Finland - Wisconsin

A COMPORATIVE STUDY FOCUSING ON THE JOB OPPORTUNITIES FOR FINLAND

1. Preface
2. Executive Summary
3. Introduction
4. Project description
4.1 Objectives
4.2 Finland - Wisconsin Jobs Study
5. Outcomes
5.1 Some Basic Comparisions
5.2 Major Industry Growth Opportunities
5.3 Tomorrows Jobs
5.4 Political Change
5.5. Additional Recommendations
5.6 Benchmarking Study
5.7 Student Exchange
6. Appendix
6.1 Reference List
6.2 Wisconsin Agenda for January 13-18
6.3 Wisconsin Growth Charts
6.4 Finland Agenda For March 16-22

---

1. PREFACE

The objective of this study is to look at high unemployment in Finland using Wisconsin as a model. High unemployment is a major problem in Finland. The complexity of solving this issue is almost too difficult to comprehend. In order for it to be solved, some unique steps must be taken. In this study, a new and unique path was chosen in order to determine those steps.

The approach of this study was unconventional, the advisory group held widely different perspectives, and the data was difficult to analyze. Yet, the enthusiasm for, and the satisfaction of participating in this study was extremely high for both the study team and advisory committee. The belief that positive strides were made, productive changes will be implemented, and the following recommendations are on target is almost unanimous among the groups working on the project.

Recommendations were made that will require action by specific "change agents", such as universities, Parliament, and industry. These recommendations will ultimately improve conditions when put into action. Some general proposals directed at "attitude change" were also made. These proposals will clearly take longer to implement and will require strategically assigned groups to take ownership for initiating actions. These proposals, too, will improve the quality of the working environment of Finland.

One unusual outcome of this project is that 103 university students from Finland spent the summer of 1997 in Wisconsin working in the tourist industry learning "how to treat customers". Many believe the outcome of this sub-project will exceed that of the basic study. The student "internship" project was a result of this study; however, it was not the main objective. The point being that focus is absolutely important, but when an opportunity knocks, you must be willing and have the time to open the door.

The project was successful because of insightful contributions from the Advisory Committee, their friends, associates, and others who were interviewed for the project. I want to offer a special thanks to the Wisconsin members of this Advisory Committee. Although they knew the study was designed to benefit Finland, they worked hard and devoted many long hours to produce exceptional work and achieve high standards. The group includes Bill Strang, Chuck Thompson, Jerry Smith, Carol Toussaint, and John Geroux.

Special thanks also goes out to the Finnish Advisory Committee, who set rigid standards and also forced the results into areas of need and opportunity. They include, Pekka Ylä-Anttila, Kari Ebeling, Juha Toivola, Martti Mäenpää, Kalevi Olin, Markku Markkula, Aino Suhola, Tarja Filatov, Kyösti Karjula, and Paula Tiihonen.

In addition, I want to thank Helsinki University of Technology and the University of Wisconsin for their

support, without which this project would not have been possible. Rose Richgels, UW and Mari Lius, HUT, also helped in many ways.

An interesting bond occurred between the committee members during this study. I have not witnessed anything like this in my 30 years of conducting similar projects. Each individual in the group was committed, dedicated, and demonstrated uncommon vision and feeling for this project.

Finally, this study could produce significant changes in unemployment in Finland. However, without a serious strategic follow up plan, including implementation, the study will be a waste of time and money. The real significance of this project can only be measured two years from now. Therefore, I challenge Parliament and the identified change agents to accept this responsibility in the year 1999. I am hopeful and confident that there will be success and positive changes in the economy and unemployment in Finland in the near future.

John P. Klus

September 1997

---

2. EXECUTIVE SUMMARY

In a study of two comparable economic and social units, the Wisconsin analysis provided the following opportunities for jobs and a stronger economy for Finland.

SPECIFIC JOB OPPORTUNITIES

Jobs are the backbone of an effective economy. When compared to Wisconsin, the following areas are direct opportunities for Finland.

*** Service Sector - Business and Engineering**

More than 36,000 jobs have been added to the Wisconsin payroll over the period of 1989 - 1995 while in Finland, only approximately 3,500 have been added. Not only does this sector have the single highest growth opportunity, it also has the potential for jobs with very high monetary compensation.

TEKES needs to fund programs with complete focus on increasing service sector business. This means funding and supporting market research, business know how, and other non technology business success factors.

*** Household Services**

Household services will increase only after a major change in taxation and regulation. A change is needed to significantly reduce or eliminate the tax wedge. In addition, an attitude shift is required so that respect can be acquired for household service workers and the tasks themselves. This sector experienced over a 148 % increase in employment during the period of 1989 - 1995 and is the fastest growing employment sector in Wisconsin. During this same period in Finland, there was also small growth; however, due to a change in the classification structure in Finland, exact numbers are difficult to obtain.

*** Product and Business - High Growth**

Manufacturing industries historically have been the mainstay of the Wisconsin and Finnish economy and will most likely continue that trend into the future.

The Plastics Industry, which focuses on formed composites as substitute for heavier materials, is one of those industries experiencing large growth in Wisconsin. During the period of 1989 - 1995, over 6,900 new jobs have been added to this industry, which accounted for a growth in employment of almost 30 % in Wisconsin. During this same period, Finland experienced a reduction of 5,800 jobs that accounted for a 40 % reduction in

employment within this industry. The Plastics Industry in Wisconsin was the eighth largest sector within manufacturing for the period compared and was the fourth fastest growing. Continued substitution of plastics for other materials will drive demand in the key end markets of motor vehicles, consumer goods, packaging and others.

The Printing and Publishing Industry appears to be another industry where Finland has growth opportunities. Wisconsin saw the creation of over 8,000 new jobs during 1989 - 1995 that accounted for an 18 % increase in employment within an industry whose current size is over 52,000 employees. This places it as the fourth largest manufacturing industry in Wisconsin. The Printing and Publishing industry had the largest growth of all manufacturing sectors in Wisconsin. During this same period in Finland, there was a decrease of 7,500 jobs that accounted for over a 17 % decrease in employment in Finland. With the trend towards higher literacy and educational attainment, growth within this sector should create new jobs.

Lumber and Wood Products, although experiencing the smallest growth of all the manufacturing sectors analyzed (slightly over 3,000 new jobs), still experienced over 11 % growth between 1989 - 1995 and served as the ninth largest sector in Wisconsin. In Finland, this industry lost over 12,000 jobs that accounted for a decline in employment of over 31 % within the industry. As the housing stock continues to age, the repair and remodeling industry should fuel demand for wood products in both Finland and Wisconsin. As homes continue to be constructed, the use of millwork will also continue to fuel this industry.

The Electrical Machinery Industry forms a part of the backbone of Wisconsin's vital manufacturing sector. In 1995, it accounted for 44,987 jobs in the state, 7.6 % of the total manufacturing employment, and remains the sixth largest manufacturing sector in Wisconsin. The industry witnessed an increase of 6,215 jobs between 1989 - 1995. While Wisconsin was again seeing an increase in this sector, Finland lost over 5,500 jobs that accounted for a 12 % decrease. Two reasons for the growth of this industry in Wisconsin is the high quality of skilled labor and the high quality of life that make the state attractive for management. Finland shares these same characteristics and no visible reasons are seen that should prevent them from pursuing and achieving growth in the future as well.

Finland has experienced a decline in all industries currently experiencing growth in Wisconsin. A careful selection of new and expansion growth niches in addition to normal existing growth opportunity, will assist in generating jobs within the Finnish manufacturing industries in the future - this is the challenge to Finnish industry.

*** Future Jobs**

To determine which type of occupation will have long term success is difficult to assess due to the rate at which technology changes and makes today's jobs obsolete. However, by looking at employment trends over the past 1 - 5 years, it is possible to see where job growth will occur most rapidly in the next 5 - 10 years. Wisconsin, as in the United States in general, is predicting large job growth in technological occupations such as Computer Engineers, Webmasters and System Analysts. With technology playing a vital role in our everyday lives, these jobs will be essential to the future economic success of both Wisconsin and Finland.

Technological breakthroughs have also increased the average life expectancy of individuals. Because of this and the fact that the population is aging, jobs aimed at caring for the elderly are also growing rapidly. Specifically, Personal and Home Care Aides and Home Health Aides are seeing some of the largest growth.

It is much harder to imagine which jobs will be in the high growth areas when we begin looking past the next 5 years. There is little question that software will continue to be the backbone of productivity increases. New products and research and development will continue to grow; however, will there be personalized transportation systems, robots as personal servants, and real virtual reality experiences? Industries and universities will need to have a continual process of preparing for new jobs. All recent graduates of the university must expect to change jobs several times in their lives. In fact, most will change careers at least once or twice.

*** Tourism**

Although tourism is not a high growth industry in Wisconsin, it is a well-developed, mature industry that

brings in about 6 billion in total revenue. Since our search was mainly for high growth sectors, tourism did not appear as a focus of the study; but, the secondary benefits of tourism on local economics are substantial and mostly benefit the rural community.

Tourism in Finland has been discussed as a service industry that needs change but little has been done to raise the quality to international standards. A new initiative is needed.

GENERAL OBSERVATIONS AND CONCLUSIONS

In addition to specific job opportunities, the following activities are needed to develop an efficient and effective economy in Finland for the future:

* R&D Investment

It is indeed a wise Parliament decision to raise the level of R&D investment to 2.9 %. The evaluation of existing R&D programs, including TEKES, has shown proven payback and has shown evidence that R&D public moneys have been well managed. The growth of business export has demonstrated that private R&D has been well managed as well. With additional SME program initiatives, there should be a broad spectrum of private R&D investment opportunities.

* Secondary impacts from recommended changes

The resistance to change is often the result of fear of negative impacts. Each change in law should be accompanied by an analysis of secondary impact; however, based on Wisconsin's experience, the impacts of employment increase are more likely to be positive. More jobs create more personal satisfaction and lessen the potential for crime.

* Innovation ideas

It is important to do whatever possible to increase innovation. Wisconsin and Finland are a lot alike in their weakness in innovations and entrepreneurial developments. Most importantly, helping entrepreneurs to evaluate ideas, do market research, find venture capital, network with partners, and generally keep good business opportunities alive through rough times, will strengthen this area. Well-qualified people must be made available for this assistance. The biggest mistake has been government assistance programs supported with inexperienced people.

It is important to take advantage of existing continuing education centers and use them to promote innovation and technology diffusion.

ADDITIONAL ACTIONS NEEDED

The following actions will require a change by all Finnish citizens to ensure the ultimate success in the future for Finland's employment environment:

* Attitude Change

Wisconsin citizens, as in the United States in general, have adapted a "subcontracting" attitude into their homes. They are hiring others to care for their lawn, their home, their pets, and their children. This allows them to focus on the things that are most important to them - work or leisure. In Finland, it will be necessary to change the "self service" attitude in order to create the household service sector.

* Unemployment Benefits

One of the most obvious solutions for unemployment is to reduce the incentives to stay unemployed. Currently, many people are as well off while unemployed as they are when working. This must be resolved by changing the unemployment benefits as well as altering the gray market opportunities.

*** Gray Market**

Finns are among the most ethical and honest people in the world. Yet, many have participated in the gray market and avoided taxation or fringe benefit costs. A serious effort to eliminate this illegal activity is necessary. It may be effective to start with a regional experiment promoting tax incentives to encourage household service businesses.

*** University Contribution and University - Industry Connection**

If the university is not the best unit of society to deal with the future, then who is? To combine the university vision and research skill with industry's understanding of societal need is key.

We propose to increase the tax deductible contributions to Universities in order to allow industries to deduct up to 1 % of gross sales or one million Finnish markkaa - whichever is greater, and to allow individuals to deduct up to one million Finnish markkaa. This is a cost effective way to encourage industry/university interaction and cooperation.

*** 100 Students to Wisconsin**

When making changes to benefit the future of a society, you cannot overlook the unlimited potential of 100 students from Finland gaining experience abroad in the flourishing service sectors of the United States. The Finland - Wisconsin Service Sector Internship Program will produce 100 change agents to help build the Finnish Service Sector. These students are the "entrepreneurs of the future" who will continue to promote the service sector in Finland long after this study is forgotten.

The challenge ahead is to ensure the internship program continues. This requires locating an organization to claim ownership for its continued success in the future.

WHAT VALUE IS THIS STUDY - IMPLEMENTATION IS EVERYTHING

A study of this type has limited value unless someone claims ownership to the recommendations. Studies such as these in the past have received plenty of discussion but lack a "champion" - someone or some group designated to successfully implement the recommendations. Some of the recommendations presented in this study are mere reflections of current Finnish thoughts. By assigning a champion to each recommendation, it is the intent of this study to assure that implementation becomes reality.

---

3. INTRODUCTION

3.1. Background

When first looking at the title of this study, one would have to ask themselves, how and why did an idea ever arise to compare Wisconsin - which is a state situated in the Midwestern area of the United States, to Finland, a country that is a member of the European Union and is the second northern most country in the world. As it turns out, the two geographic locations have more in common than one thinks. The principal investigator of this study has been visiting Finland for the past 30 years and has developed many strong working relationships within the public and private sector. Finland also has well-known companies such as Fiskars, Outokumpu, Rauma, Kone and Valmet with facilities in Wisconsin.

Although both are doing reasonably well from an economic standpoint, at the moment, the state of Wisconsin unemployment rate is below 3.5 % while Finland's is approximately 17 %. This difference is causing significant short term difficulties for Finland and needs attention in the short run as well as in the long run.

Several studies have been developed which produced the background and basis of this study. First, a study by professors Strang and Klus entitled "Wisconsin Economy in the Year 2000" used two econometric models along with significant industry by industry evaluation to project job growth from 1990 - 2000. This study suggested four growth areas in printing, professional services, plastics, and wood industries. Finland is not as

strong in the printing industry or professional services as Wisconsin, so opportunities exist here. Second is a study completed by the Wisconsin Department of Industry, Labor and Human Relations Division of Jobs, Employment and Training Services Workforce Information Bureau. This study established the top 30 growth industries in the state of Wisconsin using one econometric model to project job growth from 1992 - 2005.

In addition to the studies done in Wisconsin is "Advantage Finland - The Future of Finnish Industry". This recently published document outlines the Finnish industry and is an analysis of its national competitive advantage focusing mainly on opportunities in existing business sectors. These publications and others will provide the basis for the research conducted in this project.

3.2. Jobs - Economic Connection

The cost of unemployment at 17 % is a heavy government burden now consuming about 25 % of the state budget in Finland. On the other hand, full employment is usually related to a healthy economy. In fact, concentrated efforts to achieve full employment through private sources takes the same path as that which would be taken when concentrating on generating a healthy economy.

3.3. Wisconsin Similarities

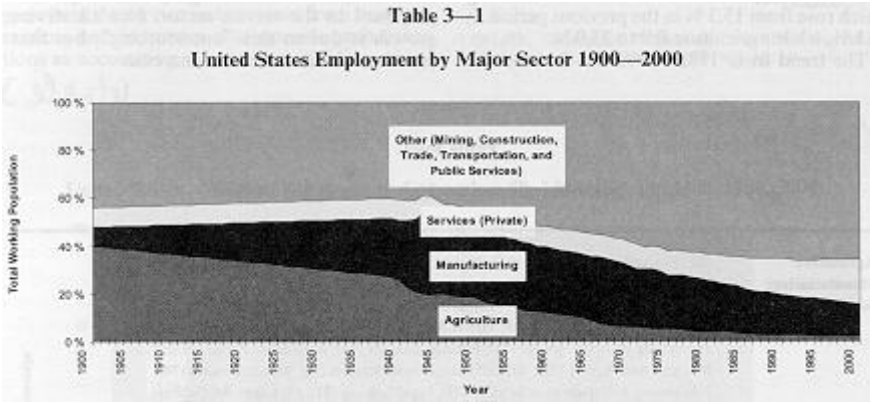
Finland and the State of Wisconsin are similar in many ways. Not only is there a significant number of Finns in Wisconsin, but geographically the areas are located in the same kind of climatic conditions and have the forest industry as the major economic natural resource. Both have populations of about five million people and have approximately the same number of people working in the pulp and paper industry. The other distributions of industry are very similar, with heavy dependence in the machinery and durable goods area, as well as a very important smaller section of electronics.

People in both locations are hard working, highly ethical and honest. Finland and Wisconsin have a good business culture with heavy commitment to technology and education as well as strong beliefs about the factors that contribute to prosperity.

3.4. Job History - Finland and Wisconsin

During the past 100 years, we have seen dramatic changes in employment throughout the world. Technological innovation has been the major driving force of these changes. To have a better understanding of the trends that have developed over the past 100 years, we broke employment down into 4 major sectors. These sectors include Agriculture, Manufacturing, Services and Other (Figures 3 - 1 and 3 - 2).

Table 3-1: United States Employment by Major Sector 1900 - 2000

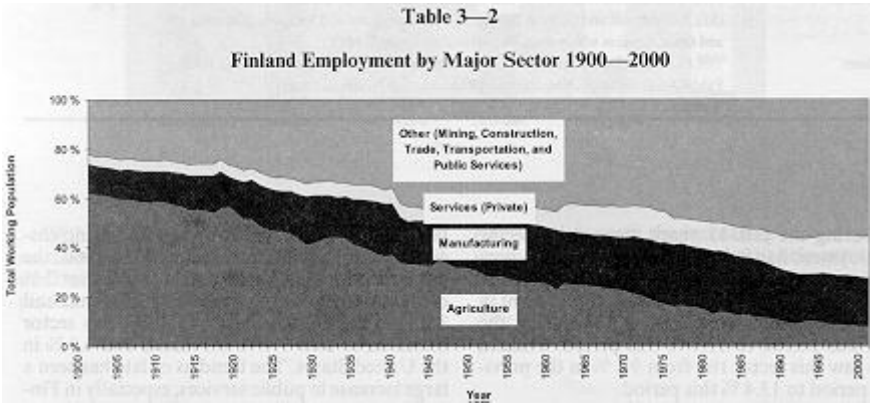


Source: Agriculture 1900 - 1908 and 1991 - 2000, manufacturing, service, other 1900 - 1938 and 1991 - 2000 is estimated by John Klus: Agriculture 1909 - 1990 The U.S. Department of Agriculture: manufacturing, services, other United States Department of Labor

From 1900 to 1940, agriculture was the mainstay of Finland and the United States economies. Agriculture comprised on average 50.5 % of all employment in Finland and 33.3 % in the United States during this

period.

Table 3 - 2: Finland Employment by Major Sector 1900 - 2000



Source: 1900 - 1960 The Finnish Economy, 1860 - 1985 Growth and Structural Change. Hjerppe, Riitta: 1961 - 1995 Statistics Finland: 1996 - 2000 estimation by John Klus

From 1941 - 1980, the trend shifted towards manufacturing. Within the United States, manufacturing rose from an average of 16.5 % during the previous period to 27.0 % of all employment, while agriculture fell to 11.7 %. In Finland, this period also saw a shift towards manufacturing which rose from 15.3 % in the previous period to 22.1 %, while agriculture fell to 25.0 %.

The trend from 1981 - 1995 has favored the service sector in the United States and Finland. This sector consists of private services (see Table 3 - 1). Manufacturing dropped to 17.9 % of total employment in the U.S., while in Finland, a slight drop occurred to 21.4 %. Some of the employment loss in manufacturing is a transfer of employment to the service sector. Not all service growth is due to this "out-sourcing", but that practice contributed to the increase.

Table 3 - 3: Major Sector Breakdown for United States and Finland

Table 3—3

Major Sector Breakdown for United States and Finland

UNITED STATES	
Agriculture:	SIC: Production Crops (01) and Production Livestock and Animal Specialties (02)
Manufacturing:	SIC: Manufacturing Division (D)
Services:	SIC: Veterinary Services (074), Animal Services, Except Veterinary (075), Landscape And Horticultural Services (078), Hotels, Rooming Houses, Camps, And Other Lodging Places (70), Personal Services (72), Business Services (73), Automotive Repair, Services, And Parking (75), Miscellaneous Repair Services (76), Motion Pictures (78), Amusement And Recreation Services (79), Legal Services (81), Museums, Art Galleries, And Botanical And Zoological Gardens (84), Membership Organizations (86), and Engineering, Accounting, Research, Management, And Related Services (87),
Other:	Forestry(07), Mining (B), Construction (C), Trade (F & G), Transportation (E), Communication (E), Finance (H), Health (80), Educational (82), Social (83), Private Household (88), and Government (91-99)
FINLAND	
Agriculture:	TOL88: Agriculture (A)
Manufacturing:	TOL88: Manufacturing (D)
Services:	TOL88: Hotels and Restaurants (H), Technical and Business Services (M), Recreational and Cultural Service (R), Organizational and Religious Activities (S) and Other Services which includes personal and household (T)
Other:	TOL88: Energy, Trade, Transport, Communication, Finance and Insurance, Real Estate, Public Administration, Education and Research, and Health and Social Welfare

During the last 15 years, the service sector employment has far outpaced the goods - producing sector in the United States and Wisconsin. From 1981 - 1995, United States employment in the service sector rose from 9.5 % during the previous period to 13.9 % this period. Finland also saw this sector rise from 9.1 % in the previous period to 13.4 % this period.

Health, social, educational services, and Government (all which are public services) are classified as Other and have shown significant increases over the past 100 years as well. In 1900, the public service sector

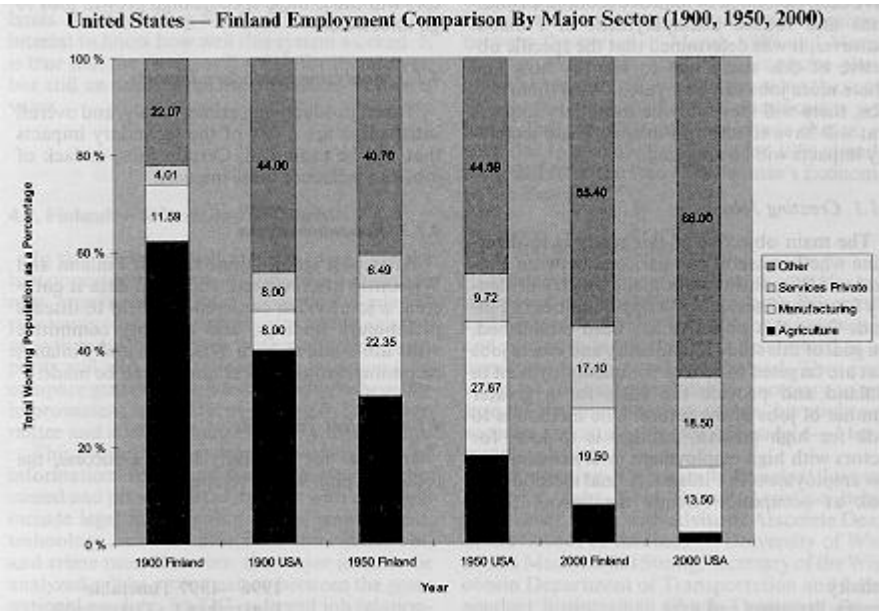
accounted for just over 2 % of the total working population in Finland and 3.2 % in the United States. In 1950, this sector increased to over 7.4 % in Finland and 4.9 % in the United States. The trend as of late has seen a large increase in public services, especially in Finland, where it accounts for over 22.3 % of total employment. Meanwhile, in the United States, it remains at a modest level of 11.3 %. When combining both the public and private service sectors in 1995, they contributed to over 38 % of all employment in Finland and slightly over 28 % in the United States.

A significant portion of the employment growth in the service sector comes from business services and industries that provide such functions as accounting, advertising, building maintenance, computer and systems programming, and temporary help to other businesses1.

In Figure 3 - 3, percentages for both Finland and the United States during three specific years (1900, 1950, 2000) reconfirms these trends.

Table 3 - 4:

United States - Finland Employment Comparison By Major Sector (1900, 1950, 2000)



With the service sector becoming the dominant sector of employment in both Finland and the United States, additional emphasis must be placed within this sector not only on training employees to meet the increasing service sector demands of the future, but also to help entrepreneurs create service sector businesses.

---

4. PROJECT DESCRIPTION

4.1. Objectives

In this study there were many areas that could have been examined to improve economic conditions and reduce unemployment in Finland. However, it was determined that the specific objective of this study was to identify how and where more jobs can be created. With these new jobs, there will inevitably be secondary impacts that will have effects on Finland. These secondary impacts will be analyzed.

4.1.1. Creating Jobs

The main objective of this study is to determine whether useful comparisons between Finland and Wisconsin can be made which will identify future business and job opportunities in Finland. Once this objective has been established, the goal of this study is to identify and create jobs that are targeted to reduce the unemployment in Finland and provide the basis for a greater number of jobs in the future. One method is to look for high growth, another is to look for sectors with high employment in Wisconsin and low employment in Finland. A

final method is to look at occupation trends themselves. Since many high growth jobs are aggregated within much broader business Standard Industrial Classification (SIC) sectors, focusing on general sectors will cause these specific high growth jobs to go undetected.

4.1.2. Analyzing Secondary Impacts

Taxes, productivity, crime, family, and overall satisfaction are a few of the secondary impacts that will be examined. Certain jobs, or lack of jobs can influence these impacts.

4.1.3. Recommendation

After past studies done in both Finland and Wisconsin are reviewed, statistical data is gathered, a joint video conference is held to discuss preliminary findings, and advisory committee visits are made to both Wisconsin and Finland, recommendations to Parliament can be made.

4.1.4. Project Timetable

In order for the study to be a success, the following plan was developed.

Activity	**1996 - 1997 Timetable**
Review literature and data	September 1 - October 28
Develop major findings	October 15 - 28
Assess major findings at Wisconsin Advisory Meeting	October 28
Joint advisory committee meeting video conference	November 6
Gather information and data around major findings	November 6 - December 31
Presentation to Finnish advisory committee	December 16
Gather information and data	December 17 - January 31
Finnish delegation visit to Wisconsin	January 13 - 18
Joint advisory committee meeting in Finland	March 18
Preparation of first draft report and recommendations	March 19 - April 31
Public presentation to Finnish Business, Government, and Society	September 20
Final Report	May 16 - August 31

In order for this study to have the most impact in Finland, public presentations will be conducted in early-and mid-September to ensure regional exposure, as well as to ensure that all groups impacted are involved and are committed to participation.

4.1.5. Study Procedure - Benchmarking

The approach, selection of a comparison model, and procedures used for making recommendations were different than in typical studies. National benchmarking is not new but this project is different than existing studies such as the Netherlands Benchmarking Study. Therefore, it is of interest to know how well this system worked. It is true that the results will speak for themselves, but still an analysis of the procedure has some value.

4.2. Finland - Wisconsin Jobs Study

In this study, we will attempt to analyze the best opportunities for new jobs and job growth in new growth industries. "Advantage Finland" previously identified opportunity within existing growth industries. Other factors affecting prosperity will also be examined. The intention is to compare general data, establish a hypothesis for improvement, and test it using the advisory committee and additional data to verify its viability.

This project will not create new data bases of information. Issues and factors that will be discussed and possibly rated, but not with data, will include legal issues, policy issues, employment, technology, cultural value, environmental issues, and crime rate. However, the major issue to be analyzed will be a comparison between the gross national products by SIC code and job relationships.

4.2.1. Identify Major Job Growth Opportunities

By reviewing the employment figures in Wisconsin and comparing them to employment figures in Finland, this study determined that job growth in Finland is most likely to occur within the manufacturing and service sectors. By focusing the efforts of this study on those sectors, it is possible to identify opportunities that will promote job growth in Finland in the future.

4.2.2. Analyze Data - Wisconsin and Finland

Data provides the basis for any study. Employment data for this study was based upon information collected from the Wisconsin Department of Industry, Labor and Human Relations, the United States Bureau of Labor Statistics, Statistics Finland, and the Research Institute of the Finnish Economy - ETLA. With all this information in hand, comparisons were made between Wisconsin, using the SIC system in the United States, and Finland, using the TOL 95 Employed Persons By Industry NSIC (NACE) classification system. The goal was to identify where the largest growth was occurring between the period of March 1989 and March 1995 in Wisconsin, and then compare these growth areas to similar industries using the same time period using the TOL 95 classification system in Finland. This time period was chosen, in part, due to availability of data for 1989 already compiled from the study "Wisconsin's Economy In the Year 2000."

4.2.3. Advisory Committee

The advisory committee for this study was composed of individuals from both Wisconsin and Finland who have years of proven experience and success in industry sectors determined to be important to job growth in Finland. They provided the review and validation necessary to ensure the recommendations within this study are accurate and attainable (see Appendix 6 - 1 for a complete listing).

Representing Wisconsin is Principal Investigator Dr. John Klus, Project Assistant Brian Kalscheuer, along with advisors: Associate Dean of the School of Business - University of Wisconsin Madison Bill Strang, Secretary of the Wisconsin Department of Transportation and Independent Businessman Chuck Thompson, President, CEO and Director of First Business Bank Jerry Smith, Senior Associate with the firm Hayes Brisco and Associates Carol Toussaint and former Controller of Ameritech John Geroux.

Representing Finland are: Managing Director of ETLA and Finnish Coordinator of the study Pekka Ylä-Anttila, Director, Corporate R&D of UPM-Kymmene Corporation Kari Ebeling, President of SAMPO Industrial Insurance Company Ltd. Juha Toivola, Director General, Technology Development Centre TEKES Martti Mäenpää, Member of Parliament Kalevi Olin, Member of Parliament Markku Markkula, Member of Parliament Aino Suhola, Member of Parliament Tarja Filatov, Member of Parliament Kyösti Karjula and Committee Councellor Paula Tiihonen.

4.2.4. Visits to Wisconsin and Finland

It was determined that this study was not to be based solely on statistical data. Therefore, it was important for the advisors to visit both Wisconsin and Finland in order to determine for themselves the secondary impacts these new jobs may cause. It was also necessary to assess how lives differ in Finland compared to Wisconsin and the effect job growth may have on Finland in the future.

To gain a first-hand understanding of the environments being compared, five members from the Finnish

Parliament - Committee for the Future visited Wisconsin during the week of 12 - 19, January 1997. Present at the week-long meeting from Finland was: Kalevi Olin, Markku Markkula, Aino Suhola, Kyösti Karjula, Tarja Filatov and Paula Tiihonen - five Parliament members and one staff member. To assist Kyösti with translations in Finnish was Jussi Myllymäki - a graduate student at the University of Wisconsin Madison working on his Computer Science Degree. All of the Wisconsin Advisory Members: John Klus, Brian Kalscheuer, Jerry Smith, John Geroux, Bill Strang, Chuck Thompson and Carol Toussaint were present periodically throughout the week (see Appendix 6 - 2 for the Agenda). During the week, the Finnish delegation met with government officials, industry specialists, economists and many others to gain a full understanding of the economy in Wisconsin.

With the Finnish Parliament gaining a satisfactory understanding of the economy in Wisconsin, the Advisory Committee from Wisconsin proceeded to visit Finland during the week of 16 - 21 March 1997, where similar events were conducted. (See Appendix 6 - 4 for agenda).

4.2.5. Data is 10 Percent of the Output

Without data, a study does not have any validity. Although it may be assumed that using a SIC system for this study is a bit old fashioned and that most of the growth cannot be seen within such a system, it does provide the basis for comparison. One of the most difficult things to analyze when comparing different countries is like data. Since the United States operates on a different industrial classification structure than Finland (TOL 95), exact comparisons are almost impossible to make. Therefore, the statistical data gathered for this study is very useful for assessing trends, but must be viewed with caution. Also, because this study was performed in a unique and unconventional manner, data collection was not the key focus in making recommendations. Expertise, experience, knowledge and input gathered during working sessions were equally valuable.

This project should produce useful information, as well as demonstrate the feasibility of this approach to gaining new ideas.

---

5. OUTCOMES

5.1. Some Basic Comparisons

100 year comparison

Employment has changed over the past 100 years. The beginning of the century favored the agricultural sector and then moved into the industrial revolution during the early middle part of the century. Now, a third shift is occurring which favors the service sectors. The United States has seen this shift occur more rapidly than Finland has, and this shift has proven to be extremely successful. Finland should use the United States as a model in order to reach this next shift efficiently and as successfully as possible.

Product manufacturing growth

Manufacturing is the backbone of a healthy economy. Without a strong manufacturing sector, it is impossible for the other sectors to even exist, let alone survive. With automation playing a vital role in manufacturing today, it is no longer possible to rely solely on an abundance of natural resources (i.e. forests) in order to stay successful within the manufacturing sector. Today, much emphasis is placed on technology and a global understanding of the marketplace, which when combined, provides the key to competitive advantage. This in turn contributes to a healthy manufacturing sector. Therefore, discussion is necessary regarding this sector. Manufacturing areas must be analyzed where Finland has the greatest opportunities for success in the future.

Service sector analysis

Recently the service sector has surpassed the manufacturing sector in total employment within Wisconsin and the United States. Some of this is due to an "outsourcing" of employees from the manufacturing firms to independent business units, who in turn supply services back to the manufacturers. While manufacturing currently is still employing more people than the service sector in Finland, this trend will continue to push

employment in the direction of the service sector. Further discussion is necessary to successfully make this shift.

5.1.1. Tax Expenditure

The distribution of tax collections significantly affects the way business is done, the way money is spent, and in some cases affects behavior patterns. The tax wedge appears to be the main reason for the lack of household services in Finland.

Obtaining good tax comparisons between Finland and Wisconsin is very difficult. For instance, the taxes assessed against, and paid by individuals, is recorded in the statistics inappropriately (i.e. gas tax is statistically paid by companies yet individuals really are the ones paying the tax at the gas pump).

However, it can be concluded that taxes in Finland are higher than in Wisconsin as shown in Table 5 - 1. Still, most people in Wisconsin feel their taxes are too high (Table 5 - 1 and Table 5 - 2). The only area in which Wisconsin citizens actually pay higher taxes than Finnish individuals is for property ownership.

Table 5 - 1: Tax Revenue of Main Headings As a Percentage of GDP Tax

Tax Revenue of Main Headings As a Percentage of GDP Tax

Main Heading/OECD	Finland (1995)	United States (1994)
Income and Profits	18.7 %	12.3 %
Social Security	12.6 %	7.0 %
Payroll	-	-
Property	1.1 %	3.3 %
Goods and Services	14.0 %	5.0 %
Other	0.1 %	-
Total	46.5 %	27.6 %

Source: Taxpayers Association of Finland

Table 5 - 2: Tax Revenue of Main Headings As a Percentage of Total

Tax Revenue of Main Headings As a Percentage of Total

Main Heading/OECD	Finland (1995)	United States (1994)
Income and Profits	40.2 %	44.6 %
Social Security	27.1 %	25.4 %
Payroll	-	-
Property	2.4 %	12.0 %
Goods and Services	30.1 %	18.1 %
Other	0.2 %	-
Total	100.0 %	100.0 %

Wisconsin expects individual taxpayers to carry more of the tax burden than industry as can be seen from Table 5 - 3. In fact, this ratio is higher than in Finland, where it appears to be more evenly divided between individual and industry.

Table 5 - 3: 1995 - 1996 Percentage Breakdown of the Wisconsin State Tax Structure For Individuals And Corporations

1995—1996 Percentage Breakdown of the Wisconsin State Tax Structure For Individuals And Corporations

Taxation	Individual	Corporation	Unknown	Wisconsin Budget
(1) Income or Profit	86,73 %	13,27 %		33,25 %
(2) Property	64,00 %	36,00 %		36,55 %
(3) Gasoline	0,00 %	100,00 %		4,84 %
(4) Sales	59,08 %	40,92 %		23,57 %
(5) Value Added	0,00 %	0,00 %	100,00 %	0,27 %
(6) Other	1,83 %	86,76 %	11,42 %	1,52 %
Total	66,18 %	33,37 %	0,44 %	100,00 %

Source: State of Wisconsin Department of Revenue Division of Research and Analysis

To clearly understand the influence of taxes on jobs and taxes as a barrier to certain business, a more comprehensive study is necessary. These tables and data can only be used as a guide to seeking information and drawing preliminary, but justifiable conclusions.

5.2. Major Industry Growth Opportunities

Wisconsin witnessed a transformation take place in 1992. It marked the year Service Industry employment surpassed the manufacturing industry employment as the population's demands for services rose.

Table 5 - 4 profiles the 30 fastest growing industries in Wisconsin from 1992 projected to the year 2005. These industries are sorted according to percentage change. Nine of the top 20 fastest growing industries fall under the SIC Major Service Industry Group. Although Health Services is projected to have the greatest growth of 48,310 during this period, Business Services is very close behind with increases of over 47,800 during the same period.

Table 5 - 4: Wisconsin's Top 30 Fastest Growing Industries

Wisconsin's Top 30 Fastest Growing Industries

SIC Code	Industry Title	1992 Annual Average Employment	2005 Projected Employment	Employment Change	Percent Change
83	Social Services	53 670	89 900	36 230	67,5%
73	Business Services	89 700	137 500	47 800	53,3%
67	Holding and Other Investment Offices	2 960	4 300	1 340	45,3%
61	Nondepository Institutions	5 330	7 740	2 410	45,2%
89	Services, NEC	570	820	250	43,9%
64	Insurance Agents, Brokers and Services	12 260	17 330	5 070	41,4%
91	Federal Government	15 610	22 030	6 420	41,1%
47	Transportation Services	4 250	5 950	1 700	40,0%
43	US Postal Service	13 980	19 470	5 490	39,3%
81	Legal Services	12 960	17 690	4 730	36,5%
75	Auto Repair Services and Parking	15 490	21 010	5 520	35,6%
87	Engineering and Management Services	30 300	40 820	10 520	34,7%
70	Hotels and Other Lodging Places	24 970	32 500	7 530	30,2%
30	Rubber and Miscellaneous Plastics Products	30 730	39 800	9 070	29,5%
7	Agricultural Services	10 640	13 720	3 080	28,9%
62	Security and Commodity Brokers	4 770	6 050	1 280	26,8%
58	Eating and Drinking Places	153 200	193 230	40 030	26,1%
84	Museums, Botanical, Zoological Garden	1 030	1 290	260	25,2%
79	Amusement and Recreation Services	25 430	31 800	6 370	25,0%
65	Real Estate	16 240	20 190	3 950	24,3%
80	Health Services	200 110	248 420	48 310	24,1%
45	Transportation By Air	4 150	5 130	980	23,6%
76	Miscellaneous Repair Services	5 020	6 180	1 160	23,1%
63	Insurance Carriers	44 100	53 800	9 700	22,0%
72	Personal Services	25 290	30 210	4 920	19,5%
42	trucking and Warehousing	44 470	52 820	8 350	18,8%
82	Educational Services	209 430	246 400	36 970	17,7%
38	Instruments and Related Products	20 380	23 800	3 420	16,8%
86	Membership Organizations	47 730	55 670	7 940	16,6%
27	Printing and Publishing	48 380	55 700	7 320	15,1%

NOTE: Employment rounded to nearest 10
SOURCE: DILHR, Workforce Information Bureau

In the following sections we will analyze some of the most important growth sectors for Wisconsin and Finland in the future.

5.2.1. Product Areas

In the manufacturing sector, technological innovation will continue to increase the production of goods while holding the increase of employees to a minimum. During the 1980's, the economic shock of foreign competition in the United States severely reduced the employment in Wisconsin manufacturing, as well as in the rest of the United States. State manufacturers have recovered from the shock by increasing technological innovation. This innovation in turn has promoted long-term growth and has created manufacturing employment, while the rest of the U.S. has had a smaller employment recovery in this sector.

By using the SIC system in the U.S., it was possible to monitor employment growth in Wisconsin between March 1989 to March 1995. This growth can be seen in Table 5 - 5. A complete breakdown of the manufacturing sector growth in Wisconsin, including industries that had over 3,000 employees added, areas with growth of over 20 %, and those industries most important to the success of Finland and Wisconsin can be found in Appendix 6 - 3. The industries listed below had the highest employment increase during 1989 - 1995 in Wisconsin and are considered important to Finland and Wisconsin for manufacturing success in the future.

Table 5 - 5 Wisconsin and Finland Manufacturing Industry 1989 - 1995 Employment (Sorted by Actual Percentage Employment Change)

Wisconsin and Finland Manufacturing Industry 1989—1995 Employment (Sorted by Actual Percentage Employment Change)

		Wisconsin				Finland				
USA SIC	Industry Title	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change	TOL 95	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change
	Manufacturing									
28	Chemicals	10 631	14 009	3 378	31,77%	241-247	20 700	18 800	-1 900	-9,18 %
25	Furniture	12 617	16 613	3 996	31,67%	361	14 900	11 900	-3 000	-20,13 %
308	Plastics	23 804	30 753	6 949	29,19%	252	14 500	8 700	-5 800	-40,00 %
27	Printing and Publishing	44 516	52 597	8 081	18,15%	22	42 200	34 700	-7 500	-17,77 %
36	Electrical Machinery	38 772	44 987	6 215	16,03%	31-32	43 700	38 200	-5 500	-12,59 %
24	Lumber	26 278	29 318	3 040	11,57%	201-203	40 000	27 600	-12 400	-31,00 %

Wisconsin has made a concentrated effort to produce a highly educated, ethical, and productive labor force, as well as diversified and productive manufacturing companies. This effort has allowed Wisconsin's, and will allow Finland's, manufacturing sectors to grow at a faster pace than the rest of the world.

Although a few of the areas listed above did not appear in the top 30 fastest growing industries in Wisconsin, they are seen as important industries in Finland and therefore require further analysis.

5.2.1.1. Plastic Products

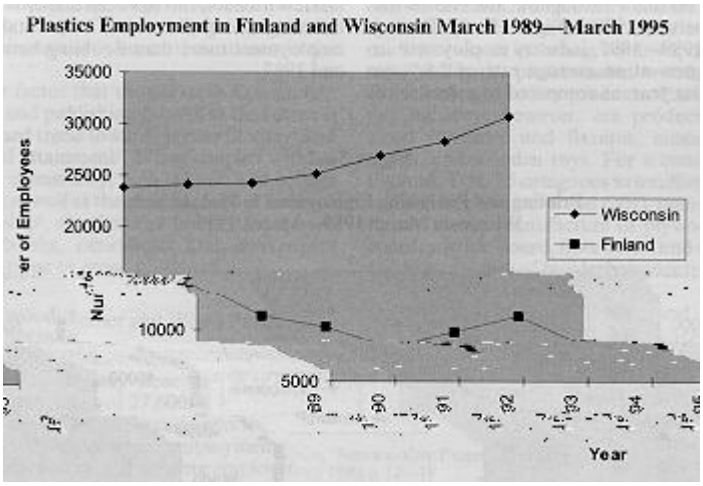
Wisconsin's plastics industry is categorized under the SIC 30 classification of Rubber and Plastics. When looking at this industry, one sees very small growth in rubber and significant growth in the plastics portion. Therefore, the remainder of this discussion will focus on the high growth plastics industry classified as SIC 308. In Finland, TOL 95 category 252 (manufacture of plastic products) was used as a comparison.

The plastics industry is a moderately sized manufacturing industry, employing 30,753 persons in Wisconsin during March 1995 while only 8,700 persons in Finland during March 1995. This industry consists of unsupported plastic film, sheet, and plastic profile shapes, laminated plastic plate, sheet, and profile shapes, plastic pipe, bottles, foam products, custom compounding of purchased plastic resins, and plastic plumbing fixtures.

Plastics by itself is Wisconsin's eighth largest manufacturing industry. Plastic product manufacturing represents 5.2 % of all manufacturing employment in the state. The plastics industry was the fourth fastest growing manufacturing industry in Wisconsin from 1989 - 1995, over a 29 % increase in employment. During this period, the plastics industry had the largest employment increase in Wisconsin, next to the printing and publishing industry. Just under 7,000 new jobs were added in this sector during that time. During this same period of time in Finland, there was a reduction of over 5,800 jobs or approximately 40 % of employment within this sector.

From 1989 to 1995, Wisconsin's plastics industry employment grew at an average annual rate of 4.4 % or 1,158 jobs per year, compared to a reduction of 6.8 % on average or 967 jobs per year in Finland (see Figure 5 - 1).

Figure 5 - 1: Plastics Employment in Finland and Wisconsin March 1989 - March 1995



Plastics is yet another industry which is sure to face stricter environmental regulation in both Finland and Wisconsin in the period ahead. There is significant pressure on manufacturers to develop workable recycling procedures as a result of the ever-increasing volume of non-biodegradable plastic waste in circulation. Many firms are now investing significant resources to develop recycling technologies and biodegradable plastics. Recycled plastic stock is typically less expensive than virgin plastics, and can be used in a wide array of products, including automobile parts and athletic equipment.

Growth in the plastics industry can be largely attributed to demand from end markets and increasing substitution of plastic for other materials in a variety of products. The major end markets for the plastics industry include consumer goods, construction, motor vehicles, packaging, and electronics. Continued substitution of plastics for other materials should provide continued job opportunities for Wisconsin and Finland in the future.

Although not clearly verified, Finland is outsourcing its plastic parts outside of the country. This is apparent because the need for plastic parts is growing in the country, but the plastics industry is not. This area is an obvious business growth target.

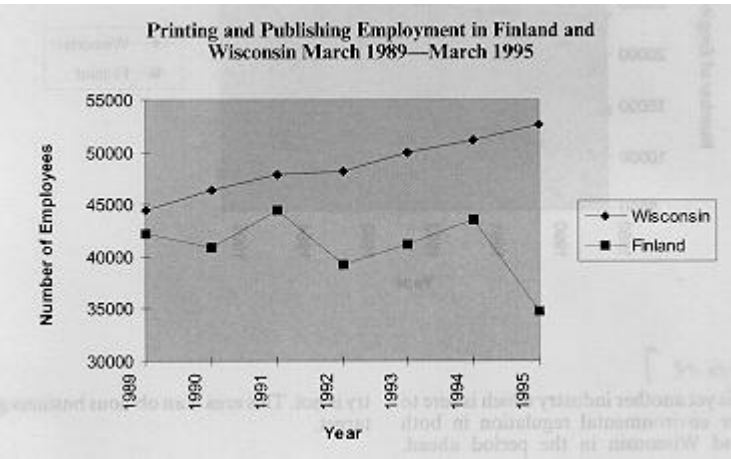
5.2.1.2. Printing and Publishing

Printing and Publishing is categorized in Wisconsin under SIC 27. As a comparison, in Finland TOL 95 category 22 was used. This industry includes the publication of books, newspapers, periodicals, bookbindings and other printing services.

In March 1995, Wisconsin's printing and publishing industry employed approximately 52,600 people, while in Finland, 34,700 were employed. The printing and publishing industry is Wisconsin's fourth largest manufacturing industry, representing 8.9 % of all state manufacturing positions. The printing and publishing industry was only the seventh fastest growing industry in Wisconsin at slightly over 18 %. However, the industry saw the largest increase in employment during 1989 - 1995 of any manufacturing sector in Wisconsin, with just over 8,000 new employees. During this same period, Finland saw a reduction of 7,500 employees that attributed to over a 17 % decline in employment.

State employment growth in printing and publishing was constant throughout the end of the 1980's to the mid 1990's (Figure 5 - 2). During the period 1989 - 1995, industry employment in Wisconsin grew at an average rate of 2.8 % or 1,350 jobs per year, as compared to a decline of 2.6 % or 1,250 jobs per year in Finland. Over the last few decades, this has been one of Wisconsin's fastest growing industries, with total industry employment more than doubling between 1954 and 1987.

Figure 5 - 2: Printing and Publishing Employment in Finland and Wisconsin March 1989 - March 1995



The solid employment growth in Wisconsin was achieved despite the tremendous advantages of the electronic communications industry and the growing computerized desktop publishing industry. These revolutionary technological advances are predicted by many to present a considerable challenge to the printing and publishing industry in the future. However, some industry experts believe the strong growth exhibited by the industry in the recent past was actually due in part to the advances in desktop publishing. The recent past saw an explosion of printed materials that necessitated additional jobs in the printing and publishing industry.

The demand for printed products is influenced by many factors including business formations, general economic growth, and disposable personal income. The most influential factor of printing and publishing growth, however, is advertising expenditures.

The availability of skilled labor may significantly influence the industry. Growing claims of spot shortages of workers could drive labor costs higher2. The printing and publishing industry in Wisconsin has recognized the need to train and recruit skilled labor. The industry developed a partnership with several vocational and technical colleges in the state in order to assure itself of quality workers capable of meeting the dynamics of this growing industry3.

The industry in Wisconsin has benefited from a unique ability to reach the mass market as well as highly specific niches.

The Wisconsin printing and publishing industry has positioned itself to take advantage of the rapid technological change going on industry-wide. Many firms have made significant investments in equipment that will allow them to match customer's technology and move to quicker translation of information into print4. Additionally, the leaders of the large Wisconsin printers see staying on top of the rapidly changing technology environment as key to their success in the future.5

Another factor that should serve to stimulate state print and publishing growth in the future is the continued trend towards higher literacy6 and educational attainment7. When coupled with an increase in elementary, high school, and college enrollment as well as the general trend of increasing readership8, the demand for printed advertisement, books, periodicals and newspapers should continue to grow.

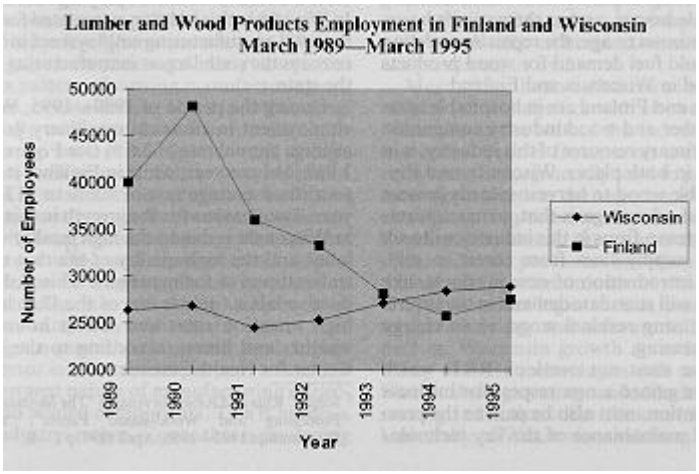
5.2.1.3. Lumber and Wood Products

The lumber and wood products industry (SIC 24) consists of firms engaged in cutting timber, operating sawmills, planing mills, and plywood and veneer mills. The industry also includes firms that produce finished products made entirely or mostly of wood, including windows, doors, cabinets, millwork, prefabricated wood buildings, and a variety of other products. Excluded from this industry, however, are products such as wood furniture and fixtures, musical instruments, and wooden toys. For a comparison to Finland, TOL 95 categories sawmilling, planing, and impregnation of wood (201), manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other (202) and manufacture of builder's carpentry and joinery (203) are used.

Wisconsin's lumber and wood industry is moderately sized relative to other manufacturing industries with March 1995 employment of 29,318 people. This is very close to Finland's March 1995 employment of 27,600. Total wood and lumber employment represents 5.0 % of Wisconsin manufacturing employment, the state's ninth largest manufacturing employer.

During the period 1989 - 1995, Wisconsin employment in lumber and wood products grew at an average annual rate of 1.8 % or 450 jobs per year, greatly exceeding Finland which actually saw a reduction during this period of 4.9 % (see Figure 5 - 3) or 2,067 jobs per year.

Figure 5 - 3: Lumber and Wood Products Employment in Finland and Wisconsin March 1989 - March 1995



Growth in this industry will continue to be led by the value-added sectors, especially millwork, while more basic logging and milling industries will remain relatively small sectors. The entire lumber and wood industry, however, is closely dependent upon the performance of new construction and the repair/remodeling industries. Unforeseen changes in these end markets, or in mortgage rates, would have a profound effect on the lumber and wood industry.

Wisconsin's most prominent lumber and wood products sector, the millwork industry, is particularly sensitive to new construction and the repair/remodeling industries because its primary products are doors, windows, and wooden trim and moldings. In the latter 1980's, when new construction began to decline, repair/remodeling activities increased dramatically and became the driving force behind the demand for millwork. This reciprocal relationship tends to insulate the millwork industry from the effects of declining new construction.

Manufacturers of wooden doors and windows are facing strong challenges in the 1990's from the use of substitute materials in the manufacture of these products. Vinyl and aluminum windows and doors generally offer lower cost, greater efficiency, and lower maintenance than their wooden counterparts. However, most of these products are still made of wooden cores covered in vinyl or aluminum. Upscale homes and buildings will continue to use solid wood doors and windows, and generally use more millwork per unit. Home builders are expected to continue building larger, upscale homes, and as the nation's housing stock continues to age, the repair/remodeling industry should fuel demand for wood products manufactured in Wisconsin and Finland.

Wisconsin and Finland are in hospitable locations for lumber and wood industry companies. Wood, the primary resource of this industry, is in great supply in both places. Wisconsin and Finland's available wood to harvest exceeds present use. A second advantage is that, as transportation costs increase, firms in this industry will seek to compress supply lines from forest to mill. Thirdly, the introduction of new products, like wafer board, will stimulate demand in the future. In addition, using residual wood as an energy source is increasing.

Finally, we must not overlook R&D which seems to have gained a new respect for business success. Attention must also be paid to the preservation and maintenance of the key technologies, and especially to the interaction between technology and business development. Recent improvements in communications, data, and equipment have revealed the need for an increased emphasis on business sector management. The input of

new technology produces a great competitive advantage, such as machine vision, and therefore demands increased investment9. This combination of factors will bring new industry and higher employment to Wisconsin and Finland's lumber and wood products industry in the future.

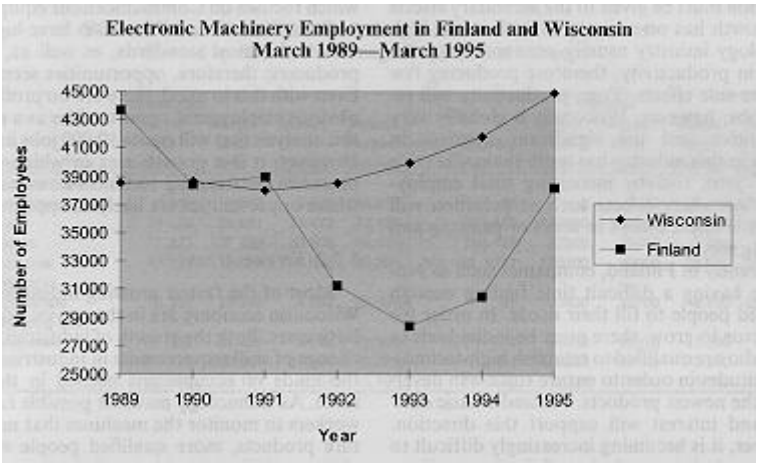
5.2.1.4. Electronic Machinery

The electronic machinery industry (SIC 36) manufactures electrical transmission and distribution equipment, electric motors and generators, industrial controls, electric welding apparatus, household appliances, electric lighting and wiring, radio, television, and communication equipment, and computers. In Wisconsin, the sector is generally characterized by large, widely known companies, many of which are in low or medium sales growth sectors of the industries. For a comparison to Finland, TOL 95 categories manufacture of electrical equipment and apparatus n.e.c (31) and manufacture of radio, television and communication equipment and apparatus (32) are used.

The electrical machinery industry forms a part of the backbone of Wisconsin's vital manufacturing sector employing 44,987 people. Finland's sector is similar in size employing 38,200 people. In Wisconsin this industry accounted for 7.6 % of the total manufacturing employment in 1995 and remains the sixth largest manufacturing sector in the state.

During the period of 1989 - 1995, Wisconsin employment in electrical machinery grew at an average annual rate of 2.6 % (see Figure 5 - 4) or 1,067 jobs per year, while in Finland, it dropped an annual average rate of 1.2 % or 917 jobs per year. Two reasons for the growth in this industry in Wisconsin is due to the high quality of skilled labor and the high quality of life that make the state attractive for managers. This skilled, productive labor force is one of the U.S. leaders in high retention rates and fewest hours lost to weather and illness, according to the National Center for Health Statistics.

Figure 5 - 4: Electronic Machinery Employment in Finland and Wisconsin March 1989 - March 1995



While Wisconsin employment in the electrical machinery industry has actually grown between the period of March 1989 to March 1995, the United States employment rate has declined by as much as 8.7 % over that same period.

Nationally, Wisconsin industrial output rankings based on value of shipments for 1992 (millions) has SIC 362 (electrical industrial apparatus) ranked 11 and SIC 369 (miscellaneous electrical equipment supplies) ranked 18.

Historically for Wisconsin and the United States, a key characteristic of many companies has been a pattern of moving manufacturing operations to, or establishing them in, other areas - especially in the south and in foreign countries. This has been primarily the result of high labor costs in Wisconsin relative to other areas. To be able to retain these employers in the future, Wisconsin must remain innovative in order to maintain its competitive advantage through low cost manufacturing and superior product performance. Special emphasis should be placed in the niche market areas where the uniqueness of the product can justify additional costs.

Driving the general employment levels higher for this sector in Wisconsin is, in part, a function of the

divergent nature of manufacturing in electronics and related components. This is hardly a narrow industry; rather, it's one that is producing a range of products for a seemingly endless array of applications, thus requiring many different types of employment opportunities.

Combine that fact with the trend of using an increasing number of "high-tech" and electronic goods in more and more products like stoves, automobiles, lighting systems, and others, and it's easy to understand why there are always a few niches of this industry savoring a boom in business activity. One sector is always performing well enough to boost business when the others are not producing as well.

Meanwhile, the so-called electrical equipment makers (which together with electronics companies make up the bulk of this industry) face a far less bullish future. One reason is that electrical equipment firms generally tend to produce items more dependent on the vagaries of business cycles. Sales of big-ticket items are more susceptible to general economic downturns than are, say, semiconductor purchases and they always take the biggest hit, economic history has shown.

Specific technologies such as nanotechnology, signal technology and software will have an impact on Wisconsin growth areas in the future. Many of these technologies will originate from Electrical Engineering and Mechanical Engineering institutions like the ones found at the University of Wisconsin - Madison.

Any time an industry experiences growth, consideration must be given to the secondary effects this growth has on society. Growth in the high technology industry usually produces improvements in productivity, therefore producing few negative side effects. True, productivity will reduce jobs; however, Wisconsin is globally very competitive and the significant increase in growth in this industry has more than offset this loss of jobs, thereby increasing total employment. Secondary effects such as pollution will have little effect except in areas of painting and cleaning solvents.

Currently in Finland, companies such as Nokia are having a difficult time finding enough qualified people to fill their needs. In order for this sector to grow, there must be individuals in place who are qualified to establish high-technology attitudes in order to ensure success in developing the newest products. Finland's basic curiosity and interest will support this direction. However, it is becoming increasingly difficult to understand the complexity of these new directions and discoveries without having established cross-functional teams to completely understand the opportunities.

The impact of the mobile phone on telecommunications is more likely to be significant in a welfare society and opens hundreds of potential markets from remote process control to health monitoring systems. Finland is far ahead of Wisconsin in the mobile phone market; but, this is the fastest growing market in Wisconsin, while the electric motors area in Wisconsin is decreasing.

In Wisconsin, the Telecommunications Act of 1996 is the first major overhaul of telecommunications law in almost 62 years. The core law that has governed the communications industry was enacted in 1934, more than six decades ago. When that statute was passed, there were no televisions, no satellites, no mobile phones. Sixty years ago, the latest in telephones was the rotary dial desk set that came in exactly one color - black. The goal of the new law is to allow anyone to enter into any communications business and to allow any communications business to compete in any market. Although the act has just been passed, and the repercussions of this law have yet to be determined, it is safe to say that impacts (job growth) will be felt specifically within SIC 366 which focuses on Communications equipment.

Both Finland and Wisconsin have high business and ethical standards, as well as, quality producers; therefore, opportunities seem likely. Even with this in mind, there are no profound or obvious employment opportunities as a result of this analysis that will create 10,000 jobs instantly. However, it is a growth area in which Finland possesses outstanding technical knowledge and where opportunities are likely to appear.

5.2.2. Service Areas

Most of the fastest growing industries in the Wisconsin economy are in the service producing businesses. Both the growth of industries and the change of skill requirements in industries impact the kinds of occupations needed in the work force. As technology makes it possible for fewer workers to monitor the machines that manufacture products, more qualified people with the ability to design, produce, and maintain

complex machines will be needed. The demand for workers with the greatest training will reflect changes in technology.

With an increase in demand for consumer service, there appears an increase in occupations requiring the ability to work with people. The greatest employment growth will be in professional, and technical occupations that include a mix of both technical and interpersonal skills.

Table 5 - 6 shows the largest employment growth in Wisconsin's service sectors over the period of March 1989 to March 1995. As the table below indicates, comparable Finnish data was also gathered. A complete breakdown of the service sector growth in Wisconsin including industries that had over 3,000 employees added, areas with growth of over 20 %, and industries most important to the success of Finland and Wisconsin, can be found in Appendix 6 - 3.

As seen in Table 5 - 6, more than 36,000 jobs have been added to Wisconsin's business services and engineering and management services payroll over the period of 1989 - 1995, while in Finland, approximately 3,500 have been added. Typically, the jobs within these sectors are highly compensated.

Table 5 - 6: Wisconsin and Finland Service Industry 1989 - 1995 Employment (Sorted by Actual Percentage Employment Change)

Wisconsin and Finland Service Industry 1989—1995 Employment
(Sorted by Actual Percentage Employment Change)

		Wisconsin				Finland				
USA SIC	Industry Title	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change	NACE Industry Used	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change
	Other Services									
88	Private Households	2 249	5 582	3 333	148,20%	95	0	4100	4 100	N.A.
83	Social	33 459	56 931	23 472	70,15%	853-854	142000	129200	-12 800	-9,01 %
73	Business	77 320	107 828	30 508	39,46%	71, 72 744-748	62900	65400	2 500	3,97 %
82	Educational	13 331	18 024	4 693	35,20%	801-804, 9251	125600	99000	-26 600	-21,18 %
86	Membership Organizations	19 353	23 840	4 487	23,19%	91	30400	23700	-6 700	-22,04 %
87	Engineering and Management	27 260	33 404	6 144	22,54%	73, 741-742	64300	65300	1 000	1,56 %
80	Health	170 249	202 243	31 994	18,79%	851	158600	155100	-3 500	-2,21 %
70	Hotels	21 264	25 131	3 867	18,19%	551-552	12200	13700	1 500	12,30 %

Business and engineering and management services should not be confused with consumer services. Consumer services are consumed directly by individuals either on the spot or in the immediate future. Examples of consumer service industries are hotels, restaurants, movie theaters, and hair care establishments. These are final services; they are at the end of the production pipeline. Final services are not used as inputs in the production of other products but are purchased by consumers for the satisfaction that they yield directly.

United States Census indicates that the business services industries have a high percentage of their workforce in managerial and professional occupations, that their average compensation levels are high, and that they provide a high percentage of full-time as opposed to part-time jobs. This is in contrast to a popular image both U.S. citizens and Finns have of service sector jobs as being low-paying, part-time, and unskilled positions. While such unskilled positions do exist within the service sector, very few of those jobs are found in the industries that sell professional business, engineering, and management services. Typically, the firms within this sector are small professional or information service companies that support managers in organizing their enterprises, in making decisions, and in coordinating activities with the rest of the economy. U.S. census information in 1992 indicated that average-sized firms in the business sector had 18 employees per establishment.

Historically, the business and engineering and management service sector itself was not large. It provided only 8 % of the full-time jobs in Wisconsin in 1979. However, between 1979 and 1989, it grew rapidly, providing more than one-forth of the increase in full-time employment in that period, which was the largest, by number, of new jobs provided by any sector.

For this sector to see more jobs in Finland in the future, TEKES needs to fund a program with the complete focus on increasing service sector business. This means funding and supporting market research, business fundamentals, and other non-technology business success factors. TEKES has proven itself as an organization that has efficiently managed the technology and research investments for Finland. Therefore, it seems

reasonable to build on this experience and expertise, and promote the service sector as well. This sector is growing and provides opportunities both in Finland and Wisconsin; Therefore, more detailed discussion will follow.

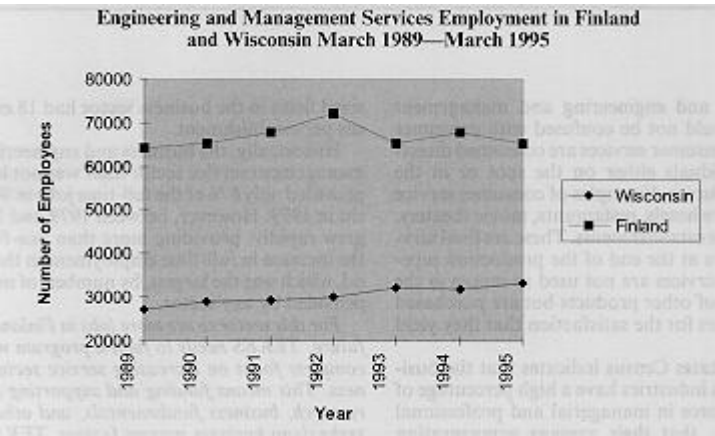
5.2.2.1. Engineering and Management

Engineering and management services (SIC 87) includes establishments primarily engaged in providing engineering, architectural, and surveying services; accounting, auditing, and bookkeeping services; research, development, and testing services; and management and public relations services. For a comparison to Finland, TOL 95 categories research and development (73), legal, accounting, book-keeping and auditing activities, tax consultancy, market research and public opinion polling (741), and architectural and engineering activities and related technical consultancy (742) were used.

This sector is the fourth largest service sector in the state of Wisconsin with March 1995 employment of 33,404 people which represents 5.87 % of all service employment. In Finland this sector had March 1995 employment of 65,300 people.

During the period of 1989 - 1995, Wisconsin employment in engineering and management services grew at an average annual rate of 3.45 % or 1,017 jobs per year, compared to Finland, which grew at an average annual rate of .04 % and 167 jobs per year (see Figure 5 - 5). This growth in Wisconsin is due in large part to the strong educational programs in the area attracting engineers and managers. In Finland, some of this growth (although exactly how much is unknown) in the engineering and management services sector can be attributed to a reclassification of sectors that occurred between December 1994 and January 1995.

Figure 5 - 5: Engineering and Management Services Employment in Finland and Wisconsin March 1989 - March 1995



In both Finland and Wisconsin, between 1987 - 1992, many larger firms in this field reorganized. In their wake, numerous small firms emerged. Companies that take advantage of these services have competitive advantage because they do not need to heavily invest in science and technology, R&D, and education. Although it is more costly for a company to hire a consultant than having one on staff, in most cases, consultants are not available, which presents an additional problem. This sector is seeing success because technology is becoming more complex and real experts are needed, in many cases, "world-class talent". Most of this talent is generated in Science and Engineering schools, as well as in high technology firms themselves, specifically within the biotechnology, electronics, and computer fields.

In the United States, management consulting is an 18 billion industry that continues to grow rapidly. Although the top 50 firms generate 50 % of the revenue, many small firms are establishing themselves every day. Much of this is due to the downsizing of middle management or cutbacks in the industry. For a large portion of people starting their own consulting firms, their first client is probably the company they had been working for. Corporate restructuring has also meant new business for many small engineering and architectural firms. For example, in most corporate restructuring, one of the first areas eliminated are departments that do renovation work. Companies then will hire outside contractors because the functions themselves do not disappear.10.

Nine out of ten cities ranked in the United States saw an increase in the number of professional services firms between 1987 and 1992. Half of the top 20 areas for growth are in the South, five are in the West, four are in the Midwest, and one is in the Northeast. Tiny Lawrence, Kansas, home of the University of Kansas, experienced the largest gain (70 %), from 40 to 68 establishments.

"Lawrence is a particularly easy community in which to start a business," says Mike O'Donnell, director of the University of Kansas Small Business Development Center. "There aren't the restrictions or the bureaucratic hurdles you have in other communities. I could start an accounting business today just by having my business cards printed. There are also a lot of professors on campus who have started part-time consulting businesses," he says.

Within engineering and management services in Wisconsin, almost 94 % of the growth occurred within four sub sectors. 40 % of this growth occurred within (8711) engineering services, 24.6 % came from (8742) management consulting services, 18.4 % was within (8748) business consulting services not elsewhere classified, and 10.2 % came from (8721) Accounting, Auditing, And Bookkeeping Services. Again, with the differences in classification systems used in the United States and Finland, it is difficult to make any comparisons to Finland at this disaggregated level.

With this sector growing, it is important to monitor the secondary effects attributed to such growth. Within the engineering and management sectors, there is a great dependency on science and technology, which can reduce crime with improved security systems, and also help the disabled, by allowing these individuals to work out of their homes.

The greatest job growth will occur within the most complex sciences. One such example is RMT, an engineering and environmental management firm in Wisconsin that specializes in managing the treatment and disposal of wastes for entire companies. Finland already has a strong commitment to science and technology, but emphasis must be placed on a change in attitude. A comfort level must be established in allowing others to perform routine tasks which in turn will allow employees to focus their efforts on their specialties and core competencies.

5.2.2.2. Business Services

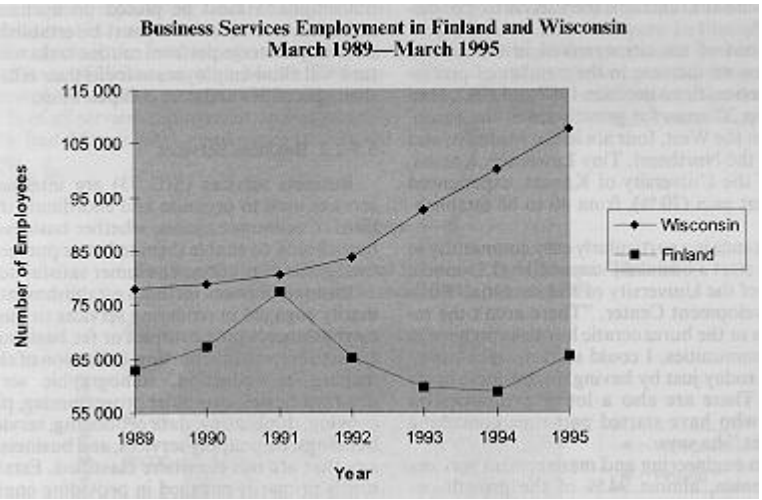
Business services (SIC 73) are intermediate services used to organize and coordinate the actions of economic agents, whether businesses or households, to enable them to better pursue their final goals of profit or consumer satisfaction.

Business services includes establishments primarily engaged in rendering services to business establishments on a contract or fee basis such as advertising, credit reporting, collection of claims, mailing, reproduction, stenographic services, news syndicates, computer programming, photocopying, duplicating, data processing, services to buildings, help supply services, and business services that are not elsewhere classified. Establishments primarily engaged in providing engineering, accounting, research, management, and related services are classified in SIC 87. Establishments that provide specialized services closely allied to activities covered in other divisions are classified in such divisions. For a comparison to Finland, TOL 95 categories renting of machinery and equipment without operator and of personal and household goods (71), computer and related activities (72), advertising (744), labor recruitment and provision of personal (745), investigation and security systems (746), industrial cleaning (747), and miscellaneous business activities n.e.c. (748) are used.

This sector was the second largest service sector in the state of Wisconsin with March 1995 employment of 107,828 people which represented 18.8 % of Wisconsin service sector employment. In Finland, this sector accounted for 65,400 employees the month of March 1995.

From 1989 - 1995, Wisconsin employment in this sector grew at an average annual rate of 5.6 % or 4,983 jobs per year, compared to Finland which saw a 1.26 % increase or 417 jobs per year on average (see Figure 5 - 6). As long as outsourcing continues to increase flexibility within a company and continues to provide cost relief, there is no reason this sector should not grow faster in Finland, and continue to grow in Wisconsin in the future.

Figure 5 - 6: Business Services Employment in Finland and Wisconsin March 1989 - March 1995



Within SIC 73 in Wisconsin, there are 31 subsectors; almost 90 % of the growth occurred in 4 of these. 59.2 % occurred in (7363) help supply services, 10.7 % of this growth occurred in (7389) business services not elsewhere classified, 9.2 % was in (7371) computer programming services, and 9 % was in (7349) business and maintenance services not elsewhere classified.

Help supply services (7363) are establishments primarily engaged in supplying temporary or continuing help on a contract or fee basis. The employee help supplied is always on the payroll of the supplying establishments, but is under the direct or general supervision of the business to whom the help is furnished. Manpower pools and temporary help services are examples within this industry. Establishments that can provide both management and staff to operate a business are classified according to the type of activity of the business. Establishments primarily engaged in furnishing personnel to perform a range of services in support of operations of other establishments are classified in SIC 8744, and those supplying farm labor are classified in Agriculture, SIC 0761.

Recently, this sector has far outpaced the goods-producing sector. Although, some of the employment loss in the goods-producing sectors are really a transfer of employment to the service sector. Not all business service growth is due to this "outsourcing", but this practice has contributed to the increase. Companies are analyzing every conceivable cost and are realizing that it is less expensive to "farm out" as many tasks as possible. With outsourcing, companies are able to expand and contract quickly, particularly in industries that are cyclical. Outsourcing, and temporary help are not only clerical positions anymore11.

While manufacturers and retailers in Wisconsin and the United States struggled to grow in the late 1980's and early 1990's, services firms rapidly expanded in sales, employment, and number of establishments. Demographic change fueled much of the growth in service and a wave of corporate downsizing created a boom in consultants and other outsourced business services. The future of most services is bright, but service businesses will have an extra edge if they master technological change, excel at niche marketing, and improve customer service. Automation is rapidly increasing the potential productivity of workers. Downsizing and mergers make it essential that managers realize that potential. Increasing competition also makes it important to retain customers and sell them more services.

To cut costs, businesses are hiring out for services work that used to be performed by staff. This has been a boom to companies that provide business services such as advertising, credit reporting and collections, mail and copying, building maintenance, equipment rental, temporary help, computer services, and even detective services and security guards. Costs are considered to be the ups and downs of businesses and with heavy fringe benefits cost, hiring outside help can be a net savings even though these outsourcing costs are almost 20 % of total salaries.

It's not surprising that in the U.S., nearly all metropolitan areas experienced increases in the number of business services firms between 1987 and 1992. In the last ten years, new business services have been quite popular. Advertising has experienced this significant growth for the past 50 years. The category of temporary and staffing services has been booming also. The expansion of the industry in the 1980's can be attributed

partially to the change in attitude from solely using temporary help in replacement situations, i.e. for sick or vacationing employees, to more planned use of temps for work overloads and special projects12.

When it comes to business services, growth knows no geographical boundaries, at least in the United States. Of the top 20 metropolitan cities in new businesses, there are seven in the Midwest, six in the South, five in the West, and two in the Northeast. Bismarck, North Dakota posted the biggest jump at 75 %, increasing from 61 to 107 businesses in five years.

When considering the business service sector, the importance of technology is most relevant in software and technical professions. These subsectors provide the fuel for new ideas and products. While the ideas behind this sector come from the "know-how" of scientists and engineers, it has been the computer that has had the largest impact not only on the high-tech companies, but on all companies. Increasing technology will continue to drive the demand for computer services. Four years ago, people did not hear about CD-ROMs being widely used; today a computer can't be bought without one.

Growth within the business services sector will have positive effects on the Finnish society with almost no effects on crime or pollution. It will generate more free time and more flexible work time. It will create more jobs in new areas and provide a consolidation of jobs in established areas such as advertising. However, resistance to change continues to play a role in the growth of this sector, especially in Finland, where everyone seems to share the common belief that "I can do it myself". Once again, it is important to realize people with entrepreneurial skills can hire others to do tasks that they are not specialized in or that are routine, thus allowing more time to be productive in their specialized areas.

5.2.2.3. Private Households

Wisconsin citizens, as in the United States in general, have adapted a "subcontracting" attitude into their homes. They are hiring others to care for their lawn, their home, their pets, and their children. This allows them to focus on the things that are most important to them - work or leisure. As a result, entrepreneurial businesses are springing up everywhere with such titles as "Lawn Service Corp", "2 Men and a Brush" (painters), "Wil-Kill" (bug control), "Maids Service", and "Snow Control".

The average food and housing costs are lower in Wisconsin than in Finland. A moderate disposable income is necessary for a strong household service sector to develop. Disposable income distribution in Finland is very limited which makes it difficult for people to afford these services. These household and family services also have remained uncommon in Finland, in part due to institutional structures favoring self-service. Finland is a self-service society that allows the labor input of tens of thousands of people to go unutilized, and often makes inefficient use of the skills of highly trained and costly professionals. According to the expert group's report on services in Finland, the low level of employment in services in Finland is due to high taxation and indirect labor costs. These factors do not create incentives for firms and households to create work opportunities.

In Wisconsin, the private households sector has experienced over a 148 % increase during the period of 1989 - 1995, and is the fastest growing employment sector in Wisconsin. During this same period in Finland, there appears to be some minimal growth; however, due to a change in the classification structure in Finland, exact numbers are difficult to obtain.

The development of these household and family services is important to the economy of Finland for two reasons. First, by international comparisons, Finland has a shortage of several tens of thousands of jobs in the personal service sector13. This weakens the productivity of the economy, as the highly trained individuals in Finland are spending much of their time caring for their homes. Whereas, in Wisconsin and the United States in general, these people hire others to care for these personal belongings thus allowing them to be most productive with their time, whether it be at work or pleasure. In conditions of widening productivity differentials among individuals in Finland, an insufficiently developed personal services sector will be a growing handicap in international competition.

Household services will only increase after a major change in taxation and regulation. A change would significantly reduce or eliminate the tax wedge in Finland. In addition, there needs to be a shift in the attitudes of the citizens of Finland, who tend to belittle household and family service workers and the tasks themselves.

In Finland, it will be necessary to change the "self service" attitude to allow these service sectors to grow in the future. The success for Finland in the future depends on the citizens of Finland themselves. The globalizing economy demands tough competition and a high level of expertise. Finland must ensure its ability to cope with competition. An improvement in the employment-job situation in Finland depends on the ability of citizens, companies, labor organizations, and the public sector to adapt to new technologies and the requirements of international competition.

5.3. Tomorrow's Jobs

Different factors will continue to affect Wisconsin and the United States and their occupational needs. The fastest growing occupations are influenced by both changing demographics and technology (See Table 5 - 7 and 5 - 8). The aging of the U.S. population, as well as medical advancements, are driving the need for homemaker-home health aides and many other health occupations. Also, the continuing spread of computer technology provides the impetus for rapid growth for computer scientists and systems analysts.

Table 5 - 7: Wisconsin's Top 30 Fastest Growing Occupations with 500 + Employment

Wisconsin's Top 30 Fastest Growing Occupations with 500 + Employment

Occupational Title	Estimated Employment 1 992	2 005	Percent Change
Computer Engineers	1 560	3 750	140,38 %
Systems Analysts	8 970	18 450	105,69 %
Human Services Workers	5 770	11 560	100,35 %
Demonstrators, Promoters, Models	850	1 690	98,82 %
Personal Home Care Aides	4 550	8 900	95,60 %
Home Health Agents	6 160	11 720	90,26 %
Electronic Pagination Systems Operators	620	1 100	77,42 %
Paralegal	1 060	1 870	76,42 %
Detectives and Investigators	900	1 530	70,00 %
Correction Officers and Jailers	3 920	6 330	61,48 %
Teachers, Special Workers	8 070	12 790	58,49 %
Nursery Workers	1 210	1 880	55,37 %
Insurance Adjusters, Investigators	4 200	6 510	55,00 %
Child Care Workers	15 860	23 990	51,26 %
Dental Hygienists	2 550	3 830	50,20 %
Screen Printing Mach. Setter/Operator	1 160	1 730	49,14 %
Dental Assistants	3 940	5 800	47,21 %
Postal Mail Carriers	6 360	9 360	47,17 %
Guards	9 930	14 560	46,63 %
Teachers, Preschool and Kindergarten	9 820	14 380	46,44 %
Travel Agents	2 440	3 560	45,90 %
Loan Officers and Counselors	3 500	5 090	45,43 %
Medical Records Technicians	1 800	2 610	45,00 %
Tax Examiner, Collector, Revenue Agent	640	930	45,31 %
Physical, Corrective Therapy Assist	1 110	1 610	45,05 %
Medical Assistants	3 050	4 430	45,25 %
Physical Therapists	1 840	2 670	45,11 %
Legal Secretaries	4 600	6 650	44,57 %
Postal Service Clerks	740	1 060	43,24 %
Management Analysts	2 090	3 000	43,54 %

Employment rounded to nearest 10
Source: DILHR, Workforce Information Bureau

Future predictions expect employment growth to slow down in the United States. Over the 1994 - 2005 period, employment is projected to increase by only 14 % compared to 24 % during the period of 1983 - 1994. Wage and salary worker employment will account for 95 % of this increase. In addition, the number of self-employed workers is expected to increase, while the number of unpaid family workers will decline14.

Table 5 - 8: United States Top 30 Fastest Growing Occupations

United States Top 30 Fastest Growing Occupations

Occupational Title	Estimated Employment (1000) 1994	2005	Percent Change
Personal and home care aides	179	391	118,44 %
Home health aides	420	848	101,90 %
Systems analysts	483	928	92,13 %
Computer engineers	195	372	90,77 %
Physical and corrective therapy assistants and aides	78	142	82,05 %
Electronic pagination systems workers	18	33	83,33 %
Occupational therapy assistants and aides	16	29	81,25 %
Physical therapists	102	183	79,41 %
Residential counselors	165	290	75,76 %
Human services workers	168	293	74,40 %
Occupational therapists	54	93	72,22 %
Manicurists	38	64	68,42 %
Medical assistants	206	327	58,74 %
Paralegals	110	175	59,09 %
Medical records technicians	81	126	55,56 %
Teachers, special education	388	593	52,84 %
Amusement and recreation attendants	267	406	52,06 %
Correction officers	310	468	50,97 %
Operations research analysts	44	67	52,27 %
Guards	867	1 282	47,87 %
Speech-language pathologists and audiologists	85	125	47,06 %
Detectives, except public	55	79	43,64 %
Surgical technologists	46	65	41,30 %
Dental hygienists	127	180	41,73 %
Dental assistants	190	269	41,58 %
Adjustment clerks	373	521	39,68 %
Teacher aides and educational assistants	932	1 296	39,06 %
Data processing equipment repairers	75	104	38,67 %
Nursery and greenhouse managers	19	26	36,84 %
Securities and financial services sales workers	246	335	36,18 %
Bill and account collectors	250	342	36,80 %

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, November 1995.

The largest quantity of new jobs will be in the service-producing industries, although employment growth is projected to be highly concentrated by industry. The services and retail trade industries will account for 96 % of the total projected growth in wage and salary jobs. Business, health, and education services will account for 70 % of the growth within services. Health care services will account for almost one-fifth of all job growth from 1994 - 2005. Factors contributing to continued growth in this industry include the aging population, which will continue to require more services, and the increased use of innovative medical technology for intensive diagnosis and treatment. Patients will increasingly be shifted out of hospitals and into outpatient facilities, nursing homes, and home health care in an attempt to contain costs.

Job opportunities can arise in two ways - job growth and replacement needs. Employment growth can be measured by percent change and numerical change. The fastest growing occupations do not necessarily provide the largest number of jobs. Even though an occupation is expected to grow rapidly, it may provide fewer openings than a slower growing, more established occupation.

Opportunities in large, established occupations are enhanced by additional job openings resulting from the need to replace workers who leave the occupation. Some workers leave the occupation as they are promoted or change careers; others quit working to return to school, assume household responsibilities, or retire.

Replacement needs are greater in occupations with low pay and low status, low training requirements, and a high proportion of young and part-time workers. These needs will account for 62.4 % of the job openings from 1994 - 2005, far more than the 37.6 % of openings projected to arise from employment growth.

Employment change will vary widely by broad occupational group. Employment in professional specialty occupations is projected to increase at a faster rate than any other major occupational group. Among the major occupational groups, employment in professional specialty occupations is also projected to account for the largest job growth from 1994 - 2005. Professional specialty occupations (which require high educational attainment and offer high earnings) and service occupations (which require lower educational attainment and offer lower earnings) are expected to account for more than half of all job growth between 1994 and 2005.

Meanwhile, growth in occupations such as precision production, craft, repair occupations and operators, fabricators, and laborers are projected to increase much more slowly, due to continuing advances in technology, changes in production methods, and the overall decline in manufacturing employment.

The fastest growing occupations reflect growth in computer technology and health services. Many of the fastest growing occupations are concentrated in health services, which is expected to increase more than twice as fast as the economy as a whole. Personal and home care aides, and home health aides, are expected to be in great demand in order to provide personal and physical care for an increasing number of elderly people, as well as for persons who are recovering from surgery and other serious health conditions. This increase is due to hospitals and insurance companies mandating shorter stays for recovery in order to contain costs.

It is expected that employment of computer engineers and systems analysts will grow rapidly, also, to satisfy expanding needs for scientific research and applications of computer technology in business and industry.

It is important to remember that education and training affect these job opportunities. Workers in jobs with low education and training requirements tend to have greater occupational mobility. Consequently, these jobs will provide a larger than proportional share of all job openings stemming from replacement needs. New jobs requiring the most education and training will grow faster than jobs with lower education and training requirements. Jobs requiring the most education and training will also be the highest paying.

Occupations that require a bachelor's degree or above will average 23 % growth, almost double the 12-percent growth projected for occupations that require less education and training. Occupations that pay above-average wages are projected to grow faster than occupations with below average wages. Jobs with above-average wages are expected to account for 60 % of employment growth over the 1994 - 2005 period. Jobs with higher earnings often require higher levels of education and training. Education is important in getting a high paying job. However, many occupations (registered nurses, blue-collar worker supervisors, electrical and electronic technicians/technologists, carpenters, police, and detectives) do not require a college degree, yet offer higher than average earnings.

Educational services are projected to increase and will account for 1 out of every 8 jobs that will be added to the economy between 1994 and 2005. Most jobs will be for teachers, who are projected to account for about 20 % of all jobs available for college graduates.

Projected employment growth of occupations whose earnings rank in the top quartile in the nation is highly concentrated. Eight of the 146 occupations will account for about half of the new jobs. These occupations are registered nurses, systems analysts, blue-collar worker supervisors, general managers and top executives, and four teaching occupations-elementary school teachers, secondary school teachers, college faculty, and special education teachers.

Jobs that require moderate-length and short-term training and experience (the two categories requiring the least amount of education and training) will provide over half of total job openings over the 1994 - 2005 period.

One thing to remember is that the labor force will continue to grow faster than the population. Spurred by the growing proportion of women who work, the labor force will grow slightly faster than the population over the 1994 - 2005 period. Women are projected to represent a slightly greater portion of the labor force in 2005 than in 1994 - increasing from 46 to 48 %. The number of men in the labor force is projected to grow, but at a slower rate than in the past. This is reflected in a decline of employment in good-paying production jobs in manufacturing, and a continued shift in demand for workers from the goods-producing sector to the service-producing sector. Men with less education and training may find it increasingly difficult to obtain jobs consistent with their experience.

5.3.1. Summary - Specific Job Analysis

To determine that one particular type of employment will have long-term success is difficult, due to the rate at which technology changes and makes today's jobs obsolete. However, by looking at employment trends over the past 1 - 5 years, it is possible to identify where job growth will occur most rapidly in the next 5 - 10 years. When the advisory members from Finland visited Wisconsin in January 1997, they established a list of

occupations that were viewed as important to Finland in the future. By comparing this list to the lists of jobs in both Wisconsin and the United States, occupations most important to the success of Finland and its economy were identified (see Table 5 - 9).

Table 5 - 9: Specific Growth Jobs

- Computer Engineers
- Web Masters
- System Analysists
- Home Health Aides
- Personal and Home Care Aides

Wisconsin, as in the United States in general, is predicting large job growth in technological occupations such as Computer Engineers, Web Masters and System Analysts. With technology playing a vital role in everyday lives, these jobs will be essential to future economic success in both Wisconsin and Finland.

Technological breakthroughs have also increased the average life expectancy of individuals. Because of this and the fact that the population in general is aging, jobs aimed at caring for the elderly are growing rapidly. Specifically, Personal and Home Care Aides and Home Health Aides are seeing some of the largest growth.

In the next 5 to 20 years, more new jobs will be created as virtual reality systems and other new concepts create new businesses and services. But, as in the past, most of the jobs and job growth will continue to be in the traditional areas of public servants, business (accountants, etc.), health (doctors and nurses), and trade (retail and wholesale).

5.4. Political Change

Building the environment for reduction of unemployment will require, among other things, political change. Parliament will need to take the leadership role to change tax laws and unemployment compensation laws - no one else is qualified to do this. Some changes should be relatively easy, such as industrial "university contribution" tax deduction increase, while others, such as changing unemployment benefits will be more difficult. Even harder will be leadership needed to change attitudes regarding household services and acceptance of larger salary differences. Maybe attitude changes are better left to citizen groups, but Parliament discussions will be necessary to assure that some group takes ownership of expected changes.

5.5. Additional Recommendations

Clearly, a strong economy is necessary and among the most important criteria for prosperity and well being. A welfare state at the current level of Finland cannot be supported without a strong GNP. Regarding secondary impacts, crime is generally inversely proportional to per capita income. High R&D investments are proportional to GNP. Individual self esteem and feelings of well being are higher in locations of higher per capita income.

In Wisconsin, the low unemployment and strong business growth has been attributed to a positive business climate. The Governor, Tommy Thompson, has had a strong influence, with his effective promotion for new business and positive taxation law. The government, the university, the strong technical education programs, and a hard working workforce all contribute to this business climate. Even the welfare program now requires that able workers must find jobs. Of course, there are programs to help them find jobs and other programs to reeducate displaced workers for growing job markets.

The positive Wisconsin business model requires an efficient government and educational infrastructure, and a healthy private industrial base. This requires a strong R&D investment and climate, positive university and industry interaction, and the lowest taxation possible. At this same time, enough support must be given to operate government programs and keep Wisconsin business competitive nationally and internationally.

5.5.1. University Contributions - Tax Deductible

The university as a unit is more resistant to change than most people imagine. The democratic makeup of the

faculty, the long development period for both research and student output all produce conditions that resist change. At the same time, society expects the university to be the lightning rod for change since it is at the forefront of technology. It also expects the university to somehow foresee and lead society into the future.

If the university is not the best unit of society to deal with the future, than who is?

Industry is usually the sector of society putting the greatest demands for rapid change on the university as was demonstrated by Nokia's need for several hundred electrical engineers graduating from Finnish Universities. Under present tax laws and conditions, it is difficult to respond to such needs. The simplest solution is to use greater freedom for individual and industrial contributions to the university. Therefore, it is recommended that the present university tax deductible contribution laws be changed as follows:

PROPOSAL

Increase the tax deductible contributions to Universities to allow industries to deduct up to 1 % of gross sales or one million Finnish markkaa whichever is greater, and to allow individuals to deduct up to one million Finnish markkaa.

Example

Assume that it was in Finland's best interest to expand the information service program for computer science and other technology graduates. Further assume that Nokia saw the need for 200 students with this background in two years. It would be impossible to get funding approval, design curriculum, process students (2 - 4 yrs), and cause the necessary structural change in less than seven years.

Universities can react quickly, as seen when research agencies offer funding for new initiatives. Therefore, allowing industry to contribute directly to the university will reduce the cost of change, and will best serve society. The government would have to collect 1.5 million Finnish markkaa in taxes to produce the same result that industry could accomplish with one million Finnish markkaa.

This action is in everybody's best interest and should be instituted immediately.

5.5.2. Tourism

Although tourism is not a high growth industry in Wisconsin, it is a well-developed mature industry that generates about 6 billion in total revenue. Since our search was mainly for high growth sectors, tourism did not appear on the earlier charts. However, when visiting Finland, the Wisconsin advisory committee was quick to notice the opportunity. One member said, "With this many lakes and the mild summer climate, tourism should be a major business sector."

It is not necessary to destroy the Finnish summer home concept or to give up the seclusion that Finns seek. A few small areas could be developed into unique recreation areas - the best in Europe - such as:

- wilderness hiking
- wind surfers paradise
- inland lake sailing
- river canoeing and boating
- back to nature
    - berry picking
    - mushroom picking

The secondary benefits to local economics are substantial and mostly benefits the rural community.

5.5.3. Continue R&D Investment Increase

It is indeed a wise Parliament decision to raise the level of R&D investment to 2.9 %. The evaluation of existing R&D programs, including TEKES, has shown proven payback and has shown evidence that R&D

public moneys have been well managed. The growth of business export has demonstrated that private R&D has been well managed as well. With additional SME program initiatives, there should be a broad spectrum of private R&D investment opportunities.

As an example, in Wisconsin, 50 % of capital gains is exempt from taxes for investments in startup companies if the investment extends for a period of five years. This tends to expand "informal" individual investments which is the backbone for early stage funding and seems to be less developed in Finland.

5.5.4. Implementation

Implementation of report recommendations is a worldwide problem. This is especially true when the action is not the domain of a single group or agency. It is even worse when the implementation requires change of attitude. The media, Parliament, research community, Universities, industry and citizen groups must all play a part.

It would be of great value to revisit these recommendations each year, evaluate which groups have taken ownership and implemented change, and to determine other actions that still need to be addressed.

An example of successful implementation was with the "Effective Technology Transfer - Finland" study in 1985. It was found that R&D investments in Finland were not increasing sufficiently because the R&D departments in Finnish industry had become the dumping ground for the engineering staff. Those who were not productive in production, manufacturing and even sales were transferred to R&D. When this was pointed out to Finnish industry, they responded immediately and R&D began to grow in size, respect, and productive output.

5.6. Benchmarking Study

5.6.1. Importance of Benchmarking

Many different methods have been used in attempting to find the solutions for difficult problems such as unemployment. Benchmarking is a loose technique without the controls of statistical rigor, which allows more freedom to innovate, but provides results that appear less authentic. Statistics can also be used to make a case that appears well based, but in fact, is not.

The Netherlands did an excellent benchmarking study with detailed statistics regarding jobs and R&D investments. The Organization For Economic Cooperation and Development (OECD) also has conducted studies to examine this issue, but the global nature of the breakdowns doesn't allow for pinpointing opportunities. In fact, the nature of SIC categories works against the likelihood that a job or category will be current since it takes years to establish. In addition, the similarity between terms and definitions from one country to another is a problem that must be considered at every stage of comparison.

5.6.2. Society Similarities

Often in this kind of study, there is a cause and effect relation. High taxation can make some service sectors undesirable. Motivation in one environment may not be present in another.

Values, ethics and social conditions require and often produce laws and government regulations that effectively deal with specific conditions, and preclude the direct transfer of laws from other countries or states. For instance, the gray market in Finland has allowed most household services to be performed outside of the taxation system and statistical records. Using the same laws as the U.S. at this stage would not produce the desired results because of the gray market.

5.6.3. Economic Conditions

Economic conditions of the compared areas should be similar to limit variables, and to make sense of unemployment's related factors. If the size of the GNP, economic units, and population are similar, then often there is some intuitive sense regarding variables. When comparing Finland to the U.S. and Wisconsin, the numbers don't seem accurate, except of course when comparing ratios such as percent R&D to GNP.

5.6.4. Limited Variables

Too many variables is a significant problem in studies such as this. One cannot control the study conditions, therefore conditions must be accepted as is. Cause and effect are not possible to understand, and approximations have to be substituted for scientific results.

5.6.5. Our Approach

The basic approach for this study was to:

1. set reasonable and clear objectives
2. establish a plan
3. gather data
4. form Advisory Committee
5. present concepts
6. gather more data and information (interviews, reports)
7. present report of findings
8. gather supporting and conflicting recommendation information
9. develop implementation concepts
10. present final recommendations and report

The question is DID IT WORK? Yes, it seemed to. The advisory committee meeting schedule not only set the tone for the commitment of the committee, but also set the tone for the quality of the recommendations, and the discipline needed for the work. Special effort should be made early on to establish a committee that is well respected, especially in the area which is impacted by the recommendations.

An interesting outcome of this study was that the greatest contribution occurred outside the set of objectives. As a result of this project, 103 students found work for the summer of 1997 in Wisconsin in the service sector. This is a business sector that needs building in Finland. This was an unexpected bonus to the project.

The simple approach of gathering data and testing it against an advisory committee is satisfactory as long as you do several iterations. It is surprising how many conclusions established before the data gathering are found invalid.

It is also important to have experienced staff recognize valuable data, and make sure good data is not combined with useless data.

The most important matter of any study is the final implementation. This study is not worth anything unless someone takes action. New legislation or removal of legislation is a possible outcome. Extra effort is always necessary for IMPLEMENTATION of the recommendations.

5.6.6. Conclusions

Compared to the Netherlands report and the SE Asia bench mark study, this method may produce more useful results, but also may be more costly. Although many of the recommendations are not original, they produce needed emphasis. The Finland Industrial policy contains many of the same recommendations, as well as many more. This set of recommendations reinforces the unemployment reduction objective.

Credibility is crucial for support and follow up. Therefore, the advisory committee should play a role during implementation.

5.7. Student Exchange

5.7.1. 103 Students

With the unemployment in Finland at approximately 16.3 % during 1996 and the unemployment in Wisconsin closing out the year of 1996 averaging 3.5 %, the study realized an additional opportunity. The Wisconsin

Dells is an area in central Wisconsin known all over the Midwest as a summer tourism destination. During the months of June through August, the Dells entertain over 3 million visitors from around the Midwest who consume the scenic tours, waterparks, thrill shows, amusement parks and various other summertime activities this area has to offer.

Historically, due to such low unemployment in the state, the Wisconsin Dells typically has a shortage of summer help in excess of 500 people. This shortage is felt most in areas such as amusement park operators and agents, restaurant host and hostesses, restaurant waiters and waitresses, hotel maid and front desk operators, resort maintenance people, water park attendees and general tourism managers.

5.7.2. Plan

While one would agree that providing the opportunity for summer employment to a Finnish university, Polytechnical or college student who has very limited opportunities in Finland is positive in itself, a more important goal presented itself. By exposing the younger generation to the service sector in the United States, Wisconsin could share expertise with these students regarding service and allow the students to bring valuable information and attitudes back to Finland with them.

With the project receiving support from business owners in Finland and Wisconsin, the University of Wisconsin-Madison, employers in the Wisconsin Dells, and the Finnish Parliament, a new project was formed with the following objectives:

1. For Finland university students to enhance their understanding of the service sector in the United States and the needs of serving the customer
2. For students to become tools of change to promote the service sector in Finland - "change agents"
3. For the Finnish students to develop their own study comparing Finland to Wisconsin and to present this study at the end of summer to Parliament

In essence, this project will provide Finnish students the opportunity to work in an international environment over the summer and will provide Wisconsin with employees in its much needed tourism sector in the Wisconsin Dells.

With all parties in agreement, the following goals and guidelines were established in order for this project to be successful:

* 100 service sector summer internship opportunities are created in Wisconsin for the summer of 1997

* Members of Parliament will make the student selections, while UW Madison and its cooperating partners will do the final student - internship fit

* Students are required to work in Wisconsin 4.6. - 3.9.97

* Students are responsible for all costs incurred traveling to and from Wisconsin, living expenses in Wisconsin, insurance costs, computer usage, and travel costs not associated with work

* Students will earn between 240 and 400 U.S. dollars per week based upon a 40 hour work week, but must be willing to work flexible hours

* Students will earn enough money to cover all living expenses plus some "fun money"; however they cannot expect to save much

* Internship opportunities consist of receptionists, waitstaff, clerks, handypersons, and host/hostesses

Due to the late start of this project, the timeline was short, which did not allow room for error. The final timing of the project was as follows:

ACTIVITY	**Date**
Selection of students	21.3.97
Assign job descriptions	21.3.97
Send approval letter and AIPT forms to students	25.3.97
Return AIPT forms to Parliament (first deadline)	4.4.97
Send first batch of visa applications to U.S. for processing to U.S. for processing	9.4.97
Return AIPT training forms to Parliament (last deadline)	15.4.97
Send final batch of visa applications to U.S. for processing	16.4.97
Presentation to the students on the Wisconsin Dells	18.4 - 5.5.97
Students receive visa approval notification	20.5.97
Issue visa from U.S. Embassy in Finland	27.5.97
Students relocate to Wisconsin	30.5 - 3.6.97
Students start work assignments in Wisconsin	4.6.97
Students complete work assignments in Wisconsin	3.9.97

With a successful completion of this project for the summer of 1997, it seems only logical to make such an opportunity available to more students in the future.

---

6. APPENDIX

6.1. Reference List

Bohner Lewis, Kate "Business Services and Supplies." Forbes, (January 1996).

Carfax International Publishers. European Journal of Engineering Education (EJEE), (1995).

Centre For Finnish Business and Policy Studies (EVA). The EU and Finland from the St. Petersburg Perspective "The Two Faces of St. Petersburg" An EVA Report on Attitudes in St. Petersburg, (1996).

Centre for Finnish Business and Policy Studies (EVA). The European Union 1996 and Finland, (1996).

Centre for Finnish Business and Policy Studies (EVA). Indicators of The Finnish Society 1995/96, (1995).

Chemical Industry Federation of Finland. Responsible Care Indicators, (1994).

Confederation of Finnish Industry and Employers. Finnish Industry, (September, 1996).

Confederation of Finnish Industry and Employers. Facts about the Finnish Economy 1996, (1996).

Ernst and Young International Ltd.. Doing Business In Finland, (1993).

European Commission. Green Paper on Innovation, (December, 1995).

European Commission. Innovation and Technology Transfer, (January, 1996).

Fanglan, Du and Mergenbagen, Paula "The Future of Services." American Demographics, (November 1995).

Federation of Finnish Metal, Engineering and Electrotechnical Industries. Metal and Engineering Industry, (1996).

Finnfacts. Finnish Foreign Trade 1995 Metal and Engineering Industry Boosts Exports, (1995).

Finnfacts on Behalf of The Finland Promotion Board. FinnFax - Finnish Foreign Trade, (July, 1996).

Finnish Academies of Technology. High Technology in Finland 1995, (1995).

Finnish Academies of Technology. High Technology in Finland: 1997, (1997).

Finnish Food and Drink Industries Federation. Facts about the Finnish Food and Drink Industry 1995, (1995).

Finnish Forest Industries Federation. The Finnish Forest, the Forest Industry and the Environment, (1993).

Finnish Forest Industries Federation. The Way of the Wood - Forest Industry and Environment, (1995).

Finnish Leonardo Centre. Finland, (1995).

Finnish Parliament. Report of the Special Parliamentary Committee on Finland's Future Options, (1994).

Finnish Parliament. The Models on Success Part 1 Southeast and East Asia, (1996).

Finnish Parliament. The Finnish Government's White Paper on Industrial Policy, (1996).

Finnish Parliament. Report of the Special Parliamentary Committee For The Future, (May, 1997).

Fresh Finland. Food Exports From Finland, (December, 1995).

Haapakorpi, Arja "OECD Documents OCDE From Higher Education to Employment." Organization for Economic Co-Operation and Development, (1992).

Helsinki Media Special Magazines. Business Finland 1996, (1995).

Helsinki University of Technology. Polysteekki Bulletin of The Helsinki University of Technology, ().

In Print Publishing Ltd.. Industry and Higher Education, (June, 1996).

Industry Committee Working Party. Framework Conditions for Industrial Competitiveness National Business Environments in the Global Economy, (1996).

Kauppinen, Timo "Labour Relations in Finland." Ministry of Labour, (August, 1994).

Kemia-Kemi Finnish Chemistry. The Chemical Industry in Finland, (1995).

Klus, John P. and Strang, William A. "Wisconsin's Economy In the Year 2000." University of Wisconsin - Madison School of Business, (1991).

Klus, John P. and Hirvensalo, Reijo "The Mechanical Wood Processing and Wood-Based Panels Technology Programmes 1992 - 1996." Technology Development Centre Finland (TEKES), (April, 1997).

Lou Hagbarth. The Baltic Sea Region - A Presentation, (September, 1994).

Mergin Oy Ltd./Mergin Publications. Contact Finland 1996: A guide to Finnish Business Services, Organizations and Authorities, (1996).

Mergin Oy Ltd./Mergin Publications. Contact Finland 1994 - 95: A guide to Finnish Business Services, Organizations and Authorities, (1996).

Ministry of Economic Affairs. Benchmarking the Netherlands, (June, 1995).

Ministry of Education Helsinki. Education, Training and Research in the Information Society A National Strategy, (1995).

Ministry of Finance Finland. Pocket Budget: The Budget Proposal for 1997 in Finland, (1996).

Ministry of Trade and Industry - Finland. A New Outlook on Industrial Policies, (April, 1996).

Nichols, Donald. A "La Follette Report The Growth of Business Services in Wisconsin." Robert M. La Follette Institute of Public Affairs, (1993).

Nordic Industrial Fund. New Nordic Technology, (March, 1995).

Nordic Industrial Fund. New Nordic Technology, (January, 1996).

Ojainmaa, Kaisa "International Competitive Advantage of the Finnish Chemical Forest Industry." Research Institute of the Finnish Economy (ETLA), (1994).

Organization for Economic Co-Operation and Development. OECD Reviews of Foreign Direct Investment, (1995).

Organization for Economic Co-Operation and Development. OECD Economic Surveys Finland 1996, (1996).

Organization for Economic Co-Operation and Development. OECD Reviews of Foreign Direct Investments, (1995).

Organization for Economic Co-Operation and Development. OECD Science and Technology Indicators No 2 R&D, Invention and Competitiveness, (1986).

Oy Talentum Ab. Finns In Business - The Top 500 Companies, (July, 1996).

Painatuskeskus OY, Helsinki. The Finnish Parliament, (1995).

Painatuskeskus OY, Helsinki. Statistical Yearbook of Finland, (1995).

Painotalo MIKTOR Helsinki. Directory of Chemical and Plastics Industries in Finland 1995, (1995).

Research Institute of the Finnish Economy (ETLA). Advantage Finland: The Future of Finnish Industries, (1996).

Science and Technology Policy Council of Finland. Towards an Innovative Society: A Development Strategy for Finland, (1993).

Technology Development Centre Finland (TEKES). Views on Finnish Technology, (1995).

Technology Development Centre Finland (TEKES). Comparison of Procedures for Identifying Emerging and Critical technologies, (June, 1992).

The Advisory Committee on State-Owned Companies. State Owned Companies in Finland 1994, (1994).

Tikkurilan Paino Oy. In Finland Valtipa Network, (1996).

Udell, Jon G. "Wisconsin's Quality of Business and Personal Life as Seen by Chief Executives." University of Wisconsin - Madison School of Business, (March 1996).

U.S. Department of Agriculture. Farm Employment and Wage Rates 1910 - 1990, (March 1991).

U.S. Department of Commerce. U.S. Global Trade Outlook 1995 - 2000, (1995).

U.S. Department of Commerce Bureau of Labor Statistics. Statistical Abstracts of the United States, (1996).

U.S. Department of Education. Telecommunications Act of 1996, (1996).

U.S. Department of Labor Bureau of Labor Statistics. Employment, Hours, and Earnings United States, 1909 - 96, (1997).

U.S. Department of Labor Occupational Safety and Health Administration. Standard Industrial Classification System, (1987).

Wilson, Timothy L. and Smith, Frank E. "Business Services 1982 - 1992 Growth, Industry Characteristics, Financial Performance." Industrial Market Management, (1996).

Wisconsin Department of Industry, Labor and Human Relations. Wisconsin Projections 1992 - 2005, (April, 1995).

Wisconsin Legislature Reference Bureau. State of Wisconsin Blue Book 1995 - 1996, (1995).

Wisconsin Strategic Development Commission. The Electrical Machinery Industry in Wisconsin, (April 1985).

Explore Otaniemi Science and Technology Park Finland's High tech Center Combines Research and Enterprise.

6.1.1. Background of Principle Investigator Klus

Dr. Klus has over 30 years of professional experience in both the public and private sectors. Currently, he is a professor at the University of Wisconsin-Madison School of Engineering and a visiting professor at Helsinki University of Technology. He teaches new product courses and manages independent studies. He has managed a project to offer continuing education in Poland and Hungary, and engages in technology transfer activities. Also, he was "Science and Technical Advisor" to Wisconsin Governor Thompson and president of the International Association for Continuing Engineering Education (IACEE) headquartered in Finland through 1995.

Dr. Klus was the founder and director of the Center for Product Exploration at the University of Wisconsin-Extension. The Center was formed to assist entrepreneurs and industry in solving problems associated with bringing a new product to market successfully. Dr. Klus developed the Klus Test evaluation system for early stage product development. He also reviewed and evaluated over 500 varied product development proposals which included, among others, computer systems, solar operations, industrial instrumentation, robotics, and food processing. In addition, Dr. Klus was responsible for project evaluation and management of the Wisconsin for Research Seed Fund.

Prior to the development of the Center for Product Exploration, Dr. Klus served as combined Department and program chairman for the Department of Engineering and Applied Science at the University of Wisconsin-Extension, a position that provided twelve years of administrative experience. The Department had an income of over 4 million and programs involving 400 courses. It was 100 % self-supporting, deriving all of its operating budget from income. In this capacity, Dr. Klus led the Department into new areas and growth which produced one of the largest and most respected continuing education programs in the country. Staff for the

department increased from 10 full-time equivalent faculty positions with three tenured to a staff with over 35 full-time equivalent faculty with 14 tenured.

Dr. Klus took a leave of absence from the University of Wisconsin-Madison from February 1979 to September 1980 to work at Madison-Kipp Corporation as Vice President of Advanced Engineering. There, Dr. Klus was responsible for product development and evaluation of acquisitions. He also served on the Executive Committee to manage the 45 million operation. Dr. Klus was instrumental in the development of a surface tensiometer, a device which measures the surface tension of liquids, and is a co-patent holder. He also assisted in evaluating the company's acquisition of a digital industrial and electronic equipment company.

In September 1994, Dr. Klus received an Honorary Doctorate from Helsinki University of Technology for contributions to the field of continuing education, technology transfer and new product development.

Dr. Klus has received numerous honors and awards including: the Biedenbach Award, 1996; ASEE-CPD 1996; election to the Finnish Academy of Technology, the 1989 Finnish Medallion from the Finnish Engineering Society (STS); the 1987 Leonardo de Vinci Medal from the European Society of Engineering Education (the only American to receive the award);1981 Outstanding Paper Award, ASEE, CPD Division; Engineer of the Year, Southwest Chapter for Wisconsin Society of Professional Engineers, 1976; Distinguished Service Award, ASEE/DES, 1976; NUEA-American College Testing Program Innovative New Program Award, 1972; UW-Extension Distinguished Service Award, 1971; listing in "Who's Who in the Midwest," 1971; Know Your Madisonian Award, 1971; Professional Engineer in Education, Wisconsin Society of Professional Engineers, 1971; Outstanding Engineering in Education Award, Southwest Chapter of WSPE, 1971; Young Engineer of the Year, Southwest Chapter of WSPE, 1969; the Dow Chemical Award, ASEE-North Midwest, 1969; and was a Fulbright Scholar for research and teaching in Finland during the academic year of 1966 - 1967 and the Spring of 1985.

Dr. Klus has also authored a number of monographs and books and has published over 100 articles. His most recent books are "Administration of Continuing Education" published in 1982, "Effective Technology Transfer - Finland" published in 1985, and "Wisconsin Economy in the Year 2000" published in 1991. Other monographs include "Comparative Study of Swedish Higher Technical Education" 1980, and "Survey of Continuing Education Activity of Engineers and Scientists" 1975, an ASEE publication. He also created the concept of Professional Development Degree Program at the University of Wisconsin-Madison School of Engineering and has taught courses in new product development to several hundred experienced industrial product development managers.

In addition, Dr. Klus is a member of the Board of Directors of the First Business Bank of Madison, Drytec, Wisconsin Trails, Stress Photonics, and Board of Advisors of Locus Corporations. He consults with companies in both the U.S. and Finland.

During 1985, Dr. Klus conducted a major study in Finland called "Effective Technology Transfer." It dealt with R&D investment, current levels of technology, continuing education, and other forms of technology transfer. In 1980, he chaired a major study in Sweden called "Comparative Study of Swedish Higher Technical Education." It compared the quality of technology education in Sweden to U.S., Switzerland and the Netherlands. Both had major national implications.

Dr. Klus received his B.S. and M.S. degrees in Civil Engineering at Michigan Technological University and his Ph.D from the University of Wisconsin-Madison.

6.1.2. Wisconsin Advisory Members

John L. Geroux, John currently lives in Madison, Wisconsin, is married and has six children. John Geroux entered what was then Wisconsin Bell, now Ameritech on June 24th, 1968 with the Wisconsin Telephone Company. He held various positions in Network, Plant, Corporate Planning, Corporate Services, Controller and Marketing Departments throughout his career. His extensive efforts of trying to implement the telecommunications vision for the industry culminated in the passage of information highway legislation in 1994. He retired from Ameritech at the end of 1994, and has since enjoyed extensive reading, in-depth usage of on-line services, traveling, and spending time with his family. He received his Bachelor of Science Degree in Mechanical/Nuclear Engineering from Marquette University in 1961, and a Masters of Business

Administration from the University of Chicago in 1968. He served in the United States Navy Submarine Service (Nuclear-Polaris) from 1961 - 1966. His career has also included involvement in the Board of Directors of Forward Wisconsin, Wisconsin State Telephone Association, United Way of Dane County, YMCA of Metropolitan Madison and Edgewood High School Board of Trustees.

Jerry Smith, Jerry currently lives in Madison, Wisconsin, is married and has three children. He is President, CEO and Director of First Business Bank, First Business Bankshares and First Madison Capital Corp. Jerry was an organizer of First Business Bank which was founded in 1990 and has 150 million in assets as of September, 1996. The bank now employs 33 full time employees. Previously, Jerry was President and owner of Jerry Smith and Associates, a consulting firm which provided planning services for financial institutions throughout the United States. Jerry has a career spanning 35 years as a commercial banker. He has served on the faculty of the University of Wisconsin Graduate and Post Graduate Schools of Banking. He has lectured and consulted for banking groups throughout the United States. In addition to First Business Bank, Jerry serves as an outside director for several private, public and not for profit organizations, including University of Wisconsin Medical School CARE board, Secura Life and Secura Insurance Companies.

Bill Strang, Bill serves as Associate Dean for External Relations for the University of Wisconsin-Madison School of Business. He directs public relations, publications, alumni relations, career services, development, and continuing education programs at the school. It is his job to oversee the communications with the external constituencies of the business school including business alums, employers and the media. He has worked to promote economic development in Wisconsin. He has served as a member of the Governor's Commission for Tax Reform and as advisor to the Wisconsin Strategic Development Commission. He has served on the Investment Advisory Board of Venture Investors of Wisconsin for several years and is a member of the board of directors of Associate Bank in Madison. As a professor in the marketing department, he has done extensive research on the state's economy, co-authoring a study, Wisconsin Economy in the Year 2000, in an effort to predict Wisconsin's economic picture at the end of the century. Bill Strang's dedication to the University springs from his deep roots in the state and university communities. He earned his BBA , MBA and PhD degrees in marketing from UW-Madison. He spent three years in industry, working for Mead Johnson International. In the 1960's, one of Bill's assignments as a new faculty member was to participate in the building committee which was established to solve the business school's problems of overcrowding. After chairing that committee for 20-some years, he is credited for guiding the effort to get Grainger Hall built and to get alums and sponsors to help pay for it. Years of planning and hard work have paid off because Grainger Hall has been highly praised by students, designers and the external audiences that use it. It has been called one of the best business school facilities in the country.

Charles (Chuck) H. Thompson, Chuck was appointed by Governor Tommy Thompson to serve as Secretary of the Wisconsin Department of Transportation in January, 1992. He previously served five years on the Public Service Commission, the last four as its chairman. Secretary Thompson is active in many state and national organizations, committees and task forces. He holds several positions within the American Association of State Highway and Transportation Officials (AASHTO), a prestigious national trade association. He is on the AASHTO Board of Directors, chairs the AASHTO Committee on the Environment, and serves as vice-chair of AASHTO's Mississippi Valley Conference. He is Director of the Center for Transportation and the Environment at North Carolina State University; chairs the Executive Committee of the Gary/Chicago/Milwaukee Corridor Coalition overseeing development of the Intelligent Transportation Systems technology in the I - 94 study corridor, and chairs the Wisconsin Land Use Task Force which was formed last year at the request of Governor Thompson. Secretary Thompson has held many previous public and private positions. He is a Wisconsin Dells businessman, served on the school board, has been actively involved with political organizations, tourism groups, the Wisconsin Restaurant Association and vocational and hospital advisory boards.

Carol Toussaint, Carol has a record of voluntary, business and public service in Wisconsin and nationally. She is currently a Senior Associate with the firm of Hayes Briscoe Associates (HBA), consultants in governance, planning and fund development for non-profit organizations. Among her assignments with HBA is participation in the development of capital campaign strategies for the League of Women Voters Education Fund. She previously served as vice president of the League of Women Voters in the U.S. and president of the League in Wisconsin.

She is a former cabinet officer in Wisconsin having been appointed as Secretary of the Department of Local

Affairs and Development. In this position, she was the Governor's Alternate to the Upper Great Lakes Regional Commission and designee to several boards and commissions. Over several years, other gubernatorial appointments have included the Board of Agriculture, Trade & Consumer Protection; Higher Education Aids Board; and the Advisory Council on Judicial Selection which she chaired. In serving as Deputy Director of the Wisconsin Strategic Development Commission, she participated in a major assessment of the state's economic strengths and weaknesses which resulted in numerous recommendations to the Governor, Legislature, and private sector leaders. She later served as director of a study of the Economic Impact of the Nonprofit Arts in Wisconsin.

She has been a member of the board of directors of Wisconsin Power & Light for 20 years and chaired the Utility Women's Conference, a national enterprise open to women who are associated with investor-owned utilities. She served the Madison Community Foundation as consultant for four years and as a member of the Board of Governor for nine years. She is the owner of Vantage Point, a Madison-based lecture business, and co-directs a program with annual travel to Russia focusing on cultural and economic development opportunities for women.

She is a member and past president of the Madison Rotary Club and presently chairs its foundation. At the University of Wisconsin-Madison, she serves on the board of the Research Park, the Dean's Advisory Board at the School of Business, the Center for Women and Philanthropy in the Department of Human Ecology, and chairs Cabinet 99, the women's initiative of the Alumni Association. Her professional affiliations include the International Women's Forum and Women in Communications, Inc.

6.1.3. Staff

Brian Kalscheuer, Brian currently is living in Madison, single and attending the University of Wisconsin-Madison. He is working on his MBA in Marketing with a graduation date of December 1997. As a student there, he is assisting Professor John Klus in a study for the Finnish Parliament aimed at developing a new perspective to tackle the challenges facing Finland, among other things, their unemployment problems. During the spring and summer of 1997, Brian will be in Finland conducting the remainder of the research, writing the study, and assisting in the presentation to Parliament.

Brian spent the summer of 1996 at 3M in St. Paul, Minnesota where he worked as a New Market Development intern. There, he identified and prioritized high volume applications for an emerging technology within the medical and electronic market segments.

While attending The University of Wisconsin-Madison School of Business, Brian served as Co-President of the Graduate Marketing Network from 1996 - 1997 and is currently serving as a Student Ambassador to the School of Business.

Before attending graduate school, Brian worked as an engineer for three years at Nicolet Instrument Corporation (Analytical Instrumentation Company) in Madison, Wisconsin. There, he was responsible for coordinating the development of a Microsoft Windows based application supporting the instrumentation that automates the collection and analysis of used engine oil. Prior to that, Brian spent two years as an Engineering Assistant at Nicolet developing Microsoft Windows based commercial application installers and two years as a manufacturing technician testing and servicing computers down to the component level.

Brian received his Bachelor of Arts in Computer Science with a Minor in Business Administration from Lakeland College in 1994 and his two year Associate Degree in Service Engineering from Wisconsin School of Electronics in 1989.

6.1.4. Finland Advisory Members

Kalevi Olin

Doctor of Sport and Health Sciences, Member of Parliament
Parliament of Finland
FIN-00102 Eduskunta
Helsinki, FINLAND

tel: +358-9-4321
fax: +358-9-4322274
email: kalevi.olin.eduskunta.fi

Markku Markkula

M.Sc.(engin.), Member of Parliament
Parliament of Finland
FIN-00102 Eduskunta
Helsinki, FINLAND
tel: +358-9-4321
fax: +358-9-4322274
email: markku.markkula.eduskunta.fi

Aino Suhola

Master of Philosophy, Member of Parliament
Parliament of Finland
FIN-00102 Eduskunta
Helsinki, FINLAND
tel: +358-9-4321
fax: +358-9-4322274
email: aino.suhola@eduskunta.fi

Tarja Kaarina Filatov

Member of Parliament
Parliament of Finland
FIN-00102 Eduskunta
Helsinki, FINLAND
tel: +358-9-4321
fax: +358-9-432 - 3207
email: tarja.filatov@eduskunta.fi

Pentti Tiusanen

Medical Doctor, Member of Parliament
Parliament of Finland
FIN-00102 Eduskunta
Helsinki, FINLAND
tel: +358-9-4321
fax: +358-9-4322274
email: pentti.tiusanen@eduskunta.fi

Kyösti Juhani Karjula

Member of Parliament
Parliament of Finland
FIN-00102 Eduskunta
Helsinki, FINLAND
tel: +358-9-4321
fax: +358-9-432-2274
email: kyosti.karjula@eduskunta.fi

Kari Ebeling

Ph.D.(paper chemistry), Director, Corporate R&D
UPM-Kymmene Corporation
Snelmanninkatu 12
P.O.BOX 203

FIN-00179 Helsinki, FINLAND
tel: +358-204-150076
fax: +358-204-150334

Martti Mäenpää

Ph.D.(engin.), Director General, Technology Development Centre TEKES
TEKES
P.O.BOX 69
FIN-00101 Helsinki, FINLAND
tel: +358-105 2151
fax: +358-9-694 9196

Juha Toivola

M.Sc.(math.), Industrial Insurance Company Ltd, President
Teollisuusvakuutus Oy
FIN-00035 Teollisuusvakuutus
Helsinki, FINLAND
tel: +358-10 514 5100
fax: +358-10 514 5839

Jouko Torasvirta

MBA, Research Director, Trade Department, Ministry of Trade and Industry
Ministry of Trade and Industry
P.O.BOX 239
FIN-00171
Helsinki, FINLAND
tel: +358-9-1603626
fax: +358-9-1604022

Pekka Ylä-Anttila

Lic.Sc.(Econ.), Managing Director, Etlatieto Oy
Etlatieto Oy
Lönnrotinkatu 4 B
FIN-00120
Helsinki, FINLAND
tel: +358-9-60990227
fax: +358-9-601753
email: pya@etla.fi

Paula Tiihonen

Doctor of Administrative Sciences, The Future Committee of Parliament, Secretary
Parliament of Finland
FIN-00102 Eduskunta
Helsinki, FINLAND
tel: +358-9-4321
fax: +358-9-4322274
email: paula.tiihonen@eduskunta.fi

6.2. Wisconsin Agenda for January 13 - 18

SATURDAY, JANUARY 11, 1997

AGENDA TIME

Finnish Arrival to Madison 3:31 PM

SUNDAY, JANUARY 12, 1997 1:00 - 4:00

AGENDA TIME

Tour of Madison 1:00 - 4:00 PM

- Bev Fergus (John Klus' daughter) and possibly Carol Toussaint (Wisconsin Advisory Member) will provide tour

MONDAY, JANUARY 13, 1997

9:00 - 4:30, Dinner at 5:30

Wisconsin Center - 702 Langdon Street Room 109

AGENDA TIME

Meeting Overview and Introduction 9:00 - 9:15 AM

- John Klus - Project Coordinator

Wisconsin Background 9:15 - 10:30 AM

- Cate Zeuske - Secretary of Revenue

Break 10:30 - 10:45 AM

Services Sector Preliminary Results 10:45 - 11:45 AM

- Brian Kalscheuer - Project Assistant

Lunch 11:45 - 1:00 PM

- Wisconsin Center

Services Sector Attitudes 1:00 - 2:30 PM

- Al Zins - Zins Boelter and Lincoln Inc.

Break 2:30 - 2:45 PM

Services Sector Discussion (con't) 2:45 - 4:30 PM

- Service barriers
- Laws
- Discussion of other growth areas

Dinner at the Madison Club 5:30 - 8:00 PM

TUESDAY, JANUARY 14, 1997

7:30 - 5:00, Dinner at 6:00

Wisconsin Center - 702 Langdon Street Room 109

AGENDA TIME

Economic Development Breakfast 7:30 - 9:00 AM

- Donald Nichols, Professor of Economics - University of Wisconsin
- 1997 Economic Outlook for Wisconsin and the U.S.

Break 9:00 - 9:15 AM

Visit to RMT 9:30 - 11:30 PM

- Mark Smith - President RMT

Lunch 11:45 - 12:45 PM

Visit to Fiskars 1:00 - 3:00 PM

- Tour starts at the lab facility in Middleton (Larry Carter or Jim Boda will assist)

Wisconsin Dairy Farm Visit 3:15 - 5:00 PM

- Brian Kalscheuer's parent's dairy farm

Dinner at John's House 6:00 - 8:00 PM

WEDNESDAY, JANUARY 15, 1997 8:00 - 4:00

Concourse Hotel Conference Room 1, Second Floor

AGENDA TIME

Welfare Reform 8:00 - 9:30 AM

- Meeting held at the Concourse Hotel
- John Gard - Legislator from Peshtigo, Chairman of Wisconsin Works Oversite Committee
- General welfare situation
- Results and side effects

Break 9:30 - 9:45 AM

Welfare Reform (con't) 9:45 - 10:45 AM

- Nan Brien - Associate Director of the WI Council on Children and Families
- New Wisconsin law

Visit to Capital 11:00 - 12:00 PM

- Short walk to Capital
- Provided by Governor's office - Tour guide to be determined

Lunch 12:00 - 1:00 PM

- Great Dane Brew Pub
- Lorraine M. Seratti - State Representative from the 12th Senate District will be joining us for lunch

Meetings with Legislators 1:30 - 3:00 PM

- Scott R. Jenson - State Representative from the 11th Senate District

Dinner To Be Determined - Possibly Open

THURSDAY, JANUARY 16, 1997

8:00 - 3:30, Dinner at 6:00

AGENDA TIME

Valmet Visit 8:00 - 3:30 AM

- Pekka Haapanen - Executive VP

Dinner at Bishops Bay Country Club 6:00 - 8:30 PM

FRIDAY, JANUARY 17, 1997 9:00 - 11:15

Room 1710, Engineering Hall, on the Engineering Campus

AGENDA TIME

The Information Age: WI and the U.S.: A Practical Perspective 9:00 - 9:45 AM

- Local Host and Coordinator for the Morning: John Stremikis will meet everyone at the fountain, near the main entrance
- John Giroux - Wisconsin Advisory Member, will discuss technology, business, and public policy, and their relationship to Telecommunications Deregulations Act

The Information Age: WI and the U.S. (con't) 9:45 - 11:15 AM

- Professor Bruce Kiefer - College of Engineering, will demonstrate and discuss his Project Management Course, and delivery of that course to SOHOs and SME's within Wisconsin, the USA, and now available to Finland and the EU

Lunch, Afternoon and Dinner Open - For Individual

Programs

- Other options: Open invitation from the University Research Park

SATURDAY, JANUARY 18, 1997

AGENDA TIME

Finnish Departure from Madison 11:00 AM

6.3 Wisconsion Growth Charts

Table 6 - 1

Wisconsin Manufacturing Industry 1989—1995 Employment.
Sorted By Actual Percentage Employment Change

USA SIC CODE	Industry Title	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change
	Manufacturing				
32	Stone, Glass, Clay	6 881	9 093	2 212	32,15%
28	Chemicals	10 631	14 009	3 378	31,77%
25	Furniture	12 617	16 613	3 996	31,67%
29	Oil and Coal	267	335	68	25,47%
30	Rubber and Plastics	29 787	36 580	6 793	22,81%
39	Miscellaneous Manufacturing	9 812	11 702	1 890	19,26%
27	Printing and Publishing	44 516	52 597	8 081	18,15%
36	Electrical Machinery	38 772	44 987	6 215	16,03%
24	Lumber	26 278	29 318	3 040	11,57%
33	Primary Metals	22 376	24 326	1 950	8,71%
34	Fabricated Metals	58 165	63 047	4 882	8,39%
20	Food and Allied	59 369	62 755	3 386	5,70%
26	Paper and Allied	49 624	51 675	2 051	4,13%
35	Industrial Machinery	111 911	112 194	283	0,25%
37	Transportation	32 498	31 964	-534	(1,64%)
38	Instruments	20 688	18 867	-1 821	(8,80%)
31	Leather	6 692	6 003	-689	(10,30%)
23	Apparel	7 414	6 568	-846	(11,41%)
22	Textile	4 380	3 213	-1 167	(26,64%)
21	Tobacco				
	Total =	552 678	595 846	43 168	7,81%

Table 6 -2

Wisconsin Other Services Industry 1989—1995 Employment.
Sorted By Actual Percentage Employment Change

USA SIC CODE	Industry Title	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change
	Other Services				
88	Private Household Services	2 249	5 582	3 333	148,20%
84	Museums	540	953	413	76,48%
83	Social Services	33 459	56 931	23 472	70,15%
79	Amusement and Recreation	17 576	25 764	8 188	46,59%
89	Miscellaneous Services	267	391	124	46,44%
78	Motion Pictures	4 208	6 000	1 792	42,59%
73	Business Services	77 320	107 828	30 508	39,46%
82	Educational Services	13 331	18 024	4 693	35,20%
75	Auto Repair Services	14 746	18 348	3 602	24,43%
86	Membership Organizations	19 353	23 840	4 487	23,19%
87	Engineering and Management Services	27 260	33 404	6 144	22,54%
80	Health Services	170 249	202 243	31 994	18,79%
70	Hotels	21 264	25 131	3 867	18,19%
81	Legal Services	12 214	13 037	823	6,74%
72	Personal Services	25 316	26 736	1 420	5,61%
76	Miscellaneous Repair Services	4 929	4 891	-38	(0,77%)
	Total	444 281	569 103	124 822	28,10%

Table 6 -3

Wisconsin Manufacturing and Service Industry 1989—1995 Employment..

	USA SIC		Month. 1989	Month. 1995	Actual Emp	Actual Percent
			Emp	Emp	Change	Change
148,20%	88	Private Household Services	2 249	5 582	3 333	
76,48%	84	Museums	540	953	413	
	83	Social Services				
46,59%	79	Amusement and Recreation	17 576	25 764	8 188	
46,44%	89	Miscellaneous Services	267	391	124	
42,59%	78	Motion Pictures	4 208	6 000	1 792	
39,46%	73	Business Services	77 320	107 828	30 508	
35,20%	82	Educational Services	13 331	18 024	4 693	
32,15%	32	Stone, Glass, Clay	6 881	9 093	2 212	
31,77%	28	Chemicals	10 631	14 009	3 378	
31,67%	25	Furniture	12 617	16 613	3 996	
25,47%	29	Oil and Coal	267	335	68	
24,43%	75	Auto Repair Services	14 746	18 348	3 602	
23,19%	86	Membership Organizations	19 353	23 840	4 487	
22,81%	30	Rubber and Plastics	29 787	36 580	6 793	

Table 6- 4

Wisconsin Manufacturing and Service Industry 1989—1995 Employment.
Fastest Employment Growth — Over 3,000 Employees

USA SIC CODE	Industry Title	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change
80	Health Services	170 249	202 243	31 994	18,79%
73	Business Services	77 320	107 828	30 508	39,46%
83	Social Services	33 459	56 931	23 472	70,15%
79	Amusement and Recreation	17 576	25 764	8 188	46,59%
27	Printing and Publishing	44 516	52 597	8 081	18,15%
30	Rubber and Plastics	29 787	36 580	6 793	22,81%
36	Electrical Machinery	38 772	44 987	6 215	16,03%
87	Engineering and Management Services	27 260	33 404	6 144	22,54%
34	Fabricated Metals	58 165	63 047	4 882	8,39%
82	Educational Services	13 331	18 024	4 693	35,20%
86	Membership Organizations	19 353	23 840	4 487	23,19%
25	Furniture	12 617	16 613	3 996	31,67%
70	Hotels	21 264	25 131	3 867	18,19%
75	Auto Repair Services	14 746	18 348	3 602	24,43%
20	Food and Allied	59 369	62 755	3 386	5,70%
28	Chemicals	10 631	14 009	3 378	31,77%
88	Private Household Services	2 249	5 582	3 333	148,20%
24	Lumber	26 278	29 318	3 040	11,57%

Table 6 -5

Wisconsin Manufacturing and Service Industry 1989—1995 Employment.
Important Industries With Secondary Impact

USA SIC CODE	Industry Title	March 1989 Emp	March 1995 Emp	Actual Emp Change	Actual Percent Change
80	Health Services	170 249	202 243	31 994	18,79%
35	Industrial Machinery	111 911	112 194	283	0,25%
73	Business Services	77 320	107 828	30 508	39,46%
34	Fabricated Metals	58 165	63 047	4 882	8,39%
20	Food and Allied	59 369	62 755	3 386	5,70%
83	Social Services	33 459	56 931	23 472	70,15%
27	Printing and Publishing	44 516	52 597	8 081	18,15%
26	Paper and Allied	49 624	51 675	2 051	4,13%

6.4. Finland Agenda for March 16 - 22

Sunday 16, March 1997
Arrive Wisconsin
Monday 17, March 1997
08:00 - 09:45 Meeting with John Klus, Hotel Rivoli

10:00 - 11:30 Nokia
13:00 - 14:15 Ministry of Trade and Industry - Mr. Mäkinen, Aleksanterinkatu 4
14:30 - 16:00 Ministry of Communications and Transportation, Etelä-Esplanadi 16
16:30 - 18:30 U.S. Embassy Chief of Economic Section - Mr. Delaney, Mellstenintie 17 B 13
19:00 - 22:00 Dinner at Sampo-Industrial Insurance Company, hosted by Sampo and Fiskars

Tuesday 18, March 1997

08:00 - 11:00 Technology Development Center (TEKES)
11:30 - 13:30 Lunch with Minister of Finance - Ms. Arja Alho
13:30 - 14:30 OKO Bank - Executive Director Mr. Mikael Silvennoinen, Vallila
16:00 - 18:30 YLE Finnish Broadcasting Company: Information Society
18:30 - 20:30 Dinner - YLE Finnish Broadcasting Company Advisory Board

Wednesday 19, March 1997

09:00 - 10:00 Parliament Speaker's welcome hour Ms. Uosukainen
10:00 - 10:15 Tour of Parliament
10:15 - 12:00 Committee for the Future meeting with Wisconsin Advisory Board, Parliament
12:00 - 13:45 Discussion and lunch with Committee for the Future Chairman - Mr. Martti Tiuri, Parliament
14:00 - 15:45 The Central Union Taxpayers Manager of Research - Mr. Teemu Lehtinen, Kalevankatu 4
16:00 - 18:00 Aktia Bank Director - Sakari Oka, International Operations - Niklas Lemberg, IT Manager Ahti Planman, Mannerheimintie 14
18:00 - 18:45 Shopping with spouses at Stockmanns
19:00 - 21:30 Finnish Evening - Hosted by Committee Counselor Paula Tiihonen

Thursday 20, March 1997

09:00 - 11:30 Valmet Paper Machinery Manager of Personnel Development - Markus Laitila, Wärtsilänkatu 100, Järvenpää
12:30 - 13:30 City of Hämeenlinna Head of Government Office - Veikko Ripatti
13:30 - 14:30 Lunch hosted by City of Hämeenlinna and Tarja Filatov
14:45 - 15:45 University of Tampere Institute for Extension Studies Education Manager - Jorma Saarinen
16:00 - 17:00 Video Conference with The Future Society, Kirjastokatu 1, Hämeenlinna
17:15 - 18:30 Visit to Sibelius Birth Home
18:45 - 19:45 Visit to Art Museum in Hämeenlinna
20:00 - 22:30 Dinner at the Häme Castle with Tour to Follow

Friday 21, March 1997

08:30 - 11:15 Screening of Student Applications at Dipoli
11:45 - 12:45 Lunch and Discussion with Managing Director of ETLA Pekka Ylä-Anttila and Research Director of ETLA Markku Lammi, Hotel Marski
13:00 - 14:00 Visit and continued discussion at ETLA Facility

14:30 - 17:30 Screening of Student Applications (Continued)
15:30 - 17:00 Central Chamber of Commerce of Finland,
Aleksanterinkatu 17
Saturday 22, March 1997
Return to Wisconsin
