MULTIPLYING STRATEGIC THAI INVESTMENTS IN THE U.S.

Information Services for Prospective Thai Investors

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9.28.2012
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Acknowledgements

The authors wish to gratefully acknowledge the contributions of the Royal Thai Embassy, Washington, D.C. and the University of Maryland Robert H. Smith School of Business Center for International Business Education and Research (CIBER) for making this study possible.
Executive Summary

This Project, undertaken by the Robert H. Smith School of Business with the sponsorship of the Royal Thai Embassy in Washington D.C., was intended to develop a strategy and set of information tools that could be used to expand Thai investor participation in the U.S. market.

As a first step, our team developed a comprehensive database of both current and prospective Thai investors that was culled from commercial data sets such as SDC Platinum and Standard and Poor’s Capital IQ. We discovered direct investments by Thailand in the United States were valued at $780 million in 2009 and $844 million in 2010. The average size of capitalization of Thailand businesses operating in the United States is $552 million. Along with this report, we are delivering to the Embassy a database which is a fully functioning tool set that provides views of Thai investments in the U.S. by year, industry and company. This is the most comprehensive database of Thai investments in the U.S. ever created.

As a second step, our team conducted a detailed analysis of investment opportunities in the U.S. Our analysis focused on identifying the best, most advantageous states for Thai investors as well as the best industry clusters and associated companies to complement the leading Thai industries e.g. food, auto, electronics, e-business, logistics and tourism.

Employing a methodology that assessed each of the 50 state’s individual rank based on GDP; current-dollar GDP; real GDP growth; effective tax rate; and size of relevant industry clusters in order to select the top five states for Thai investors. California, Texas, New York, Michigan and Tennessee were the five top ranking states; and we defined the investment incentives and key contacts in each of these states.

In evaluating specific industries and companies, we segmented each industry into the critical growth segments. For example, in the Food Sector, we identified food service contractors, wholesalers, grocery stores, ethnic grocery stores, online grocery stores, restaurants and terminal markets as critical segments. Within each segment, we ran numerous financial/valuation screens to pinpoint those key companies that could provide significant investment opportunities to Thai investors because of the distribution channels, technology or know how they possess. As noted previously, we executed these analyses for the food, auto, electronics, e-business, logistics and tourism industries.
To rapidly position Thailand as a major strategic investor in the U.S. marketplace, our study concludes with the following recommendations:

1. Database Management

   Maintain the investment database provided in this study by keeping it updated on an ongoing basis in order to track investment flows into the U.S.

   Maintain the state attractiveness database and keep it updated on a yearly basis in order to help Thai investors target their investment activities.

2. Investment Promotion

   Conduct annual/semi-annual Strategic Investor Workshops in Thailand to present emerging U.S. investment trends and opportunities to prospective investors.

   Create a Commercial Attaché Program based out of the Royal Thai Embassy, Washington D.C. that can serve as a central point of contact for Thai investors interested in actively exploring U.S. opportunities, and for U.S. companies/venture investment funds that either are seeking Thai partners or could have significant commercial value to Thai investors.

For more information, please contact Karen Watts, Associate Director CIBER by email at: kwatts@rhsmith.umd.edu or by phone at: +(301) 832-4210.
Introduction

Thailand is seeking to expand its private sector investment portfolio in the United States and to open up new opportunities for its industries in the continental market. The Royal Thai Embassy, Washington, D.C. recently commissioned the Robert H. Smith School of Business, University of Maryland (Smith School) to conduct an opportunity study aimed at defining potential areas of strategic investment in the U.S. that could provide complementarities (in terms of market channels, technologies and managerial knowhow) in support of Thai economic growth and competitiveness.

The Smith School study focuses on the following elements which are critical to an integrated Investment Facilitation Program:

1. It provides an Investment Database which identifies relevant commercial data sources regarding Thai investments in the U.S. and creates a coherent and user-friendly database documenting these investments by year, industry and company, which can be found in the section titled

2. It establishes a detailed methodology based on growth rates, effective tax rates and size of relevant industry clusters and uses this methodology to conduct a State by State Analysis to evaluate the differential attractiveness of states in the U.S. to Thai investors. For each of the five states with the highest attractiveness scores, the report details investor business incentives and key contacts;

3. It reviews a set of leading industries that complement Thai economic development: electronics, auto, logistics, food, tourism and cloud/internet services. For each industry, this Industry Specific Analysis not only profiles the overall U.S. industry sector but also identifies specific investment-grade companies and partnering opportunities.

Taken as a whole, this report provides a comprehensive guide and toolset for providing strategic intelligence/investment facilitation services to prospective Thai investors in the U.S.
If implemented, this investment facilitation program can help spur not only investment but also trade, technology and knowhow flows that could be extremely beneficial to both the Thai as well as the U.S. economies. These enhanced flows are shown in the graph below:

*Figure 1. Flow of benefits derived from investment cooperation*

Given the size and intensity of investment its neighboring countries are making, it is urgent that the Thai government implement this investment facilitation program as soon as possible in order to gain a foothold in the U.S. and international marketplace for technology, strategic assets and know how. Competition from regional countries that are seeking to raise their investment profile in the U.S. and elsewhere to capture strategic assets, intellectual property and markets, is rapidly escalating. For example, Singapore currently has $405 billion in sovereign wealth funds being actively invested, with 33 percent investments of the largest fund going into U.S. assets. Hong Kong has $293 billion in sovereign funds; Malaysia has $34 billion; and Taiwan has $6 billion. China has three active major funds with $1,142 billion in total investments.

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3 SWF Institute. [http://www.swfinstitute.org/fund-rankings/]
The table below highlights details of the outward investment strategies of these countries:

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>OUTWARD INVESTMENT STRATEGY</th>
<th>INVESTMENT INSTRUMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>• Developing countries</td>
<td>• Direct acquisition</td>
</tr>
<tr>
<td></td>
<td>• Natural resources and commodities</td>
<td>• Government special funds</td>
</tr>
<tr>
<td></td>
<td>• Diplomatic and financial support</td>
<td>• Credit support</td>
</tr>
<tr>
<td></td>
<td>• Direct acquisition of companies in advanced manufacturing, aerospace, renewable energy, electronics and banking in the U.S.</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>• Moving lower-end industrial activities low cost locations while retaining human capital and technology intensive activities</td>
<td>Sovereign wealth funds:</td>
</tr>
<tr>
<td></td>
<td>• Target low-income Asian countries, esp. China and India</td>
<td>• Gov. of Singapore Investment Corporation</td>
</tr>
<tr>
<td></td>
<td>• FDI in advanced countries to acquire new technology</td>
<td>• Temasek Holdings</td>
</tr>
<tr>
<td>Hong-Kong</td>
<td>• Mainland China is a major destination</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>• Information and communications; investment and holding, real estate, professional and business services; and manufacturing</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>• Major destinations: China and East Asia</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>• Focus on electronics and electronic machinery</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Also finance and insurance, services, chemical production, wholesale and retail</td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>• Major destinations: Singapore, EU-15, Hong Kong</td>
<td>Organizations:</td>
</tr>
<tr>
<td></td>
<td>• Low labor cost manufacturing, access to resources, and new markets</td>
<td>• MASSA</td>
</tr>
<tr>
<td></td>
<td>• South-south strategy</td>
<td>• MASSCORP</td>
</tr>
<tr>
<td></td>
<td>• Decrease dependency on U.S., Japan, EU</td>
<td>• MATRADE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• EXIM Bank</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SSIG</td>
</tr>
</tbody>
</table>
I. Investment Database

Trade and Investment Flows into the U.S.

According to the Bureau of Economic Analysis, total foreign direct investment position in the United States valued at historical cost was $2,547.8 billion ($2.558 trillion) at the end of 2011. FDI position increased by $283.4 billion or 13%. Major increase resulted primarily from financial inflows of $226.9 billion. Europe accounted for 56 percent of the total increase in direct investment, while Asia and the Pacific accounted for 23 percent. The United Kingdom remained the largest single investing country with 17 percent of the total FDI position. FDI financial inflows consisted of the reinvested earnings ($80.3 billion), net intercompany debt ($53.4 billion) and net equity investment ($93.2 billion).

The total value of goods that the United States imported from Asia and the Pacific in the first quarter of 2011 was $194 billion; goods coming from Thailand accounted for merely three percent of this number. One area of success in Thai trade with the U.S. has been minerals. Thailand is one of the world’s largest producers of tin and many other mineral resources, such as coal, zinc, gypsum, fluorite, limestone, marble and tungsten. Abundance of natural resources has enabled Thai corporations to develop expertise in this industry area and to expand into the United States. Thus, Thailand has increased its mineral exports to the United States, its main export market.

Based on a Coordinated Direct Investment Survey by the International Monetary Fund, outward direct investment positions of Thailand in the United States were valued at $780 million in 2009 and $844 million in 2010 and increase in the investment positions was $64 million. Thailand’s net outward equity positions in the United States at the end of 2010 were $615 million and net debt positions were $229 million.

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Calculating Thai Investment Flows into the U.S.

Even though Thai companies have been investing in the U.S. for long time, there is no system to track data regarding major Thai investors in the United States. We analyzed data from the major finance sources such as Bloomberg and Thomson One relating to Thailand’s investments in the United States, as well as the information from individual companies’ websites and financial statements to create the database of Thai investment in the U.S.

SDC Platinum provides a database on joint ventures, securities trading, global public finance, new instrument issuance, merger and acquisition and corporate restructurings. It is a useful source of data and has a good screening functionality, with capacity to output detailed information for specific transactions. In order to track the history of investments in the form of Merger and Acquisitions (M&A) and Joint Ventures (JV), two separate reports were generated for the time range of January 1990 to June 2012. After some modifications, the two reports were consolidated into one database, which was used to create the interactive pivot table (see Table 1)

<table>
<thead>
<tr>
<th>Date Announced</th>
<th>Target State</th>
<th>Investor Name</th>
<th>Number of Companies</th>
<th>Total Value of Transactions ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(blank)</td>
<td>(blank)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td>GSS Electronics Ltd</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td>(blank)</td>
<td></td>
<td>Technology Applications[TH] Ltd</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td>Siam Cement PCL</td>
<td>2</td>
<td>250</td>
</tr>
<tr>
<td>1992</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Database of Thai companies engaged in Mergers and Acquisitions or Joint Ventures by transaction year and target state

Standard and Poor’s Capital IQ is a frequently updated database that allows users screen companies with various criteria, including company financials, key developments, M&A transactions, markets and bankruptcies. Created report can include detailed data for companies such as financials, industry segments, business relationships, etc. The screening function also provides two additional functionalities: one for screening investors who have invested in certain industry or location, and another for screening investors who have expressed interest in certain industry or location. These functions were used to create a database of Thai companies that have invested in the U.S. and of potential Thai investors (companies that have expressed interest in investing in the U.S.).

The interactive pivot tables created for these databases (actual and potential investors) summarize and list companies by sector and industry and can generate detailed reports for each individual company, including company’s business description, company type, industry classification, total revenue, market capitalization, profitability, strategic alliances, etc. (see Table 1 and 2)
Table 2: Database of Thai companies that have invested in the U.S. by sector and industry

<table>
<thead>
<tr>
<th>Sector / Industry / Company Name</th>
<th>Number of Companies</th>
<th>Total Revenue</th>
<th>Total Market Capitalization</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>4574</td>
<td>$40,517</td>
<td>$980</td>
</tr>
<tr>
<td>Distributors</td>
<td>1393</td>
<td>$33,351</td>
<td>$22,925</td>
</tr>
<tr>
<td>-</td>
<td>300</td>
<td>$4,257</td>
<td>$1,040</td>
</tr>
<tr>
<td>148 Distribution Co., Ltd.</td>
<td>1</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>39 Material Co., Ltd.</td>
<td>1</td>
<td>$14</td>
<td>$0</td>
</tr>
<tr>
<td>Advance Wireless Marketing Co., Ltd.</td>
<td>1</td>
<td>$45</td>
<td>$0</td>
</tr>
<tr>
<td>Aepkhol Sugar Company Limited</td>
<td>1</td>
<td>$12</td>
<td>$0</td>
</tr>
<tr>
<td>Amor Pacific Limited</td>
<td>1</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Amore Pacific (Thailand) Co., Ltd.</td>
<td>1</td>
<td>$0</td>
<td>$0</td>
</tr>
</tbody>
</table>

Table 3: Database of Thai companies that have expressed interest in investing in the U.S. by sector and industry

<table>
<thead>
<tr>
<th>Sector / Industry / Company Name</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>4595</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>1393</td>
</tr>
<tr>
<td>Agricultural Products</td>
<td>339</td>
</tr>
<tr>
<td>Agripure Holdings Public Co. Ltd.</td>
<td>58</td>
</tr>
<tr>
<td>Agro-On (thailand) Co. Ltd.</td>
<td>1</td>
</tr>
<tr>
<td>Anuphas &amp; Sons Co. Ltd.</td>
<td>1</td>
</tr>
<tr>
<td>Asia Pellets Co. Ltd.</td>
<td>1</td>
</tr>
<tr>
<td>Bangkok Starch Industrial Company Limited</td>
<td>1</td>
</tr>
</tbody>
</table>

Summary of Thai investment in the U.S.

Thai transactions in the United States did not show significant increase during the last decade compared to the 1990s. Before Thailand’s currency crisis in 1997, lowest annual growth rate of Thai economy between 1987 and 1995 was 8.1 percent. During the Thai economic boom, many investors came to the United States through Merger and Acquisition and Joint Venture transactions, which is reflected in our database. The 1997 crisis halted companies’ expansion in the U.S., and consequently business activities also slowed down, especially from 1999 to 2004. Even though the Thai economy has significantly recovered since 2001, investment activities have not yet been restored to their pre-crisis peak level.

There have been twenty four acquisitions in the U.S. since 2007 by Thai companies. A significant number of investors targeted materials businesses in the United States. Other investors were interested in consumer discretionary, financials, industrials, healthcare and telecommunication markets. Active firms included Indorama Ventures Public Company Limited, Bio-Med Technologies Inc., Charoen Pokphand Group, Kopin Corp and Venrock. Even though the average deal was valued at $204.55 million, most had value of less than $100 million.

While the history of alliances between U.S. and Thai entities in last twenty-three years shows that the investors from manufacturing, coal mining, food production and real estate development

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are the most likely to enter into joint ventures, the number of joint ventures have actually decreased in last ten years. These joint venture deals involved technology, assembly and support of existing products. Gaining access to U.S. technologies creates an advantage for Thai companies and helps them improve the efficiency of their operation, enabling them to expand worldwide. Thai companies also enter into the joint ventures to explore opportunities in energy and commodity sectors. Partners jointly provide services and manage the facilities. The two companies share knowledge and analysis along with product development and marketing.

Most Thai investors are from consumer discretionary, consumer staple, energy, financial, healthcare, industrials, information technology, material, telecommunication service, utility, construction, food, and textile industries. Spa and Massage services, Beauty and Health programs and boxing clubs found their niche markets in California. The number of energy firms is relatively small compared with 1,608 financial industry entities. However, the energy segment accounts for 32 percent of the total revenue of investing companies.

The states where most Thai businesses invest are California, Texas, Delaware, New York, Massachusetts, Georgia, Alabama and Washington. Delaware is favored because of its asset protection laws, which mandate that anyone forming a limited liability company in Delaware can separate personal assets from company assets. In addition, there is no Delaware corporate income tax for corporations that are formed in Delaware so long as they do not transact with businesses in Delaware¹.

According to Thai American Chamber of Commerce in California, California is home to 200,000 Thais, the largest Thai population outside of Thailand. Thai Airways, Kasikorn Bank, Krung Thai Bank and Chang Beer have businesses in California. Food is the most popular business in California. “Los Angeles alone is home to about 700 Thai restaurants².

Bank of Thailand, Chevron Offshore Company Limited (Thailand), Inter Capital Alliance Asset Management Company Limited and Prom Resources Inc. have headquarters in both United States and Thailand. Each one of them except Chevron has headquarters in New York City. Chevron’s headquarter is in Houston, Texas.

**Recommendations**

A system tracking specific Thai investments made in the United States has not been established. The number of investors which have disclosed their interest in the U.S. is limited. Often, the information these companies provide on their websites and financial statements are not complete and further investigation cannot be pursued. Encouraging Thai businesses to provide more information about their investment interests and actual investments in the U.S. would enable the collection of relevant data, better analysis and understanding of investment activities, and improved guidance of new investors in the U.S. Access to the data through financial sources such as Bloomberg, Thomson Reuters, etc. would enable advanced research

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of Thai companies’ investment strategies and help identify best strategies and practices for investment in the U.S.

The Thai government plays a key part in channeling and guiding the outward investment. A website sponsored by the Thai government can be created as a communication platform between the government and businesses so that the government can address the concerns of investors. Entities can assist each other by sharing knowledge and finding partners and centralized agency/association supported by government would be ideal for this purpose. Also agreements can be made with each U.S. state government to exchange information regarding the Thai investment in each state and activities of Thai businesses.

**Limitations**

Although the best available data was used to create the databases, a significant portion of the entries (companies) lack data in important fields, such as revenue, market capitalization and business description. This limits the accuracy of aggregate data, including total revenue, total transaction value, total market capitalization etc. Aggregate data for different categories, such as U.S. states, industry classifications may not accurately reflect the investment profiles. All further analysis based on the databases should take these limitations into consideration.
II. State-by-State Analysis

Background
This study aimed to profile all fifty states in the U.S. utilizing preliminary data focused on economic and investment factors. Based on those factors, we selected the top five states with greatest attractiveness to Thai investors. For those top five states, a more detailed overview of incentives was prepared.

To approach this task, we decided to first collect visual statistics pertaining to all fifty states. The factors included each state’s individual rank based on GDP, current-dollar GDP, real GDP growth and effective tax rate. We used the databases, Capital IQ and Bloomberg, which were available through the Smith Business School. Other sources we used included those from the Bureau of Economic Analysis and each state’s respective economic development center sites.

With that data in hand, we set out to create an attractiveness score in order to rank each state from the most attractive to least attractive for Thai investors. In order to do so though, the first steps were to look at the industries within each state. Those industries which were included involved food, logistics, e-business, automotive, and electronics because these are the top five industries in Thailand. By focusing on these factors, it allows us the opportunity to quantitatively screen and select the top five states on which to focus our detailed portfolio on. Using a method created by Professor Boyson and Eldor Turgunov, all fifty states were ranked against each other based on the factors.

Methodology
To obtain information on the industry clusters within each state, companies were screened based on their primary address and the industries they specialized in the Capital IQ and Bloomberg databases. Between both databases, we decided to use the companies from Capital IQ because there were more companies listed than those from Bloomberg.1,2

1 Bloomberg L.P. Retrieved August 26, 2012 from Bloomberg database.
From there, the total revenue of those companies in each industry (food, logistics, e-business, automotive, and electronics) was summed up within all fifty states. This was done in order to check the industry clusters of each state. Information about current-dollar GDP, GDP growth rates, and tax incentives were also collected. The next part of the project entailed calculations in order to determine a ranking list for all fifty states.

We collected data from the Bureau of Economic Analysis (BEA) site on current-dollar GDP and real GDP growth within each state. From there, we establish indexes for all the following factors created, to then form a quantitative way to compare all the states against each other. From there, we can then come up with the five most attractive states to Thai investors. See attached charts to look at the data.

First, using data from the BEA site, the GDP growth index was calculated by taking the lowest GDP growth number, which in this case was Wyoming with a growth rate of -1.2 percent. From there, Wyoming’s growth rate was subtracted from each state’s GDP growth rate, and then divided by difference of the maximum GDP growth, which North Dakota had at 7.6 percent and the entire answer to that was multiplied by 100 (BEA). (Exhibit A displays the data)¹

Next step was calculating the absolute GDP index. The absolute GDP index shows how much of each state’s GDP in current-dollar terms makes up the overall national GDP. The difference between each state’s GDP and the lowest GDP from each state was divided again by the difference between maximum GDP from a state and the minimum GDP from a state. In this case, California had the highest GDP at $1958.90 billion while Vermont had the smallest GDP at $25.9 billion (BEA). (See Exhibit B to see rankings)²

To obtain the weighted GDP index for each state, the GDP index for each state was multiplied by the GDP factor determined by the absolute GDP index. That was then added to the GDP growth index. See Exhibit C for final calculations.

The next step involved looking at the five industries index for each state. To get that index for each industry, the difference between each state’s revenue and the states with the lowest industry revenue was divided by the difference between the state with the highest industry revenue and the one with the lowest. For instance, in the automobile industry, Michigan has the highest revenue in that industry at $460,565.5 billion dollars, while numerous states yielded $0 revenue for that industry. This was done within each of the industries among all the states, to gain industry indexes for comparison.

To calculate the relative industry index, which gives a concentration of industry in the state’s economy, the following formula was used. The relative index of each industry within each state was subtracted from the minimum average relative. That was divided by the difference between maximum average relative and minimum average relative among the states. Michigan had the top index, while Alaska had the lowest.

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² Ibid.
For the investment index, effective tax rates (ETR) were collected based on capital investment. We incorporated a study published by the Pew Center for research that evaluated state tax incentives and ranked them based on scope and quality. The three possibilities for ranking included “leading the way” which we denoted with the use of a 3 in our calculations, “mixed results” with a 2, and “trailing behind” with a 1. Using the formula the difference between each state’s ETR and the lowest ETR by any state was divided by the difference between maximum ETR and minimum ETR then multiplied by 100. Maine had the lowest ETR at 3.0 percent while New Mexico had the highest at 16.6 percent. See the charts below.

In the weighted industry index, 75 percent weight was given to the industry all the indexes of all five industries previously calculated were added together for each state then divided by the number of industries we looked at which in this case was five. The relative industry was given a 25 percent weight in calculating it. This meant multiplying the 75 percent by each industry index and then adding it to the product of the relevant industry factor, 25 percent, by the relative industry index. Michigan had the highest index at 43.6 while a few other states had 0.0.

Taking into account all these calculations, the top five states with the most attractive scores based on all those scores were ranked. California, Texas, New York, Michigan and Tennessee were the top states in this ranking.

Lastly, for the final ranking we gave the following factors a certain amount of weight. For GDP, 30 percent would weigh in for the final score. For the industry clusters, a 40 percent weight was given. Finally, the remaining 30 percent weight was for the investment index. The final index and ranking picked the top 5 states, which were California, Texas, New York, Michigan and Tennessee in that order respectively. California had a rank of 90.5, Texas had 63.0, New York had a 50.2, Michigan had 44.6 and Tennessee had 38.3.

Next step for this involved looking into all the business and tax incentives available to each state. The effective tax rates of each state are listed within the dashboard/spreadsheet. A quick overview of the available incentives and tax credits on workforce development and location will be included below.

<table>
<thead>
<tr>
<th>States</th>
<th>Rank</th>
<th>Final index</th>
<th>GDP index</th>
<th>Industry index</th>
<th>Investment Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>1</td>
<td>90.5</td>
<td>84.1</td>
<td>42.6</td>
<td>35</td>
</tr>
<tr>
<td>Texas</td>
<td>2</td>
<td>62.0</td>
<td>62.5</td>
<td>16.3</td>
<td>29</td>
</tr>
<tr>
<td>New York</td>
<td>3</td>
<td>50.2</td>
<td>50.5</td>
<td>8.2</td>
<td>30</td>
</tr>
<tr>
<td>Michigan</td>
<td>4</td>
<td>44.6</td>
<td>23.9</td>
<td>43.6</td>
<td>31</td>
</tr>
<tr>
<td>Tennessee</td>
<td>5</td>
<td>38.3</td>
<td>18.1</td>
<td>21.6</td>
<td>54</td>
</tr>
</tbody>
</table>

Table 4: Final attractiveness index and its components for top ranked states

**State Investment Profiles**

**California**

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As the leading state within the ranking, California has solid infrastructure in place with over 15,000 miles of highways and freeways along with twenty-five freight railways operating over 5,000 miles of track (CA Investment Guide). California also has training and employer incentives, which help employers, cut down on costs. In the state, the Employment Development Department works alongside businesses to look at the workforce in addition to working with different job placement organizations for recruitment (CA Investment Guide). The department also has a statewide networking connecting employers and jobseekers, allowing for readily available access. ([www.caljobs.ca.gov](http://www.caljobs.ca.gov)). California offers tax credit on work opportunity depending on the target group, which it breaks down into groups A, B, C, D, E, G and H. Those groups have a tax credit of 40 percent of qualified first year wages that can go up to $6,000 if the person has worked for at least 400 hours. Any person working less than the 400 hours but works as much as 120 hours, a tax credit of 25 percent is available on first year wages that qualify (CA investment guide). California acknowledges the key component to remain competitive is a skilled workforce. As a result, the Employment Training Panel (ETP) helps employers train workers and keep skill levels up to par. ETP has funds which are available to companies and business expanding or relocating to the state from other countries or states. Some of the local incentive options involve Revolving Loan Funds (RLF) to help certain businesses. To find out more, the local city or county should be contacted if any are of interest. In California, there are also eighteen free trade zones present.

Governor's Office of Business and Economic Development  
1400 10th Street, 2nd Floor  
Sacramento, CA 95814  
(916) 322-0694 / (877) 345-4633  

**Texas**

Texas had a Product/Business Fund that will help technology-focused companies by providing funds in the form of direct asset-based loans. Texas has a variety of workforce training programs offered by the Texas Workforce Commission. Funds are available for that. One is the Skills Development Fund which helps fund customized job training. Texas has 32 free trade zones (Import Administration). Some of the locational incentives depend on what cities companies would prefer to expand to. In distressed areas, there are tax incentives to aid companies in their transition to those locations.

State Contact:  
Phone: 512-936-0100  
Fax: 512-936-0080  
Email: [locatetx@gov.texas.gov](mailto:locatetx@gov.texas.gov)  

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**New York**

New York has a leading economic agency which will help with companies interested in foreign direct investment. The contact information is attached in the spreadsheet. The Department of Economic development will help companies identify potential sites of interest to companies, provide data concerning demographics, age, tax and utility costs, and access New York’s incentive programs. Other services the department offers include the information of the communities, opportunities to network with local government officials and private businesses, assistance in obtaining all necessary permits and licenses, as well as the facilitation of projects.

New York State Department of Economic Development  
International Division  
633 Third Avenue  
New York, NY 10017-6706  
001+1 (212) 803-2345  
http://www.empire.state.ny.us/International/ForeignDirectInvestment.html  

**Michigan**

In Michigan, the Michigan Economic Development Corporation (MEDC) works to supply information about business taxes, relocations services, and workforce development as some of the few options it offers. Those companies looking to expand or relocate their business in Michigan have access to different funds. Annually, there is about $175 million available for business attraction, economic gardening programs and business assistance through MEDC. There are seven free trade zones in Michigan (Import Administration).¹

For more information, please go to this site http://www.michiganadvantage.org/Contact-the-MEDC/?layout=none&from=%2FMichigan-Business-Incentives%2F and contact MEDC.

Headquarters - Lansing, MI  
300 N. Washington Square  
Lansing, Michigan 48913  
1.888.522.0103  
http://www.michiganadvantage.org/Incentives-For-Investors/  
http://www.michiganadvantage.org/Michigan-Business-Incentives/

**Tennessee**

If businesses and companies choose to relocate here, Tennessee offers many incentives and tax credits to help them through the initial process. Tennessee offers a discretionary fund that

will help train a business’s work force to “promote high-skill, high-wage jobs for emerging and high-technology manufacturing operations” (Web site).

Tennessee’s Department of Economic and Community development website lists about eight tax credits that businesses can use. Tennessee also has six free trade zones, listed in the dashboard attached (Import Administration).

To facilitate and encourage companies to locate corporate headquarters in the state, it offers an attractive tax credit, which is: if the taxpayer meets a minimum $10 million capital investment and creates headquarters jobs that pay 150 percent of the average occupational wage, a Super Credit of $5,000 per job can be used (Website).

The following link, http://www.tn.gov/ecd/BD_international.html, lists other incentives and tax credits.

State Contact:
312 Rosa L. Parks Ave., Eleventh Floor
Nashville, TN 37243
(615) 253-1390312
http://www.tn.gov/ecd/BD_home.html
http://www.tn.gov/ecd/BD_business_tax_credit.html
III. Industry-Specific Analysis

**FOOD**

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Company</th>
<th>Description/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food Service Contractors</strong></td>
<td>Compass Group PLC</td>
<td>Provide food and services to customers in the workplace, schools, hospitals, at leisure and in remote environments</td>
</tr>
<tr>
<td></td>
<td>Aramark Corp</td>
<td>Food services to health care institutions, schools, etc. around the world • FORTUNE • ’World's Most Admired Companies’ • 29.2 percent share</td>
</tr>
<tr>
<td></td>
<td>Sodexo</td>
<td>Leader in Quality of Daily Life Solutions • 22nd largest employer worldwide • 80 countries • Reputable, ethical, diverse and sustainable • All values that align with Thailand's Food Industry • FORTUNE 'Most Admired Companies' • One of 'World's Most Ethical Companies' • 'Top 50 Green Outsourcing Suppliers' • 26.3 percent share • Over 15 customers in a variety of channels • Largest revenue ($19,150M) and net income ($559M)</td>
</tr>
<tr>
<td><strong>Wholesalers</strong></td>
<td>SYSCO</td>
<td>Marketer and distributor of food service products • Sustainable food movement, sustainable food lab • Largest food service distributor in North America • FORUTNE 500 company (#69) • Largest 2012 Revenue: $39.3B and strong growth (up 5.6 percent from 2010) • Large growth due to acquisitions and global expansion goals and strategies</td>
</tr>
<tr>
<td></td>
<td>U.S. Food Service</td>
<td>Food service distributor to restaurants, healthcare facilities, government operations and educational institutions • Safeguard the environment and sustainable foods and supplies • 2011 Revenue: $18.86B.</td>
</tr>
<tr>
<td><strong>Grocery Stores</strong></td>
<td>Kroger</td>
<td>Retailer in forms of grocery and multi-department stores, convenience stores and jewelry stores • Largest revenue out of all grocery stores in U.S. and substantial growth (10.1 percent)</td>
</tr>
<tr>
<td></td>
<td>Whole Foods</td>
<td>Owns and operates chain of natural foods supermarkets • Quality standards, organic farming, seafood sustainability, animal welfare standards, and caring for the community • 8th highest revenues of all grocery stores, however, largest growth (12.2 percent)</td>
</tr>
<tr>
<td><strong>Ethnic Grocery Stores</strong></td>
<td>Hong Kong</td>
<td>Chinese-based supermarket, includes Thai food • Key products: tropical fruit, live seafood, and fresh meat • Operates mainly in Chinese communities (LA, NYC, Philadelphia) • Specializes in importing Asian groceries</td>
</tr>
<tr>
<td></td>
<td>Kam Man Food</td>
<td>First Chinese supermarket on U.S. east coast with the largest selection of Asian food products including seafood, canned foods, fruits, rice, RTE items.</td>
</tr>
<tr>
<td></td>
<td>H-Mart</td>
<td>Korean based online and in-store grocery store with a variety of Asian food • Offers RTE, rice, dried food, sauces, etc.</td>
</tr>
<tr>
<td></td>
<td>Village Super Market, Inc.</td>
<td>Operates twenty-six ShopRite grocery stores • High growth (3 percent) • 2011 Revenue: $1298.9M, Net Income: $21M</td>
</tr>
<tr>
<td></td>
<td>Wild Oats Market, Inc.</td>
<td>Natural food service mart with environmentally friendly products • Products from Singapore and Malaysia, potential relationship for Thailand</td>
</tr>
<tr>
<td><strong>Online Grocery Stores</strong></td>
<td>thigrocer.com</td>
<td>Online supermarket for authentic Thai groceries, cookware and recipes • Featured in Jan2012 Bon appetitie magazine; Many awards and endless amounts of positive testimonials • Interest in partnering with Thai investors</td>
</tr>
<tr>
<td></td>
<td>asiansupermarket 365.com</td>
<td>Online store for ingredients to make Asian cuisine (Chinese, Malaysian, Singaporean, Thai, Indonesian).</td>
</tr>
<tr>
<td></td>
<td>grocerythai.com</td>
<td>Offers a variety of quality Thai foods, cookware and household products</td>
</tr>
<tr>
<td></td>
<td>templeofthai.com</td>
<td>Thai grocery, kitchenware, recipes, books, tools and other know-how</td>
</tr>
</tbody>
</table>
Task at Hand

When initially looking into the foreign direct investment opportunities in the U.S. for Thailand, five industries were chosen for the best potential analysis. The food industry was one of these choices due to its success, growth and prominence in the Thai community and Asia. From here, the two specific areas recognized as the most important were distribution channels and packaging. Each of these was looked at in detail in order to establish what partnerships would be the most effective for Thailand and the U.S.

Overview of Thai Food Industry

The food industry in Thailand has gained major headway over the past decade with increased growth and profitability. Despite political unrest, flooding and other agricultural difficulties, the entire supply chain has still managed to succeed. The agricultural output has been growing 3 percent+ per year creating tremendous growth, employment opportunities, and lessened poverty.

Thailand is currently the single largest food exporter in Asia and is known as the ‘Kitchen of the World.’ The abundance of resources, specialization, diversification, R&D, and technological advancements have increased productivity and have established Thailand’s reputation. Some of the most common food exports include rice, seafood, pineapple, cassava, tapioca, sugar and sauces with rice ranking as the largest with 10.7 mil tons exported last year. Fish, specifically shrimp and tuna come in next at 25 percent of the business. Furthermore, fish, rice, sugar, poultry and cassava are expected to increase in demand.

Finally, there are specific trends that have become popular in this industry. When identifying potential partnerships, it is essential to keep these in mind and match them with similar valued companies in the U.S. Ready to eat meals, organic/natural food and sustainability are at the forefront of food consumption. Currently, sustainability is the biggest challenge as it is the area with the greatest room for improvement.
There is tremendous opportunity for foreign direct investment in the U.S. with the food industry. Currently, Thailand exports second most often to the U.S., however, the FDI in the U.S. has declined. Thailand did an incredible amount of exporting just last year, approximately $32.2 billion. It is time to capitalize on this chance with the food industry and to invest so that each country can mutually benefit from partnership.

Methodology

There are a variety of options for distribution channels for the food industry in the U.S.. Some are larger and more nationally based, whereas others are more specialized. The key categories worth examining for distribution are food service contractors, wholesalers, grocery stores, online stores, restaurants and terminal markets. Part two of the research, packaging, follows a similar process as distribution channels, however, the goal is to discover companies that utilize new and efficient technologies to become involved. The methodology behind establishing potential companies for investment is utilizing vital resources, such as, online searches, business databases and financial analyst tools. These include but are not limited to: IBISWorld, CapitalIQ, SDC Platinum and Bloomberg. Historical data, qualitative data, and quantitative financial data was collected and analyzed to find the most preferable opportunities. Finally, recommendations have been made for the most valuable investments.

Associations

I. Trade Associations

In the United States, there are a variety of trade associations that enable and encourage collaboration between companies and offer a variety of support and resources such as networking opportunities, awards, educational materials, references and more. There are dozens of food associations that adhere to a wide range of food types and processes. Many ethnicities have associations in the U.S. including but not limited to Italian, Mediterranean and Chinese. China has the ‘Chinese American Food Association,’ which links companies on food science and technology and the ‘United Chinese Restaurant Association,’ which connects Chinese-owned restaurants for communication and service purposes. It would be favorable to establish a ‘Thai Food Association’ of sorts in the United States to provide owners with tools to enhance and grow their business and establish a mutually beneficial relationship. The Embassy or another delegated industry group could potentially take initiative and begin this alliance.

II. Food Associations

Within the U.S., there are multiple associations for the different categories of food. For the purpose of this research, the ones looked further into were relevant to the key areas for Thailand: produce, aquaculture and rice. The following associations were contacted in order to gain a greater sense of the organization and learn the history of the business: United Fresh Produce Association, National Aquaculture Association and U.S. Rice Producers Association. Unfortunately, the latter two were unable to answer any questions or disclose information due to the confidentiality and non-profit nature of the business. However, the Senior Director of Membership of the Produce Association explained that they currently do not do work with members of Thailand but that they would welcome the opportunity to discuss membership with
Distribution Channels

I. Food service contractors

It is crucial that Thailand partners with a food service contractor when investing in the U.S. This channel is the largest distributor in the country, serving to public institutions such as healthcare, prisons, and education. The top 4 with the greatest market share included Compass Group PLC, Aramark Corp, Sodexo and Delaware North Companies Inc. These companies specialize in serving clients that outsource their food services. Due to a recent surge in competition, these customers are looking to expand and for new growth opportunities, proving it would likely be feasible for Thailand to get involved. Additionally, each of these companies has recently been focusing more on to-go foods and healthy food choices, both of which align with Thai’s current strategy. Finally, the top locations for these businesses is NY and CA, the prime populated spaces for Thai people.

The size, awareness, reach and varied capabilities for these companies make them an ideal partner. When it comes to specific types of foods, since the companies are so general, almost all of the foods would be relevant. Another value-added aspect for both countries regarding food is safe, heart-healthy, and low fat food that would be served. A food service contractor will bring a strong relationship for Thailand.

Sodexo is the most ideal food service contractor for partnership. With the third most share (26.3 percent), behind Compass Group PLC (34.8 percent) and Aramark Corp (29.2 percent), it has the largest revenues. For the latest annual period, Sodexo had $19,149.76 mm revenue and $558.93 mm in net income greater than the others, even with larger shares. Sodexo also has over 15 customers in a variety of channels, ensuring that a great scope would be reached.

II. Wholesalers

Wholesalers are a vital part of the food distribution business as there is sometimes a need for a middleman, especially for fresh and perishable foods. An IBISWorld report on ‘Fish and Seafood Wholesalers’ details that the demand will increase due to health concerns. An emerging trend is being environmentally friendly, meaning more sustainable fishing. Thailand can invest in these enterprises in order to help dissipate the challenge of helping the earth. With ‘Fruit and Vegetable Wholesaling,’ there is a similar increase due to healthy eating and fresh foods. The appeal has declined for canned fruit, so this would not be a preferable type of food for investment. SYSCO and U.S. Food Service are two major wholesalers that have been identified for partnership. Both of these would be a positive option for the Thai food industry to participate.

III. Grocery Stores

Although, there is recent development in grocery stores for making ethnic food available, there is always room to do more. The best strategy to develop what the best stores is and then

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individually what is available and what should be available. The top ten food retailers in the U.S. by revenue are: Kroger, Safeway, Supervalu, Ahold, Publix, H.E. Butt Grocery, Jewel Companies, Inc., Whole Foods, Great Atlantic and Pacific Tea Company and Fred Meyers Stores, Inc. Each of these is in order of largest to smallest revenue. Kroger is the most preferable option because it has the highest revenues and substantial growth (10.1 percent). The second best option is Whole Foods as it has received the most growth out of the top ten (12.2 percent) and still has substantial revenue.¹ Whole Foods is a natural foods market, which would be excellent for Thailand to invest in, since many of its products are categorized as that as well.

IV. Ethnic grocery stores

When orchestrating a list of potential companies for partnership, a two-fold strategy was used. First, all food retailers nationwide were scanned for additional ethnic availability and history. The second is true ethnic food stores, more specifically Asian grocery stores. The former includes: Village Super Market Inc., 7 Eleven, Inc., Eagle Food Centers, Inc., Homeland Holding Corp and Wild Oats Market, Inc. The top two contenders are Village Super Market Inc. and Wild Oats Market, Inc. VSM operates 26 ShopRite grocery stores that pride themselves on diverse offerings. There is also nearly 3 percent growth, which is substantial for a business of this size.² WOM is a natural food service mart with environmentally friendly products and has even been introduced to Singapore and Malaysia. This would be a telling sign for a relationship with Thailand, since they are similar to the other countries and have already established a relationship.

National supermarket chains for Asian food are the second portion. Although many offer food specific to parts of Asia, such as, China, Japan, Korea, and Taiwan, since the food is similar amongst all, there is a blend of the different regions. The main chains include Hong Kong, Kam Man Food, H-Mart, Mitsuwa Marketplace and Island Pacific. Forming a partnership with these supermarkets would involve a relationship with many countries and would provide a good opportunity for investment.

V. Online grocery stores

It is no question that ecommerce has taken off in the past couple of years and consumers have now turned to online sites, such as Amazon.com in order to buy even just necessities rather than just luxuries online. There are several online sites (thaigrocer.com, asiansupermarket365.com, grocerythai.com, and templeofthai.com) that give U.S. residents the option to have food delivered directly to their home. Thaigrocer.com is the most viable choice as this retailer has received awards and magazine publications, handled a huge amount of customers and deliveries, and exhibits an overwhelming passion to be involved. An interview with the CEO of the company, Jerry Good, showed that expansion and creating relationships with more Thai people would be of the utmost interest. The other online sites successfully run businesses with recipes, blogs and rare products in order to stand out. The online business is only going to increase; it is a must for partnership.

VI. Restaurants

Thai restaurants have become much more popular in the U.S. There are many individually owned Thai restaurants around the world. The top ones are Bangkok Bistro, Sangmulang Café, Saladang Song, Chiang Mai, Lemongrass, Starfire, King and I, Bangkok Blue, and Bangkok Gardens. These, however, are not chains and would not be the most ideal since they are on too small of a scale. Thai franchises, however, would be a more sufficient way of partnership. Unfortunately, in the U.S., there is not a bountiful supply of Thai food franchises. Ruby Thai Kitchen is one of the few well-known chains in the country, and is spread throughout convenience places, such as, shopping malls and airports. Other countries, such as Sweden, Australia and Canada have much more established Thai food franchises. Bringing these franchises (Tasty Thai, Thai Express) to the U.S. would increase traffic, awareness and overall business for the industry.

Finally, after filtering through restaurants for ethnic or Thai availabilities, there were seven results: Cheesecake Factory, California Pizza Kitchen, Furr’s Restaurant Group, Inc., Miami Subs Corp, Stacey’s Buffet Inc., and SWH Corp. There is already a strong presence of Thai types of food at the first few; however, a new opportunity would be with buffets. There is a lot of American foods available and Asian (often Chinese). The expansion of Thai food into this specific restaurant channel and method would be advantageous for business.

VII. Terminal markets

Terminal markets are essentially farmers markets with fresh fruits and vegetables. How it works is there is table’s set-up with different regional businesses in urban centers. This is an efficient way of doing business, as the products are as fresh as they can be during imports. There is also huge cost savings as they come to the port and then do not need to be further transported. These markets exist in major cities such as NYC, Brooklyn, St. Louis, Philadelphia, Pittsburgh, LA, New England, Boston, Tampa and Chicago. NYC, LA and Philadelphia are the absolute most desirable locations. First, they are some of the biggest with the most merchants, and also they have the most Asian offerings. Much of the Asian food is vegetable and mainly Chinese (cabbage, chives, etc.). These markets are very successful and Thailand would benefit from getting fruits and vegetables in; NYC alone does $2 billion annually.  

VIII. Previously Established Partnerships

Utilizing CapitalIQ, twenty-five companies were identified that have had a previous relationship in the food industry with Thailand. The full list may be viewed in the Appendix; however, the top five include Kraft Foods, McDonalds, Pizza Hut, Starbucks and Albertsons. These companies are mainly in the packaged food, restaurant and retail business. It would be imperative to look into the history and extent of these and look for more ways to get further involved.

IX. Other Ethnic Channels of Distribution

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There are a variety of distribution channels, similar to food service contractors that are broader, however, these offer American food and ethnic food as well. There are many potential companies, however, most noteworthy is United Natural Foods (UNFI). This is the largest distributor of natural/organic food in the country and acquired Millbrook Distribution Services, which was the largest distributor of ethnic/specialty foods. UNFI distributes to Whole Foods and grocery stores, which is ideal because there is a spectrum of channels. There is also a predicted increase for the entire industry to move to more ethnic and organic foods. UNFI combines them both. An interview with a UNFI representative announced that there would be desire to connect with Thailand, however, strict regulations have made it more difficult. Reexamining these guidelines would open up more opportunities for foreign direct investment on either side.

Regions for Partnership

It is known that for majority of ethnic people, urban areas are the most populated due to the proximity to the coast and abundance of opportunity and employment. For Asian people, the most populated regions are New York City, Seattle, Los Angeles and San Francisco. For Thai people, California is the main state for population. Location is necessary when making investment opportunities, especially when it comes to food. Much of the consumption will be from these native people, although there will also be much interest from the American people. However, placement in these cities will likely bring the most success as it captures each section.

Conclusion: Distribution Channels

As noted, there are a variety of wonderful opportunities for foreign direct investment in the U.S. for Thailand. The variety of distribution channels have been narrowed down and recommended for the best choices. In regards to the priorities of involvement, the development should start big and tunnel down. Beginning with major companies (food service contractors, wholesalers, grocers, etc.) a larger profit and awareness will be made and the path will be more paved for the future.

Packaging

As important as the quality and taste of food is, the is packaging, especially when coming from abroad. There are a couple of issues to be addressed when it comes to packaging. First, the product must be delivered safely; there will be no consumption if the product is damaged. Second, the packaging must be cost effective for everyone's well being. The cheaper the good can be delivered, the lower the cost to both the consumer and the company. Third, there must be case-specific considerations. Each product needs to be handled differently depending on the temperature, perishable and other important characteristics. Finally, sustainability is now one of the most influential factors. Green packaging is now the most conscious part of packaging around and companies need to adhere to this trend and responsibility.

There is always need to minimize the amount of packaging. There is currently research that is being conducted in Thailand to do just this, however, it would be more beneficial to partner with companies performing this already in the U.S. to be able to use the inventions more immediately and at a lower cost. The focus still is reduce, reuse and recycle, being proved further by
attempting to improve packaging such as polyethylene terephthalate (PET) and high density polyethylene (HDP).

There are many types of packaging technologies that can be utilized to improve the Thai food shipment process. First, modified atmosphere packaging (MAP) is environmentally friendly, easy to open, used for ready to eat meals and retortable packaging. MAP also eliminates the vacuum step even for delicate products and has indicators for temperature and damage. Next, there is biotechnology, which is the application of molecular and cellular processes to solve problems. 14 percent is agriculturally related and 54 percent is in North America.¹ There is large global investor confidence and global R&D funding. This technology could work to extend shelf life, preserve foods, and help protect from stress and diseases. Nanotechnology is another method, which replaces the foil for the RTE meal, utilizing sustainable packaging and increasing quality. The final category of packaging technologies is intelligent packaging. This includes characteristic and quality indicators and RFID tags, which will ensure the food is the best it can be.

There is a variety of packaging specialty companies in the U.S. The companies most ideal for partnership would be those that have similar values and capabilities in the food industry and beyond in order to ensure the highest possible quality and access to R&D and new technologies. American Packaging Corporation is a prime example of this. It is an integrated flexible packaging converter that services food, beverage, medical, personal care, household and other specialty markets with high levels of quality, service and innovation. There are a variety of sustainable initiatives involved as well, which is something Thailand is looking to conquer more so next. Another company is CVPSystems, which is a leader in Modified Atmosphere Packaging. This company has developed technology that has improved the efficiency of the packaging process and has specialized in faster production with a smaller footprint on the environment. They already do this type of packaging on food and Thailand would benefit from investing here. Utilizing the above packaging information, Thailand will be able to improve its food business and productivity.

## ELECTRONICS

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Company</th>
<th>Location</th>
<th>Website</th>
<th>Description/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semiconductor and Circuit Board R&amp;D</td>
<td>Intel</td>
<td>Santa Clara, CA</td>
<td><a href="http://www.intel.com/">http://www.intel.com/</a></td>
<td>Largest Market share of the industry and great R&amp;D spending</td>
</tr>
<tr>
<td></td>
<td>Samsung</td>
<td>Headquarters d- Seoul, SK</td>
<td><a href="http://www.samsung.com/">http://www.samsung.com/</a></td>
<td>2nd largest market share, specialties in semiconductors and memory. A synergistic pair for advancement</td>
</tr>
<tr>
<td></td>
<td>Broadcom</td>
<td>Irvine, CA</td>
<td><a href="http://www.broadcom.com/">http://www.broadcom.com/</a></td>
<td>Semiconductor design firm, which is now one of the world's largest semiconductor producers</td>
</tr>
<tr>
<td></td>
<td>TI</td>
<td>Dallas, TX</td>
<td><a href="http://www.ti.com">www.ti.com</a></td>
<td>Designs/produces semiconductors and also a great presence in the microcontroller space which are used much more frequently than microprocessors</td>
</tr>
<tr>
<td></td>
<td>Qualcomm</td>
<td>San Diego, CA</td>
<td><a href="http://www.qualcomm.com">www.qualcomm.com</a></td>
<td>Designer of IC's</td>
</tr>
<tr>
<td>Heating and A/C manufacturing</td>
<td>United Technologies</td>
<td>Farmington, CT</td>
<td><a href="http://www.utc.com">www.utc.com</a></td>
<td>Largest Heating and A/C manufacturer and has been divesting non-core businesses since 2008. Thailand could possibly pick up attractively priced segments.</td>
</tr>
<tr>
<td></td>
<td>Ingersoll-Rand</td>
<td>Ireland-based, U.S. production</td>
<td><a href="http://www.ingersollrand.com">www.ingersollrand.com</a></td>
<td>Most of its climate solutions manufacturing takes place in the U.S. and could be a good base for smart appliance production</td>
</tr>
<tr>
<td></td>
<td>NTK Holdings</td>
<td>Locations-U.S., CA, EU</td>
<td><a href="http://www.nortek-inc.com">www.nortek-inc.com</a></td>
<td>Great Heating and A/C as well as Home Technologies segments for a play on the smart grid and rebound in U.S. housing</td>
</tr>
<tr>
<td>Heating, A/C, and Refrigerator wholesaling</td>
<td>United Technologies</td>
<td>Farmington, CT</td>
<td><a href="http://www.utc.com">www.utc.com</a></td>
<td>Largest foothold in the wholesaling industry under their brand name Carrier. Has a 14.3 percent market share</td>
</tr>
<tr>
<td></td>
<td>Watsco, Inc.</td>
<td>Coconut Grove, CA</td>
<td><a href="http://www.watsco.com">www.watsco.com</a></td>
<td>Second largest market share at 10.3 percent and sells their products mainly to the refrigerator market. Has a steady 12 percent growth rate. This is also the largest wholesaler of Heating, A/C, and Refrigeration that is not a manufacturer</td>
</tr>
<tr>
<td>Household Appliance manufacturing</td>
<td>Whirlpool Corp</td>
<td>Benton Charter Twp., MI</td>
<td><a href="http://www.whirlpool.com">www.whirlpool.com</a></td>
<td>Has a massive 42 percent market share of the U.S. home appliance industry and a 53 percent sales exposure to NA. Could be a great play for smart appliance technology in the U.S.</td>
</tr>
<tr>
<td></td>
<td>GE</td>
<td>Milwaukee, WI</td>
<td><a href="http://www.ge.com">www.ge.com</a></td>
<td>Has a massive presence in both the electronic infrastructure market and home appliance market, making it a great smart grid play</td>
</tr>
</tbody>
</table>

### Thailand – Electronics and Electronic Appliances Industry

Electronics and Electronic Appliances (E&E) is the largest Thai industry, as measured by both export value and manufacturing base, and consumes 30 percent of GDP. The largest electronic exports are hard drives (HDD, 40 percent of exports) and integrated circuits (IC, 30 percent of exports). In the appliance industry, Thailand is the 2nd largest production of air conditioners and 4th largest producer or refrigerators. The setup of the E&E industry is far different from that of

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2 Ibid.
other Thai industries, like autos for example. Whereas the auto industry is by far set up like an industrial cluster, with nearly 100 percent of component parts sourced locally, the E&E industry is set up much like an industrial production network (IPN) comprised of smaller industrial clusters. In contrast with the auto industry, the E&E industry has become increasingly more international than domestically based. Imports for components parts in HDD production have gone up from 10 percent to over 50 percent in the past ten years\(^1\) and ICs import volume is 1.5 times the export volume\(^2\). This is due to Thailand’s trade policy where industrial clusters are protected through conservative protectionist policies and IPNs are encouraged through liberal policies. While the auto industry remained protected, the electronics industry was encouraged to globalize through a series of tariff exemptions and tax holidays to foreign corporations. Tier-1 supplies of the E&E industry are part of the industrial cluster, tend to be domestic, and specialize in production. Tier-2 suppliers in the E&E industry are part of the IPN, are foreign, and have economies of scale enabling their competitive advantage in production of smaller component parts (semiconductors and circuit boards mainly). Although Thailand has cheap labor, which would usually encourage offshoring to Thailand, Tier-2 suppliers in the U.S. generally have very automated processes from that enable them to produce at lower costs. See Exhibit 1 for an overview of Tier 1 and 2 suppliers. While the HDD production growth has slowed to 9 percent annually over the years, the appliance industry is growing at more than double that pace\(^3\). Unfortunately, many of the areas for high growth are component intensive (semiconductors, ICs, printed circuit boards [PCBs], etc.), which are produced in the U.S. and will lead to higher future imports of these parts. Going forward, in order to reduce costs and stimulate economic activity Thailand should increase FDI in the U.S. through many of these component manufacturers.

While Thailand may have the final production advantage, the U.S. is the clear winner in the manufacturing of component parts and subcomponents. Computer Peripherals, like HDD producers, spend an average of 69.4 percent of revenues on production inputs—the majority of which are semiconductors and circuit boards\(^4\). The use of automation in the U.S. production process has dampened the attractiveness of low-cost foreign labor and has helped keep the production of semiconductors and subcomponents in the U.S. Large-scale integrated automated material handling systems create synergy with material handling automation by proving speedy and robust infrastructures for production\(^5\). These systems are in use by U.S. semiconductor and circuit board giants like Intel, Samsung, Broadcom, TI, and AMD, which has vastly weakened foreign competition. Exports comprise 72 percent of revenues in this industry, showing that most of the production is to satisfy foreign demand\(^6\). Semiconductors are the brains of electronics and are increasingly important to an ever-growing range of electronic devices. The main inputs for semiconductors and ICs are chemical products (silicon), aluminum (metal for semiconductors),

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\(^3\) Ibid.


\(^6\) Krabeepetcharat 5.
and copper (used in the transistors)—all of which are industries where the U.S. has a large presence. Further, this is a very competitive field—where knowledge is power—as proven with the highest R&D expense (20 percent of revenues) of any industry group. The top buyers of these products are electrical equipment manufacturers, appliance manufacturers, and component manufacturers—all industries that are part of the Thai E&E sector. Further, U.S. companies have placed strategic importance upon the production of NAND and SSD flash-based memory devices, which are to replace traditional HDD devices in the future. In order for the Thai economy to remain competitive, it may be in the Thai best interest to invest heavily in the U.S. semiconductor and IC industries.

Thailand has squared away 50 percent of world HDD production, overtaking Singapore as the world’s largest HDD producer, with four of the five largest HDD manufacturers locating production in the country. Unit sales have plateaued at a 9 percent annual growth rate as of late and the industry is now mature. The SSD market will overtake the HDD market going forward as the SSD offers superior performance, durability, and energy savings over the traditional HDD. While the HDD still offer the lowest cost option for high-capacity memory, demand from smart phones and tables will push advances forward until the SSD displaces the HDD. The U.S. computer peripheral industry has been putting a strategic focus on developing flash and solid-state memory for years, lead by the highest R&D spending of any industry group. In order to preserve the strategic importance of the Thai memory industry, Thailand will need to find ways to partner with U.S. industries. Thai companies need to play catch up in the solid state/flash memory space and the best way of doing this is through acquiring and partnering with U.S. companies. To be specific Thais need to catch up especially in the R&D space. The market share concentration of the semiconductor and circuit manufacturing space in the U.S. is low, with the top four firms comprising only 28.4 percent of industry revenues. There industry is comprised mostly of small firms, with 57.4 percent of firms having fewer than 20 employees. The best way for Thailand to make strategic partnerships in this space would be by acquiring medium-sized firms (firms with more than employees [of which there are 103] but smaller than the industries’ blue-chips) with strategic research focuses in the SSD and flash memory space, as many of their larger U.S. counterparts are doing. Competition is becoming increasingly fierce as large data storage companies like EMC, Seagate, WD and divisions of Hewlett-Packard and IBM are snatching up smaller companies. This type of play will help bring R&D capabilities to Thailand in order to reign in new technologies. Once this is done it may be possible to create a culture of design and innovation much like Thailand did with Seagate that helped it to secure the traditional HDD industry. It will be harder to bring production to Thailand because of the proximity and advantage the U.S. has in obtaining many of the natural resources used in SSD production, but that does not rule it out as a location for final production—much like what has happened with the IC industry, where parts are imported to Thailand for final assembly. However, first and foremost Thais must find a way to partner to build their strategic focus towards R&D. For a list of companies to model partnerships after please see the electronics industry matrix attachment.

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3 Krabeepechcharat 24.
4 Ibid.
5 Ibid.
6 “Data Storage Systems Manufacturing.”
In the electronics appliances space there is much room for advancement. As mentioned previously, Thailand is the 2nd largest producer of air conditioners and 4th largest producer of refrigerators because of its advantage in producing many of the electronic component parts used in production; especially important to newer technologically advanced appliance products. As such, Thailand already has an advantage in the R&D space relating to this industry. Now, the best way to bring new technology is through attracting other areas of the appliance space. These products include water heaters, household laundry equipment, and cooking appliances, which make up 58 percent of the household appliance market (Exhibit 2). General household appliance manufacturing companies are listed in the electronics industry matrix. As the housing market recovers in the U.S., sales of these appliances will come off of their 5-year depressed levels and investing now will put Thailand in a great competitive position going forward. New positive data in housing starts and home prices are leading indicators of changing winds in the housing environment. A similar dynamic will apply to the air conditioning arena where depressed housing construction has hurt air conditioner sales in the past. Through the American Reinvestment and Recovery Act, a $111bn stimulus for infrastructure will drive demand in these pushed by energy conservation and technological advances. In fact, there are many opportunities for Thai companies in the U.S. infrastructure sectors such as electrical power, telecomm, and renewable energy as the U.S. updates its antiquated infrastructure system to the smart grid. The smart grid will link suppliers (power companies) and users (end devices) in order to gather and act upon information, improving efficiency and distribution of power. There is tremendous opportunity in creating what are referred to as “smart appliances”—new appliances have capabilities to interact with the smart grid and operate only when electricity is the cheapest, thus reducing consumers’ energy bills. These products have not been rolled out yet, but will debut in the next 5 years, thus providing rich investment opportunities for forward-thinking Thai production companies. The U.S. will have some of the cheapest power going forward because of its expansive shale gas reserves, which are already being exploited. This means that there is a good opportunity for Thai companies looking to relocate production and distribution facilities in the U.S. to bring their advantage in components and smart appliances closer to the end U.S. market. The U.S. already has a competitive advantage in the production of IC components so moving production closer to the supply chain would lower the costs of final assembly. This could be done through direct investment of Thai companies who open up new U.S. production facilities. Ideas for investment in the heating and air conditioning sector are listed in the industry matrix attachment. Another advantage would be to form a partnership with U.S. distributors to bring Thai devices to the U.S. Wholesaling companies for heating, air conditioning, and refrigeration are also listed in the matrix. With cheap commercial real estate in the U.S., now is a great time to invest. Because Thailand already has a competitive advantage in the R&D of these devices it is more important to move the production and distribution abroad than to invest in U.S. companies for intellectual property.

Overall, the Thai economy has been a major attraction of FDI for its high-tech E&E market. As the memory industry changes, Thailand should take advantage of the U.S. knowledge base and production of tomorrow’s solid state and flash memory by buying up U.S. firms with specific

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R&D focuses in the area. The goal is to bring this R&D to Thailand in order to bring new technology and eventually production to Thailand. For appliances, the opposite approach is needed. Thailand already has a strategic advantage in the R&D and production of the components and devices. This side of the industry needs better production and distribution channels in the U.S., which it must develop more from the ground up. The Thai E&E industry has made a global presence, but the face of the industry is changing fast and Thailand’s economy must change along with it.

Exhibit 1

![Thailand’s Hard Disk Drive Cluster](image)

Exhibit 2

![Products and services segmentation (2012)](image)
### AUTO

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Company</th>
<th>Location</th>
<th>Website</th>
<th>Description/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relocation of U.S. Suppliers</td>
<td>Johnson Controls Inc.</td>
<td>Milwaukee, WI</td>
<td><a href="http://www.johnsoncontrols.com">http://www.johnsoncontrols.com</a></td>
<td>Top auto parts manufacturer in the U.S. with $42.6 billion revenue</td>
</tr>
<tr>
<td></td>
<td>Goodyear Tire &amp; Rubber Co.</td>
<td>Akron, OH</td>
<td><a href="http://www.goodyear.com/">http://www.goodyear.com/</a></td>
<td>Second largest parts manufacturers in the U.S. with $22.4 billion revenue</td>
</tr>
<tr>
<td></td>
<td>TRW Automotive Holdings Corp.</td>
<td>Livonia, MI</td>
<td><a href="http://www.trwauto.com/">http://www.trwauto.com/</a></td>
<td>One of the largest parts manufacturers in the U.S.; Existing relationship with Thai supplier - AAPICO Forging Public Company Limited</td>
</tr>
<tr>
<td></td>
<td>Dana Holding Corporation</td>
<td>Maumee, OH</td>
<td><a href="http://www.dana.com/">http://www.dana.com/</a></td>
<td>Large parts manufacturer ($7.8 billion revenue), existing relationship with Thai supplier - AAPICO Forging Public Company Limited</td>
</tr>
<tr>
<td>Production Technology</td>
<td>Tesla Motors, Inc.</td>
<td>Palo Alto, CA</td>
<td><a href="http://www.teslamotors.com/">http://www.teslamotors.com/</a></td>
<td>High-precision robot technology</td>
</tr>
<tr>
<td></td>
<td>Industrial Perception, Inc.</td>
<td>Palo Alto, CA</td>
<td><a href="http://www.industrial-perception.com">http://www.industrial-perception.com</a></td>
<td>Advanced robotics research start-up</td>
</tr>
<tr>
<td></td>
<td>Ford Motor Company</td>
<td>Dearborn, MI</td>
<td><a href="http://www.ford.com/">http://www.ford.com/</a></td>
<td>Potential strategic partnership on new virtual factory simulation technology</td>
</tr>
<tr>
<td>Green Technology: Electric Cars</td>
<td>Tesla Motors, Inc.</td>
<td>Palo Alto, CA</td>
<td><a href="http://www.teslamotors.com/">http://www.teslamotors.com/</a></td>
<td>High-end electric car manufacturer</td>
</tr>
<tr>
<td></td>
<td>Fisker Automotive, Inc.</td>
<td>Irvine, CA</td>
<td><a href="http://www.fiskerautomotive.com/">http://www.fiskerautomotive.com/</a></td>
<td>Electric luxury sports car manufacturer</td>
</tr>
</tbody>
</table>

### Overview of Thai Automobile Industry

Thailand is the 12th largest automotive manufacturing country in the world. Within Thailand, the automobile industry is the third largest and accounts for 12 percent of GDP with a total of 400,000 employees. Vehicle production has increased with 22.6 percent CAGR from 1998 to 2010. There was a decline in production in 2009 due to the global financial crisis and also in 2011 due to flood damage. Specifically, vehicle production reached 1,645,304 units in 2010 and decreased to 1,358,369 units in 2011 due to the aforementioned flood damage.

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Thailand’s automotive industry is highly export-oriented which exports to countries in the Pacific, Asia, and Middle East\(^1\). North America is the only continent that Thailand does not export to. In 2010 it exported 55 percent of its manufactured vehicles (CBUs), which accounted for 66 percent of total vehicles and parts export value. The next largest exports were Original Equipment Manufacturer (OEM) parts, which include body parts (6.3 percent) and component parts (19.1 percent). From 1997 to 2011 there has been an increase in OEM parts’ share in vehicle and parts export from 9.1 percent to 25.4 percent while CBU’s shares have gradually decreased from 83.5 percent in 1999 to 66.0 percent in 2011. Overall, total vehicle and parts export has increased with a 38.2 percent CAGR.

Trucks and passenger cars are the two main categories of produced vehicles. Trucks account for the majority of production at 62.9 percent and passenger cars accounted for 37.1 percent. As an agricultural country, Thailand is one of the largest markets for pickup trucks and thus many original equipment manufacturers (OEMs) and automotive suppliers for pickup trucks have relocated here. Van and micro bus, and bus had shares of less than 1 percent, clearly showing little opportunity in these sub-markets. In terms of growth, the shares of passenger cars increased from 13.3 percent in 1998 to 37.1 percent in 2011, reaching its pre-crisis level.

Starting in 2007, Thailand began to expand its vehicle production beyond trucks and to encourage the production of green cars through its Eco-Car program, which includes Honda, Suzuki, Nissan, Toyota, and Mitsubishi. The total "eco car" production capacity of these five companies is 585,000 vehicles per year, and the plans called for the export of more than 400,000 units in 2011. In the first five months of 2011, participating eco car companies in Thailand built 42,729 units. Nissan was the first to start production with the March and Honda began production in 2010 with the Brio. This year Suzuki and Mitsubishi will start their eco-car production and in either late 2012 or early 2013, Toyota will begin making its eco car here. The reality is that because these eco-cars have smaller profit margins, it makes Thailand an ideal place to produce them in with its lower-cost market. Current part suppliers for eco-cars in Thailand are foreign companies like American Axle and Manufacturing\(^2\).

**Overview of U.S. Automobile Industry**\(^3,4\)

The United States is the 2\(^{nd}\) largest automotive manufacturing country in the world. In 2011 the United States manufactured 8,653,560 units. The U.S. automobile industry took a big hit in 2008 due to the recession. U.S. vehicle sales fell to historic lows and industry revenue plummeted an alarming 36.5 percent. However, as the economy improved through 2010, and pent-up demand that was delayed during the recession was reflected in the 40.1 percent increase in revenue for 2010 and revenue is estimated to grow 4.8 percent in 2012.

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3 Ibid.

Automakers are now focusing production on smaller, lighter, and more fuel-efficient vehicles in the wake of quickly rising gas prices. The U.S. market for hybrid vehicles and clean-diesel engines is forecast to exceed 11.0 percent of the total vehicle market by 2013. Furthermore, the next generation of hybrid vehicles is already on its way. Known as plug-in hybrid electric vehicles (PHEV), they are expected to increase in popularity beyond 2017. Electric cars such as the Chevrolet Volt and Nissan Leaf entered the market in 2011. These electric vehicles (EVs) eliminate the need for a gasoline engine by running on an electric motor and a high-powered lithium-ion battery. Despite EV sales expanding dramatically in 2011, they are still miniscule compared with overall vehicle sales. However, more rapid EV growth could undermine demand for engine manufacturing in the next five years.

There is an extensive network of autoparts suppliers that serve the U.S. automobile industry. Suppliers produced $203 billion in industry shipments in 2010, accounting for approximately 4 percent of total U.S. manufacturing. According to the Center for Automotive Research, automotive suppliers accounted for 3.3 million jobs nationwide in 2008 — more jobs and economic wellbeing than any other manufacturing sector.

In 2010, the U.S. exported approximately 2.3 million vehicles to more than 200 countries around the world valued at $45.3 billion, with additional exports of automotive parts valued at approximately $58 billion. With an open investment policy, a large consumer market, a highly skilled workforce, available infrastructure and government incentives, the United States is the premiere place for the future of the auto industry.

Relocation of U.S. Suppliers

The Thai automotive cluster has the opportunity to leverage the relocation of some U.S.-based suppliers into its cluster. The current cluster includes a wide breadth of foreign and domestic assemblers, part producers, and specialized suppliers. It is significant in the Thai economy, but could continue to improve its world market position. Its strengths are in its strong presence of locally-based auto part suppliers, the strong physical infrastructure, and the access to the skills of foreign assemblers. The problem is that some key areas of the cluster are still considered uncompetitive; mainly the 2nd and 3rd tier parts producers. Most of the more sophisticated parts like drive trains are either imported or produced by foreign firms. Local firms are mostly small and medium scale enterprises serving as 2nd tier part producers, supplying the raw materials and basic components to the 1st tier suppliers. A study by the Thai Auto-Parts Manufacturers Association found that the scarcity of skilled workers, and low management abilities in the area of quality control among these 2nd tier local firms are the main reasons why they sometimes fail to develop parts that meet up to international standards. According to the Japan Automobile Manufacturer’s Association, although local part manufacturers supply the majority of parts for the assembly of motorcycles and pickup trucks, they only supply 30-70 percent of the parts for the assembly of passenger cars. By investing in top U.S. part manufacturing companies that also specialize in the 2nd tier parts, Thailand can invest and create a partnership that can relocate the U.S. part suppliers into their cluster and in turn supply more parts to its 1st tier


suppliers for the assembly of passenger cars and improve the quality and quantity of its auto part exports.

We researched a database of all U.S. automotive parts manufacturers and first narrowed the companies down to those that specialized in 2nd tier parts manufacturing which include Plastics, Rubber for Tires, Machining, Casting, Forging, Function, Electrical, and Trimming manufacturing. We then chose the top companies based on their international revenue and profitability.

For the U.S. companies that manufacture rubber for tires we recommend the following companies: Good Year Tire and Rubber Co., Cooper Tire and Rubber Co., Bestop Incorporated, TJT Inc., and Amerityre Corporation. For all other parts manufacturing we recommend the following 10 companies: Johnson Controls Inc., TRW Automotive Holdings Corp., Lear Corp., Icahn Enterprises, TRW Automotiv Inc., Dana Holding Corporation, Visteon Corp., Tennecoo Inc., BorgWarner, Inc., and Federal Mogul Corporation.

Thailand is not limited to simply taking a relocation approach to these U.S. suppliers. Thailand could also use their investment in these U.S. part suppliers to distribute its own automotive parts throughout the country using these supplier’s distribution networks. Because Thailand has strong exports in component parts, they could focus on those U.S. part supplier companies that also supply component parts to U.S. manufacturers. Thailand already knows how the business works and therefore would be able to work with the U.S. part supplier and use the distribution network to make greater profits.

Production Technology

There are many innovations taking place in the U.S. automobile production industry that Thailand can invest in and use back in its automotive clusters to improve production.

One of the most powerful innovations currently occurring is the wave of robot technology used in manufacturing factories. These robots can perform difficult tasks that require high precision, at much faster speeds than humans. A perfect example of this is in an American company known as Tesla Motors, which produces electric cars. It uses fast-moving robots that perform tasks such as welding, riveting, bonding, and installing components. Although, Thailand already has some robot technology in place at many of its automobile plants, it is relatively undeveloped for its Eco-car production, which only began a few years ago. By investing in a company like Tesla Motors that focuses on using robot technology to produce green eco-friendly cars, Thailand can improve its production of its own eco-cars and increase the production of these green cars.

Furthermore, Thailand can invest in U.S. robot technology to improve its distribution. An upcoming technology, that has a robot picking up objects and placing them in the correct locations, is being pioneered by a U.S. company known as Industrial Perception. Older robots are unable to do such work because computer vision systems were costly and limited to certain
environments. This new technology uses an inexpensive stereo camera and software that allows the robot to discern irregular dimensions of objects. Another innovative technology that Thailand could invest in is a virtual factory, which is being developed by Ford. By creating a virtual factory, a company can simulate production processes without actually having to conduct real tests in actual factories. One can preview and optimize the assembly of future models at any plant, which includes the actions of workers.

**Green Technology: Electric Cars**

Thailand is on the right track with its Eco-car program following the worldwide trend to more fuel efficient and environmentally friendly cars in face of rising oil prices. Furthermore, the growth of eco-car production in Thailand is a strong starting point for future growth in the parts segment, which currently caters to pickup trucks and motorcycles. Thailand has done a good job in breaking into the eco-car market, but it has not made much progress in the electric car industry which in the long-term could ultimately transform the automobile industry. The U.S. has already made many strides in terms of research and production of electric cars and thus Thailand could greatly benefit by investing in U.S. electric car companies in order to begin planning production of electric cars in its country in the future.

A key component to electric cars is the battery and Thailand’s automobile production currently doesn’t specialize in producing electric car batteries. By investing in U.S. companies such as Tesla Motors or Fisker that produce electric car batteries, they can set up this production in the cluster or have it imported. Furthermore, the infrastructure for charging in Thailand could be easily created because most buildings use 3-phase electricity which is conducive to electric cars.

Thailand already on its way to becoming an eco-car production base can also become an electric vehicle production base if the proper investments are made.

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## LOGISTICS

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Recommendations</th>
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| **Automotive** | Highly complex industry supply chain  
A 3PL would manage the process and allow for access to new suppliers or customers |
| **Food** | Products are sensitive to conditions (i.e. temperature) so require specialized supply chain  
An investment in a 3PL would allow access to a temperature controlled supply chain on an international scale |
| **Electronics** | Hi-tech companies require a fast, yet accurate international supply chain  
A 3PL could offer the supply chain necessary to compete in the hi-tech industry  
3PL’s could also offer risk management services for a company’s supply chain; this is important due to the history of flooding in Thailand |

<table>
<thead>
<tr>
<th>2nd Tier 3PL's</th>
<th></th>
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</table>
| Ryder System, Inc.  
Miami, FL  
http://www.ryder.com/ | - Focus on Automotive, Food, and Hi-Tech industries  
- Global presence (room for expansion in Asia)  
- EV/EBITDA of 4.36; Stable operating cash flows |
| Hub Group, Inc.  
Downtown Grove, IL  
http://www.hubgroup.com | - Highly successful North American system; Could transfer their success to Asia  
- Has drayage and global intermodal subsidiaries  
- Low debt and improving cash flows |
| Radiant Logistics, Inc.  
Bellevue, WA  
http://radiantdelivers.com | - Focus on Automotive, Food, and Hi-Tech industries  
- Stable operating cash flow  
- Company embraces growth by acquisition |

Thailand has positioned itself as a highly attractive location for an international shipping hub; however there is still much potential to be realized. This situation presents an opportunity for Thai investors who may be interested in the logistics industry. If Thailand becomes the home of such a shipping hub, there would be countless benefits to the Thai economy. One example of these benefits is visible with a comparison of Thailand and Singapore. In 2011, logistics costs accounted for 16 percent of Thailand’s GDP, which is significantly greater than the 10 percent figure for Singapore¹. The reason Singapore has such low costs is because it has attracted major logistics firms to open headquarters within their country. This has made Singapore a key logistics hub for Asia and has resulted in lower supply chain costs for Singaporean companies. Thailand has the potential to position itself as a key logistics hub and to realize the same benefits that Singapore has.

All of the key factors for a shipping hub are already present in Thailand: extensive infrastructure, close proximity to large markets, a booming economy, and a business-friendly government. The Thai Government has invested a considerable amount of resources into the development of its infrastructure. Even after considering Thailand’s high growth rates, Thai infrastructure spending as a percentage of GDP has remained higher than many of its neighbors². The result of all this spending has greatly improved the efficiency of supply chains within Thailand. Thailand has also focused on facilitating exports and imports by developing Suvarnabhumi Airport. This airport will facilitate air freight in Thailand and is capable of processing about 3 to 6.3 million tons of cargo per year³. One factor that determines a successful shipping hub, and arguably the most important, is the location of the country. Thailand is right in the middle of South East Asia, which

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is one of the fastest growing markets in the world. In addition to this, Thailand is in close reach of China (specifically Hong Kong), Singapore, Malaysia, and India. This opens the door to billions of consumers and economies which have been quickly expanding despite the global slowdown in recent years\(^1\). Thailand itself is home to a booming economy and a consumer market that is rapidly expanding. From 2000 to 2008, Thailand achieved about 5 in annualized GDP growth and although there has been a recent slowdown due to the floods, Thailand’s economy has bounced back\(^2\). This trend is partially thanks to a government which knows how to promote business. Currently, Thailand ranks seventeenth on the 2012 ease of doing business study. One notable factor in this an improvement from nineteenth to seventeenth in terms of trading across borders; this is a testament to the efficiency of Thai infrastructure and networks\(^3\). All of these factors make Thailand a great place to base a logistics hub and may be particularly interesting for U.S. logistics companies.

The United States’ logistics industry is comprised of a few large players and a lot more smaller companies. The third party logistics industry is outperforming the overall economy; these firms posted a 7.4 percent growth in shipments and a 17.1 percent growth in revenue over 2010\(^4\). The major players in the U.S. are UPS, FedEx, DHL; however there are many other smaller firms which are more specialized. The industry can be broken down into asset-light and asset-heavy firms. Asset-light simply means that the firm does not own the equipment used in the transportation of goods (i.e. trucks, airplanes, warehouses) and asset-heavy is just the opposite. The larger firms in the industry, such as UPS, tend to be asset-heavy as they have the resources to purchase the expensive equipment; however asset-light firms are performing just as well and have been a key target for many investors\(^5\). Typically third party logistics firms divide their operations based on the industry they are servicing. Firms that focus on large Thai industries (i.e. automotive, electronics, food) could generate synergies for a number of Thai investors and would benefit the overall economy.

Automotive companies, such as Ford, may rely on over a hundred suppliers of parts and each of those suppliers most likely relies on other companies to provide the raw materials for those parts. This makes for a highly complex supply chain. Fortunately, third party logistics companies have been able to greatly reduce supply chain costs for many automotive companies. Services offered by these firms include inbound material flow management, inventory control, just-in-time delivery, warehousing, and transportation of goods\(^6\). A Thai investor, in this case an automotive company, could easily improve the efficiency of their operations by investing in a third party logistics firm. This would greatly reduce supply chain costs, making the company more competitive. Additionally, the investor would also gain access to the networks that this U.S.

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based firm already possesses which would facilitate expansion to foreign markets. Thus the investor will receive synergies on both the revenue and expense side of their operations.

The Thai food industry is a critical segment of the overall economy and will likely continue its growth for years to come. Currently, Thai food exports to China are expanding at about 14.3 percent annually\(^1\); this is only one of the major markets Thai food companies are focused on. The supply chain of these companies is slightly more complicated relative to other industries. Many of the foods require temperature controlled facilities to avoid spoiling and food companies often must make many small shipments, which is can be very costly. Food companies have been soliciting services from third party logistics companies to fight these issues to increase profitability. Many third party logistics firms offer temperature controlled technology in each mode of transportation which allows companies to ship their products to foreign markets. These firms also have developed mixing and consolidation centers (MACC) which places products from multiple companies on the same truckload rather than each company sending their own less-than-truckload shipment\(^2\). This has significantly reduced costs for food companies and poses a strong opportunity for the Thai food industry. A Thai investor which invests in a third party logistics company that services the food industry would gain access to both its temperature controlled technology and MACC’s across the globe. This would create a significant advantage when expanding overseas to new markets.

Thailand is one of the top exporters of hard drives in the world and as a result, the entire industry is reliant on their supply chain. Recent floods have greatly influenced the hard drive market because Thailand was not able to ship out as many products. As a result of the floods in Thailand and Japan, many firms have increased their focus on risk management within their supply chain\(^3\). Typically, hi-tech electronics such as the hard drives produced in Thailand will be shipped via air freight to their destinations across the world. Along with air freight services, third party logistics firms may offer value-added services to their clients including product customization/testing, bundling, packaging, inventory management, and returns management\(^4\). These services help streamline and simplify the supply chain for electronic companies, while also reducing their costs.

It is imperative that Thai investors consider the industry specialization of each third party logistics firm to understand the potential for synergy. If an investor is not interested in acquiring the entire firm, he/she may want to consider acquiring solely the industry operations which offers the most synergy. For example, a Thai food company may only wish to acquire the food logistics operations of a firm rather than including the firm’s automotive logistics operations. With that said, investors should also consider key industry trends when searching for their investment target.

Recent trends have driven made second tier logistics firms more relevant in the supply chain of many companies. The main reason behind this is an increasing presence of logistics firms which specialize in regions of the world (i.e. North America) rather than purely international. Many companies have found that international supply chains are very complex and not reliable, so they have switched their focus to regional supply chains. As a result, many companies have moved their operations, such as manufacturing, back to their home countries. This has improved efficiency and also has fragmented the industry which may create attractive investment opportunities. One potential situation could be an acquisition of a second tier logistics company which is attempting to expand to Southeast Asia. Many of these firms are seeking expansion and don’t always have the support necessary to accomplish this growth. With the recent credit crunch and a lack of venture capital funding for these firms, they are far more likely to be open to investment or acquisition opportunities. These firms typically are in the range of $300mm - $2b of annual revenue. Once acquired this logistics company could focus on developing an efficient supply chain throughout Southeast Asia, which would greatly reduce shipping costs for the buying company. Additionally, this would slightly reduce the shipping costs for most other Thai industries. The overall effect of such a transaction would be positive for both the buyer and the economy of Thailand.

After taking all of these factors into consideration there are a few logistics companies which stand out as potential targets for Thai investors. The first of these companies is Hub Group, which is one of North America’s leading asset-light freight transportation management companies. Hub Group’s operations are separated into three subsections: intermodal, truck brokerage, and logistics services. The company’s operations are almost completely focused on North America, which falls in line with the trend toward regional logistics companies. Another company which may be interesting to Thai investors is Radiant Logistics. This is a smaller firm; however Radiant has one of the most aggressive growth policies and it shows on the firm’s financial statements. Radiant has doubled their revenue and assets in the past few years due to multiple acquisitions. The fact that Radiant can see the benefits of consolidating two companies shows that they may be open to investment from a larger firm to continue their growth. Radiant also has minimal operations in Asia, so a Thai investor could essentially provide the firm with an entirely new market. Finally there is Ryder System, Inc. which is another second tier firm which primarily operates in North America, with limited operations in Asia and Europe. This leaves room for expansion should Ryder apply its experience in North America when focusing on its Asian operations. Ryder could offer synergies to multiple Thai industries as it focuses on automotive, food, and hi-tech electronics. Relative to its peers, Ryder’s valuation is a bargain with an enterprise value to EBITDA of about 4.3 compared to over 9 for UPS.

These three firms all provide a unique opportunity for Thai investors to capitalize on recent trends in the logistics industry. An investment in any of these firms has a strong potential to generate synergies for both the investor and the general economy of Thailand.

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Figure 2: Flow of benefits derived from Logistics cooperation
## Cloud Computing and E-commerce

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Company</th>
<th>Location</th>
<th>Website</th>
<th>Description/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Hosting</td>
<td>Amazon Web Services</td>
<td>Herndon, VA</td>
<td>aws.amazon.com</td>
<td>Controls nearly 80 percent of the market, set to exceed $2 billion in near future</td>
</tr>
<tr>
<td></td>
<td>Rackspace</td>
<td>San Antonio, TX</td>
<td><a href="http://www.rackspace.com">www.rackspace.com</a></td>
<td>Offers services to over 40 percent of the Fortune 500 companies</td>
</tr>
<tr>
<td></td>
<td>Salesforce.com</td>
<td>San Francisco, CA</td>
<td><a href="http://www.salesforce.com">www.salesforce.com</a></td>
<td>Specializes in business processes SaaS</td>
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<td></td>
<td>Joyent</td>
<td>San Francisco, CA</td>
<td><a href="http://www.joyent.com">www.joyent.com</a></td>
<td>Provides cloud services to Dell and LinkedIn</td>
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<tr>
<td></td>
<td>Citrix Systems</td>
<td>Fort Lauderdale, FL</td>
<td><a href="http://www.citrix.com">www.citrix.com</a></td>
<td>Provides collaboration and virtualization services such as GoToMeeting</td>
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<tr>
<td></td>
<td>VMWare</td>
<td>Palo Alto, CA</td>
<td><a href="http://www.VMWare.com">www.VMWare.com</a></td>
<td>Uses a channel approach to help companies find and build customized cloud networks</td>
</tr>
<tr>
<td></td>
<td>Bluelock</td>
<td>Indianapolis, IN</td>
<td><a href="http://www.bluelock.com">www.bluelock.com</a></td>
<td>Focuses on providing SME’s with cloud networks at affordable costs</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>CenturyLink/ Savvis</td>
<td>Monroe, LA</td>
<td><a href="http://www.savvis.com">www.savvis.com</a></td>
<td>Savvis, a cloud provider, was acquired by telco CenturyLink for $2.5 million</td>
</tr>
<tr>
<td></td>
<td>Verizon/ Terremark</td>
<td>Miami, FL</td>
<td><a href="http://www.terremark.com">www.terremark.com</a></td>
<td>Terremark, a cloud and IT services provider, was acquired by Verizon for $1.4 million</td>
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<tr>
<td>Startups</td>
<td>Cloudability</td>
<td>Portland, OR</td>
<td><a href="http://www.cloudability.com">www.cloudability.com</a></td>
<td>Helps companies manage their cloud computing costs</td>
</tr>
<tr>
<td></td>
<td>Bromium</td>
<td>Cupertino, CA</td>
<td><a href="http://www.bromium.com">www.bromium.com</a></td>
<td>Uses a cloud network to protect clients from security vulnerabilities and malicious attacks</td>
</tr>
<tr>
<td></td>
<td>ComputeNext</td>
<td>Bellevue, WA</td>
<td><a href="http://www.hpcloud.com/partner/computenext">www.hpcloud.com/partner/computenext</a></td>
<td>Online market where firms can brokerage cloud services</td>
</tr>
<tr>
<td>Venture Capital Firms for Startups</td>
<td>NEA</td>
<td>Menlo Park, CA</td>
<td><a href="http://www.nea.com">www.nea.com</a></td>
<td></td>
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<tr>
<td></td>
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<td>San Francisco, CA</td>
<td><a href="http://www.missionventures.com">www.missionventures.com</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dag Ventures</td>
<td>Palo Alto, CA</td>
<td><a href="http://www.dagventures.com">www.dagventures.com</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hummer Windblad</td>
<td>San Francisco, CA</td>
<td><a href="http://www.humwin.com">www.humwin.com</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shasta Ventures</td>
<td>Menlo Park, CA</td>
<td><a href="http://www.shastaventures.com">www.shastaventures.com</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Venture Catalyst Group</td>
<td>Bangkok, Thailand</td>
<td><a href="http://www.thevcgroup.com">www.thevcgroup.com</a></td>
<td>Power All Venture (partnership with Foxconn)</td>
</tr>
</tbody>
</table>

**Introduction**

Thailand is a rapidly developing country that offers intriguing opportunities in the fields of cloud computing and e-commerce. However, the technology industry has not yet caught up with the growth of the manufacturing and export industries. This fact was particularly relevant during the Thailand Flood Crises of 2011 and 2012. During this time, a World Bank estimate places the economic impact at $45 billion and the government was forced to cut its GDP growth forecast almost in half. With a properly implemented series of cloud networks, Thailand could have recovered much more quickly from these disasters. Given the prevalence of natural disasters in
Thailand due to its geographic location, it becomes necessary for the economy to recover as quickly as possible. A major use of cloud computing in Thailand would be business process continuity to respond to and mitigate the financial impacts of certain events.

In a different aspect, Thailand has the most internet users of any country in Southeast Asia. With an increasing number of online consumers, cloud computing can enable companies to offer their products and services to consumers over the internet. Consumers are demanding faster internet connections, and the penetration percentage of 27.4 percent is set to increase in the future. The people of Thailand are a vast consumer base that lies untapped due to minimal e-commerce offerings.

Cloud Hosting Services

Cloud computing is any form of computing where services are delivered over a network. The most common types of cloud computing services are Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). The most basic form of cloud computing is IaaS, where the cloud provider offers physical or virtual machines that the client uses. One step up from IaaS is PaaS, where the cloud provider allocates the machines, but also programs the machines with a specific operating system and programming languages. The benefits of purchasing IaaS or PaaS cloud services is that clients can setup the cloud network with their own specifications, and for their own uses. For example, a company like GE has many different sectors, including energy, technology infrastructure, capital finance, and consumer and industrial. Each sector has different needs in their network, thus purchasing IaaS or PaaS cloud services will allow each sector to customize their cloud networks.

With Forrester Research forecasting that the global cloud market to reach $241 billion by 2020, there are plenty of investment opportunities. Currently, the cloud provider market is dominated by Amazon Web Services. Their cloud computing service started off as a method to generate revenue from otherwise unused Amazon.com server space. Since then, AWS has grown to become the biggest cloud provider in the global market. Although the exact numbers are not released by Amazon, even the most conservative estimates by industry analysts place AWS’s annual business to exceed $1 billion. With industry forecasts showing that AWS controls 80 percent of the market, growth is forecasted to be $2 billion in the near future. Adopting the same principle as their online retail segment, AWS is able to take low margins on these services, but generate large amounts of revenue from the immense number of clients they service. Similar to their retail locations, AWS has hosting locations in Japan and Singapore, but no operations in Thailand. In Asia Cloud Computing Association’s 2011 Cloud Readiness Index, Thailand is 10th in the Asia-Australia region in terms of cloud readiness. However, a closer look at the countries ahead of Thailand reveal that many of these cloud ready countries already have substantial cloud networks. These countries include Japan, Singapore, China, Malaysia, and India among others. Seeing as how Thailand has not experienced the development of the cloud industry like the other countries, it is a major opportunity for investors and cloud providers. Aside from AWS, another major cloud provider is Rackspace, which offers cloud services to over 40 percent of the Fortune 100 companies. Currently, they have operations in Hong Kong, but they have a strong desire to expand into the Asian Pacific region. Other potential attractive investments include Salesforce.com, which offer business processes SaaS; Joyent, which provides cloud services to Dell and LinkedIn; Citrix, which provides collaboration and virtualization services
such as GoToMeeting; and VMWare, which uses a channel approach in helping companies find and build the appropriate cloud networks. One company that may be of particular interest in Thai companies and investors is Bluelock. To differentiate itself from the large cloud providers, Bluelock is focused on providing cloud services to small and midsize enterprises (SME’s). SME’s do not have the resources and capability to implement a cloud network in the same manner as large companies, therefore, Bluelock helps them design and implement functional systems at an acceptable cost. While Bluelock is mostly a PaaS provider, it also provides its clients with a large amount of IT services that it delivers through the cloud network. Given the trend that more Thai companies are developing an internet presence, Bluelock can enable them to effectively tap into the cloud.

Bangkok is a key location where cloud hosting firms can establish a new datacenter. Bangkok is the economic center of Thailand, and houses the majority of Thailand’s service economy. Located on the Chao Phraya River, Bangkok boasts a heavily developed infrastructure and offers an abundance of resources. The river provides a steady source of water required to cool servers in data centers. Due to the development of the business and technology sectors in Bangkok, the infrastructure is able to support the demands of high electricity usage and high speed internet connections. In addition, Bangkok’s geographic location can be advantageous to cloud hosting companies desiring to expand into East and Southeast Asia.

Telecommunications and Cloud

Another group of cloud technologies that are potential opportunities for Thai investors is the telecom-cloud industry. Although cloud computing relies on the storage and use of information on an online network, the data still must travel through traditional telecom network routes. Recently, large telecom providers have picked up on this trend and have begun to consolidate telecom and cloud computing services. For example, last year in a $2.5 billion deal, CenturyLink, a telecommunications company, acquired Savvis, a managed hosting and colocation service provider. Likewise, for $1.4 billion, Verizon acquired Terremark, a cloud computing and IT services company. Others to follow in their footsteps include Level3 and Global Crossing, as well as Tata Communications. This remains a relatively lucrative market, especially since companies are demanding more infrastructure providers for company intranet purposes. This is directly applicable to Thailand, where cloud providers can seek to take advantage of a strong and growing telecom infrastructure. The telecom and internet market is controlled by many large companies, such as the Telephone Organization of Thailand, True Corp., CAT Telecom, and 3BB. Based on market capitalization, the biggest Thai telecommunications companies also include Advanced Info Service, Total Access Communications, Samart Telecommunications, Symphony Communications, Evolution Capital, and Buzz Technologies. With Thai companies gaining an increasing web presence and Thai consumers increasing their internet consumption, there is definitely an opportunity for growth for cloud computing in Thailand. As a result, Thai telecom companies should look into small and medium sized cloud providers that would interested in a partnership or joint venture relationship. With Thailand having the most internet users in all of Southeast Asia, Thai companies will be forced to use more cloud computing. This trend would have a beneficial effect on Thai telecom providers as well the cloud providers.
Startups and Other Investment Opportunities

While the cloud provider market is dominated by a few big companies that control immense resources and economies of scale, many smaller cloud providers and cloud-based startups exist. However, due to the fact that these companies cannot compete with the major players in terms of cost or dependability, they rely on differentiating themselves through increased IT service and niche product offerings. In fact, many of these startups are cloud-based, rather than cloud providers, and offer services through cloud computing. According to Forrester Research, the global cloud computing market is set to grow from $40.7 billion in 2011 to $241 billion in 2020. Needless to say, there is definitely room in the market for companies focused on providing extensive cloud-based services. There are numerous examples of startup companies that provide value through the cloud, and the most promising ideas are often targeted by venture capital firms. Recently, Cloudability raised $8.7 million in funding from the Foundry Group. Cloudability is a software service that helps companies and their managers see exactly how much their cloud computing costs are. With more and more companies maintaining multiple cloud networks, this tool allows them to operate their cloud networks efficiently and effectively.

In a completely different aspect, Bromium is another startup that adds value for its clients through the cloud. In today’s information technology rich environment, companies have become quite vulnerable to malicious attacks from viruses and spyware. In order to combat these attacks, Bromium creates small compartmentalized sections of its cloud network before any attachments or possibly malicious files are downloaded. If the program senses any misbehavior from the isolated cell, it would simply destroy the compartment before the virus is allowed to reach the rest of the system. The most surprising part about these startups is how tangible their products and services have become, despite the fact that the cloud is very much an intangible asset.

ComputeNext is a cloud marketplace where users can broker cloud resources as needed based on cost, functionality, and purpose. This is only a small sample of the many cloud startups that exist. Companies are discovering more and more ingenious ways to use the cloud for computer and business applications daily. From an investment standpoint, it may become unfeasible to individually track each interesting startup and determine the worthiness of investing in said company. Due to the fact that almost all startups take some sort of angel or venture capital funding, this is a great method to find and evaluate the investment opportunities for a wide variety of cloud startups. According to CloudTweaks, some of the best venture capital firms that fund cloud businesses include NEA, Norwest Venture Partners (NVP), U.S. Venture Partners, Ignition Partners, Sequoia, First Round Capital, Mission Ventures, DAG Ventures, Hummer Windblad Venture Partners, and Shasta Ventures. Many of these venture capitalist firms have experience in dealing with traditional information technologies, as well as cloud technologies.

The Thai startup market did not emerge quickly, but is building momentum and beginning to develop. Spearheading this tech startup movement is the Venture Catalyst Group, which has invested 30 to 40 million Baht into a group of Thai tech startup firms. Recently, the VC Group has partnered with Foxconn, the manufacturer of many Apple products, in a venture called the Power All Venture. The company is working on developing cloud computing and smart TV systems.
E-Commerce

E-commerce is a sector of the Thai economy that has large potential for growth and development. According to the National Statistical Office of Thailand, the Thai e-commerce industry was valued at $6.33 billion dollars. With the prevalence of technology and computers escalating in Thailand, that number is only set to grow in the near future. Jakkarin Permsin, the secretary general of the Thai E-Commerce Association, comments that with the growing number of internet users, the market value of the Thai e-commerce industry is expected to grow 30 percent from last year, compared to the average growth rate of 15-20 percent. According to NECTEC, the percentage of Thai users shopping online increased from 47.8 percent in 2009 to 57.2 percent in 2010. However, despite the positive growth, there is much room for improvement. According to the Bangkok Post, out of 2 million SME’s in Thailand, only an estimated 100,000 are doing any business online. While Thailand’s online presence of SME’s is only at 5 percent, neighboring Singapore is at 81 percent, citing the 2010 Singapore E-Commerce Survey. This is a major reason why major online marketplaces such as Amazon or eBay have not established global offices in Thailand. Amazon has offices in India and Singapore, while eBay has offices in Singapore and Malaysia. Amazon has yet to expand its services or marketplace into Thailand. Amazon does not offer any Thai version of its website, thus, Thai users must navigate the site in English, and pay exorbitant international shipping fees. On the other hand, eBay and its subsidiary PayPal do offer their services in Thailand. Both eBay and PayPal accept the Thai baht as a form of payment. However, the Thai version of eBay, also known as Sanook, does not offer the same e-commerce experience as the parent website. With Thai consumers purchasing a wide variety of items online, such as books, clothing, cosmetics, electronics, and toys, there is a high demand for online retail giants like Amazon and eBay. In addition to these two online retail giants, there are other opportunities for e-commerce investment. For companies with a primary industry classification of internet and catalog retail, key firms include CVS Pharmacy, Priceline.com, Expedia, Netflix, Groupon, and Overstock.com. In a 2010 survey of Thai internet users by NECTEC, the most popular online purchases are books at 34.7 percent of online consumers, service reservations at 31.3 percent of online consumers, and clothing at 26.7 percent of online consumers. With a travel service such as Priceline.com having such a large internet presence, it can be strategically viable to set up a location in Thailand; considering how Thailand is a very popular tourist destination. Another relatively unknown trend of e-commerce is social purchasing and group buying. With websites such as Groupon and LivingSocial reaching their peak of popularity in the U.S., an expansion into Thailand can help both the companies and the consumers.
<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Company</th>
<th>Location</th>
<th>Website</th>
<th>Description/rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>General marketing campaign</td>
<td>ISM Travel and Lifestyle</td>
<td>Massachusetts</td>
<td><a href="http://www.ismtravels.com/">http://www.ismtravels.com/</a></td>
<td>Large global presence, many well-known clients</td>
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<td></td>
<td>MMGY Global</td>
<td>New York</td>
<td><a href="http://www.mmgyglobal.com/">http://www.mmgyglobal.com/</a></td>
<td>One of the largest travel marketing firms, experience working with government tourism boards</td>
</tr>
<tr>
<td></td>
<td>DANA Communications</td>
<td>New York</td>
<td><a href="http://www.danacommunications.com/">http://www.danacommunications.com/</a></td>
<td>May well-known clients, affiliated with many tourism associations which give them access to a larger market</td>
</tr>
<tr>
<td>Create travel packages</td>
<td>Carlson Wagonlit Travel</td>
<td>Minnesota</td>
<td><a href="http://www.carlsonwagonlit.com/">www.carlsonwagonlit.com/</a></td>
<td>Revenue: $1815.4</td>
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<td>BCD Travel USA, LLC</td>
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<td>Ovation Travel Group</td>
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<td>Maupintor Holding, LLC</td>
<td>Nevada</td>
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<td>The Goodness Company</td>
<td>Wisconsin</td>
<td><a href="http://www.medicaltourismmarketing.com/index.html">http://www.medicaltourismmarketing.com/index.html</a></td>
<td>Lots of international experience, staff is well recognized as speakers and educators of medical tourism</td>
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<tr>
<td></td>
<td>Global Spa and Wellness Company</td>
<td></td>
<td><a href="http://www.globalspaandwellness.com/home">http://www.globalspaandwellness.com/home</a></td>
<td>Specialize in organizational and development of spas, lots of international experience</td>
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<td>Health and Fitness Dynamics Spa Inc.</td>
<td>Florida</td>
<td><a href="http://www.hfdspa.com/">http://www.hfdspa.com/</a></td>
<td>Connected to a network of professionals in the spa industry, international experience</td>
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<td>Hospitality development</td>
<td>HVS</td>
<td>New York</td>
<td><a href="http://www.hvs.com/">http://www.hvs.com/</a></td>
<td>Lots of international experience with offices already set up in Asia</td>
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<td>Warnick + Company</td>
<td>Illinois</td>
<td><a href="http://www.warnickco.com/">http://www.warnickco.com/</a></td>
<td>Lots of international experience, provide assistance with asset management in addition to hotel development</td>
</tr>
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<td></td>
<td>Prism Travel and Leisure Consulting</td>
<td>Massachusetts</td>
<td><a href="http://www.theprismpartnership.com/index.html">http://www.theprismpartnership.com/index.html</a></td>
<td>Experience working with travel associations, international experience</td>
</tr>
</tbody>
</table>

Tourism is defined broadly to include visitors whose primary travel purposes are business, conference travel, government business, leisure, and holiday. This industry is extremely sensitive to macroeconomic factors which affect consumer disposable income where tourism decreases are usually seen in conjunction with decreases in consumer disposable income. One of the most competitive industries, globalization and changes in technology play a key factor in helping the industry to grow.

**U.S. Tourism Overview**

The U.S. tourism industry is in the recovery stages since its decline in 2009 due to a drop in consumers' disposable income as a result of the recession. Despite the decline in 2009, tourism has consistently contributed about 3 percent of GDP every year; and although it does not encompass a huge portion of GDP, tourism and travel sales are a billion dollar industry, totally $405.3 billion in 2010 (Rawlinson, 1). From 2010-2011, the industry began a slow but steady

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recovery in conjunction with the economy’s growth where it is expected the industry will see 4 percent growth to $1.4 trillion from 2011-2012 and a 0.8 percent annual growth; the highest expected growth since its decline\(^1\). Because tourism is closely linked with macroeconomic factors which contribute to consumer disposable income, as the unemployment and the economy improve, it is expected that tourism will also benefit.

The major components of this industry’s revenue include traveler accommodations (16.5 percent of the total), food services and drinking places (18.0 percent), the domestic passenger air transportation services industry (11.5 percent), international passenger air transportation services (5.4 percent) and travel arrangement and reservation services (6.1 percent)\(^2\). Each segment is a billion dollar industry and in total, make up 3 percent of the U.S. workforce\(^3\).

While outbound international travel only makes up a small portion of the industry, improving technology which makes air travel cheaper and more affordable is helping to increase outbound travel from the U.S. The estimated value of international travel for 2012 was $97.9 million with compound growth of 0.8 percent from 2007-2012\(^4\). According to the ATTA, U.S. airlines carry about 2 million passengers a day on almost 26,000 flights operating in 80 countries. However, recent trends of high fuel costs and decreasing passengers have put a damper on the industry which is being held back by a lack of investment in new technologies that would allow for cheaper, safer, and more affordable travel.

The industry will also benefit from the improving economy, falling unemployment and increased consumer spending. Consumer spending is expected to increase 1.1 percent in 2013. During the five years to 2017, consumer spending is expected to increase at an average annual rate of 3.3 percent. With people willing to spend more money, they will likely spend more on discretionary purchases, like trips and travel\(^5\).

The industry landscape is moving towards more online booking travel agencies rather than brick and mortar companies as improvements in technology help to aid convenience and efficiency in searching and travel options. Online booking provides low-cost transactions with high-efficiency, creating increased levels of competition for traditional brick and mortar travel agencies. Over the next five years to 2017, it is expected that traditional establishments will decline by 0.8 percent per year\(^6\).

Tourism promotion in the U.S. is mainly covered at the state level with little federal involvement. Because of the lack of federal support, it is estimated that the U.S. has lost $500 billion in potential revenue since 2000\(^7\). Recently, the federal government has made efforts to promote

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2 Samadi, Nima. "Tourism in the U.S."
5 Samadi, Nima. "Tourism in the U.S."
6 Samadi, Nima. "Tourism in the U.S."
7 Rawlinson, Jessica. "Travel and Tourism - U.S.".
U.S. tourism by creating the first official tourism website and enacting the Travel Promotion Law in 2008.

**Thailand Tourism Overview**

Tourism is a large part of Thailand’s economy, contributing 7.1 percent to GDP in 2011 with total contribution at about 16.3 percent\(^1\). It is also a major contributor of employment, supporting 1.83 million jobs in 2011 and is expected to grow to 3.05 million jobs in 2012. According to the WTTC, leisure tourism is the largest sector of the tourism industry at 81.7 percent with business tourism only comprising 18.3 percent. In addition, foreign visitor spending contributes almost double to overall revenue at 68.9 percent\(^2\).

Thailand’s biggest blow to its tourism industry was in 2008 when members of the pro-Royalist People’s Alliance for Democracy (PAD) blocked Bangkok’s two airports for over a week, stranding thousands of holidaymakers. This created a negative impact for the international tourism sector, for fear of instability in Thailand’s political landscape. Since then, the government, working in conjunction with Thailand’s Tourism Authority to put in place a series both financial stimulus programs and aggressive marketing campaigns to promote tourism. The large support for the tourism industry with government agencies like the Thailand Tourism Association and Thailand’s Ministry of Tourism and Sports have greatly impacted tourism and helped to its growth since the decline in 2008\(^3\).

Thailand has recently become a tourism hotspot, especially in the wellness and spa and medical tourism industries, with many hospitals and hotels catering to international visitors from Europe, North America, and the Middle East. However, visitors from East Asia still made up more than half the market (53.11 percent) in 2011, followed by visitors from Europe (29.96 percent). Although visitors from the Americas and Middle East make up a large portion of Thailand’s medical tourism industry, they only made up about 8 percent of Thailand’s market in 2011\(^4\).

Some major problems affecting travel into Thailand is the overcrowding of Thailand’s airports, such as Don Mueang International Airport. In 2008, Thailand started creation of its new airport Suvarnabhumi to help alleviate overcrowding and there are plans to expand airport facilities in order to help alleviate congestion. With projections of 60 million passenger arrivals in 2015, there are also plans to upgrade airports at Phuket and Chiang Mai to help alleviate overcrowding\(^5\).

**Medical Tourism in Thailand**

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\(^3\) Rawlinson, Jessica. “Travel and Tourism - Thailand - May 2009.”

\(^4\) “Travel and Tourism Economic Impact 2012 - Thailand”

Medical tourism is a growing industry gaining much awareness internationally and involves people travelling to other countries in order to receive medical treatment. Thailand is joining the growing list of destinations which provide medical treatments cheaper and faster than in many Western countries and is considered one of the top ten destinations for Medical Tourism1.

The main reasons for medical tourism are high medical costs in western countries such as the U.S. and Britain as well as access to better medical services, such as in the Middle East. At this point, the industry is concentrated in the private medical sector with some hospitals specifically designed to receive foreign travels for medical treatments.

According to the WHO, in 2007 Thailand provided medical services for about 1.4 million foreign patients which included medical tourists and general tourists; of which 30 percent were medical tourists. It is estimated that in 2008, medical tourism generated about $1.4 billion in medical services, of which about $300 million was from medical tourism. If medical tourism continues at high growth rates, it is predicted that it could grow as high as 16 percent annually in Thailand, or as low as 2.5 percent annually if growth slows2.

**Partnerships**

In order to effectively promote tourism to Thailand, investment opportunities were identified in four major sectors: Travel Agencies, Multimedia Marketing, Wellness advisory, and Hospitality Advisory.

Forming partnerships with leading companies in these areas is the most ideal choice in promoting tourism towards Thailand because it offers opportunities to reach broad sections of the U.S. market. By partnering with advertising agencies, there is the opportunity to promote tourism through a cooperative of various hotels, spas, and tourism sectors. This will provide the opportunity to promote a wide range of Thai tourism offerings, instead of solely through individual corporations. Through hospitality development, organizational and management techniques can be implemented to enhance tourist travel experiences and assist in creating superior quality in hospitality. In addition, by partnering with travel agencies, there is opportunity to create package deals and open up new lines of travel to Thailand.

**Travel Agencies**

The U.S. travel agency industry is a billion dollar industry with an expected annual growth rate of 2.4 percent. The main sectors of the industry include domestic airline travel, international airline travel and packaged tour reservations3.

Because the two main sectors of the Thai tourism industry concentrated on were leisure travel and medical tourism, the U.S. travel agency industry was broken down into general Travel Agencies and Medical Tourism Travel Agencies. A database of about 1300 U.S. travel agencies

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was compiled from Capital IQ which includes location and a description of each company. Because most travel agencies listed were private companies, extensive financial information about each company was not readily available and the criteria used to determine the top 10 companies was sorted based on highest revenue. As top revenue generating companies, they are prime investment targets because high revenues suggest they are leaders in the industry and are aptly setup to reach consumers. In addition, these companies have destinations in various international regions with some specializing in packages, bookings, reservations, and business efficiency. The top 10 travel agencies based on revenue are as follows:

Carlson Wagonlit Travel
BCD Travel USA, LLC
Ovation Travel Group, Inc.
Maupintour Holding, LLC
Travel Support Center, Inc.
Travelers Trusted Employee Benefit Plan
Immersia Travel
World Travel Service, Inc.
Travel Management Partners, Inc.
Travelport Inc.

For medical tourism travel agencies, the options were more limited as medical tourism is still a new industry in the marketplace. Therefore, the criteria we used to select companies was more general and included those companies whose specialty was medical tourism and those which have destinations located in Asian or Southeast Asian regions. Services offered by these companies range from those who match prospective patients with doctors and hospitals in foreign areas, as well as those who are involved in medical tourism technology. Although not all companies operate in Thailand, their presence in similar areas will allow for an easier transition into the Thai tourism industry.

**Multimedia Marketing**

Advertising agencies which specialize in travel and tourism marketing were identified in order to promote Thai tourism to a larger audience than what is available to Travel Agencies. The criteria used to identify three top companies in this industry were based on their experience, clients, and experience working in Asian or Southeast Asian regions/companies. The three top agencies for investment are as follows:

**ISM Travel and Lifestyle**

They provide strategic solutions which include digital, offline, direct response, web development, branding, strategy, research, social media services and apps to create integrated marketing solutions. They have served a number of well-known clients in the travel and tourism industry including Best Western, Four Seasons, and Emirates. Their experience includes both U.S. and internationally based companies and while they have not specifically worked in Asia, they have serviced many other international companies globally\(^1\).

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**MMGY Global**

MMGY was formed by a recent merger between MMG and Y Partnership to create one of the largest travel marketing firms. They focus on extensive industry and have the ability to deploy integrated plans across any relevant marketing discipline. They create marketing strategies in eCRM, paid media, interactive development, mobile, promotions, social and public relations. In addition, they have worked with large hospitality companies such as Walt Disney World Resorts and Trump Hotel Collection. However, they are unique in that they have also worked with tourism boards such as the Nambia Tourism Board and Mexico Tourism Board. According to their website, they provided a 6 percent increase in bookings to Mexico due to their marketing strategy following the H1N1 breakout¹.

**DANA Communications**

DANA Communications offers a wide range of marketing services including: branding, media, eMarketing, SEM, web development, apps, and mobile. They have worked with a large number of clients including Hilton, Fairmont Hotels, and Sheraton. In addition, they are partners with many affiliated travel and tourism associations which give them the ability to access many potential U.S. travelers, instead of travelers within a small region².

**Wellness Advisory**

Wellness advisory services include companies who specialize in either medical tourism or spa wellness and provide developmental as well as advertising services. Because Thailand has a very large wellness tourism industry, we specifically looked at companies who provide a broad range of services and who have experience working internationally. The top companies identified are as follows:

**The Goodness Company**

The Goodness Company is a full-service global healthcare marketing agency providing results-driven marketing, advertising and public relations services to its clients around the world. In addition, Patrick Goodness is recognized as one of the leading speakers in the medical marketing industry and has participated in many medical tourism conferences around the world. They offer a variety of services including medical tourism marketing, dental tourism marketing, and medical cluster marketing³.

**Global Spa and Wellness Company**

Global Spa and Wellness is a business advisory firm which focuses on emerging global shifts and the convergence of healthcare, wellness and tourism to expand business. They provide services to businesses at all stages of development in a variety of areas including: spas, medical spas, hospitals, healthcare providers and physician practices. In addition, they have

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worked with a variety of professionals in the medical industry both in the U.S. and internationally\(^1\).

**Health Fitness Dynamics Spa, Inc.**

HFD Spa is a full-service spa consulting, planning, marketing and management advisory company. Since 1983, they have worked primarily with fine hotels and resorts, mixed-use real estate developments, country clubs and up-scale day spas and health clubs. They are focused on how to help existing spas perform at maximum levels of efficiency and profitability. In addition, they have created the international Spa Provider Alliance. This is a highly select network of spa, business and hospitality professionals which provide them with a broad network of expertise\(^2\).

**Hospitality Advisory**

These services specialize in hotel management and organization in various stages of development and can help improve the quality of services offered at various hotels throughout Thailand. The criteria used in choosing the top three companies were focused on their services, clients, and international experience.

**HVS**

HVS is the world’s leading consulting and services organization focused on the hotel, restaurant, shared ownership, gaming, and leisure industries. Established in 1980, the company offers a comprehensive scope of services and specialized industry expertise including: Hotel management, sales and marketing services, and convention, sports and entertainment facilities. In addition, they have many global offices, including offices in Asia\(^3\).

**Warnick + Company**

Warnick + Company is an asset management and strategic advisory firm that creates opportunities and value-enhancing solutions in lodging and recreational real estate for clients worldwide. They specialize in various hotel industry including operations including: asset management, finance, brokerage, and brand business strategy. In addition, they have also worked with U.S. and international hotels, including those in Asia\(^4\).

**Prism Travel and Leisure Consulting**

Prism is an advisory firm which specializes in hotel consulting in various areas of hotel development. These areas include: strategy development, needs analysis, marketing, and technology among others. They have partnerships with many other agencies and organization

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which give them a wide range of expertise and knowledge in the industry. In addition, they have worked not only with companies but also with hotel travel associations from various countries\(^1\).

Conclusion and Recommendations

It is clear from our state and industry analyses that Thailand has an enormous opportunity to access the U.S. market for distribution channels, technology and knowhow. It is in the Thai economy’s best interest for the government to help promote and accelerate these complementary investments.

While there are many tasks the government could undertake to promote investment, none is more important than providing basic information services to prospective investors to support exploratory activities. These information services are crucial because they:

- Act as a feedback loop to Thai investors and promote confidence in the transparency of the U.S. investment environment;
- Steer Thai investment to higher value locations and industry clusters in the U.S.
- Signal to Thai companies that the Thai government is ready to assist and help clear obstacles to success in the U.S.
- Signal to U.S. public and private organizations that Thailand is serious about creating two way mutually beneficial partnerships for trade and investment.

To help launch an initiative to position Thailand as a major strategic investor in the U.S. marketplace, our team recommends the following actions by the Thai government and its Washington D.C. Embassy:

1. Database Management:

   Maintain the investment database provided in this study; keep it updated on an ongoing basis to track investment flows into the U.S.

   Maintain the state attractiveness database and keep it updated on a yearly basis in order to help Thai investors target their investment activities.
2. Investment Promotion:

Conduct annual/semi-annual Strategic Investor Workshops in Thailand to present emerging U.S. investment trends and opportunities to prospective investors.

Use the Commercial Attaché Program based out of the Thai Embassy in Washington D.C. to serve as a central point of contact for Thai investors interested in actively exploring U.S. opportunities; and for U.S. companies/venture investment funds that either are seeking Thai partners or could have significant commercial value to Thai investors.

These actions can be quickly launched and can build competencies in investment facilitation over a short time period. Given the heightened global competition for expanded access to the U.S. market and to the best U.S. technology and knowhow, Thailand has to seize the moment now.