



FROM MADISON TO THE WORLD:

Economic Impact of GE Healthcare Madison



GE Healthcare



December 2013

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Executive Summary

For more than a century, Madison, Wisconsin has been a hub of anesthesia and respiratory innovation producing results for better today's and tomorrows. GE Healthcare Madison is a global brand that represents quality and innovation both at home and abroad. In a place where equipment is not just designed but manufactured on a foundation of experience, commitment, and a can-do spirit, GE Healthcare Madison creates the life support equipment that the world counts on. GE Healthcare Madison looks for and finds solutions that blend knowledge, experience, real-world insights, innovation, and hard work, that turn the promise of "what if?" into the power of "here's how." GE Healthcare Madison, along with its public and private partners, are working to strengthen the state and region and provide better health for more people in Wisconsin and across the globe. This report shows the economic and societal impacts that GE's operations in Dane County have on the state of Wisconsin.

Tripp Umbach calculates that GE Healthcare Madison, through its business operations alone, generates **\$341.9 million** in economic impact, supports **1,778 jobs** in Wisconsin and generates **nearly \$12.0 million in local and state tax revenue**. These impacts on the economy are just the beginning of what GE Healthcare Madison brings to this state and region. From purely an economic perspective, GE Healthcare Madison has financial impact on the state of Wisconsin, but also is a direct contributor to the vitality of Dane County.

Strong relationships with a local supplier base are critical to a high-tech global company like GE. The company spends \$12.4 million a year with Dane County-based suppliers. GE Healthcare Madison is a global provider of transformational medical technologies and services, which are shaping a new age of patient care. GE Healthcare Madison provides broad expertise in anesthesia and respiratory care which allow its customers around the world to deliver better care to more people at a lower cost.¹

Research agreements between GE Healthcare Madison and the University of Wisconsin School of Medicine and Public Health (the UW) have been tremendously successful in advancing diagnostic imaging and radiology research to the next frontier. This 30 year collaboration has resulted in imaging equipment and protocols that are used globally.

¹ GE Healthcare is a unit of General Electric Company which employs over 22,000 people in the US and more than 6,500 in Wisconsin. GE Healthcare has significant operations at manufacturing sites in Milwaukee, Waukesha and Madison, comprising three of its top five sites nationally.

By the Numbers



GE Healthcare

- GE Healthcare Madison's operations have a total annual economic impact on the state of Wisconsin of more than \$341.9 million.
- GE Healthcare purchases \$12.4 million annually from Dane County suppliers.
- GE Healthcare Madison supports nearly 1,780 jobs directly or indirectly throughout the state of Wisconsin (nearly 630 direct).
- GE Healthcare Madison was responsible for \$115.7 million in exports from the state of Wisconsin in 2012.

Executive Report

Introduction

GE Healthcare's operations in Madison, WI (Dane County) (operations will be referred to as GE Healthcare Madison) focus on anesthesia and respiratory delivery, innovation, and helping clinicians worldwide to deliver tailored therapy to a broad range of patients. GE's platform of anesthesia and respiratory technology enables clinicians to practice anesthesia delivery, customized to the needs of their patients. GE embodies the experience and excellence that is demanded in anesthesia and critical care to administer anesthesia customized to the needs of their patients. GE Healthcare Madison makes products in the emergency room (ER), intensive care unit (ICU), and critical care unit (CCU). Products made in Madison are also used in the operating room (OR) with innovative critical care respiratory care stations to improve the quality of care provided to patients.

General Electric (GE) has maintained operations in Wisconsin since 1947 when it moved its X-ray operations to Milwaukee from Chicago. It currently operates five manufacturing facilities, a major distribution center, and houses many of its employee support functions in Wisconsin. GE Healthcare's operations are predominantly in the Milwaukee, Waukesha, and Madison metro areas. A previous economic impact study showed that GE Healthcare's overall economic impact in Wisconsin was \$3.8 billion and that operations within the state sustains more than 21,000 total jobs.

Although the General Electric logo has appeared on the building for only just over a decade, the City of Madison has more than a century of anesthesia innovation history.

The building itself was constructed in 1970, but the history of the business dates back to 1904 when Scanlon Morris Company was founded in Madison. Six years later, two more companies were created — Ohio Chemical & Manufacturing (later re-named Airco) in Cleveland, Ohio, and Heidbrink Company in Minneapolis, Minn. In 1946, all three companies merged to Ohio Medical Products and production was centralized to Madison. In 1981, the name changed to Ohio Medical Anesthetics, then to Ohmeda in 1984. In 1998, Instrumentarium of Helsinki, Finland, purchased Ohmeda and the name changed to Datex-Ohmeda. GE Healthcare acquired Datex-Ohmeda in 2003.

Longtime employee Kevin Tissot has been an employee since 1992 and remembers a lot of the history. "The name has changed, but we still have great pride and a strong commitment to Madison. We are proud to call Madison home and proud of the technology innovation that is created in our own facility."

GE's combined product portfolio offers exceptional technology, tools, and services across the full continuum of healthcare. Its work in Wisconsin includes a range of technology development activities from concept and design through engineering and production. These technologies and services allow clinicians to diagnose and treat diseases more effectively. GE Healthcare Madison is working in conjunction with customers and researchers to aggressively move the technology toward improved clinical pathways to improve health outcomes for individuals. GE Healthcare Madison is a leading brand in health technology and service delivery in Wisconsin and the world.

Project Overview

In May 2013, GE Healthcare retained the services of Tripp Umbach, a private research company, to conduct a study on the economic, community, and social benefits that GE Work's Madison's operations bring to the state and its local economies. Tripp Umbach is an experienced provider of economic impact studies for various types of organizations having completed more than 300 similar studies in the past 22 years. The purpose of this study is to measure and communicate the local and statewide impact of GE Healthcare Madison. This report measures:

The direct, indirect, and induced economic impact stemming from GE Healthcare Madison's operations. These impacts fall within the following categories:

- Company expenditures for capital improvements, goods, and services;
- Spending by employees;
- Spending by vendors or suppliers;
- Direct, first-round, expenditures re-circulated through the economy in

What is economic impact?

- 🇺🇸 Economic impact begins when a company spends money.
- 🇺🇸 Economic impact studies capture the direct economic impact of a company's spending, plus additional indirect and induced spending in the economy as a result of direct spending (multiplier effect).
- 🇺🇸 Total economic impact measures the dollars that are generated within Wisconsin due to the presence of GE Healthcare Madison. This includes not only spending on goods and services with a variety of suppliers within the state, and the spending of its staff and visitors, but also the business volume generated by businesses within Wisconsin that benefit from GE Healthcare Madison spending.
- 🇺🇸 It is important to remember that not all dollars spent by a company remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in the company's economic impact on the state.

successive rounds of re-spending. The result is a multiplied economic impact that is a direct result of GE Healthcare Madison's presence and its spending patterns.

The direct, indirect, and induced employment impact generated from the operations of GE Healthcare Madison includes people who work directly as well as indirectly for the company. Indirect employment represents additional jobs created because of GE Healthcare Madison's operations. Local companies that provide goods and services to GE Healthcare Madison hire additional individuals to support the company's purchasing and the purchasing practices of GE Healthcare Madison employees.

The tax revenue impact of GE Healthcare Madison includes income, sales, real estate, corporate income, payroll, and capital stock/franchise taxes. The total tax revenue impact includes both those taxes paid by GE Healthcare Madison and the indirect taxes paid by employees of GE Healthcare Madison in Wisconsin, and those paid by vendors who are doing business with GE Healthcare Madison in Wisconsin.

Methodology Employed

This economic impact analysis measures the effect of direct, indirect, and induced business volume and government revenue impacts for all of GE Healthcare Madison's operations in the state of Wisconsin. The methodology employed in the calculation of these impacts is IMPLAN.² Primary data utilized to conduct the analysis was collected from GE Healthcare. Data included: capital expenditures, operational expenditures, jobs (full- and part-time), payroll and benefits, and taxes. The approach taken on this study was deliberately conservative.

Generating Economic Impact in Wisconsin

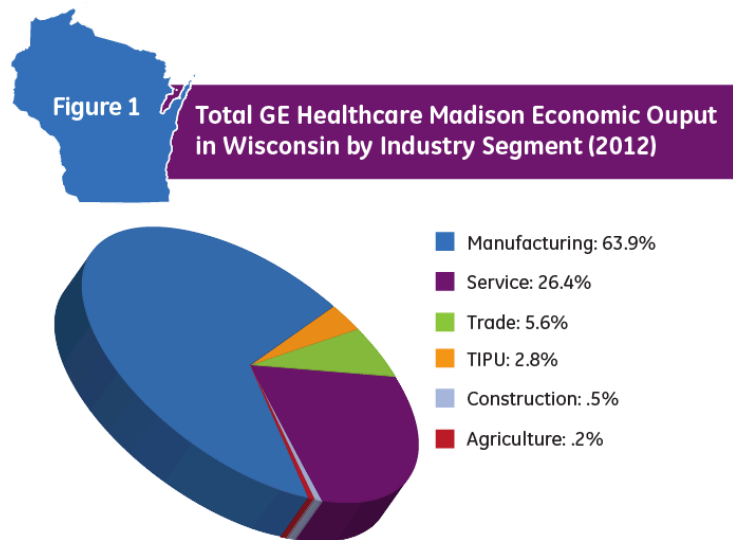
GE Healthcare Madison is an integral part of the region's economic success. The operations of GE Healthcare Madison generate **\$341.9 million annually** in total operational economic impact. GE Healthcare Madison affects business volume in Wisconsin in the following ways:

- Direct expenditures for goods and services by the company and its employees. This spending supports local businesses, which in turn employ local individuals to sell the goods and provide the services that GE Healthcare Madison constituencies need.
- Indirect and induced spending within the state of Wisconsin. The businesses and individuals that receive direct payments re-spend this money within the state, thus creating the need for even more jobs.

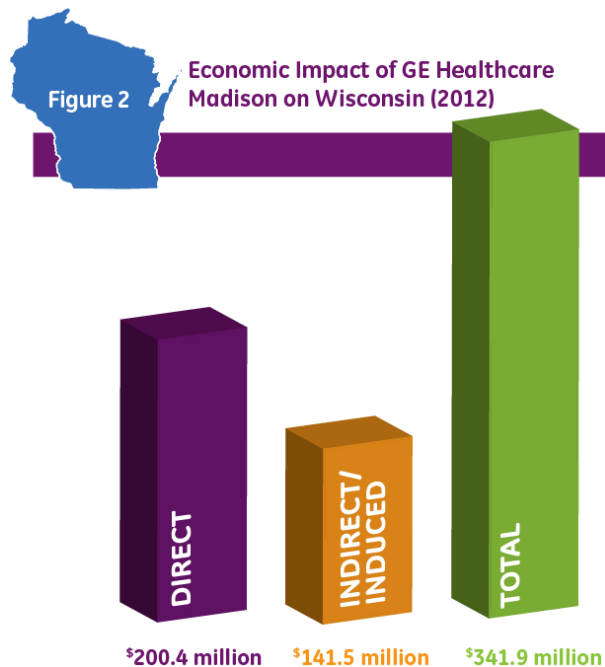
² Minnesota IMPLAN Group, Inc. (MIG) is the corporation that is responsible for the production of IMPLAN (IMpact analysis for PLANning) data and software. IMPLAN is a micro-computer-based, input-output modeling system. With IMPLAN, one can estimate Input-Output models of up to 528 sectors for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model.

The economic impact of GE Healthcare Madison creates impact in a multitude of economic sectors. The largest sectors impacted are Manufacturing (63.9%) and the Service Industry (26.4%). The strength of the local economy is enhanced by the operations, research collaborations, and drive of employees living and working in Madison, WI. (See Figure 1).

As a result of expenditures on goods and services by GE Healthcare Madison, its employees, the overall economic impact of GE Healthcare Madison's operations on the state of Wisconsin in 2012 was **\$341.9 million** (\$200.4 million direct impact and \$141.5 million indirect and induced). (See Figure 2.)



GE Healthcare Madison is an important part of the local and statewide economy. Add to this fact that there are many local suppliers who rely on the operations of GE Healthcare Madison within the state, and the result is a clear demonstration that GE Healthcare



Madison's operations in Wisconsin increase the amount of production and sales in the state's economy. Another result of GE Healthcare Madison's operations in the state is growth in a range of industry sectors such as, wholesale trade business, rental and real estate, consumer lending, credit card issuing, hospitals³, private physician and dental offices, and food and beverage places. Table 1 below highlights the top 10 industries impacted by GE's operations (direct, indirect, and induced economic impact).

³ Private hospitals includes all hospital activity related to GE Healthcare Madison's operations, including direct care delivery.



Table 1 Top 10 Industries Impacted by GE Healthcare Madison on the State of Wisconsin by Economic Output (2012)

Description	Economic Output
Surgical and medical instrument, laboratory and medical instrument manufacturing-----	\$201,019,414
Wholesale trade businesses-----	\$9,694,633
Imputed rental activity for owner-occupied dwellings-----	\$8,629,380
Monetary authorities and depository credit intermediation activities-----	\$7,257,778
Private hospitals-----	\$5,323,184
Management of companies and enterprises-----	\$5,227,812
Food services and drinking places-----	\$5,104,474
Real estate establishments-----	\$4,743,157
Offices of physicians, dentists, and other health practitioners-----	\$4,497,400
Non-depository credit intermediation and related activities-----	\$3,796,775

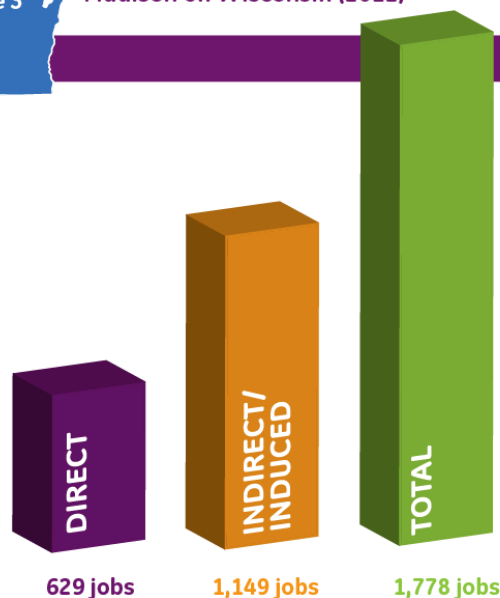
TOTAL ECONOMIC OUTPUT IN ALL SECTORS \$341.9 Million

Supporting and Sustaining Jobs in Wisconsin

GE Healthcare Madison directly employs about 630 people in Dane County. GE Healthcare Madison is indirectly responsible for the employment of 1,149 people bringing the total employment impact to **1,778 jobs**.⁴ (See Figure 3.)



Figure 3 Employment Impact of GE Healthcare Madison on Wisconsin (2012)



Employees at GE Healthcare Madison are making important contributions to the healthcare industry. The impact of what GE does starts in Madison and eventually has a global impact. For many employees, there is personal and emotional commitment and pride derived from working on products that have life sustaining outcomes. Employees in Madison have met with patients at area hospitals that use the equipment that they made. Patients and employees feel energized by getting to meet one another and seeing how their work has made a

⁴ All employment impacts are shown in total jobs. This includes full-time and part-time employees.

difference.

This employment impact of GE Healthcare means that their employment multiplier in this geographical area is 2.8. Stated another way, **for every one person employed by GE Healthcare in Wisconsin another 1.8 jobs are created.**

There are many industry sectors in Wisconsin who rely on the operations of GE Healthcare Madison to enhance their economic output and employment base. As a result of GE Healthcare’s operations in Madison, a large number of jobs are created in restaurants and food services, wholesale trade, real estate, healthcare (hospitals, physicians and dentists, and nursing care facilities), retail (food and beverage, clothing and general merchandise), consumer lending, credit card issuing and sales financing, and management of companies. The table below highlights the top 10 industries impacted by GE Healthcare’s operations in Madison (direct, indirect and induced employment impact) (see Table 2). These numbers show the total number of jobs created in the state of Wisconsin as a result of GE Healthcare Madison.



Top 10 Industries Impacted by GE Healthcare Madison on the State of Wisconsin by Employment (2012)

Description	Employment
Surgical and medical instrument, laboratory and medical instrument manufacturing-----	631 jobs
Restaurants and food services-----	107 jobs
Wholesale trade businesses-----	67 jobs
Real estate establishments-----	51 jobs
Private hospitals-----	42 jobs
Non-depository credit intermediation and related activities-----	32 jobs
Offices of physicians, dentists, and other health practitioners-----	32 jobs
Retail Stores - Food and beverage-----	29 jobs
Retail Stores - General merchandise-----	29 jobs
Management of companies and enterprises-----	29 jobs
TOTAL EMPLOYMENT OUTPUT IN ALL SECTORS	1,778 Jobs

Exporting Innovation to the World

GE Healthcare Madison was responsible for **\$115.7 million in exports** from the state of Wisconsin in 2012. The 'Made in Madison' brand is strong at home and around the world. The strength of the manufacturing sector in Wisconsin is impressive -- Wisconsin ranks 2nd in the nation with 16.1% of its employment being in the manufacturing sector⁵. GE Healthcare's presence in Wisconsin and in Dane County contributes to the vitality of this employment sector. **Annually, more than \$12.4 million is spent with Dane County suppliers.** Increased global demand for GE Healthcare Madison's products and services results in an increased pull in GE Healthcare's Wisconsin supply chain in order to meet the needs of the international market. This increased global demand means medical and scientific equipment manufactured in Wisconsin is shipped internationally and results in increased domestic activity in the state.

Advancing Technology Through Research

GE Healthcare Madison fosters an innovative environment and encourages employees to advance the capability of GE's products. There is a healthcare mindset in Madison, it is a center for biotech and medical related businesses, and its expertise and continual drive to evolve its product offerings benefit residents of Wisconsin and the world. In 2012, GE Healthcare, the University of Wisconsin School of Medicine and Public Health (the UW), and the Wisconsin Alumni Research Foundation began a research agreement to reach the next frontier in diagnostic imaging and radiology research. While molecular imaging is the next frontier in radiology research, the UW and GE Healthcare have collaborated for more than 30 years and have developed imaging equipment and protocols in use all over the world. The partnership has developed groundbreaking MRI protocols for vascular imaging. Current research in computed tomography (CT) is reviewing new methods to further reduce radiation doses for children and adults to levels lower than even the latest cutting-edge innovations.

The agreements celebrate the continuous research collaboration and technology invention with an anticipated \$32.9 million GE Healthcare investment in a state-of-the-art imaging research facility. The center will be located in the Wisconsin Institutes for Medical Research (WIMR), which is connected to the UW Health Sciences Learning Center and UW Hospital and Clinics. During the past 11 years, collaborations between GE Healthcare and UW researchers have resulted in nearly 200 invention disclosures, more than 80 filed U.S. patents, and numerous licensing agreements and technology improvements.

⁵ Source: Manufacturing Employment by State. Bureau of Economic Analysis. National Association of Manufacturers. 2012.

In addition, the State of Wisconsin recently recognized the importance of the GE Healthcare/UW partnership. Approximately \$9 million will be contributed by the State to help foster the partnership. This money will be spent on a multitude of areas, including research and constructing new buildings to accommodate the need for more space to conduct research. Additional research programs anticipated through the joint UW/GE Healthcare program include:

"Through our collaboration with GE Healthcare, we will have one of the few imaging centers in the world that brings together state-of-the-art diagnostic imaging systems with physicians, engineers and scientists focused on improving patient care and personalizing medicine, in an environment that is connected to an outstanding academic medical center at UW Hospital."

— Dr. Thomas Grist
Department Chair
UW School of Medicine and Public Health

- Finding ways to possibly deliver ultra-low computed tomography (CT) radiation dose imaging applications for the patient population while maintaining diagnostic quality for clinicians. Low-dose CT protocols are already in place for pediatric imaging at American Family Children's Hospital and adult imaging at UW Hospital and Clinics.
- Linking hybrid imaging modalities like MRI and PET to both quantify and measure disease progression.
- Quantification of liver disease for early diagnosis and monitoring of treatment in patients with non-alcoholic fatty liver disease, the most common cause of liver disease.
- Development of new cardiovascular imaging techniques for non-invasive diagnosis of heart and vascular diseases.

Revolutionizing Pathology Practices

GE Healthcare Madison's research goes beyond the borders of Wisconsin. A joint venture between University of Pittsburgh Medical Center (UPMC), GE Healthcare Madison, and Omnyx started in 2008, and has initiated clinical research testing of breakthrough digital pathology platform that will help transform the 125-year-old practice of pathologists using glass slides.

With a combination of technology innovation and pathology expertise from UPMC, and backing from GE Healthcare, Omnyx has developed a patent pending Integrated Digital Pathology Solution.

By digitizing the slides and corresponding workflow, the Omnyx technology is intended to do what a traditional microscope cannot – unite an entire pathology department and improve collaboration, communication, and efficiency, with the potential for better patient care.

The new technology, which is being launched globally and is part of GE Healthcare’s \$6 billion ‘healthymagination’ initiative to improve cost quality and access to healthcare, is designed to transform the practice of pathologists using glass slides, microscopes, and manual paperwork to digital. The breakthrough technology is another example of GE Healthcare Madison’s commitment to investing in innovative bioscience technologies.

Giving Back to the Residents of Madison

GE has a long standing relationship with the Madison community as a responsible corporate citizen in giving back to the community both financially and through volunteer hours. GE Healthcare Madison employees are heavily involved and committed to the Madison community. GE Healthcare encourages its employees to be active and support efforts to be involved in activities in the area. While the list is long, GE Healthcare’s employees support the following activities and events in the community: Meals on Wheels, Habitat for Humanity, Vera Court, Ronald McDonald House, Project Backpack, United Way Day of Giving, Red Cross Blood Drives, Breast Cancer awareness walk, food pantry drives, and assisting families in need during the holidays.

Generating Government Revenue for Wisconsin

State and local government revenues attributable to the presence of GE Healthcare Madison totaled **nearly \$12.0 million annually**. Specific state and local taxes included in this number are: payroll, personal income, sales, real estate, corporate income, capital stock/franchise taxes, motor vehicle licensing, severance, as well as all local fees. (See Table 3 below.)

Through its local spending, as well as direct and indirect support of jobs, the presence of GE Healthcare Madison contributes to and strengthens the local and statewide tax base. GE Healthcare Madison is an important part of the region’s and state’s economy – generating economic impact and creating jobs.



Total Taxes Generated by GE Healthcare Madison at the State and Local Level (2012)

Description	Employee Compensation	Tax on Production and Imports	Households	Corporations	Total
Dividends -----				-\$71,776	\$71,776
Social Ins Tax- Employee Contribution ----	\$69,363				\$69,363
Social Ins Tax- Employer Contribution ----	\$160,708				\$160,708
Indirect Bus Tax: Sales Tax -----		\$2,798,219			\$2,798,219
Indirect Bus Tax: Property Tax -----		\$3,751,200			\$3,751,200
Indirect Bus Tax: Motor Vehicle License -----		\$73,037			\$73,037
Indirect Bus Tax: Severance Tax -----		\$1,359			\$1,359
Indirect Bus Tax: Other Taxes -----		\$278,270			\$278,270
Indirect Bus Tax: S/L NonTaxes -----		\$477,135			\$477,135
Corporate Profits Tax -----				-\$750,465	\$750,465
Personal Tax: Income Tax -----			\$2,840,611		\$2,840,611
Personal Tax: NonTaxes (Fines/Fees) -----			\$336,306		\$336,306
Personal Tax: Motor Vehicle License -----			\$133,281		\$133,281
Personal Tax: Property Taxes -----			\$71,962		\$71,962
Personal Tax: Other Tax (Fish/Hunt) -----			\$151,339		\$151,339
Total State and Local Tax	\$230,072	\$7,379,219	\$3,533,499	\$822,241	\$11,965,031

Appendix A: Definition of Terms



STUDY YEAR	Fiscal Year 2011-2012 (FY 11-12)
TOTAL IMPACT	The total impact of a company is a compilation of the direct impact, the indirect impact and the induced impact generated in the economy as a result of the company.
DIRECT IMPACT	Direct impact includes all direct effects the company has on the regional area due to the company operations. These items include direct employees, company spending, employee spending, and spending by visitors to the company.
INDIRECT IMPACT	The impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value added. The impacts are calculated by applying direct effects to the Type I Multipliers.
INDUCED IMPACT	The response by an economy to an initial change (direct effect) that occurs through re-spending of income received by a component of value added. IMPLAN's default multiplier recognizes that labor income (employee compensation and proprietor income components of value added) is not leakage to the regional economy. This money is recirculated through the household spending patterns causing further local economic activity.
MULTIPLIER EFFECT	The multiplier effect is the additional economic impact created as a result of the company's direct economic impact. Local companies that provide goods and services to a company increase their purchasing by creating a multiplier.

Appendix B: Methodology

In order to fully quantify the impact of GE Healthcare Madison within the state of Wisconsin, it was necessary for Tripp Umbach to establish a study methodology. It was critically important that the methodology used would ensure a comprehensive, yet conservative, estimate of the operational impact, based on information compiled using uniform and consistent techniques. In addition, the study team sought to develop a reproducible methodology assuring that subsequent studies could build upon the information and knowledge gained through this effort.

Tripp Umbach determined that the use of the IMPLAN Pro, economic impact model software, was most appropriate for this analysis. The IMPLAN econometric model operates by estimating the direct impact, indirect impacts, and induced impacts of specific economic activity. Direct economic impacts, are those attributable to the initial economic activity, i.e., an operation with ten full time employees creates ten direct jobs. Indirect economic impacts are those economic activities undertaken by vendors and suppliers within the supply chain of the direct activity because of the initial economic activity. For example, suppliers of goods, materials, and services used in the direct activities produce indirect economic impacts. Induced economic impacts result from the spending of wages paid to employees in local industries involved in direct and indirect activities. Tripp Umbach selected the IMPLAN model due to its frequent use in economic impact analysis in addition to its development independent of local influences.

Tripp Umbach collected employment and payroll information concerning the economic activity of GE Healthcare Madison's operations themselves and made assumptions based upon this data for the overall operating budget of the operations in Madison, WI. In this report, the impact was measured using IMPLAN datasets. The IMPLAN data files include information for 528 different industries (generally three or four digit SIC code breakdown) and 21 different economic variables. IMPLAN sources their employment data from ES202 employment security data supplemented by county business patterns and REIS data. Employment data utilized in the analysis includes full-time and part-time positions.

It should be noted that, at the time of performing the GE Healthcare Madison assessment, the most recent IMPLAN data files for each of the counties measured in Wisconsin were for 2011. While the data is not current, it is unlikely that the fundamental economic structure of Wisconsin's economic fabric has changed to an extent that would invalidate the analysis. IMPLAN data and accounts closely follow the accounting conventions used in the "Input/Output Study of the U.S. Economy" by the U.S. Bureau of Economic Analysis and the rectangular format recommended by the United Nations.

Appendix C: FAQs

What is economic impact?

Economic impact begins when a company spends money. Economic impact studies measure the direct economic impact of a company's spending plus additional indirect spending in the economy as a result of direct spending. Economic impact has nothing to do with dollars collected by companies, their profitability, or even their sustainability, since all operating organizations have a positive economic impact when they spend money and attract spending from outside sources.

Direct economic impact measures the dollars that are generated within the State of Wisconsin due to the presence of GE Healthcare Madison. This includes not only spending on goods and services with a variety of vendors within the state, and the spending of its staff and visitors, but also the business volume generated by businesses within Wisconsin that benefit from GE Healthcare Madison's spending. It is important to remember that not all dollars spent by a company remain in its home state. Dollars that "leak" out of the state in the form of purchases from out-of-state vendors are not included in the company's economic impact on the state.

The total economic impact includes the "multiplier" of spending from companies that do business with GE Healthcare Madison. Support businesses may include lodging establishments, restaurants, construction firms, vendors, temporary agencies, etc. Spending multipliers attempt to estimate the ripple effect in the state economy where the spending occurs. For example: Spending by GE Healthcare Madison with local vendors provides these vendors with additional dollars that they re-spend in the local economy, causing a "multiplier effect."

What is the multiplier effect?

Multipliers are a numeric way of describing the secondary impacts stemming from the operations of a company. For example, an employment multiplier of 1.8 would suggest that for every 10 employees hired in the given industry, eight additional jobs would be created in other industries, such that 18 total jobs would be added to the given economic region. The multiplier used in this study is Type SAM 1.66.

The multiplier model is derived mathematically using the input-output model and social accounting formats. The social accounting system provides the framework for the predictive multiplier model used in economic impact studies. Purchases for final use drive the model. Industries that produce goods and services for consumer consumption must purchase

products, raw materials, and services from other companies to create their product. These vendors must also procure goods and services. This cycle continues until all the money is leaked from the region's economy. There are three types of effects measured with a multiplier: the direct, the indirect, and the induced effects. The direct effect is the known or predicted change in the local economy that is to be studied. The indirect effect is the business-to-business transactions required to satisfy the direct effect. Finally, the induced effect is derived from local spending on goods and services by people working to satisfy the direct and indirect effects.

- Direct effects take place only in the industry immediately being studied.
- Indirect effects concern inter-industry transactions: because GE Healthcare Madison is in business, they have a demand for locally produced materials needed to operate.
- Induced effects measure the effects of the changes in household income: employees of GE Healthcare Madison and suppliers purchase from local retailers and restaurants.
- Total Economic Impacts equal the total changes to the original economy as a result of the GE Healthcare Madison's operations. i.e., Direct effects + Indirect effects + Induced effects = Total Economic Impact.

What methodology was used in this study?

IMPLAN (IMpact analysis for PLANning) data and software. Using classic input-output analysis in combination with regional specific Social Accounting Matrices and Multiplier Models, IMPLAN provides a highly accurate and adaptable model for its users. The IMPLAN database contains county, state, zip code, and federal economic statistics which are specialized by region, not estimated from national averages and can be used to measure the effect on a regional or local economy of a given change or event in the economy's activity.

What is employment impact?

Employment impact measures the direct employment plus additional employment created in the economy as a result of the operations of GE Healthcare Madison's.

Indirect and induced employment impact refers to other employees throughout the region that exist because of the GE Healthcare Madison's economic impact. In other words, jobs related to the population -- city services (police, fire), employees at local hotels and restaurants, clerks at local retail establishments, residents employed by vendors used by GE Healthcare Madison.

What is the difference between direct and indirect taxes?

Direct tax dollars include sales taxes and net corporate income taxes paid directly by the company to the state, while indirect taxes include taxes paid to the state by vendors that do business with GE Healthcare Madison and individuals.

Is this a one-time impact or does the impact repeat each year?

The results presented in the GE Healthcare Madison's economic impact study are generated on an annual basis. The economic impact in future years can either be higher or lower based on number of employees, capital expenditures and operating expenditures.

What are Tripp Umbach's qualifications to perform an Economic Impact Study for GE Healthcare Madison?

Tripp Umbach is a leading provider of economic impact studies, consultation, and communication services for a wide variety of clients throughout the United States. Since 1990, Tripp Umbach has provided economic impact analysis services to more than 300 clients. For more information, go to **www.TrippUmbach.com**.