

The image shows the cover of an annual report. The background is a photograph of a modern building with large glass windows and doors. On the upper part of the building, there are large, 3D letters spelling 'LABS' in a bright green color. To the left of the 'LABS' sign, there is a blue panel with a green cross symbol. The sky is blue with some light clouds. In the foreground, there are green tree branches on the left side. The entire image is overlaid with a decorative pattern of blue squares and rectangles of various sizes, creating a pixelated or mosaic effect. The text 'Annual report' and '2015' is centered in the upper half of the image.

Annual report

2015

UI LABS solves large-scale challenges by bringing University + Industry together with startups and government to accelerate the deployment of emerging technologies through collaboration. UI LABS is developing a portfolio of applied research and commercialization Labs that lead to a return on investment for its partners, improve local, regional and national competitiveness, and **transform entire industries**. Across its current Labs, UI LABS has more than 200 members from industry, academic and research institutions, states and cities, and community organizations.

In February 2014, UI LABS announced the formation of its first Lab, the Digital Manufacturing and Design Innovation Institute (DMDII), through collaboration with the Department of Defense and a host of other partners, to transform American manufacturing through digitization of the supply chain. UI LABS' second Lab, City Digital, launched in 2015 to digitize the built environment to transform how citizens live, work, and play in cities today and tomorrow. Learn more at www.uilabs.org.

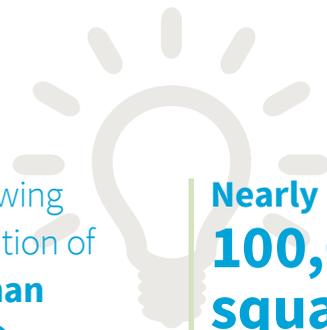
UI LABS By the numbers

Partnered with **more than 200** companies, universities, and civic organizations across both Labs

14 premier global industry partners have invested **\$200,000 to \$650,000** a year to support operations, plus additional project investments

Fast-growing organization of **more than 50 innovators, executives, engineers, developers, and rising entrepreneurial talent**

Nearly 100,000 square feet of demonstration and collaboration space opened in **May 2015**



The future today.

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More than
**100 small
and
midsize**

manufacturing
and technology
companies
are partners

More than
**60 unique
organizations**
involved in projects

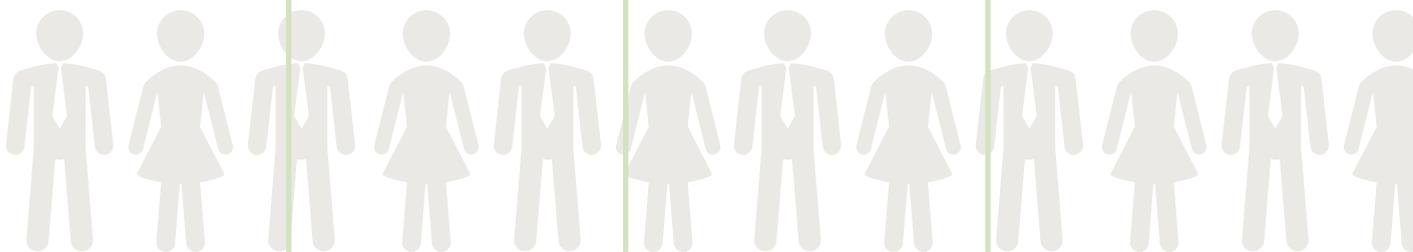
More than
**5,500
visitors**

since opening in
May 2015

2 DMDII

Regional Chapters

launched: Quad
Cities and Rockford



Greetings from UI LABS leadership

UI LABS began as a straightforward idea—to provide a forum for collaboration and thereby solve challenges that are too big for any one organization to address. But we dreamed of being much more than an applied research institution: UI LABS should be a catalyst for innovation, working with elite partners to reshape industry and pioneer novel consumer and manufacturing processes.

This year, that idea became a reality. We embarked on a series of projects with our consortium of partners and are now executing toward measurable results. We established our senior leadership team, doubled our overall team, brought in new partners, and put our advanced manufacturing equipment into place. In short, we have laid the foundation that will allow UI LABS to expand its impact and influence in the coming years—and achieve our vision of transforming entire industries through collaborative innovation.

Countless factors came together to make this progress possible, not the least of which was the completion of our new home on Chicago's Goose Island, which has become a hub of investment and technology innovation. Having a physical space evokes permanence and progress, and our award-winning facility has certainly made these ideals possible. We are thrilled to have created a unique, single space where we can work with our diverse partners from across the nation on the projects that matter to all of us. We are in awe of the ongoing broad support of our investors and partners and are dedicated to helping them move their concepts from the lab to the marketplace.

This next year promises to be our most exciting yet. We built so much this past year, and we are eager for people to start seeing the tangible results of these collaborative efforts across so many industries. When we can see manufacturers across the value chain adopt our innovations, go to a street corner in Chicago and see the deployment of our “smart city” project outcomes, and see the differences that these projects make to individuals in their lives across the country—that's when the real excitement is going to begin.

We look forward to building on the efforts and accomplishments of 2015, and we are endlessly grateful to our partners, our board of directors, and our team for helping to make our vision everyone's reality.



Warren E. Holtsberg
Chairman



Caralynn Nowinski Collens
Chief Executive Officer

A rigorous process for innovation

In every corner of the globe, the best minds are at work exploring ways to solve the world's most vexing problems. As technological advances—from the Internet of Things and big data to artificial intelligence—hurtle forward, the sheer enormity of the potential applications can be overwhelming. So the focus must necessarily shift to how new technologies and solutions—whether new services, products, or business models—can be developed and translated into economic impact.

Even the largest and most established companies struggle with accessing the talent and ideas needed to keep pace with advances in digital technology. When faced with a new challenge, industry tends to think in terms of “buy versus build”—searching for the needed resource and purchasing the asset outright or developing the capability in-house. UI LABS offers a third choice: collaborate.

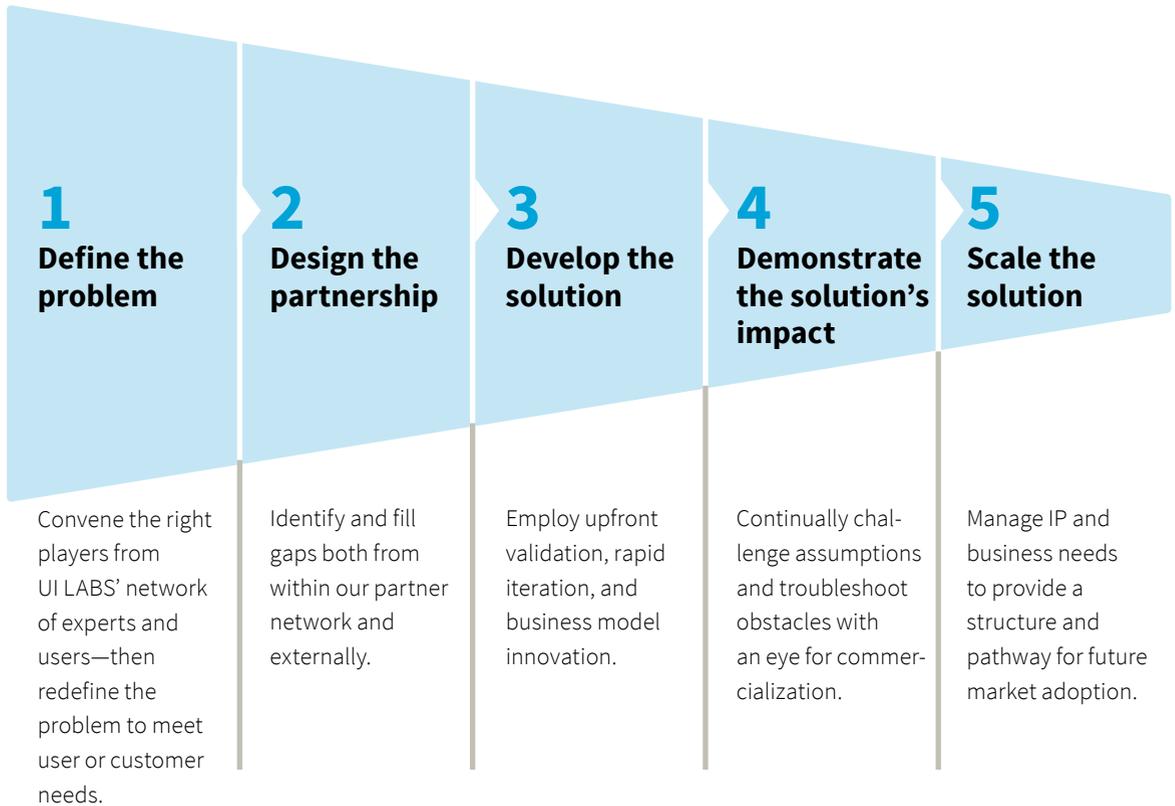
UI LABS is set apart by its extensive network of partners as well as its unique approach to problem solving. As a first-of-its-kind “innovation accelerator,” UI LABS plays three roles:

This combination enables UI LABS to attack problems with a fresh and agile perspective. By creating a safe, secure environment for the world's leading corporations, researchers from top academic institutions, and a deep pool of small and midsize companies, UI LABS has created a platform to accelerate the design, development, and commercialization of new technology-driven solutions.

Organizations that wouldn't normally work together share knowledge and best practices. Researchers benefit from the expertise of their colleagues and the perspective of the end user. And every project undertaken has a direct connection to real-world problems, so solutions can be licensed and applied across industries and borders.



UI LABS has established a five-step process designed to unlock value at every step



Our two Labs—the Digital Manufacturing and Design Innovation Institute (DMDII) and City Digital—are guided by this approach to innovation and are already well on their way to achieving results. Throughout 2015, more than 60 partner organizations were hard at work together on 21 projects and pilots supported by \$35 million in funding, plus in-kind support. UI LABS' state-of-the-art facility offered an invaluable hub for in-person meetings, a magnet to attract new insight and energy, and vital access to manufacturing equipment for our member organizations.

From our home base in Chicago, UI LABS has become an engine for economic growth and competitiveness. The following pages provide a detailed look at our efforts in 2015 and underscore the progress we have made to date as well as the exciting initiatives that lie ahead on the pathway to transforming entire industries.

Working with DMDII allows GE to reach additional stakeholders in the marketplace as we work on design and modeling tools and other manufacturing technology projects. We believe that the unprecedented access to powerful software tools, models, and the means of production will serve to democratize the entire manufacturing process.

—Joe Salvo, Manager of the Digital Twin Ecosystems Laboratory and Director of the Industrial Internet Consortium (ICC), GE Global Research



DMDII

Vision

Transform U.S. manufacturing into the most competitive in the world through the adoption of digital-manufacturing technologies.

Fast facts

- ⚙️ Launched in February 2014 with a \$70 million cooperative agreement from the U.S. Department of Defense (DOD), with \$12 million in additional grants to date
- ⚙️ Addresses underinvestment in precompetitive applied R&D that can advance the entire industrial base
- ⚙️ Fosters development and implementation of digital-manufacturing technology throughout the supply chain
- ⚙️ Designs projects based on corporate interests to develop proprietary go-to-market solutions
- ⚙️ Manages current pipeline of more than 30 projects

We are on the brink of a huge wave of innovation in the \$3 trillion U.S. manufacturing sector. Digital technologies have significantly altered the entertainment, communications, and financial sectors and are now in the process of transforming the way parts, components, and complete systems are designed and manufactured. The time is ripe for innovation, and DMDII is at the center of the transformation and the effort to put U.S. manufacturing at the vanguard of worldwide innovation.

The Department of Defense (DoD) was pivotal in launching DMDII as one of several federally funded institutes that comprise the National Network for Manufacturing Innovation (NNMI). Formally established in 2014, the NNMI brings together industry, academia, and federal partners to increase U.S. manufacturing competitiveness by promoting a robust and sustainable manufacturing R&D infrastructure.

Ultimately, DMDII offers a sustainable road map for innovation to reduce costs and optimize manufacturing processes. The organization and its partners are focused on identifying the top technologies in digital manufacturing and design as well as how the industry can adopt them.



The 24,000 square foot Manufacturing Demonstration Lab showcases top-of-the-line manufacturing equipment from DMDII partners.

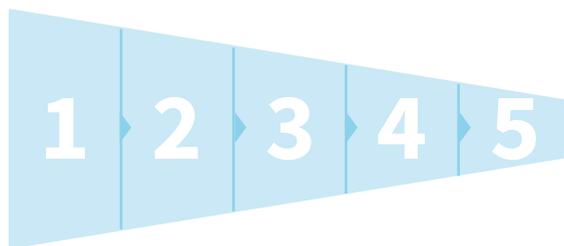
Research projects

DMDII's R&D projects fall into three technology categories: **advanced manufacturing enterprise, intelligent machining,** and **advanced analysis.** The goal of all projects is to stretch the frontiers of digital manufacturing and design. Rising material costs and supply constraints require more efficient processes across the Digital Thread,¹ and DMDII is facilitating the development and integration of new manufacturing methods.

DMDII aims to incorporate digital technology into every facet of design and production. In 2015, DMDII embarked on five new R&D projects with top partners, plus two projects to launch the Digital Manufacturing Commons and workforce development efforts. It currently has more than 30 projects in the works with a diverse set of collaborators that ranges from General Electric to Georgia Tech University. These projects are exploring areas including integrated design and manufacturing models with metrology, a plug-and-play tool kit for geometric adaptive machining, and an assessment of factory infrastructure cybersecurity.

Its unique approach to collaborative problem solving was on full display in 2015.

DMDII Project Spotlight: Model-Based Enterprise (MBE) solution



1. Define the problem

Model-based methodologies can offer significant improvements in communication among the participants in product life cycle workflows and improvements in accuracy and efficiency in moving and using product data. Persistent technological and organizational hurdles prevent manufacturers from taking advantage of these benefits.

2. Design the partnership

A diverse group of DMDII partners formed a project team to address this issue, with Rolls-Royce as lead partner. Additional team members include 3rd Dimension, Anark Corporation, ITI-Global, Lockheed Martin Association, Microsoft, and Purdue University.

3. Develop the solution

The framework resulting from this project will improve manufacturing efficiency by using intelligent 3-D product models, reducing the need for multiple part files in multiple formats (including 2-D drawings) to be transferred throughout the supply chain.

4. Demonstrate the solution's impact

The project will create practice-based and software-neutral brand guidelines for applying these practices, conduct a pilot project in the additive manufacturing space, and demonstrate related workforce-training curricula.

5. Scale the solution

As an MBE framework and best practices are standardized, small and midsize manufacturers can adopt them, creating a broader network of suppliers. Preliminary experience with large OEMs has demonstrated a reduction in development costs of up to 50 percent using an MBE approach. Through this project, business case studies and implementation guides will describe how the Digital Manufacturing Commons can enable secure, efficient data and model exchange across the supply chain, translating these cost savings opportunities across a network of suppliers.

¹ The "Digital Thread" is a term used to describe the integration of information across the manufacturing process—from planning and analysis through design, prototyping, manufacturing at scale, use in the market, and disposal/reuse—so that participants in its development, manufacture, and use can access information on an item to inform decisions across its life cycle.

What DMDII can do for its members

DMDII has attracted an extraordinary array of university, industry, and government partners. The benefit of such diverse membership is a similarly diverse well of resources that UI LABS can tap to tackle a project. Some partners contribute their impressive technical expertise; others offer their business savvy; some small businesses bring creativity and a unique approach to innovation; and other organizations contribute a keen understanding of the workforce development landscape. Every group brings its ideas and skills to the table and brainstorms together to solve problems that could have not just mutual benefit but also a far-reaching impact on the industry.

In October 2015, DMDII capitalized on the consortium of partners it has built and launched its first set of R&D projects, collectively investing \$7 million in five contracts to 14 partners across the country—a clear indicator of the momentum DMDII has built in the past year and the manufacturing innovations that will follow in 2016.

In addition to the contributions to these select partners, DMDII was focused on expanding its membership: its total number of partners grew to more than 170 by the end of 2015. DMDII's growing membership spurred increased activity, including partner gatherings to discuss innovation efforts and share best practices. With approximately one new member joining each week, DMDII has established itself as a hub for innovation and a magnet for the leading minds in manufacturing.



Representatives from all seven National Network for Manufacturing Innovation Institutes gathered at DMDII on November 7, 2015, to share best practices.

Extending DMDII's impact

Illinois Manufacturing Lab: DMDII seeks to revolutionize U.S. manufacturing by developing and sharing best practices, and outreach to small and midsize manufacturers is particularly critical to achieve this goal. Through the Illinois Manufacturing Lab (IML), UI LABS partnered with the University of Illinois to target manufacturers across the state to participate in pilot projects focused on tool path and cycle time improvement, as well as modeling and simulation. The results of these projects were overwhelmingly positive, leading to immediate efficiency improvements and saving the participants time and money.

In the case of Tek Pak, located in Batavia, Illinois, an investment of less than \$10,000 resulted in efficiency returns valued at more than seven times the initial cost. The IML project team used multiple software applications to analyze the machine, holder, cutting tool, and cutting fluid that Tek Pak was using to machine a thermoform mold and made recommendations to improve efficiency. The actual impact of the project on reducing machining time was far greater than the estimate, resulting in efficiency gains valued at \$72,000 per year.

Regional Chapters: In early November, the organization took another important step toward its goals by opening regional chapters in Rockford and the Quad Cities. DMDII's leadership was joined by Senator Dick Durbin, Congresswoman Cheri Bustos, and representatives from those cities to mark the debut of DMDII pilot chapters.

This expansion represents a significant development for manufacturing in Illinois. The regional chapters will create manufacturing clusters in these cities, serving to attract top talent and sending a clear message that Illinois is a serious player in digital manufacturing and the future of the industry. DMDII hopes to replicate this model throughout the state and across the nation. Its mission is not just to improve processes or innovate in industry but to establish a new standard for digital manufacturing in the United States.

Placing our institutes in close proximity to communities rich in manufacturing history such as the Quad Cities and Rockford enables DMDII to accelerate to small and midsize companies the benefits of the institute's activities. It is potentially a model that can be replicated across the nation.

—Adele Ratcliff, Director of Manufacturing Technology of the Department of Defense

Manufacturing is a critical component of our state and national economy. By connecting regional and local talent with DMDII's national network, we will continue to strengthen our local workforce while leading the nationwide manufacturing revolution.

—U.S. Senator Dick Durbin

Developing the 21st-century manufacturing workforce

Education is a vital component in any effort to further U.S. manufacturing. The integration of digital technologies into the manufacturing process means that workers must build new skills and capabilities. Often the first step is to raise awareness among students and recent graduates on how manufacturing has evolved and the career opportunities that are now available. Programming for visiting groups of high-school students has included tours of the manufacturing lab floor, hands-on activities and career games, and training sessions highlighting post-secondary opportunities and resources.

UI LABS has been an active community partner since its founding, and the opening of its facility in 2015 gave it a powerful educational tool to inform and inspire the next wave of manufacturing talent. Whether it be the public or other big players in industry, all are welcome to walk through the UI LABS shop, watch manufacturing demonstrations, and get a closer look at its machines. Few facilities offer this level of transparency and access. In addition to these demonstrations, UI LABS has a Knowledge Theater, an academic-style lecture hall that is used for industry training sessions. This type of tiered classroom is rare outside of universities, but it allows partners to be comfortable in all-day training sessions and those participating remotely to live-stream the session. In these ways, the organization makes an important contribution to workforce development and economic opportunity in the Chicago region, and it plans on ramping up these capabilities in the coming year.



U.S. Senator Dick Durbin speaks at the debut of the Rockford chapter of DMDII.



U.S. Representative Cheri Bustos speaks at the debut of the Quad Cities chapter.



Three efforts in 2015 showcase UI LABS' impact in workforce development

UI LABS hosted a number of events throughout 2015 to showcase digital manufacturing and to promote awareness among students and educators. A few examples include:

- From August 6 to 18, UI LABS partnered with the University of Illinois at Chicago (UIC) to cohost the 5th Annual Summer Institute for Sustainability and Energy (SISE), an intensive two-week program. More than 30 doctoral, masters, and senior-level undergraduate students and recent graduates, representing 13 different academic and research institutions, participated in SISE.
- On September 30, DMDII welcomed 45 high-school Project Lead the Way faculty from Illinois, Indiana, Michigan, and Wisconsin to UI LABS. These teachers all specialize in computer integrated manufacturing (CIM) instruction. The event engaged these faculty on a general background of Industry 4.0, the capabilities of DMDII, and what this means for classrooms today.
- On October 2, DMDII partnered with World Business Chicago to participate in National Manufacturing Day, a celebration of modern manufacturing intended to inspire the next generation of manufacturers. The goal of this day, sponsored by the National Association of Manufacturers, The Manufacturing Institute, and the National Institute of Standards and Technology Manufacturing Extension Partnership, was to raise the profile for manufacturing careers and encourage students to think differently about the field.



DMDII and the City of Chicago invited over 150 SMMs to “Demystifying DMDII,” an event to share how to get involved with DMDII.

2015 key moments

- February** DMDII holds Project Call Workshop in Atlanta with more than 150 attendees to discuss a set of project calls in its core Technology Thrust Areas.
- May** The UI LABS Innovation Center, home of DMDII, opens its doors on Goose Island.
- August** U.S. Secretary of Commerce Penny Pritzker visits DMDII for a roundtable on manufacturing.
- September** DMDII holds a Project Call Workshop at UI LABS for additional core Technology Thrust Area projects.
DMDII holds a virtual Project Call Workshop focused on the Digital Manufacturing Commons (DMC).
- October** DMDII signs its 150th member.
DMDII and cohost World Business Chicago welcome more than 50 Chicago Public School students for National Manufacturing Day.
DMDII hosts its first “Digital Day,” inviting junior-high students to UI LABS for programming and a manufacturing floor tour.
DMDII announces its first set of R&D projects, awarding \$7 million to 14 partners across the country.
DMDII member Caterpillar hosts a Chicago Ideas Week Lab at UI LABS. Caterpillar CTO Gwenne Henricks kicks off the showcase of the company’s cutting-edge digital technologies.
- November** DMDII hosts representatives from all seven National Network for Manufacturing Innovation Institutes in order to share best practices.
DMDII opens regional chapter in Rockford.
DMDII opens regional chapter in the Quad Cities.
DMDII and the City of Chicago invite more than 150 SMMs to “Demystifying DMDII,” sharing how to get involved with DMDII.

Coming in 2016 for DMDII

DMDII began important work in 2015, from signing its 150th member to launching its first wave of R&D projects. The coming year offers much cause for excitement. In addition to watching its initial projects come to fruition, DMDII is on track to organize and deploy \$50 million in applied research and pilot demonstration projects over the next 12 months, along with projects sponsored exclusively by private sector partners. The previously launched applied research projects will begin to show real outcomes and a path to commercialization.

In addition to the progress of projects within DMDII’s core Technology Thrust Areas, foundational projects in both the Digital Manufacturing Commons and workforce development will be ready to go live with a larger audience. DMDII’s leaders also look forward to building on its facility’s unique capabilities, elevating the capabilities of the manufacturing floor for demonstration and training. Finally, the DMDII team will expand to meet the needs of its growing portfolio to include talent on loan from our consortium members.



CITY DIGITAL

Vision

Digitize the built environment to transform how we live, work, and play in cities today and tomorrow.

Fast facts

- ▮ Designs and deploys pilot demonstration projects to validate technology, business models, scalability
- ▮ Mitigates challenges inherent in municipal collaboration, facilitating replicability and speed
- ▮ Manages current pipeline of seven projects
- ▮ Leverages investment by multiple parties and capitalizes on planned infrastructure projects

Ushering in the era of the smart city

For centuries, cities have been fundamental building blocks of society and commerce. Today, cities around the world face a common challenge: growing populations are overwhelming often crumbling urban infrastructure—not just roads and bridges, but also electricity and water systems. As a result, city centers are routinely clogged by traffic, and municipal officials struggle to manage scarce resources efficiently. Adding to the challenge, funds to repair or upgrade a city’s infrastructure and systems are either insufficient or nonexistent, making these problems seem all the more intractable.

To enable cities to increase economic activity, promote innovation, and improve the quality of living for residents, civic leaders must have access to new solutions in infrastructure design, materials, and management. Technology and data analytics are core components of efforts to create scalable solutions that can transform the way cities operate. However, such a venture requires a new level of collaboration and increased integration of government data with resources from private industry and research institutions. City Digital was created to explore opportunities at the convergence of physical and digital systems. Our goal is to create smarter, connected cities now and in the future.

Through a unique partnership, City Digital uses the City of Chicago as a testbed for technology solutions, with a focus on four critical areas: energy management, physical infrastructure, transportation, and water and sanitation. City Digital has three current pilots in progress: Smart Green Infrastructure Monitoring, Underground Infrastructure Mapping, and Smart Building Data Service. The pilots will expand, improve, and apply the use of sensing technologies, real-time data collection, geographical systems, analytics and insight, and prediction algorithms and capabilities.

Our projects follow a design-driven process that seeks to accelerate the collaborative development of new products and processes. Together with our partners, City Digital identifies programs and pilots that unlock value through collaboration and coordination among partners and access to data that can improve the design, creation, use, interactivity, and impact of urban infrastructure.

One example is City Digital’s Underground Infrastructure Mapping Project. Cities around the world lack a comprehensive inventory of the labyrinth of infrastructure that lies beneath their streets. Original plans bear little resemblance to the current environment thanks to years of maintenance and upgrades. With a consortium of partners, City Digital is pursuing a project to create an engineering-grade, common,

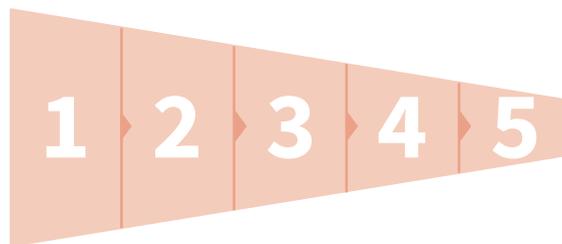
and secure platform of 3-D infrastructure data. A look at the pilot's steps highlights City Digital's unique ability to forge new alliances that can achieve unprecedented progress.

City Digital's two-day workshop of 12 City of Chicago departments identified major infrastructure challenges due to the absence of coordinated and transparent underground infrastructure data. As a result, City Digital launched a project to address these challenges.

Thanks to this pilot, the City of Chicago anticipates fewer accidental damages to property and a reduced impact from construction for city residents.

In early October, City Digital convened academic, corporate and civic partners, and the City of Chicago to generate its second series of topics to develop new pilots. Focus areas include dynamic stormwater response, road integrity management, transit optimization, and urban freight management.

City Digital Project Spotlight: Underground Infrastructure Mapping Project



1. Define the problem

Interviews with key city stakeholders highlighted the need for a data collection and verification system to ensure that data on underground infrastructure is accurate.

2. Design the partnership

City Digital convened a team of partners that included Accenture; the Chicago Departments of Innovation and Technology, Transportation, and Water Management; ComEd; ESRI; HBK Engineering; Microsoft; Reconstruct (UIUC); and CityZenith.

3. Develop the solution

The project team is currently guiding the pilot and providing ongoing troubleshooting—for example, navigating the permitting process to scan underground assets in the public right-of-way.

4. Demonstrate the solution's impact

The demonstration of technologies is under way at a site in Chicago's loop. The project will create a comprehensive bank of underground infrastructure information.

5. Scale the solution

City Digital will work with the pilot team to coordinate the delivery of a new asset capture and storage system for cities. Because of the complex nature of public and private data capture, City Digital will facilitate novel public-private partnerships as part of launching the service in other cities. This step has exciting potential to create new revenue streams for all partners; early estimates suggest the potential for a single large city to realize more than \$100 million in savings annually if the system is fully adopted.

We work with City Digital to accelerate technology solutions to city problems, applying advanced data analytics and partner innovations in combination for creative solutions. We are piloting not only new products and services in Chicago to help cities everywhere but also new business models and partnerships.

—Brenna Berman, Department of Innovation and Technology (DoIT)
Commissioner and Chief Information Officer, City of Chicago



Katie Olson, Assoc. Director of Operations, City Digital, joined partners including Siemens, Accenture, IIT, the City of Chicago, and HBK Engineering on a Smart Cities Panel at Techweek Chicago.

Caralynn Nowinski Collens, CEO, UI LABS, joined Steve Koch, Chicago Deputy Mayor, and Dan'l Lewin, Corporate VP at Microsoft, on a panel at the New York Times' Cities for Tomorrow Conference to discuss ways Chicago and City Digital are leading the nation in innovation.



City Digital Executive Director Steve Fifita highlighted Chicago's leadership in public-private partnerships and digital technology to a global audience at the Smart City Expo World Congress in Barcelona.

Microsoft recognizes the unique opportunities afforded by UI LABS and the City of Chicago through City Digital—a neutral convening space to combine City experience and testbeds with industry expertise and innovation—which allows us all to collaboratively demonstrate impact on major urban infrastructure challenges.

—Dan'l Lewin, Corporate Vice President, Technology and Civic Engagement, Microsoft

2015 key moments

- January** First Annual “Problem Statement Breakdown” Workshop held to source new pilot ideas.
- March** City Digital launches with front-page story in Crain’s Chicago Business with four Tier 1 Partners.
- June** Tyco Joins consortium as fifth Tier 1 Member; five Tier 1 Partners, one Tier 2 Member sign membership agreements and hold first Executive Board Meeting.
Rules of engagement with the City of Chicago.
Katie Olson, Assoc. Director of Operations, joined partners from the City of Chicago, Siemens, and HBK Engineering on a Smart Cities Panel at Techweek Chicago.
- July** Annual pilot development process and framework articulated.
Caralynn Nowinski Collens sits on a panel at The New York Times’ Cities for Tomorrow Conference to discuss ways Chicago and City Digital are leading the nation in innovation.
City Digital welcomes “smart-connected communities” veteran Steve Fifita as its Executive Director.
- August** First Strategic Investment Plan (SIP) issued.
- September** City Digital announced by White House as part of Smart Cities Week; City Digital unveils plans for first three pilot projects.
- October** City Digital hosts second Problem Statement Breakdown to source second generation of pilot ideas.
- November** Strategic Advisory Committee (SAC) fall meeting.
City Digital Executive Director Steve Fifita joins global leaders to discuss innovations in smart cities at the Smart City Expo World Congress in Barcelona.

Coming in 2016 for City Digital

City Digital will focus on the execution of its first three pilots announced in September 2015, including onboarding critical new legal and pilot management resources. The team will also finalize plans and partners for four “second-generation” pilots, with kickoffs in the last quarter of the year. Later this year, the consortium will also begin selecting opportunities for a third generation of pilots in 2017. Concurrently, City Digital will work with partners to showcase pilot outcomes at UI LABS’ facility and around the City of Chicago.

Becoming thought leaders in the smart city space, City Digital leadership will attend and speak to the consortium’s work at conferences and panels in Chicago, Washington, D.C., London, and Barcelona. Through these events, City Digital will expand the consortium to include additional leading industry partners and startup ventures, adding to the program’s expertise and capabilities.

A new space for collaboration

Grand opening

UI LABS marked a major milestone on May 11, 2015, with the grand opening of its nearly 100,000 square foot Innovation Center in the heart of Chicago. Construction of the facility was supported by \$10 million from the City of Chicago and \$6.5 million from the State of Illinois. The Innovation Center was conceived to house the UI LABS staff as well as to serve as a location in which DMDII's extensive network of partners could collaborate and demonstrate solutions. The unique layout features a 24,000 square foot manufacturing floor, offices, and an open meeting space to host forums, town halls, and other events.

The celebration kicked off with a ribbon-cutting ceremony attended by top elected officials who had championed the establishment of the facility. In the afternoon, UI LABS hosted an open house that drew more than 500 people. Attendees received a guided tour of the facility, including

demonstrations of the advanced-manufacturing equipment such as complex, multi-axis machining and precision measurements conducted in the metrology lab.

The launch of the facility was notable for several reasons. After operating out of shared office space for several years, UI LABS could lay claim to a permanent base of operations. The facility also helped to reinforce Chicago's commitment to be a hub for advanced manufacturing and center for innovation. Moreover, the facility provides a physical location to convene our full spectrum of members, from top-tier partners to small and midsize manufacturers that are vital to the advanced-manufacturing supply chain. Last, the purpose-built space was designed by Chicago-based architecture firm Skidmore, Owings & Merrill (SOM) as a platform to accelerate innovation, with rooms tailored to learning and knowledge sharing.

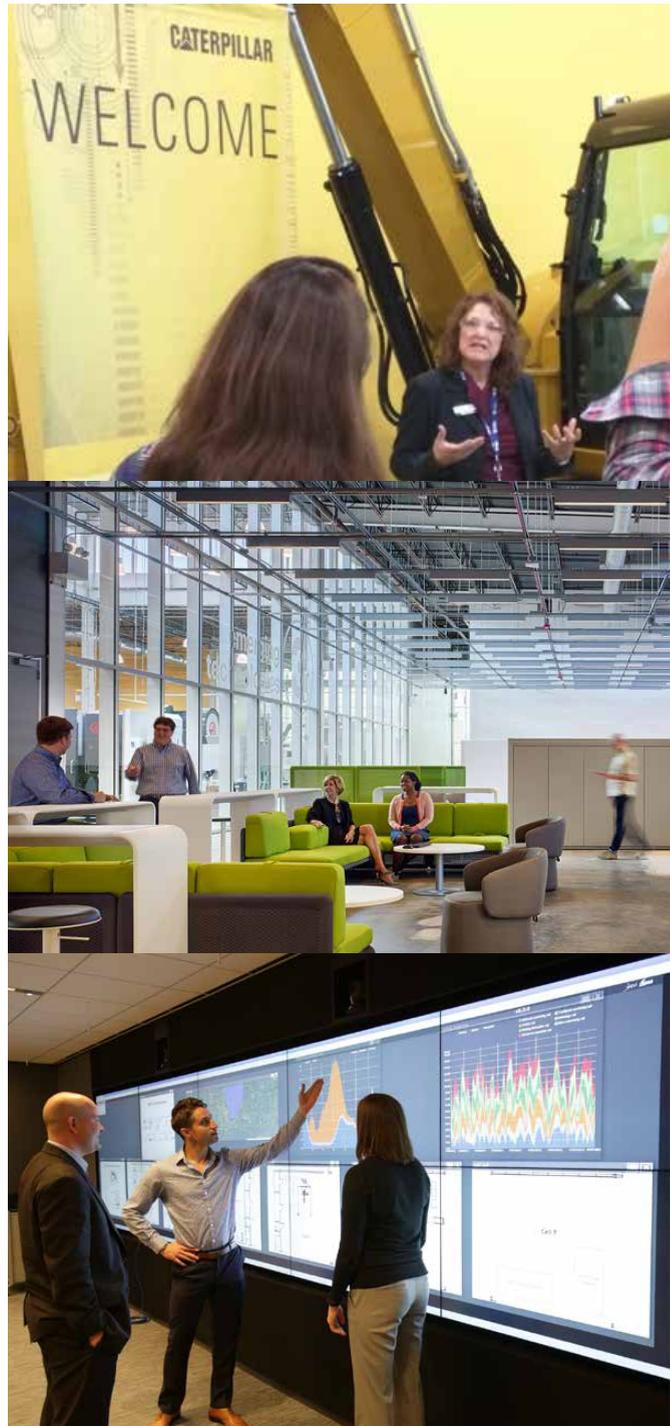


Government officials and UI LABS leadership and Board Members celebrate the opening of UI LABS' facility on May 11, 2015. From left to right: U.S. Rep. Cheri Bustos; Larry Schook, VP of Research, University of Illinois; U.S. Rep. Robin Kelly; Alderman Walter Burnett; Jim Schultz, Director of the Illinois DCEO; Illinois State Senator Thomas Cullerton; Gov. Bruce Rauner; U.S. Rep. Mike Quigley; Mayor Rahm Emanuel; Caralynn Nowinski Collens, CEO, UI LABS; Warren Holtsberg, UI LABS Board Chairman; U.S. Sen. Dick Durbin; Adele Ratcliff, Director of DoD ManTech; U.S. Rep. Adam Kinzinger; Bill King, Founding UI LABS CTO.

A collaboration platform for partners

By promoting knowledge sharing and offering demonstrations of cutting-edge technologies, UI LABS is able to harness the collective investments of its partners in innovation to deliver better solutions, more quickly and more efficiently. At the end of 2015, UI LABS had increased its network of partners to more than 200 across its two programs. Significantly, partners get privileged access to UI LABS' facility and its full program of knowledge-sharing opportunities. Our physical space does more than just offer groups a common space to gather and collaborate—it sends a message of permanence and progress. A physical space cannot be overlooked, and already the tech and startup community has rechristened Goose Island as “Innovation Island” to note its vital role in the Chicago innovation ecosystem.

UI LABS' facility was recognized by Core Net Chicago as the “Project of the Year” and the “Design of the Year” by the Chicago chapter of the American Institute of Architects.



Top: Caterpillar CTO Gwenne Henricks shares her company's cutting-edge digital technology at the Chicago Ideas Week Lab hosted by UI LABS. Middle: UI LABS team members gather in the Collaboration Café. Bottom: The UI LABS Connect Center can display information from multiple sources, including data streaming live from the equipment on the manufacturing floor.

Our members and partners

Tier 1

Accenture	Siemens	University of Cincinnati
ComEd	Tyco	University of Illinois-Chicago
Dow	Kentucky Cabinet for Economic Development	University of Illinois-Urbana Champaign
General Electric	Iowa State University	University of Louisville
Lockheed Martin Corporation	Northwestern	University of Michigan
Microsoft	Rochester Institute of Technology	University of Nebraska-Lincoln
Rolls-Royce	University at Buffalo, SUNY	UT Austin

Tier 2

Boeing	Procter & Gamble	University of Colorado-Boulder
Caterpillar	Georgia Tech Research Corp.	University of Iowa
Deere and Company	Missouri University of Science and Technology	University of Wisconsin-Madison
HBK Engineering	Oregon State University	Wayne State University
Illinois Tool Works (ITW)	Purdue University	

Tier 3

3D Systems	Genesis Systems Group, LLC	PTC, Inc.
3Degrees	Global Data Sciences	QuesTek Innovations LLC
3rd Dimension	Grainger	Raytheon Company
4D Technology	Grant Thornton	RCM Industries, Inc.
Advanced Dimensional Management LLC (MBD360)	Graphicast	Renaissance Services Inc.
Aeroeda	Green Dynamics	Rockwell Automation
Alicona	Grote Industries	Sage Clarity LLC
Anark Corporation	Harbec, Inc.	Sandvik Coromant
aPriori Technologies, Inc.	HL Precision Manufacturing, Inc.	Sanmina
ARC Advisory Group	Hyla Soft	SBP Consulting Inc.
Arizona State University	Imprimis, Inc.	Scope Technologies US Inc.
Astronautics Corporation of America	Indiana University	Sentient Science
Atlas Tool Works	Industrial Network Systems (INS)	Shure Inc.
Ausco, Inc.	Integris Group LLC	SimInsights
Authentise, Inc.	Integrity Technology Solutions	Sivyer Steel Corporation
Aztec Plastic Company	Intel	SPIRE
BAE Systems Land & Armaments, L.P.	International TechneGroup Incorporated (ITI)	Steelcase
Belden Tools, Inc.	Isola USA Corp	STEP Tools, Inc.
Big Kaiser	ITAMCO	Strong Oak
Bi-Link	ITRI International Inc.	Superior Joining Technologies
BlueSwarf LLC	Lexmark International	SwRI
Boston Consulting Group	LMI	Tech Mahindra
Capvidia	MakeTime	Tech Soft 3D, Inc.
CGTech	Manpower Group Public Sector Inc.	TechSolve
Chicago Scenic Studios	Manufacturing Systems Insights, Inc.	The Innovation Machine
Chicago White Metal Casting	McMaster Carr Supply Chain Company	The Lucrum Group
CimData, Inc.	Mercury Marine	The Pennsylvania State University
Cisco Systems, Inc.	MetaMorph, Inc.	Tucker Innovations Inc.
Concurrent Technologies Corporation (CTC)	Metrologic Group	Twin City Die Castings
Crafts Technology	Microlution	UL LLC
Craig Technologies	Mississippi State University	University of Alabama Birmingham
Crestlight Ventures	Mitutoyo	University of Delaware
Daqri	MSC Software Corp.	University of Kentucky
Design Mill	Nimbus	Vanderbilt University
Devbridge Group, LLC	Northern Illinois University	Virginia Polytechnic Institute and State University
Dynamic Motion Control (DMC)	Ohio State University	Virtual Systems Engineering
Eastern Iowa Community College	Okuma	Visi-Trak Worldwide
EDM Department Inc.	OneFire	VTOL
Erwin Junker Machinery, Inc.	Optimax Systems	Wes-Tech Automation Solutions
ESI North America	OptiPro Systems	Western Illinois University
Factory Right, LLC	Oshkosh	Wiegel Tool Works
Feralloy Corporation	Palo Alto Research Center	Wittenstein
FlexLink Systems Inc. (Coesia)	PDA LLC	Wrightwood Precision Products
Forcam	PDES, Inc.	Zuken USA Inc.
Fujitsu Network Communications, Inc.	Pella Corporation	
Galois	ProPlanner	

Please refer to dmdii.org and citydigital.org for a full list of partners.

The team

UI LABS has spent the past year attracting and developing an extremely talented team of engineers, scientists, and researchers from such diverse locations as California, Florida, Massachusetts, and Minnesota as well as Argentina and Mexico. The team, which has doubled year over year, draws from experiences at organizations such as Accenture, Best Buy, Cisco, the City of Chicago, Crestlight Ventures, Diebold, DMG Mori, GE, General Dynamics, The MITRE Corporation, Motorola, Nokia, Northrop Grumman, and the U.S. Departments of Commerce and Energy. UI LABS also has talent “on loan” from partners including the Boston Consulting Group, Lockheed Martin, and Rolls-Royce.

As UI LABS and the region continue to be a destination for this type of talent, the organization will focus on building a deeper bench in technology transition, pilot scoping, technical program management, and cybersecurity through a focused expansion of the “on loan” program. The team is also continually evolving capabilities, such as grant making, as part of our long-term commitment to this larger mission.

Caralynn Nowinski Collens, M.D.

Chief Executive Officer
More than 15 years as an innovator, researcher, entrepreneur, and venture capitalist

Steve Fifita

Executive Director, City Digital
More than 17 years of Fortune 100 experience in technology, innovation, global strategy, and commercialization in Silicon Valley and abroad

Andrew Watkins

Vice President, Strategy
More than 10 years of experience in strategy/finance transformation projects for Fortune 1000 clients

Dr. Dean L. Bartles

*Executive Director, DMDII,
Chief Manufacturing Officer,
UI LABS*
More than 35-year leadership career in manufacturing

Jenny Fisher

Vice President, Administration
Senior leadership positions in corporate strategy, human resources, global staffing, executive search, and executive development



Flexible workspace was designed to encourage collaboration while showcasing DMDII's manufacturing floor.

Ways our partners use the UI LABS Innovation Center

💡 Offsite retreats
August 19: Northwestern University Corporate Engagement Office annual retreat

💡 Conferences/workshops on or off the manufacturing floor
December 17: Siemens and CIMdata workshop on the Digital Factory and CAM Technologies, cohosted by DMDII

💡 Evening receptions

💡 Trainings and presentations



October 21: Grant Thornton's "Chicagoland's Next Generation of Innovation" event.



December 9: Junior-high students participate in "Hour of Code" training.

UI LABS revenue from operations, \$ millions



Going forward

2015 was a year of organizing and planning, during which UI LABS added talent to its ranks, fine-tuned its processes, expanded its consortium, and moved into its permanent home. These milestones laid the foundation for projects and partnerships to yield game-changing results in 2016 and beyond. From its location in Chicago's burgeoning tech scene, UI LABS is poised to be a local, regional, and national leader in collaborative transformation.

Board of directors

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Co-Head of Portfolio Management,
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Pamela B. Strobel

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President, The Zaf Group
Executive Advisor,
The Blackstone Group

Thank you

Special thanks to our university, industry, and civic partners for their confidence in and support for UI LABS. Thanks also to our board of directors and our incredible team, whose tireless work and dedication are helping to bring our ambitious vision to life.



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