ECONOMIC IMPACT + INNOVATION
$20 BILLION + $10 BILLION

The University of Wisconsin–Madison's $30 Billion Impact on the Wisconsin Economy

NorthStar Analytics, LLC
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Dr. David J. Ward – Project Manager
Mr. Jeff Sachse – Senior Economist and IMPLAN Consultant
Dr. Bruce Siebold – Consulting Economist
Dr. E. Alan Hartman – Consulting Economist

$30.8 BILLION UW–Madison Annual Impact on the Wisconsin Economy

232,000+
Jobs supported

$20.8 BILLION
UW–Madison and affiliated organizations' economic impact

92%
of UW economic impact benefits the private sector

$1 BILLION
local and state taxes generated

400+
UW-related startups in Wisconsin

$10 BILLION
UW-related startups' economic impact

2133
active UW patents: one new patent issued to UW every two days

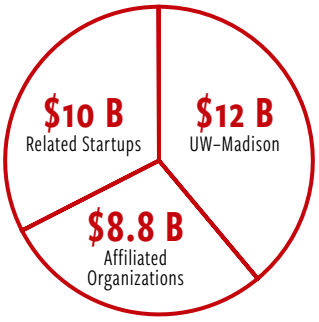
8th
in the nation in research expenditures of nearly $1.3 B (NSF, 2019)

11,113
degrees awarded in 2019–20

173,000+
alumni currently live in Wisconsin

400,000+
active UW alumni worldwide

$26 return to the Wisconsin economy for every **$1** of state funds invested into UW–Madison



$12 BILLION
UW–Madison Economic Impact

+

$8.8 BILLION
UW–Madison Affiliated Organizations Economic Impact

+

$10 BILLION
UW–Madison-Related Startups Economic Impact

EXECUTIVE SUMMARY

UW–Madison, UW-affiliated organizations and UW-related startups contribute $30.8 billion per year to the Wisconsin economy. This economic activity supports more than 232,000 jobs and generates $1 billion in state and local taxes.

The combined economic impact of UW–Madison and its affiliated UW organizations is $20.8 billion per year, which supports more than 189,000 jobs and generates more than $718.6 million in state and local tax revenue.

In addition, UW–Madison-related startups add to the overall economic impact of the university. These startups began with UW research, patents, and/or UW faculty and staff talent. The overall economic impact in 2020 dollars is $10 billion. The startups support nearly 43,000 jobs and generate more than $320 million in state and local tax revenue.

A key contribution to the state's economic growth is the UW Innovation Platform formed from a number of elements built by UW–Madison. These elements include a $1.3 billion research program, a globally ranked system of turning discoveries into commercial opportunities, a deep pool of scientific and management talent, a physical lab and computing infrastructure, and curriculum in applied entrepreneurship.

This UW Innovation Platform has a large output of patents, new UW-related startups (more than 400 since the mid-1980s), and applied research partnerships in industry and agriculture. The Platform creates a business climate that leads to venture capital formation and attracts leading high-tech business operations to the Madison area.

The economic impact study is based upon data from fiscal 2018–19 and results produced by the IMPLAN econometric model are updated to 2020 dollars.

Economic Impact by Source

Source of Impact	Economic Impact	Jobs Supported	State and Local Taxes
UW–Madison	$12B	135,000	$404.8M
Affiliated Organizations	$8.8B	54,000	$313.8M
Related Startups	$10B	43,000	$320.2M
Total	**$30.8B**	**232,000**	**$1.04B**

For more information, visit go.wisc.edu/economic-impact.

PURPOSE & SCOPE

The purpose of this study is to measure and report on the economic impact of the University of Wisconsin–Madison on the Wisconsin economy. This includes consideration of the direct activities of the university and UW-affiliated organizations as well as the economic activity generated by UW students and visitors.

This study updates previous economic impact studies done in 1971, 1985, 1991, 2003, 2011, and 2015. The methodology in this study utilizes the IMPLAN econometric model.

Separately, the study reports on the growing economic impact from UW-related startups that originate from UW research and/or are created by UW faculty, staff, and alumni. This area of economic impact was first reported in the 2015 economic impact report and has grown to such an extent that it deserves a separate accounting.

This study does not measure the value of UW-produced patents and inventions and the impact that comes from graduates of UW–Madison. The latter fills important skilled workforce needs in the Wisconsin economy and contributes high levels of earnings to the Wisconsin economy; the former lies beyond the scope of this report. These elements are mentioned but not measured here and will require separate research to fully quantify their impact on the state's economy.

MODEL SPECIFICATION & METHODOLOGY

The economic impact analysis and results described in this report have been prepared utilizing IMPLAN's database of regional spending patterns and input-output modeling application platform. IMPLAN is viewed as the industry standard for producing economic impact modeling as the company boasts inclusion of data from more than 90 unique sources across 546 industry sectors in its core inputs.

The input-output model that drives the economic impact analysis contained in this report assumes that several interdependent relationships exist among economic sectors in a regional market. The relationships can be expressed through a simple equation where an input-output model estimates the sum of economic activity coming from outside a region and the activity occurring within the region, minus that which begins within the region but ends elsewhere. This is the same model used to estimate gross regional product.

An input-output model also makes two important assumptions regarding the activity of an institution such as the university and its affiliates. First, the model estimates a margin of value added above and beyond its direct spending by virtue of its mere presence in the region. Second, it assumes that other major industries either benefit or choose to co-locate in the region because of its presence. This is one of the rationales for the inclusion of university-affiliated and associated startups here.

The spending and re-spending of revenue generated by organizations and firms in this market create second- and third-order effects until such point as economic activity exits the region. These are classified as indirect and induced impacts. Indirect impact occurs as the money spent through direct activities is re-spent by the university's vendors. Induced impacts occur through the personal spending of university employees and the employees of the university's vendors. This additional impact results in generalizable multiplier effects that can be modeled across industry sectors. A multiplier is simply an expression of the indirect and induced impact generated for each dollar of direct spending. For example, we have estimated that university operations carry an economic multiplier of 1.46. This means that every dollar spent generates $1.46 of total economic impact in the region.

More information regarding IMPLAN's model and methods can be found at https://blog.implan.com/understanding-implan-effects.

It is also important to note that the analysis presented here was prepared using an analysis-by-parts methodology. This assumes that the various operations and organizations affiliated with the university may be independent and operate in different markets than each other. For example, University of Wisconsin Extension, whose operations were folded into UW–Madison in the 2020 fiscal year, operates statewide, whereas the most immediate effects of the university's operations are focused within a five-county study area. As such, we will define the relevant study area for each of the component analyses and be able to report in greater detail on the industries and jobs affected.

The economic impact model results presented in this report are based on the most recent IMPLAN database including 2018 industry spending pattern data. All sums have been updated and are presented in 2020 dollars. The study includes consideration of all aspects of campus operations including those of UW Extension and UW Health. It also includes independent modeling of student and visitor spending patterns. Data have been compiled for the 2018–2019 fiscal year and are as representative of a "normal" spending pattern as possible. Similarly, capital expenditures on campus and for UW Health have been averaged over a seven-year period.

THE ECONOMIC IMPACT OF THE UW–MADISON CAMPUS

The economic impact of the UW–Madison campus comes from several spending streams that circulate and multiply their economic effect in the Wisconsin economy. The spending sources include UW–Madison payroll and operations, student spending, and visitor spending.

The results presented here use direct spending data from published financial statements, prior visitor surveys, and data from the university and past surveys of student spending.

Source of Spending	Annual Economic Impact
University Operations	$9,433,328,297
UW Visitors	$1,672,059,777
UW Students	$935,907,808
Total Annual Economic Impact	**$12,041,295,882**

The economic impact from campus operations, visitor spending, and student spending is more than $12 billion.

Part of the economic impact includes jobs that result from the economic activity.

Source of Spending	Jobs
University Operations	109,135
UW Visitors	17,448
UW Students	8,617
Total Jobs	**135,200**

The $12 billion in UW–Madison campus economic activity supports more than 135,000 jobs.

The economic impact also includes state and local taxes that are generated from UW–Madison's economic activity. These taxes would include state income and sales taxes and local property and sales taxes.

Source of Spending	Annual Local and State Taxes
University Operations	$227,263,873
UW Visitors	$106,787,074
UW Students	$70,712,507
Total Annual Local/State Taxes	**$404,763,454**

The $12 billion in UW–Madison economic activity results in total state and local tax collections of more than $404 million.

THE ECONOMIC IMPACT OF UW–MADISON-AFFILIATED ORGANIZATIONS

The presence and operation of the university have led to multiple affiliated organizations that would not exist except for the operation of the university itself. The main affiliated organization, once an integral sub-unit of UW–Madison, is UW Health which includes Wisconsin operations of UW Hospitals and UW Clinics. In addition to UW Health, there are several larger affiliated UW organizations including the Wisconsin Alumni Research Foundation (WARF), the University of Wisconsin Foundation and Alumni Association (WFAA), and the Morgridge Institute for Research.

The economic impact of these UW-affiliated organizations comes from several spending streams that circulate and cause direct and induced effects in the Wisconsin economy. The spending streams include operating expenses, payroll, construction, and supplies.

The results presented here are based on direct spending data from published financial statements, 990 tax forms, and financial information supplied by several UW-affiliated organizations.

Source of Spending	Annual Economic Impact
UW Health	$8,064,783,216
Other UW Affiliates	$708,585,358
Total Annual Economic Impact	**$8,773,368,574**

Source of Spending	Jobs Supported
UW Health	49,474
Other UW Affiliates	4,528
Total Jobs Supported	**54,002**

Source of Spending	State and Local Taxes
UW Health	$284,488,223
Other UW Affiliates	$29,395,857
Total Annual State /Local Taxes	**$313,884,080**

THE ECONOMIC IMPACT OF UW–MADISON-RELATED STARTUPS

The presence of the University of Wisconsin–Madison has led to a growing number of startups. We first reported on these startups in our 2015 study of the university's economic impact. At that time there were slightly more than 300 UW-related startups.

Since that time, additional startups have been formed. While it is very difficult to get an exact number, several prior studies and data obtained about recent startups support the conclusion that there have been more than 400 new businesses formed based upon UW intellectual property and/or the work of UW faculty, staff, and students.

The results presented here are based on direct spending estimates from published financial statements, survey data compiled and reported by the University of Wisconsin Research Park, and Dunn and Bradstreet summary financial profiles.

The economic impact of these startups can be summarized as follows:

Total Annual Economic Impact **$10,010,367,651**

Total Jobs **42,855**

Total Annual State/Local Taxes **$320,224,875**

UW-related startups are a fast-growing economic contribution from the UW Innovation Platform and other sources. While these startups tend to be clustered in three areas — information technology, life sciences, and physical sciences — there are startups from many other areas of academic and research thought.

The economic impact from UW-related startups is now the second largest of the three economic impact areas that we measure.

WHO BENEFITS FROM UW–MADISON'S ECONOMIC IMPACT?

The private sector is the beneficiary of 92% of the economic impact of the University of Wisconsin–Madison

A frequently asked question in any economic impact analysis is where the impact of any development or organization is directed. This is especially important in the case of a public investment as a substantial share of the development may be funded through tax revenues and other government sources. The economic impact of the University of Wisconsin–Madison is one such example.

The level of public and private sector benefit from each of the university's operations and associated activity varies due to the structure of each organization and its spending. The direct impact of the university itself, as well as UW Health and many of its affiliates, for example, are public due to their status as government or not-for-profit organizations. However, the target of much of this direct spending is focused on private industry to provide goods and services.

Excluding the spending patterns of university affiliates and associated startups, we see that the indirect and induced private sector spending of university-related activities accounts for 92 percent of total impact. The balance of spending is generally directed towards other state agencies, such as the Wisconsin Department of Administration and Wisconsin Department of Employee Trust Funds.

Among the most significant private sector industries benefitting from the university's presence are:

- Professional, Scientific, and Technical Services – $1.3 billion
- Real Estate and Rental Services – $1.04 billion
- Food Services and Drinking Places – $966 million
- Insurance Carriers and Related Activities – $359 million
- Accommodations – $316 million

The variety of sectors impacted provides goods and services both to the university as well as those that utilize its services.

Similarly, 94 percent of the combined economic impact of the startups included in this analysis is directed towards private sector businesses. This excludes payments of government licensing, regulation, and any intellectual property licensing payments to WARF and other university entities.

The private sector industries more significantly benefitting from this activity include:

- Publishing, Including Software Development - $5.4 billion
- Professional, Scientific, and Technical Services - $1.4 billion
- Advanced Manufacturing - $569 million
- Real Estate - $537 million
- Administrative and Support Services - $267 million

It is likely that the variety of industries and magnitude of their impact are greater than this in both instances due to the global reach of both the university and its associated organizations.

This level of private sector benefit demonstrates the pivotal role the university and its associated organizations play in shaping the regional and state economy.

For every dollar of public tax investment in the University of Wisconsin–Madison, there is $26.73 in economic activity in the State of Wisconsin

Another issue to consider are the quality and value of the jobs created by each segment included in this analysis. The table below presents the average annual wage of jobs impacted by model segment.

Unit	Jobs Impacted	Average Annual Income
University Operations	106,235	50,122
UW Health	49,474	63,555
UW Affiliates	4,528	64,845
UW Extension	2,900	64,194
Student Spending	8,618	36,964
Visitors	17,448	34,518
Startups	42,855	83,998

Both the volume of jobs impacted by each segment and average annual income of those jobs vary. The range of average incomes is reflective of both the industries most significantly impacted and types of jobs typically found in those industries. For example, we note that university operations, affiliates, and UW Health all significantly impact Professional, Scientific, and Technical Services where students and visitors direct significant shares of their spending towards Food Services and Drinking Places and Accommodation. This being said, we can see that the university's impact clearly supports significant numbers of good-paying jobs.

RETURN ON PUBLIC INVESTMENT

The most common way to estimate the direct role that tax revenue or other external sources play in the success of a development is through return on investment. In the case of the economic impact analysis presented here, it is both relatively simple to provide an estimate of the value of public investments in the university and difficult to produce a specific return. This is owing to the complexity of the university, the structures of its operating units, and the numerous funding streams that support its mission.

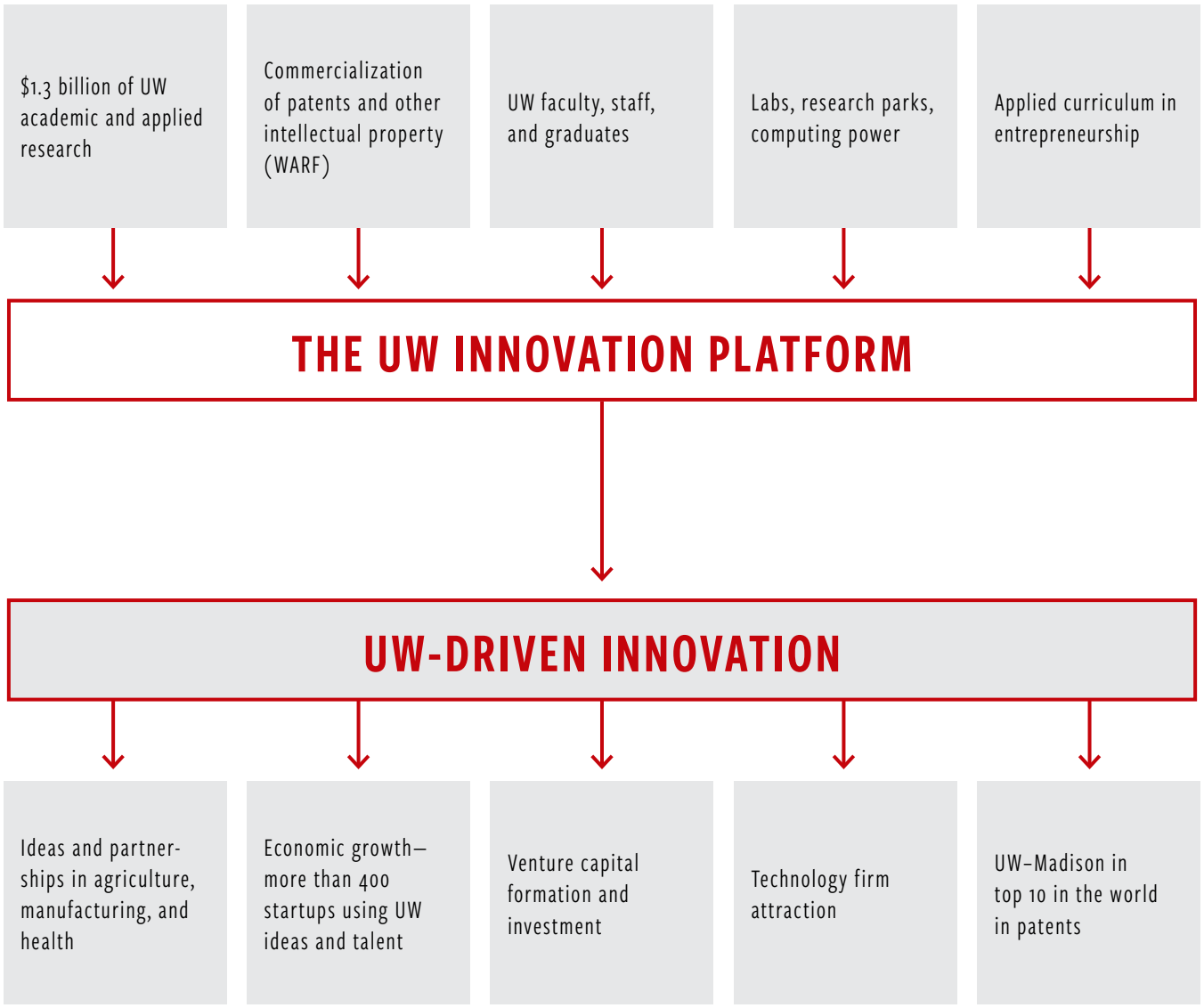
The 2019–2020 Budget in Brief reports that state revenue support for university operations totaled $456 million in fiscal year 2018–2019.

Another significant source of local investment in the university comes from county support for Extension operations. This adds an additional $20.8 million in public support annually.

Taking these two funding streams together and comparing them to the total economic impact of the university and its operations, we find that the return on public investment is $26.73 of benefit for each dollar of public investment. The ROI increases significantly if the total impact of all related operations, including UW Health and related startups is considered.

It is also important to note that the model estimates that more than $648 million in state tax revenue is generated annually, thereby significantly exceeding the annual investment.

INNOVATION DRIVEN BY UW–MADISON: A STATEWIDE IMPACT



UW–MADISON — A DRIVER OF INNOVATION

One of the longest and most celebrated traditions at the University of Wisconsin is the Wisconsin Idea, the guiding philosophy that the university should influence people's lives beyond the boundaries of the classroom. Thanks to the Wisconsin Idea, UW–Madison has a distinguished history of contributing to the Wisconsin economy through leading-edge research and innovation. For example, most are familiar with the university's role in establishing the dairy industry in the state. In a time of great need when wheat farming was literally dying, the university acquired and extended the knowledge and processes needed to create a new industry that supported farmers and food processors.

That tradition continues today as the university continues to invent and innovate in the fight against the COVID virus. More detail on this is to the right.

The capacity to innovate is one of its great strengths and the resulting contributions have widespread benefits to the citizens of Wisconsin. That capacity to innovate has grown in recent decades to help establish 21st-century businesses in information technology, medical devices, life sciences, and advanced manufacturing.

The figure on the previous page displays the elements of what we call "The UW Innovation Platform." The elements of the platform work together to provide the key inputs needed for innovation that can be used to grow existing businesses and to form new businesses.

Key elements of the platform include the massive university research program that produces a steady stream of ideas and inventions to consider for commercialization. Based upon university data on the disclosure of ideas, the university produces one new idea or invention every day, or more than 365 ideas per year.

A second key part of the platform is taking those ideas and creating intellectual property (IP) that can lead to patents and copyrights. The Wisconsin Alumni Research Foundation (WARF) handles much of the research and legal work associated with evaluating the commercial markets and value of new patents. It also provides a sophisticated marketing arm that licenses patents and often uses the value of patents to help fund new technology startups. The national Academy of Inventors ranks WARF in the top ten in the world among universities granted US utility patents. (based on 2018 data from the US Patent and Trademark Office)

Two other important elements in the Innovation Platform are the scientific and management talent and the physical and digital infrastructure needed to take UW's IP into commercialization.

And finally, the university offers an academic and applied curriculum in entrepreneurship that stimulates the formation of new businesses.

The innovation output from the Innovation Platform is shown at the bottom of the figure. The output includes a steady stream of patents at the impressive rate of one granted every two days. In fact, in 2018, the University of Wisconsin–Madison was ranked 7th among universities in the world in patent production.

The UW's research program also works in partnership with agriculture and industry on applied research efforts. Most notable and historic is the university's work with the dairy industry.

UW COVID-19 RESPONSE

The UW Innovation Platform provides the capacity to provide innovation to help solve sudden challenges and crisis situations like the COVID-19 pandemic.

In response to this current crisis, UW researchers are developing and testing COVID-19 vaccines, producing test kits to speed test, designing PPE for health care workers, and tracking outbreaks using large-scale data analysis.

Another aspect of innovation output is the growing number of startups that are based upon UW patents and/or talent from the university. Because of the dynamic nature of startups with successes, failures, acquisitions, and mergers, it is difficult to get an exact number of UW-related startups. But from the records we have examined, it is clear that there have been more than 400 startups since records were kept in the 1990s. Several of these startups have made it to the gazelle stage and have experienced very rapid growth and success.

Finally, the culture of innovation established by the Innovation Platform has led to firm attraction and capital formation. Evidence of the former is the location of Madison operations of prominent and fast-growing IT firms including Google, Microsoft, and Salesforce. All of these firms located in Madison to take advantage of the talent of UW graduates and researchers.

In addition, startups have attracted capital formation in the region by angel groups and venture capital investment firms.

ECONOMIC IMPACTS NOT COVERED IN THIS STUDY

The economic impact study presented here represents the most comprehensive effort to date to measure the role of the University of Wisconsin–Madison in south central Wisconsin and throughout the state. It demonstrates the tremendous reach of the university and the impact it makes on several facets of the regional economy.

No study is perfect and most of the best research inspires further examination. The models presented are only a partial representation of the university's direct impact, for example. The project team was unable to fully measure the reach of UW Extension and UW Health throughout the state, for example. Similarly, the student spending model makes several informed assumptions regarding the spending habits of international and off-campus students. Finally, the visitor spending data likely underestimate the role that visitors play as the project team was unable to obtain the complete data on the number of daily visitors to campus for both business and educational purposes.

There are two areas where the economic impact of the university itself is understated or excluded from this analysis. First, while the analysis of the economic impact of startups affiliated and associated with the university is the most extensive to date, it only considers the activities of fifty prominent businesses in the local region. The project team was unable to locate or generate a directory of all businesses created either by UW faculty or students during the study period. Similarly, the study does not consider the economic impacts of WARF, its intellectual property, and licensing activity.

Finally, the current study does not measure the economic impact of the university's core mission of talent generation. The Wisconsin Alumni Association counts more than 400,000 UW graduates who are active members globally, all of whom generate income, knowledge, and spending in their local markets. While it would be difficult — if not impractical — to estimate the economic impact of all living alumni on an annual basis, an analysis of the impact of recent graduates would provide a valuable insight into the impact that the university has in communities worldwide.

SUMMARY

The University of Wisconsin–Madison is a major contributor to the Wisconsin economy. Its combined contribution of $30.8 billion supports more than 232,000 jobs and generates $1 billion in state and local taxes.

In addition to the large economic impact, the university is a major source of innovation. It has built an Innovation Platform that generates a stream of outputs. For example, researchers at the university produce one new discovery every day of the year. This results in one new patent being granted every two days.

The Innovation Platform creates a business climate that attracts operations of major tech companies such as Microsoft, Google, and Salesforce. It has also attracted investment capital to invest in a stream of high-tech startups.

UW–Madison economic impacts contribute to economic growth in the state. At the same time the Innovation Platform is building the 21st century businesses that will keep the state globally competitive.

For more information, visit go.wisc.edu/economic-impact.