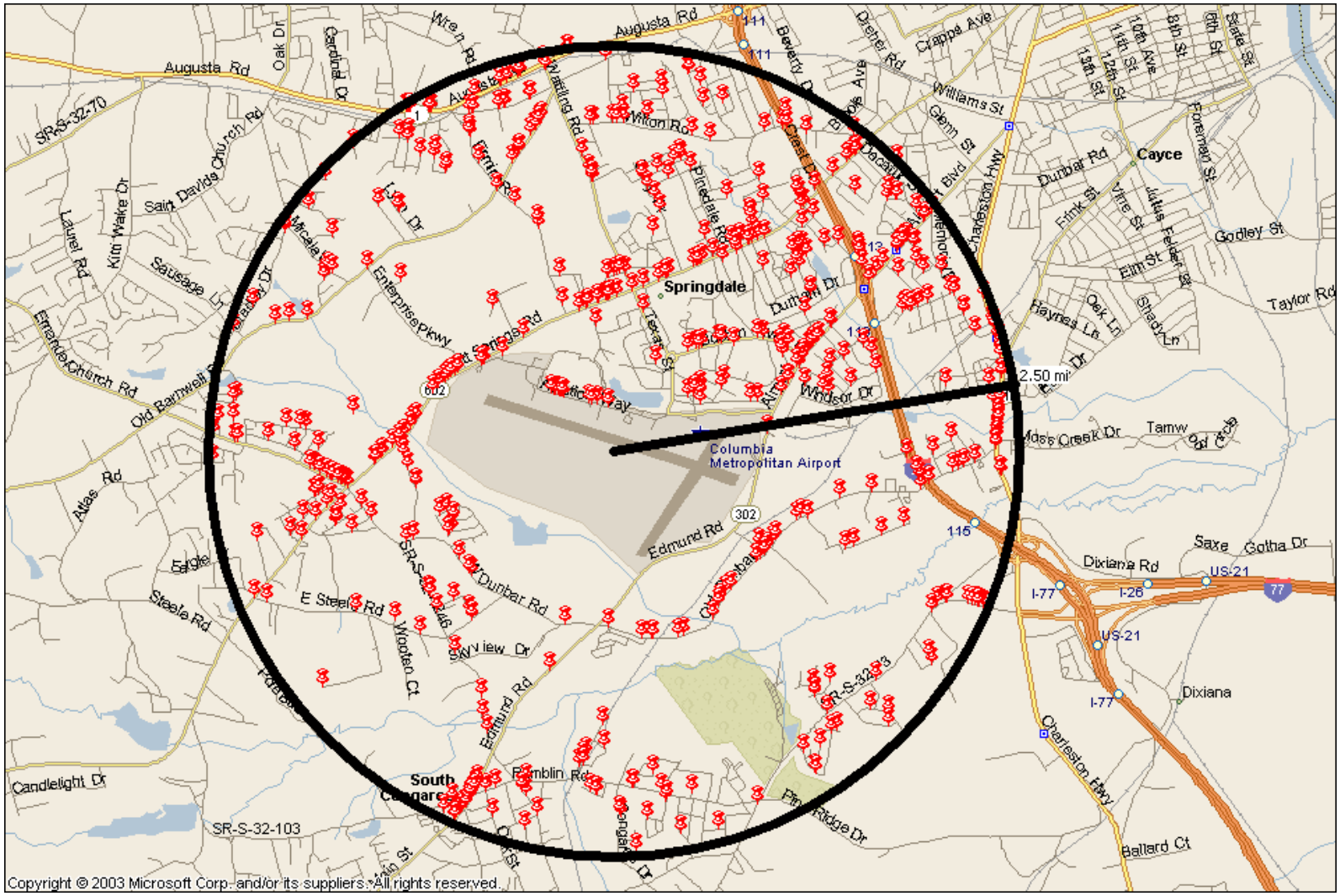

Table D-12 Columbia Metropolitan Airport - Columbia, SC (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
813110	Religious Organizations	31	$121,166.7	4
561499	All Other Business Support Services	25	$88,944.0	2
722110	Full-Service Restaurants	22	$366,230.8	16
236115	New Single-Family Housing Construction (except Operative Builders)	18	$267,222.2	3
722211	Limited-Service Restaurants	18	$1,208,571.4	13
238220	Plumbing, Heating, and Air-Conditioning Contractors	16	$722,625.0	12
812990	All Other Personal Services	14	$229,230.8	5
524210	Insurance Agencies and Brokerages	13	$198,615.4	2
453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)	12	$504,833.3	3
236118	Residential Remodelers	11	$298,545.5	2
238210	Electrical Contractors	11	$1,077,818.2	14
445120	Convenience Stores	11	$605,181.8	6
621111	Offices of Physicians (except Mental Health Specialists)	11	$546,454.5	8
441310	Automotive Parts and Accessories Stores	10	$592,300.0	7
541990	All Other Professional, Scientific, and Technical Services	10	$45,100.0	1
811111	General Automotive Repair	10	$213,300.0	4
238320	Painting and Wall Covering Contractors	9	$48,666.7	2
441120	Used Car Dealers	9	$250,000.0	2
484121	General Freight Trucking, Long-Distance, Truckload	9	$1,658,333.3	23
532111	Passenger Car Rental	9	$2,193,429.2	25
624410	Child Day Care Services	9	$67,777.8	5
332312	Fabricated Structural Metal Manufacturing	8	$3,388,559.5	26
561720	Janitorial Services	8	$58,125.0	4
721110	Hotels (except Casino Hotels) and Motels	8	$662,000.0	19
722410	Drinking Places (Alcoholic Beverages)	8	$171,250.0	5
236220	Commercial and Institutional Building Construction	7	$638,999.9	5
238990	All Other Specialty Trade Contractors	7	$352,571.4	7
447190	Other Gasoline Stations	7	$643,095.9	6
452990	All Other General Merchandise Stores	7	$780,000.0	14

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
488510	Freight Transportation Arrangement	7	$1,337,142.9	12
531210	Offices of Real Estate Agents and Brokers	7	$121,571.4	3
611110	Elementary and Secondary Schools	7	$1,573,428.6	55
713940	Fitness and Recreational Sports Centers	7	$272,714.3	8
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	6	$1,159,716.7	5
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	6	$14,712,178.0	20
442210	Floor Covering Stores	6	$364,000.0	3
445110	Supermarkets and Other Grocery (except Convenience) Stores	6	$3,395,000.0	44
446110	Pharmacies and Drug Stores	6	$716,000.0	10
453220	Gift, Novelty, and Souvenir Stores	6	$158,666.7	4
238110	Poured Concrete Foundation and Structure Contractors	5	$533,400.0	7
423830	Industrial Machinery and Equipment Merchant Wholesalers	5	$760,000.0	6
444130	Hardware Stores	5	$174,600.0	3
522110	Commercial Banking	5	$420,000.0	3
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	5	$87,200.0	2
561510	Travel Agencies	5	$460,000.0	3
561730	Landscaping Services	5	$113,600.0	3
561990	All Other Support Services	5	$681,000.0	12
811412	Appliance Repair and Maintenance	5	$104,600.0	2
812112	Beauty Salons	5	$29,800.0	2
812199	Other Personal Care Services	5	$328,800.0	11
813410	Civic and Social Organizations	5	$103,000.0	4

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-4 Dallas-Ft. Worth International Airport - Dallas, TX

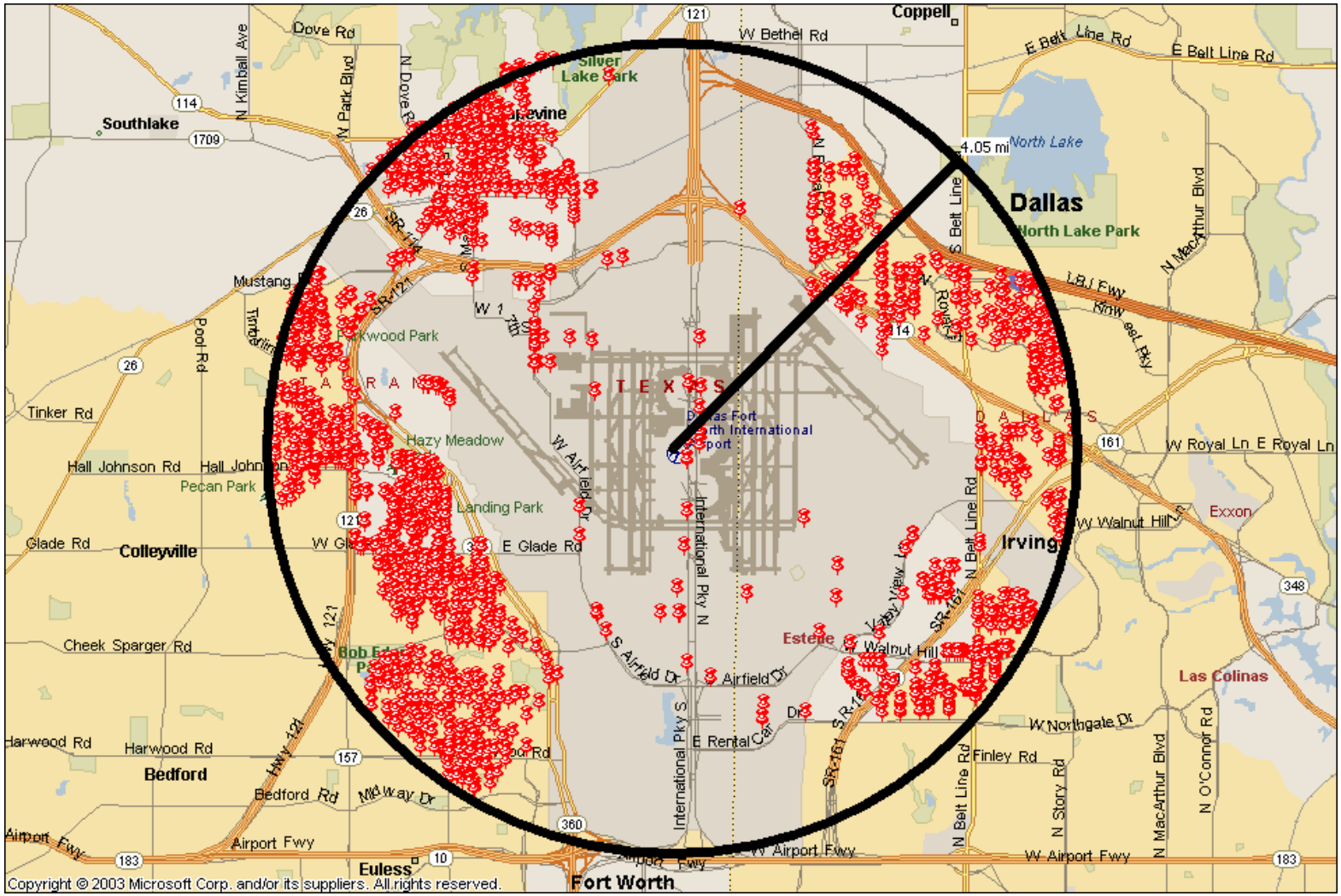

Table D-13 Dallas-Ft. Worth International Airport - Dallas, TX (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
561499	All Other Business Support Services	266	$105,362.9	2
488510	Freight Transportation Arrangement	117	$3,260,517.6	16
722110	Full-Service Restaurants	108	$686,400.6	18
621111	Offices of Physicians (except Mental Health Specialists)	81	$541,250.0	8
541611	Administrative Management and General Management Consulting Services	72	$19,896,996.4	7
813110	Religious Organizations	69	$1,209,303.0	7
524210	Insurance Agencies and Brokerages	67	$678,584.6	5
236115	New Single-Family Housing Construction (except Operative Builders)	66	$316,182.2	3
453220	Gift, Novelty, and Souvenir Stores	66	$102,378.8	2
541618	Other Management Consulting Services	62	$265,050.8	3
531210	Offices of Real Estate Agents and Brokers	60	$212,474.6	3
453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)	58	$155,517.9	2
541512	Computer Systems Design Services	57	$2,718,954.4	13
812112	Beauty Salons	51	$48,902.0	3
812990	All Other Personal Services	51	$89,970.0	3
531110	Lessors of Residential Buildings and Dwellings	48	$296,458.3	6
722211	Limited-Service Restaurants	47	$370,850.0	16
541990	All Other Professional, Scientific, and Technical Services	42	$108,095.2	2
561720	Janitorial Services	42	$19,192,585.4	9
484110	General Freight Trucking, Local	39	$486,901.5	6
541511	Custom Computer Programming Services	36	$2,983,704.5	27
721110	Hotels (except Casino Hotels) and Motels	35	$2,185,757.6	46
523999	Miscellaneous Financial Investment Activities	33	$164,906.3	2
812320	Drycleaning and Laundry Services (except Coin-Operated)	31	$143,032.3	6
443120	Computer and Software Stores	30	$760,178.6	5
522310	Mortgage and Nonmortgage Loan Brokers	29	$244,520.0	3
445110	Supermarkets and Other Grocery (except Convenience) Stores	28	$1,455,666.7	16
511210	Software Publishers	27	$1,305,200.0	7
523910	Miscellaneous Intermediation	25	$176,800.0	2

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	25	$135,250.0	3
541330	Engineering Services	25	$1,020,360.0	10
238990	All Other Specialty Trade Contractors	24	$353,666.7	7
541690	Other Scientific and Technical Consulting Services	24	$843,230.7	6
561320	Temporary Help Services	24	$19,306,533.4	32
561510	Travel Agencies	24	$4,855,652.2	19
624410	Child Day Care Services	24	$149,772.7	11
811111	General Automotive Repair	24	$183,958.3	3
447190	Other Gasoline Stations	23	$483,636.4	5
488119	Other Airport Operations	23	$79,259,492.3	161
541613	Marketing Consulting Services	23	$1,471,043.5	17
423830	Industrial Machinery and Equipment Merchant Wholesalers	22	$3,132,381.0	13
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	22	$135,714.3	2
488999	All Other Support Activities for Transportation	22	$116,818.2	2
492110	Couriers	22	$1,818,545.5	41
541110	Offices of Lawyers	22	$243,400.3	4
236220	Commercial and Institutional Building Construction	21	$3,690,952.4	27
238210	Electrical Contractors	21	$2,093,333.3	23
445120	Convenience Stores	21	$350,000.0	5
541219	Other Accounting Services	21	$1,025,619.0	9
561110	Office Administrative Services	21	$117,412,164.1	25
442110	Furniture Stores	20	$2,416,387.1	4
517910	Other Telecommunications	20	$460,850.0	5
518210	Data Processing, Hosting, and Related Services	20	$527,050.0	10
522110	Commercial Banking	20	$1,967,333.3	16
621999	All Other Miscellaneous Ambulatory Health Care Services	20	$23,254,900.0	25
238220	Plumbing, Heating, and Air-Conditioning Contractors	19	$551,052.6	6
518111	Internet Service Providers	19	$5,038,957.8	25
541810	Advertising Agencies	19	$8,900,000.0	27
512110	Motion Picture and Video Production	18	$2,600,722.2	17
541410	Interior Design Services	18	$79,882.4	1

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
237210	Land Subdivision	17	$546,875.0	3
423690	Other Electronic Parts and Equipment Merchant Wholesalers	17	$6,090,625.0	38
451110	Sporting Goods Stores	17	$165,590.9	2
451120	Hobby, Toy, and Game Stores	17	$230,330,437.5	22
517212	Cellular and Other Wireless Telecommunications	17	$2,439,647.1	13
541320	Landscape Architectural Services	17	$77,000.0	2
711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	17	$343,437.5	9
453310	Used Merchandise Stores	16	$98,866.7	2
523120	Securities Brokerage	16	$338,893.9	4
541430	Graphic Design Services	16	$177,375.0	3
454113	Mail-Order Houses	15	$443,169,666.7	313
481111	Scheduled Passenger Air Transportation	15	$120,681,333.3	65
517310	Telecommunications Resellers	15	$8,033,333.3	82
541612	Human Resources and Executive Search Consulting Services	15	$1,136,333.3	12
551112	Offices of Other Holding Companies	15	$66,800.0	2
611110	Elementary and Secondary Schools	15	$1,156,000.0	48
441310	Automotive Parts and Accessories Stores	14	$920,714.3	8
448190	Other Clothing Stores	14	$171,923.1	3
522390	Activities Related to Credit Intermediation	14	$314,857.1	5
532111	Passenger Car Rental	14	$4,653,928.6	68
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	14	$1,533,692.3	22
812111	Barber Shops	14	$34,642.9	2
339999	All Other Miscellaneous Manufacturing	13	$115,692.3	2
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	13	$15,082,037.8	39
441110	New Car Dealers	13	$13,245,454.5	50
443112	Radio, Television, and Other Electronics Stores	13	$236,384.6	4
484121	General Freight Trucking, Long-Distance, Truckload	13	$597,583.3	5
541820	Public Relations Agencies	13	$503,111.9	5
561730	Landscaping Services	13	$45,615.4	2
621210	Offices of Dentists	13	$298,461.5	7
713940	Fitness and Recreational Sports Centers	13	$279,692.3	11

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
236118	Residential Remodelers	12	$940,833.3	5
423850	Service Establishment Equipment and Supplies Merchant Wholesalers	12	$5,072,500.0	6
448120	Women's Clothing Stores	12	$158,416.7	3
448310	Jewelry Stores	12	$145,333.3	2
453110	Florists	12	$79,200.0	3
561621	Security Systems Services (except Locksmiths)	12	$3,945,328.6	19
624190	Other Individual and Family Services	12	$108,271.9	3
448210	Shoe Stores	11	$204,363.6	4
621310	Offices of Chiropractors	11	$193,545.5	3
711510	Independent Artists, Writers, and Performers	11	$90,545.5	2
812113	Nail Salons	11	$56,400.0	3
423860	Transportation Equipment and Supplies (except Motor Vehicle) Merchant Wholesalers	10	$5,251,111.1	25
423990	Other Miscellaneous Durable Goods Merchant Wholesalers	10	$427,555.6	3
442210	Floor Covering Stores	10	$223,900.0	3
445299	All Other Specialty Food Stores	10	$100,333.3	2
448150	Clothing Accessories Stores	10	$228,000.0	5
452990	All Other General Merchandise Stores	10	$460,700.0	9
522291	Consumer Lending	10	$4,062,000.0	44
522298	All Other Nondepository Credit Intermediation	10	$1,010,000.0	7
523930	Investment Advice	10	$117,300.0	2
541211	Offices of Certified Public Accountants	10	$141,250.0	4
541860	Direct Mail Advertising	10	$326,300.0	6
541910	Marketing Research and Public Opinion Polling	10	$573,777.8	9
561310	Employment Placement Agencies	10	$1,018,000.0	6
561599	All Other Travel Arrangement and Reservation Services	10	$4,845,710.0	26
722320	Caterers	10	$1,661,111.1	39
812199	Other Personal Care Services	10	$35,400.0	1
813410	Civic and Social Organizations	10	$76,279.9	3
339950	Sign Manufacturing	9	$1,581,333.3	34
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	9	$1,530,000.0	15
423210	Furniture Merchant Wholesalers	9	$4,880,801.8	6

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
443111	Household Appliance Stores	9	$612,222.2	7
446110	Pharmacies and Drug Stores	9	$571,111.1	9
493110	General Warehousing and Storage	9	$1,484,444.4	29
541921	Photography Studios, Portrait	9	$39,777.8	1
541940	Veterinary Services	9	$197,555.6	5
561990	All Other Support Services	9	$379,500.0	9
811219	Other Electronic and Precision Equipment Repair and Maintenance	9	$665,444.4	10
813930	Labor Unions and Similar Labor Organizations	9	$291,111.1	5
238320	Painting and Wall Covering Contractors	8	$37,125.0	1
311811	Retail Bakeries	8	$109,125.0	5
323110	Commercial Lithographic Printing	8	$277,625.0	4
423420	Office Equipment Merchant Wholesalers	8	$2,978,014.5	35
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	8	$4,702,500.0	34
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	8	$3,353,544.5	25
442299	All Other Home Furnishings Stores	8	$199,000.0	7
541310	Architectural Services	8	$106,000.0	2
813910	Business Associations	8	$2,047,376.8	11
237310	Highway, Street, and Bridge Construction	7	$17,679,666.7	129
323119	Other Commercial Printing	7	$823,000.0	14
336411	Aircraft Manufacturing	7	$1,105,571.4	17
423220	Home Furnishing Merchant Wholesalers	7	$762,857.1	6
423840	Industrial Supplies Merchant Wholesalers	7	$687,142.9	5
445291	Baked Goods Stores	7	$92,857.1	2
448130	Children's and Infants' Clothing Stores	7	$75,285.7	2
517110	Wired Telecommunications Carriers	7	$2,955,142.9	18
522292	Real Estate Credit	7	$51,905,714.3	294
532120	Truck, Utility Trailer, and RV (Recreational Vehicle) Rental and Leasing	7	$4,090,000.0	47
561421	Telephone Answering Services	7	$826,285.7	3
611519	Other Technical and Trade Schools	7	$517,000.0	14
611620	Sports and Recreation Instruction	7	$47,000.0	2
611699	All Other Miscellaneous Schools and Instruction	7	$522,000.0	17

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
621610	Home Health Care Services	7	$811,000.0	9
811118	Other Automotive Mechanical and Electrical Repair and Maintenance	7	$225,714.3	5
811212	Computer and Office Machine Repair and Maintenance	7	$319,666.7	4
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	7	$3,865,714.3	61
811490	Other Personal and Household Goods Repair and Maintenance	7	$193,428.6	4
236116	New Multifamily Housing Construction (except Operative Builders)	6	$1,520,000.0	5
238160	Roofing Contractors	6	$575,166.7	7
238330	Flooring Contractors	6	$384,800.0	6
238340	Tile and Terrazzo Contractors	6	$64,000.0	1
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers	6	$2,046,666.7	6
424210	Drugs and Druggists' Sundries Merchant Wholesalers	6	$1,221,666.7	8
424410	General Line Grocery Merchant Wholesalers	6	$2,439,166.7	12
441120	Used Car Dealers	6	$483,166.7	4
446120	Cosmetics, Beauty Supplies, and Perfume Stores	6	$107,000.0	3
451211	Book Stores	6	$119,500.0	3
481112	Scheduled Freight Air Transportation	6	$1,750,000.0	18
522130	Credit Unions	6	$2,163,501.2	23
524126	Direct Property and Casualty Insurance Carriers	6	$29,912,000.0	137
541840	Media Representatives	6	$2,905,000.0	8
541890	Other Services Related to Advertising	6	$951,166.7	11
561740	Carpet and Upholstery Cleaning Services	6	$79,600.0	3
621330	Offices of Mental Health Practitioners (except Physicians)	6	$57,000.0	2
722212	Cafeterias	6	$653,400.0	29
811121	Automotive Body, Paint, and Interior Repair and Maintenance	6	$163,000.0	5
811192	Car Washes	6	$100,833.3	4
813990	Other Similar Organizations (except Business, Professional, Labor, and Political Organizations)	6	$175,333.3	5
236210	Industrial Building Construction	5	$2,506,000.0	23
238110	Poured Concrete Foundation and Structure Contractors	5	$458,000.0	9
238310	Drywall and Insulation Contractors	5	$1,888,200.0	24
312130	Wineries	5	$620,000.0	6

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
323114	Quick Printing	5	$292,800.0	6
327320	Ready-Mix Concrete Manufacturing	5	$51,620,000.0	81
334290	Other Communications Equipment Manufacturing	5	$3,310,130.2	11
424120	Stationery and Office Supplies Merchant Wholesalers	5	$1,902,000.0	14
424690	Other Chemical and Allied Products Merchant Wholesalers	5	$1,395,600.0	9
444190	Other Building Material Dealers	5	$226,800.0	2
446130	Optical Goods Stores	5	$176,000.0	4
453210	Office Supplies and Stationery Stores	5	$1,414,000.0	13
454210	Vending Machine Operators	5	$58,200.0	1
485999	All Other Transit and Ground Passenger Transportation	5	$2,203,000.0	76
511130	Book Publishers	5	$526,800.0	7
515210	Cable and Other Subscription Programming	5	$2,830,000.0	27
522220	Sales Financing	5	$964,000.0	10
522320	Financial Transactions Processing, Reserve, and Clearinghouse Activities	5	$2,280,000.0	67
523991	Trust, Fiduciary, and Custody Activities	5	$128,200.0	2
532299	All Other Consumer Goods Rental	5	$183,800.0	4
541213	Tax Preparation Services	5	$52,800.0	2
561710	Exterminating and Pest Control Services	5	$44,800.0	2
561920	Convention and Trade Show Organizers	5	$1,510,400.0	41
621498	All Other Outpatient Care Centers	5	$167,200.0	4
624310	Vocational Rehabilitation Services	5	$104,600.0	3
811198	All Other Automotive Repair and Maintenance	5	$356,800.0	8
813920	Professional Organizations	5	$3,438,041.2	30
928110	National Security	5		25

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-5 Huntsville-Madison County International Airport

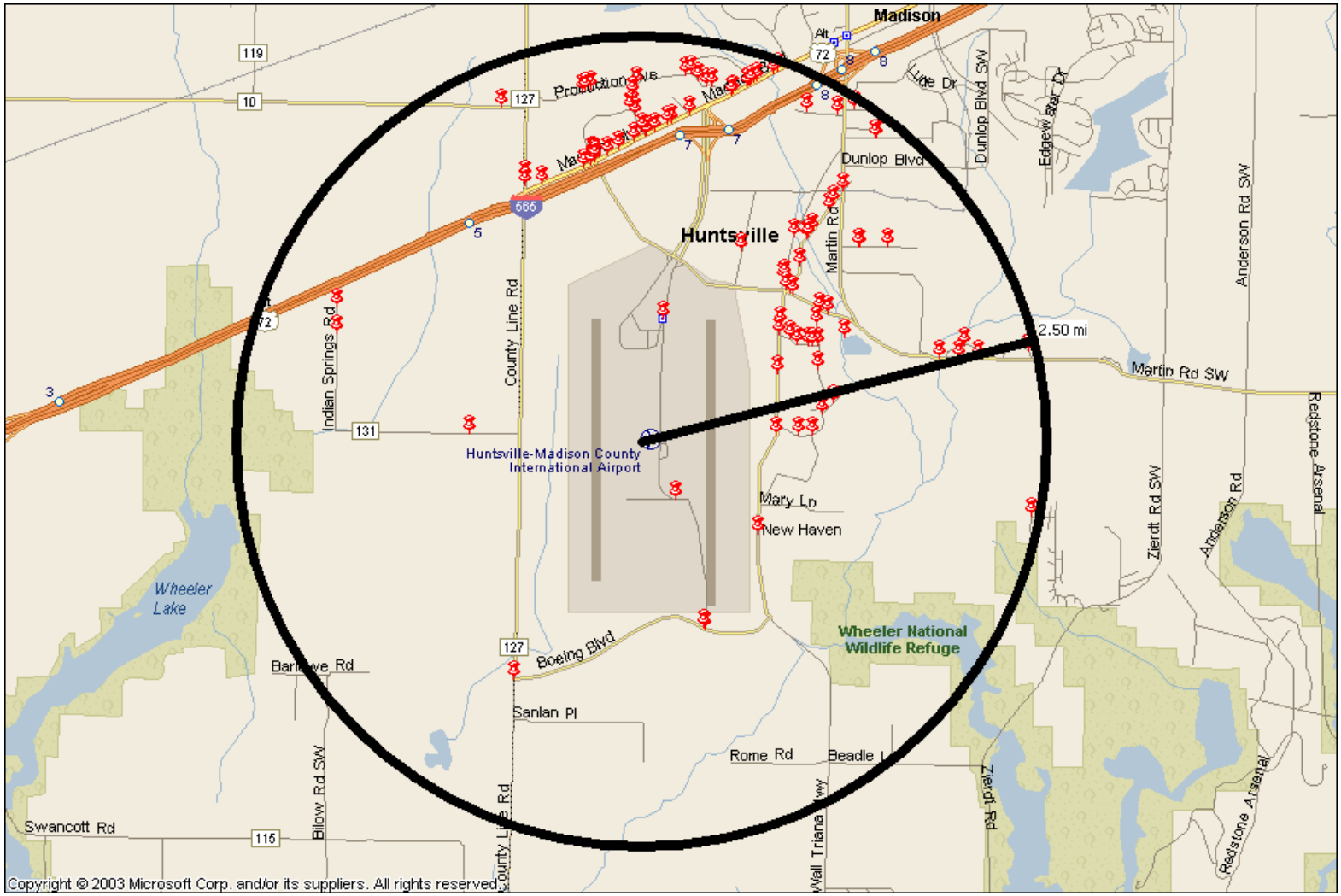

Table D-14 Huntsville-Madison County International Airport (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
488510	Freight Transportation Arrangement	14	$1,350,000.0	12
541330	Engineering Services	10	$5,481,368.1	31
423690	Other Electronic Parts and Equipment Merchant Wholesalers	9	$805,555.6	6
484121	General Freight Trucking, Long-Distance, Truckload	8	$1,693,500.0	25
488119	Other Airport Operations	8	$4,026,023.3	18
541512	Computer Systems Design Services	8	$4,736,250.0	59
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	7	$1,550,000.0	5
561499	All Other Business Support Services	6	$52,000.0	1
561720	Janitorial Services	6	$366,166.7	29
813930	Labor Unions and Similar Labor Organizations	6	$146,666.7	3
488190	Other Support Activities for Air Transportation	5	$368,400.0	6
492110	Couriers	5	$225,600.0	6
532111	Passenger Car Rental	5	$930,000.0	15

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-6 Jacksonville International Airport - Jacksonville, FL

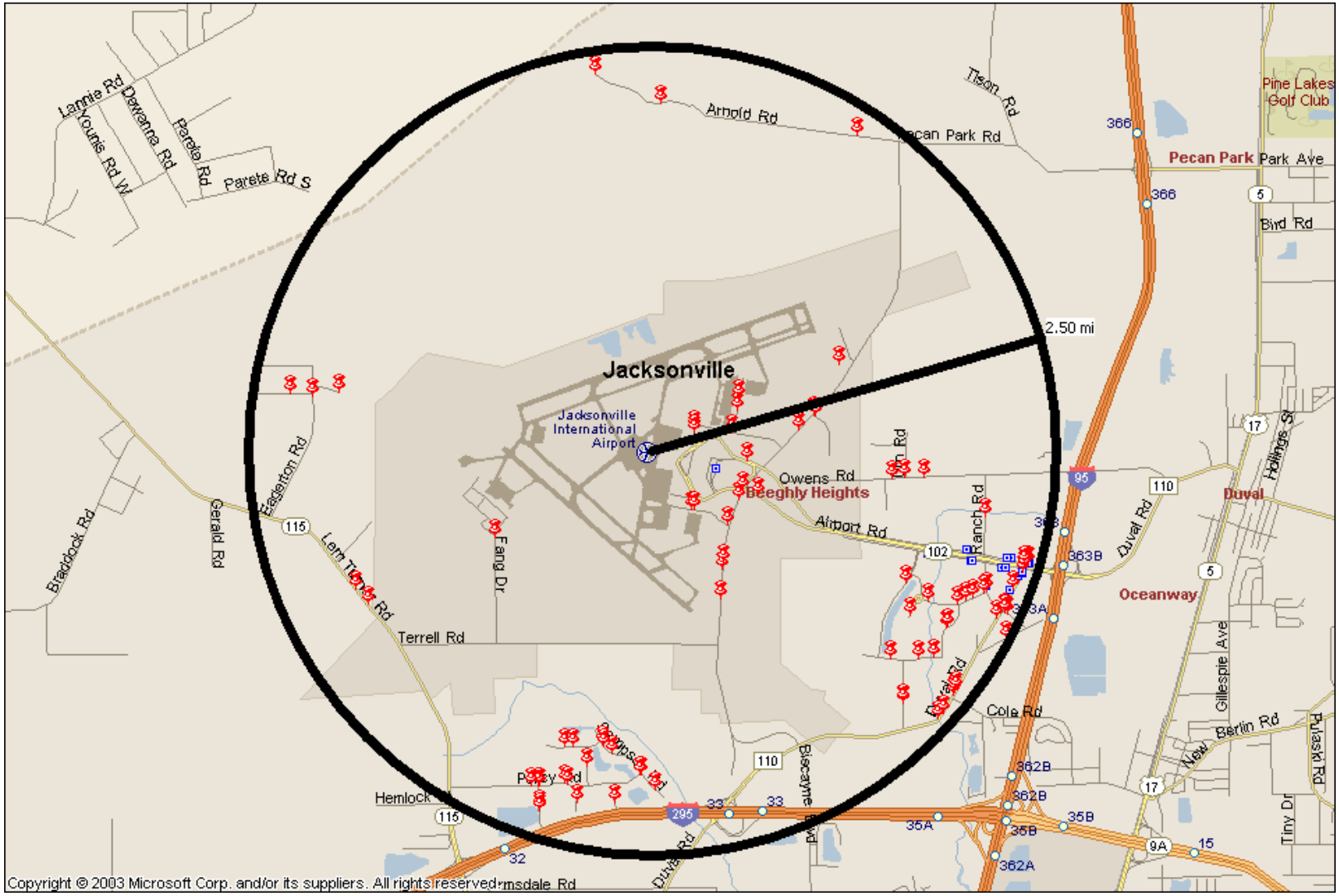

Table D-15 Jacksonville International Airport - Jacksonville, FL (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
721110	Hotels (except Casino Hotels) and Motels	15	$798,357.1	21
488510	Freight Transportation Arrangement	12	$1,267,272.7	8
532111	Passenger Car Rental	9	$644,444.4	11
561499	All Other Business Support Services	9	$68,444.4	1
722110	Full-Service Restaurants	8	$520,000.0	30
481111	Scheduled Passenger Air Transportation	6	$5,591,666.7	62
488119	Other Airport Operations	5	$27,282,200.0	161
541810	Advertising Agencies	5	$290,000.0	3
812930	Parking Lots and Garages	5	$1,122,000.0	30
813930	Labor Unions and Similar Labor Organizations	5	$96,600.0	2

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-7 McGhee-Tyson Airport - Knoxville, TN

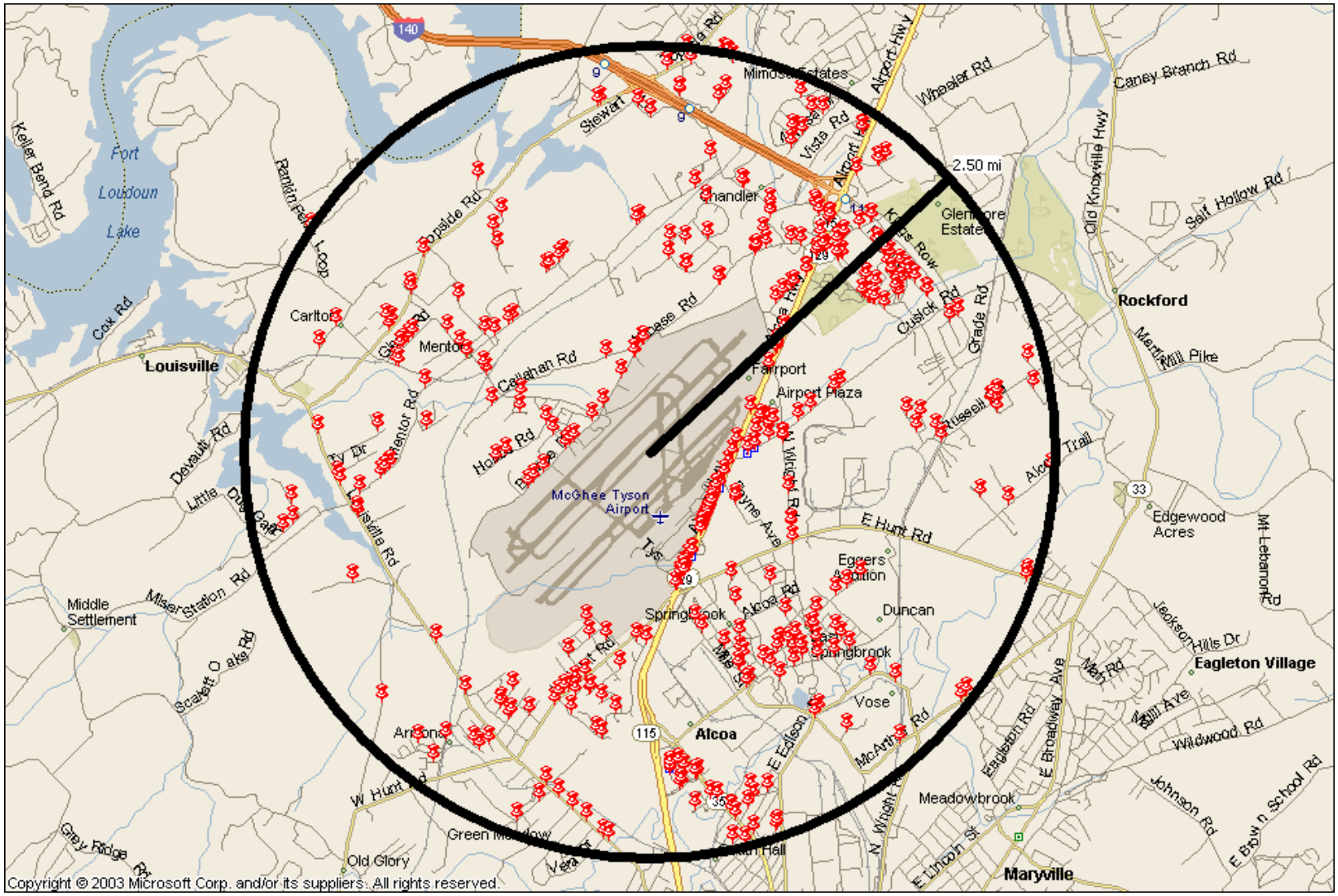

Table D-16 McGhee-Tyson Airport - Knoxville, TN (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
813110	Religious Organizations	25	$96,920.0	4
561499	All Other Business Support Services	24	$202,782.6	5
722110	Full-Service Restaurants	19	$818,210.5	37
441110	New Car Dealers	18	$16,989,411.6	40
236115	New Single-Family Housing Construction (except Operative Builders)	16	$135,937.5	1
721110	Hotels (except Casino Hotels) and Motels	14	$868,769.2	28
532111	Passenger Car Rental	11	$867,600.0	15
484110	General Freight Trucking, Local	10	$361,000.0	8
541990	All Other Professional, Scientific, and Technical Services	10	$233,200.0	6
621111	Offices of Physicians (except Mental Health Specialists)	10	$415,555.6	6
561720	Janitorial Services	9	$21,666.7	1
722211	Limited-Service Restaurants	9	$385,000.0	18
524210	Insurance Agencies and Brokerages	8	$716,875.0	8
561730	Landscaping Services	8	$206,875.0	8
928110	National Security	8		35
238210	Electrical Contractors	7	$2,704,986.4	24
488510	Freight Transportation Arrangement	7	$708,333.3	5
541611	Administrative Management and General Management Consulting Services	7	$326,666.7	6
811111	General Automotive Repair	7	$128,500.0	3
811121	Automotive Body, Paint, and Interior Repair and Maintenance	7	$740,428.6	14
238220	Plumbing, Heating, and Air-Conditioning Contractors	6	$288,333.3	5
522110	Commercial Banking	6	$1,125,000.0	9
531210	Offices of Real Estate Agents and Brokers	6	$225,500.0	8
611110	Elementary and Secondary Schools	6	$2,237,500.0	50
812112	Beauty Salons	6	$32,500.0	2
812990	All Other Personal Services	6	$38,333.3	1
813410	Civic and Social Organizations	6	$68,000.0	3
236118	Residential Remodelers	5	$145,200.0	2
236220	Commercial and Institutional Building Construction	5	$1,260,000.0	7

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
445110	Supermarkets and Other Grocery (except Convenience) Stores	5	$329,800.0	4
453220	Gift, Novelty, and Souvenir Stores	5	$125,600.0	3
484121	General Freight Trucking, Long-Distance, Truckload	5	$844,000.0	13
713940	Fitness and Recreational Sports Centers	5	$513,200.0	7

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-8 Nashville Metropolitan Airport - Nashville, TN

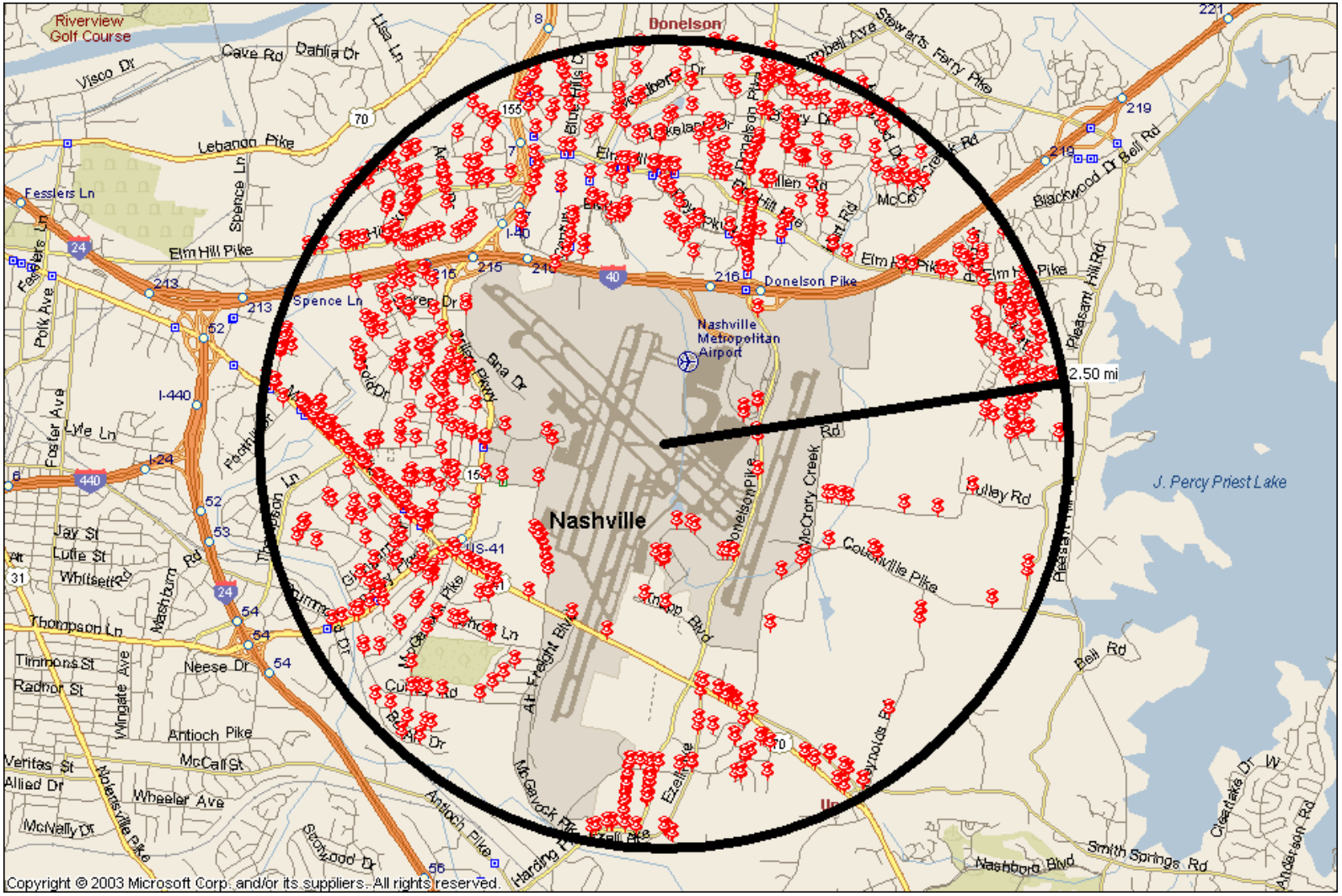

Table D-17 Nashville Metropolitan Airport - Nashville, TN (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
561499	All Other Business Support Services	107	$100,616.2	2
524210	Insurance Agencies and Brokerages	82	$5,855,385.8	23
722110	Full-Service Restaurants	65	$8,627,672.7	23
721110	Hotels (except Casino Hotels) and Motels	46	$1,613,762.0	47
561720	Janitorial Services	44	$260,907.0	12
238220	Plumbing, Heating, and Air-Conditioning Contractors	39	$1,415,000.0	21
813110	Religious Organizations	38	$151,563.7	4
531210	Offices of Real Estate Agents and Brokers	37	$358,457.1	5
722211	Limited-Service Restaurants	36	$382,548.4	17
541618	Other Management Consulting Services	30	$343,855.0	6
561320	Temporary Help Services	30	$930,840.0	6
522310	Mortgage and Nonmortgage Loan Brokers	29	$509,142.9	7
812990	All Other Personal Services	28	$78,657.0	2
541110	Offices of Lawyers	25	$180,333.3	3
236115	New Single-Family Housing Construction (except Operative Builders)	24	$306,681.8	2
238210	Electrical Contractors	24	$2,881,910.3	18
813930	Labor Unions and Similar Labor Organizations	24	$403,050.0	7
541611	Administrative Management and General Management Consulting Services	22	$575,959.3	5
531120	Lessors of Nonresidential Buildings (except Miniwarehouses)	21	$1,509,666.7	2
541330	Engineering Services	21	$792,095.2	12
488510	Freight Transportation Arrangement	20	$1,722,290.7	17
531110	Lessors of Residential Buildings and Dwellings	20	$361,750.0	6
532111	Passenger Car Rental	20	$1,360,588.2	18
447190	Other Gasoline Stations	19	$1,484,210.5	13
624410	Child Day Care Services	19	$97,000.0	7
561310	Employment Placement Agencies	18	$1,161,222.2	9
541990	All Other Professional, Scientific, and Technical Services	17	$143,647.1	3
561110	Office Administrative Services	16	$1,198,125.0	30
812112	Beauty Salons	16	$44,125.0	3

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
423830	Industrial Machinery and Equipment Merchant Wholesalers	15	$2,892,785.9	20
484110	General Freight Trucking, Local	15	$690,266.7	10
453220	Gift, Novelty, and Souvenir Stores	14	$306,785.7	9
561730	Landscaping Services	14	$86,857.1	3
323110	Commercial Lithographic Printing	13	$880,805.5	10
453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)	13	$654,209.5	4
488999	All Other Support Activities for Transportation	13	$116,666.7	2
621111	Offices of Physicians (except Mental Health Specialists)	13	$1,724,692.3	8
928110	National Security	13		57
236220	Commercial and Institutional Building Construction	12	$1,659,524.4	11
238320	Painting and Wall Covering Contractors	12	$91,833.3	2
423990	Other Miscellaneous Durable Goods Merchant Wholesalers	12	$1,343,833.3	10
445110	Supermarkets and Other Grocery (except Convenience) Stores	12	$579,000.0	7
541511	Custom Computer Programming Services	12	$746,363.6	9
541612	Human Resources and Executive Search Consulting Services	12	$317,909.1	5
624190	Other Individual and Family Services	12	$1,543,181.2	17
238160	Roofing Contractors	11	$75,272.7	2
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	11	$7,798,181.8	43
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	11	$860,102.5	3
484121	General Freight Trucking, Long-Distance, Truckload	11	$2,188,363.6	16
522110	Commercial Banking	11	$6,192,000.0	51
524113	Direct Life Insurance Carriers	11	$57,501,898.6	41
524126	Direct Property and Casualty Insurance Carriers	11	$12,851,818.2	56
541219	Other Accounting Services	11	$173,800.0	4
561612	Security Guards and Patrol Services	11	$973,777.8	101
621999	All Other Miscellaneous Ambulatory Health Care Services	11	$2,481,200.0	67
237210	Land Subdivision	10	$547,000.0	3
441120	Used Car Dealers	10	$299,400.0	2
448120	Women's Clothing Stores	10	$365,111.1	7
448210	Shoe Stores	10	$142,865,111.1	40

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
522390	Other Activities Related to Credit Intermediation	10	$252,555.6	3
541690	Other Scientific and Technical Consulting Services	10	$897,000.0	15
561510	Travel Agencies	10	$39,837,000.0	68
621610	Home Health Care Services	10	$1,142,656.1	24
423310	Lumber, Plywood, Millwork, and Wood Panel Merchant Wholesalers	9	$2,956,311.3	17
423690	Other Electronic Parts and Equipment Merchant Wholesalers	9	$1,133,741.9	8
441110	New Car Dealers	9	$2,719,462.3	11
481111	Scheduled Passenger Air Transportation	9	$7,198,750.0	78
488119	Other Airport Operations	9	$9,042,318.1	34
518210	Data Processing, Hosting, and Related Services	9	$10,675,000.0	50
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	9	$454,444.4	8
561990	All Other Support Services	9	$1,626,000.0	48
711190	Other Performing Arts Companies	9	$35,444.4	2
811412	Appliance Repair and Maintenance	9	$205,111.1	4
236118	Residential Remodelers	8	$119,857.1	1
443120	Computer and Software Stores	8	$657,500.0	3
446110	Pharmacies and Drug Stores	8	$876,250.0	12
511130	Book Publishers	8	$36,860,875.0	40
511210	Software Publishers	8	$1,886,625.0	17
517310	Telecommunications Resellers	8	$2,394,250.0	24
523999	Miscellaneous Financial Investment Activities	8	$301,250.0	4
541191	Title Abstract and Settlement Offices	8	$1,242,875.0	6
541213	Tax Preparation Services	8	$85,000.0	4
541810	Advertising Agencies	8	$5,278,000.0	18
551112	Offices of Other Holding Companies	8	$68,500.0	2
711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	8	$98,000.0	2
713940	Fitness and Recreational Sports Centers	8	$149,857.1	5
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	8	$9,223,125.0	17
238310	Drywall and Insulation Contractors	7	$506,857.1	9
238990	All Other Specialty Trade Contractors	7	$90,142.9	2

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
339950	Sign Manufacturing	7	$504,428.6	8
423450	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	7	$2,491,428.6	14
522291	Consumer Lending	7	$575,000.0	9
522298	All Other Nondepository Credit Intermediation	7	$306,571.4	3
541320	Landscape Architectural Services	7	$154,824.4	2
722410	Drinking Places (Alcoholic Beverages)	7	$128,428.6	4
813410	Civic and Social Organizations	7	$605,714.3	14
813910	Business Associations	7	$15,178,283.9	25
423420	Office Equipment Merchant Wholesalers	6	$1,416,000.0	16
423430	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	6	$3,388,333.3	20
423510	Metal Service Centers and Other Metal Merchant Wholesalers	6	$6,139,666.7	25
423710	Hardware Merchant Wholesalers	6	$1,785,000.0	11
423840	Industrial Supplies Merchant Wholesalers	6	$17,501,532.7	13
445120	Convenience Stores	6	$230,000.0	3
445299	All Other Specialty Food Stores	6	$62,000.0	1
493110	General Warehousing and Storage	6	$690,666.7	62
512290	Other Sound Recording Industries	6	$185,400.0	6
515112	Radio Stations	6	$1,241,200.0	18
517110	Wired Telecommunications Carriers	6	$1,689,600.0	10
541211	Offices of Certified Public Accountants	6	$122,666.7	3
541512	Computer Systems Design Services	6	$1,153,000.0	16
541613	Marketing Consulting Services	6	$253,666.7	4
561611	Investigation Services	6	$230,500.0	17
611110	Elementary and Secondary Schools	6	$2,833,333.3	29
624310	Vocational Rehabilitation Services	6	$743,596.0	26
811219	Other Electronic and Precision Equipment Repair and Maintenance	6	$285,166.7	8
238330	Flooring Contractors	5	$58,400.0	1
339992	Musical Instrument Manufacturing	5	$2,677,800.0	91
441320	Tire Dealers	5	$420,000.0	5
444130	Hardware Stores	5	$242,000.0	4

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
445310	Beer, Wine, and Liquor Stores	5	$235,000.0	3
451220	Prerecorded Tape, Compact Disc, and Record Stores	5	$105,800.0	2
454113	Mail-Order Houses	5	$35,139,200.0	95
485310	Taxi Service	5	$10,797,624.6	15
492210	Local Messengers and Local Delivery	5	$7,220,000.0	313
511120	Periodical Publishers	5	$650,000.0	7
512110	Motion Picture and Video Production	5	$137,000.0	2
517910	Other Telecommunications	5	$82,400.0	2
522130	Credit Unions	5	$3,861,718.4	19
523930	Investment Advice	5	$132,000.0	2
532299	All Other Consumer Goods Rental	5	$114,660.0	3
541820	Public Relations Agencies	5	$3,342,000.0	60
541860	Direct Mail Advertising	5	$1,319,000.0	23
541910	Marketing Research and Public Opinion Polling	5	$80,000.0	2
621210	Offices of Dentists	5	$198,000.0	5
722320	Caterers	5	$1,180,600.0	56
811121	Automotive Body, Paint, and Interior Repair and Maintenance	5	$89,200.0	2
811212	Computer and Office Machine Repair and Maintenance	5	$76,400.0	1
811490	Other Personal and Household Goods Repair and Maintenance	5	$344,000.0	3
812199	Other Personal Care Services	5	$46,000.0	2
812320	Drycleaning and Laundry Services (except Coin-Operated)	5	$129,800.0	6

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-9 Portland International Airport - Portland, OR

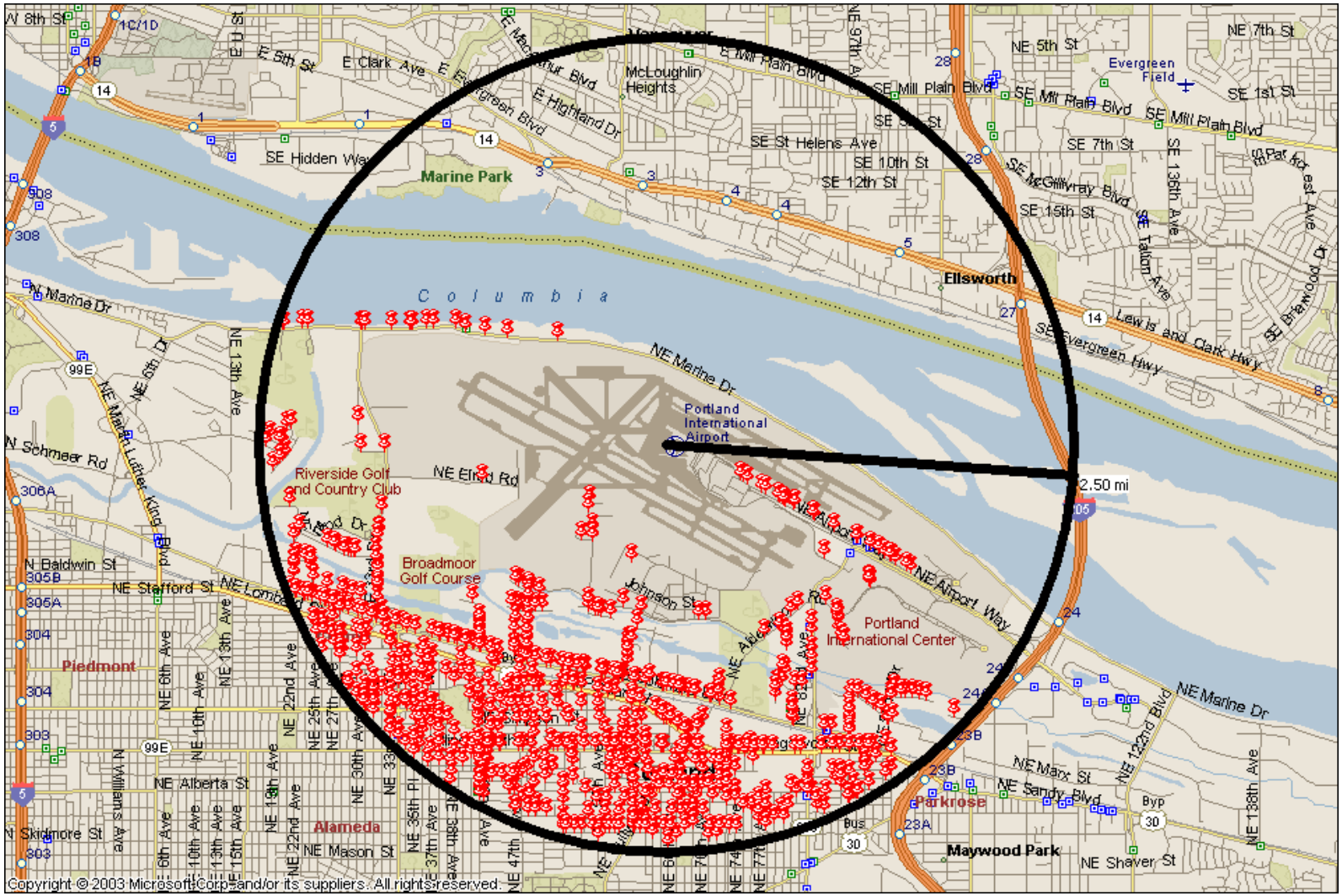

Table D-18 Portland International Airport - Portland, OR (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
561499	All Other Business Support Services	43	$144,511.6	2
722110	Full-Service Restaurants	34	$1,623,333.3	34
813110	Religious Organizations	25	$89,080.0	3
236115	New Single-Family Housing Construction (except Operative Builders)	24	$156,043.5	2
811111	General Automotive Repair	24	$148,041.7	2
423830	Industrial Machinery and Equipment Merchant Wholesalers	22	$2,111,176.5	9
488510	Freight Transportation Arrangement	20	$1,553,157.9	13
561720	Janitorial Services	18	$82,117.6	3
561730	Landscaping Services	18	$131,833.3	4
541618	Other Management Consulting Services	17	$372,941.2	5
811121	Automotive Body, Paint, and Interior Repair and Maintenance	17	$216,176.5	4
238220	Plumbing, Heating, and Air-Conditioning Contractors	16	$2,010,128.6	16
481111	Scheduled Passenger Air Transportation	16	$11,472,538.5	100
484121	General Freight Trucking, Long-Distance, Truckload	16	$1,401,934.2	11
722211	Limited-Service Restaurants	16	$356,071.4	17
812112	Beauty Salons	16	$42,000.0	2
812990	All Other Personal Services	16	$40,875.0	1
484110	General Freight Trucking, Local	14	$278,285.7	5
624410	Child Day Care Services	13	$29,538.5	2
236118	Residential Remodelers	12	$143,250.0	2
238320	Painting and Wall Covering Contractors	12	$381,500.0	6
238990	All Other Specialty Trade Contractors	12	$276,818.2	4
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers	12	$1,750,833.3	16
423840	Industrial Supplies Merchant Wholesalers	12	$6,017,407.2	24
445110	Supermarkets and Other Grocery (except Convenience) Stores	12	$1,153,333.3	11
722410	Drinking Places (Alcoholic Beverages)	12	$144,416.7	4
423990	Other Miscellaneous Durable Goods Merchant Wholesalers	11	$492,222.2	3
523910	Miscellaneous Intermediation	11	$208,181.8	2
721110	Hotels (except Casino Hotels) and Motels	11	$2,731,200.0	59

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)	10	$174,631.2	3
541990	All Other Professional, Scientific, and Technical Services	10	$463,800.0	6
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	10	$332,674.9	4
238210	Electrical Contractors	9	$2,127,666.7	20
238910	Site Preparation Contractors	9	$2,969,444.4	9
332710	Machine Shops	9	$775,555.6	11
423810	Construction and Mining (except Oil Well) Machinery and Equipment Merchant Wholesalers	9	$23,833,197.6	49
441310	Automotive Parts and Accessories Stores	9	$368,111.1	4
453220	Gift, Novelty, and Souvenir Stores	9	$417,111.1	9
492110	Couriers	9	$146,888.9	3
541330	Engineering Services	9	$229,777.8	4
541611	Administrative Management and General Management Consulting Services	9	$486,888.9	7
813410	Civic and Social Organizations	9	$261,222.2	6
928110	National Security	9		316
339999	All Other Miscellaneous Manufacturing	8	$718,500.0	10
451110	Sporting Goods Stores	8	$865,125.0	11
512110	Motion Picture and Video Production	8	$189,285.7	2
531110	Lessors of Residential Buildings and Dwellings	8	$118,750.0	3
532111	Passenger Car Rental	8	$4,954,285.7	71
532412	Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing	8	$3,802,500.0	24
532490	Other Commercial and Industrial Machinery and Equipment Rental and Leasing	8	$834,285.7	11
423610	Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment Merchant Wholesalers	7	$5,453,265.7	12
441120	Used Car Dealers	7	$910,000.0	2
441222	Boat Dealers	7	$560,000.0	5
488119	Other Airport Operations	7	$1,742,857.0	21
488410	Motor Vehicle Towing	7	$623,142.9	13
611110	Elementary and Secondary Schools	7	$1,437,142.9	46
238110	Poured Concrete Foundation and Structure Contractors	6	$960,833.3	11
238160	Roofing Contractors	6	$1,505,333.3	11
423510	Metal Service Centers and Other Metal Merchant Wholesalers	6	$2,413,431.0	4

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
424990	Other Miscellaneous Nondurable Goods Merchant Wholesalers	6	$135,833.3	2
445120	Convenience Stores	6	$522,000.0	6
453910	Pet and Pet Supplies Stores	6	$151,500.0	3
493190	Other Warehousing and Storage	6	$1,240,666.7	15
531210	Offices of Real Estate Agents and Brokers	6	$165,000.0	2
561990	All Other Support Services	6	$297,000.0	5
621999	All Other Miscellaneous Ambulatory Health Care Services	6	$233,333.3	4
811490	Other Personal and Household Goods Repair and Maintenance	6	$50,333.3	2
236220	Commercial and Institutional Building Construction	5	$2,616,000.0	16
339920	Sporting and Athletic Goods Manufacturing	5	$853,000.0	4
423930	Recyclable Material Merchant Wholesalers	5	$10,107,400.0	21
442210	Floor Covering Stores	5	$848,000.0	4
453110	Florists	5	$78,000.0	2
524210	Insurance Agencies and Brokerages	5	$933,750.0	9
541219	Other Accounting Services	5	$389,200.0	8
541320	Landscape Architectural Services	5	$56,400.0	1
541512	Computer Systems Design Services	5	$309,200.0	4
541690	Other Scientific and Technical Consulting Services	5	$182,000.0	3
541710	Research and Development in the Physical, Engineering, and Life Sciences	5	$1,008,009.6	12
711410	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	5	$399,000.0	5
713910	Golf Courses and Country Clubs	5	$1,402,302.2	33
813910	Business Associations	5	$274,000.0	4

Source: Applied Marketing Sciences and Dun and Bradstreet

Exhibit D-10 Airborne Airpark - Wilmington, OH

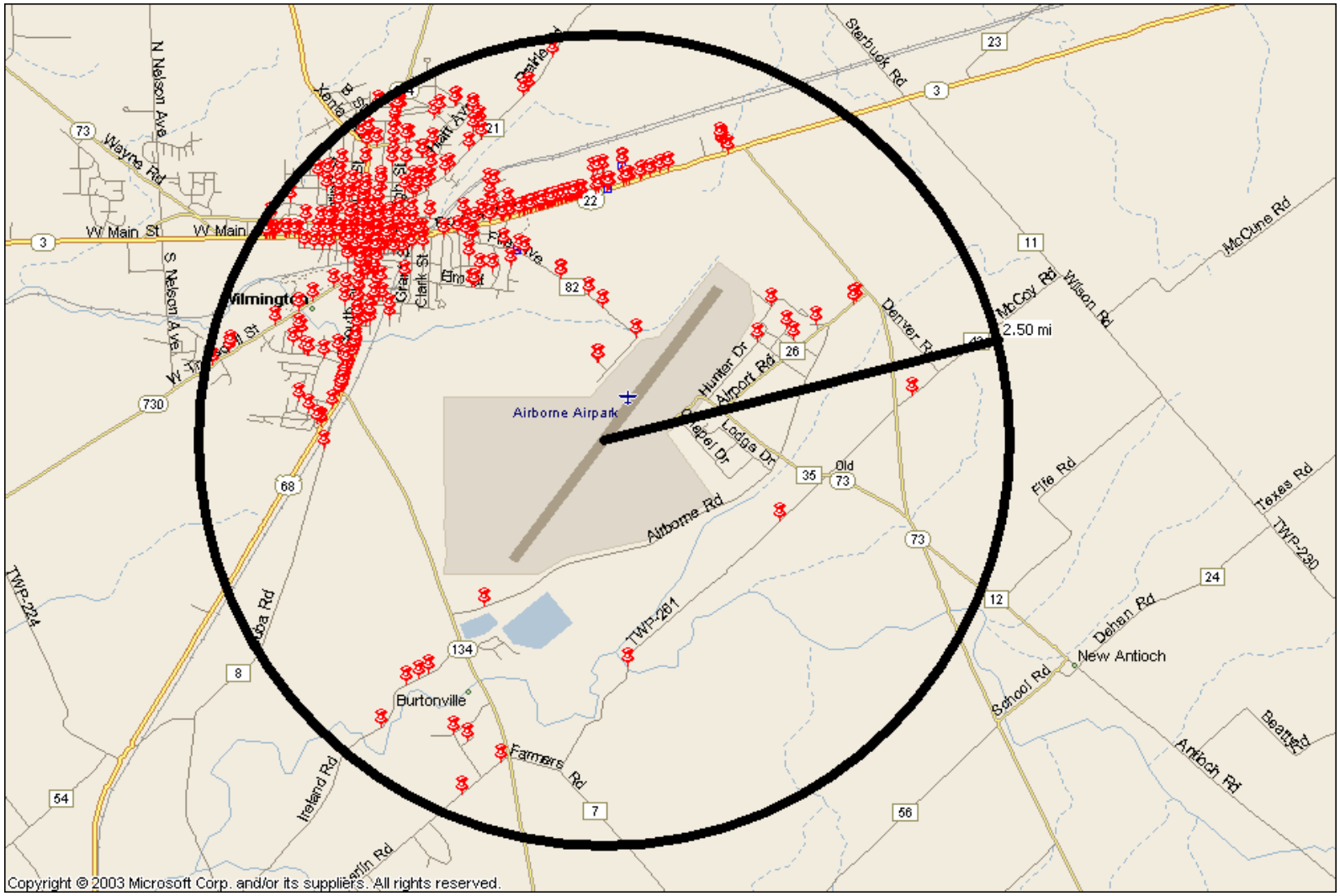

Table D-19 Airborne Airpark - Wilmington, OH (5 or More Businesses)

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
813110	Religious Organizations	24	$104,916.7	3
621111	Offices of Physicians (except Mental Health Specialists)	20	$332,500.0	5
541110	Offices of Lawyers	18	$270,555.6	5
722211	Limited-Service Restaurants	17	$535,666.7	22
722110	Full-Service Restaurants	16	$335,812.5	16
524210	Insurance Agencies and Brokerages	14	$409,357.1	4
921110	Executive Offices	14		13
561499	All Other Business Support Services	13	$164,000.0	4
812112	Beauty Salons	12	$41,500.0	3
453220	Gift, Novelty, and Souvenir Stores	11	$65,636.4	1
453998	All Other Miscellaneous Store Retailers (except Tobacco Stores)	11	$381,454.5	6
621210	Offices of Dentists	10	$242,000.0	6
531110	Lessors of Residential Buildings and Dwellings	9	$159,724.4	3
531210	Offices of Real Estate Agents and Brokers	8	$166,875.0	4
236115	New Single-Family Housing Construction (except Operative Builders)	7	$98,857.1	1
624190	Other Individual and Family Services	7	$256,142.9	11
713940	Fitness and Recreational Sports Centers	7	$158,600.0	8
813410	Civic and Social Organizations	7	$219,000.0	15
445110	Supermarkets and Other Grocery (except Convenience) Stores	6	$1,716,666.7	23
522110	Commercial Banking	6	$14,429,333.3	31
541990	All Other Professional, Scientific, and Technical Services	6	$42,666.7	1
611110	Elementary and Secondary Schools	6	$2,676,000.0	48
621310	Offices of Chiropractors	6	$113,000.0	3
236118	Residential Remodelers	5	$83,000.0	2
238220	Plumbing, Heating, and Air-Conditioning Contractors	5	$161,029.2	3
238990	All Other Specialty Trade Contractors	5	$74,400.0	2
443112	Radio, Television, and Other Electronics Stores	5	$126,600.0	2
447190	Other Gasoline Stations	5	$1,288,000.0	8
451211	Book Stores	5	$153,400.0	4

NAICS Code	NAICS Description	Number of Businesses	Average Sales	Average Employment at Location
541330	Engineering Services	5	$107,200.0	3
813319	Other Social Advocacy Organizations	5	$75,000.0	2
922120	Police Protection	5		44

Source: Applied Marketing Sciences and Dun and Bradstreet