

Advancing AI Wisconsin – A Grassroots Collaborative

Position Paper (updated 10/26/17)

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Executive Summary:

Who We Are

Advancing AI Wisconsin is a grassroots initiative to increase awareness of a set of technologies often referred to as “Digital Disruption Technologies” and their impact on Wisconsin businesses, workforce needs, educational programming and the State overall.

The most recognizable technology category which impacts all others in some form is Artificial Intelligence (AI), hence the choice of name for our initiative: Advancing AI Wisconsin. It also indicates that our initiative aims to do more than just create awareness. We want to set in motion a positive dynamic regarding the adoption of AI (and other technologies) and the management of their impact.

Advancing AI Wisconsin was founded in March 2017 by Oliver Buechse (Founder of My Strategy Source and former Chief Strategy Officer of Associated Bank), Kurt Hahlbeck (Founder of Hugo Enterprise), Mike Semmann (COO of the Wisconsin Banker’s Association), and Chizom Ekpunobi (MBA Graduate and Entrepreneur) and has since grown as a grassroots collaborative with continuously increasing participation, reach, and awareness.

Our Mission

We enable Wisconsin stakeholders to successfully adapt to the imminent impact of Artificial Intelligence and other Digital Disruption Technologies in the context of the Fourth Industrial Revolution

Our Vision

By the end of 2017, we will create meaningful momentum in discussions and collaboration among and between Wisconsin business and technology leaders, educators, policy makers, and economic development professionals on the topic of Artificial Intelligence and other Digital Disruption Technologies.

Success Criteria

- Creation of a comprehensive inventory of AI and Digital Disruption related content...
- ...accessible through a public resource portal...
- ...showcased in a series of statewide events and discussion forums...
- ...in collaboration with all stakeholder groups...
- ...resulting in individual and collaborative planning and action to better position Wisconsin for the impact of AI and Digital Disruption in general

Our growing resource coalition (status 10/27/17)

Advancing AI Wisconsin is supported by

Trade Organizations

We have received indication of support from the Wisconsin Bankers Association, Wisconsin CPA Association, Wisconsin Hospital Association, Wisconsin Economic Development Association, and Wisconsin Manufacturers and Commerce.

Economic Development Organizations

“The Regional Economic Development Leadership Council of the state of Wisconsin, a group comprised of the nine regional economic development organizations across the state, recognizes and supports the efforts of Advancing AI Wisconsin to enable Wisconsin stakeholders to successfully adapt to the imminent impact of Artificial Intelligence on Wisconsin’s businesses, workforce needs, educational programming and the state overall.”

We are supported by the Bay Area Workforce Development Board led by Jim Golembeski. Jim and his fellow Board members believe that looking ahead into the future conditions for the State and the area of North East Wisconsin will be critical in creating sustained positive economic momentum.

We have had constructive and collaborative dialogue with Barb LaMue and Lee Swindall at the WEDC and continue to engage with ED Professionals at many levels.

Policy Makers

Brown County Executive Troy Streckenbach and Waukesha County Executive Paul Farrow are first in this category. Jerry Deschane, Executive Director of the League of Wisconsin Municipalities has recently joined our effort. Conversations with other County and Municipal leaders are continuing. A number of Wisconsin Counties has expressed interest in collaborating on the Digital County Initiative (see detail below) including Milwaukee, Jefferson, Waushara, Rock, LaCrosse, Ozaukee, Barron, Iowa, Sauk, Bayfield and Eau Claire.

Business Leaders

Associated Bank CIO Jim Payne, Wipfli Managing Director Rick Dreher and Wipfli Technology Leader Ken Kortas, Breakthrough Fuel CEO Craig Dickman, CCEP CEO Rick Chernik, Skyline Technologies CEO Mitch Weckop, AURORA WDC Chairman Arik Johnson, Damani Short, Founder and CEO of Lexico, and Paul Linzmeyer, serial entrepreneur and creator of Farmory, are among the many business and technology leaders we have enlisted in this effort.

Educational Sector

Tom Kazcmarek and Carmel Ruffalo of Marquette University were the first representatives of Higher Education who have indicated their personal support for the initiative and are helping us reach others in the field. Laura Schmidt of the New Berlin School District is an active member of our core team and continues to build bridges to the educational sector. Peter Dettmer, Bryan Woodhouse and Kevin Mirus of Madison College have joined the conversation, as have Michael Zimmer of UW Milwaukee and Bryan Engelhardt of UW Oshkosh. Joe Poeschl, Program Director of The Commons, and entrepreneurial skills accelerator for students has indicated his willingness to actively collaborate with Advancing AI Wisconsin. Heather Sullivan of Marquette University recently joined our team and has facilitate many valuable introductions already. Additional conversations are scheduled.

Our core activities and supporting team members:

Advancing AI Wisconsin is currently pursuing several core activities and we have organized our resources around these activities. To become involved, please contact the indicated leaders below.

Creation of an AI Awareness Portal

With the generous support of Aurora WDC, a competitive intelligence provider based in Madison WI, serving many of the Fortune 100 and other companies with intelligence related needs, and their First Light Technology platform, we are working on the availability of an information portal. Through this gateway, anyone interested in Artificial Intelligence will be able to access the most recent and most relevant content, organizable by industries, technology aspects, or type of impact. The portal can be configured at the level of 1 and draws on thousands of public and non-public resources. It will be the first truly configurable AI portal of its kind with a specific initial emphasis on topics relevant to the State of Wisconsin. All teams are open to new team members joining and contributing.

Portal Build, Configuration, Operational and Editorial Team

Kurt Hahlbeck (Hugo Enterprises) contact: kurt@hugoenterprise.biz, Arik Johnson (Aurora WDC) contact arik.johnson@aurorawdc.com, Todd Nilson (Clocktower Advisors) contact todd@clocktoweradvisors.com, Tony Puerto (DSX) contact: fpuerto@dsx.com, Chad Bianchi (Associated Bank), Damani Short (Lexico)

Portal Awareness and Branding

Todd Nilson (Clocktower Advisors) contact todd@clocktoweradvisors.com, Mark Elliott (Amphora Brands), Damani Short (Lexico), Ken Kortas (Wipfli)

The Digital County Symposium Series

We will examine how AI, the Internet of Things, and Blockchain are potentially enabling Counties to improve the services they provide to constituents and support their role in Business Development. With this effort Wisconsin's County Executives and Administrators can demonstrate a proactive posture in embracing innovation and setting the tone for others to follow. To initiate creative thinking and truly reimagine the "Digital County" of tomorrow, we will work with a diverse set of students in a Hackathon format. The best ideas from these sessions will become the use cases around which we will engage County leaders, Community stakeholders, Technology providers, and AI/Blockchain/IOT experts.

Oliver Buechse (My Strategy Source) contact: oliver@mystrategysource.com, Troy Streckenbach (Brown County), Paul Farrow (Waukesha County), Chris Abele (Milwaukee County), Jerry Deschane (League of Wisconsin Municipalities), Heather Sullivan (Marquette University), Joe Poeschl (The Commons), Laura Schmidt (New Berlin School District), seeking additional team collaborators

Democratization of Digital Disruption

While large companies have often already launched their own efforts to adopt or even develop AI based solutions, mid-sized and smaller players have more limited opportunities to get into the game. Starting with the Arena of Banking, we will work with industry solutions providers, general technology providers,

and start-up technology companies to initiate the dialogue with the smaller players and jointly explore how access to the benefits of these new technologies can be created.

Oliver Buechse (My Strategy Source) contact: oliver@mystategysource.com, Mike Semmann (Wisconsin Bankers Association), Tony Puerto (DSX), Ken Kortas (Wipfli), seeking additional team collaborators

Workforce and Talent Pipeline Team

The various technologies all impact current and future workforce needs. At our last meeting we constituted a new team to begin building a resource coalition around the topic of workforce impact and response options. This team will reach out to the Educational Sector and beyond.

Laura Schmidt (New Berlin School District) contact: laura.schmidt@nbexcellence.org, Kathy Henrich kshenrich@att.net, seeking additional team collaborators

Context on Artificial Intelligence and Digital Disruption

When we started this initiative, we solely used the term Artificial Intelligence rather than Digital Disruption as it was “top of mind” for us in grasping the change and the likely impact. The recent renaming of our effort to Advancing AI Wisconsin reflects that distinctive status of Artificial Intelligence among the various technological changes as well. But we do not ignore the presence and impact of other technology categories such as The Internet of Things or Blockchain.

Collectively they represent not only a new cluster of technology capabilities, but an entirely new business paradigm, that is by many referred to as the fourth industrial revolution.

The following is a basic primer on the key terms, as we have come to understand them. It does not claim to be comprehensive or superior to any other sources. It is just trying to be helpful as many of you are starting your education journeys on this topic just as we are.

What are the “Fourth Industrial Revolution” or “Industry 4.0”?

The following definitions focus strongly on the Manufacturing aspect and are drawn from descriptions of Hofstra University and the website of Indramat Products.

The **First** Industrial Revolution (late 18th Century and early 19th Century) brought the benefit of **mechanization** through **power generation**. The **Second** Industrial Revolution (late 19th Century and early 20th Century) brought about **mass production** along assembly lines, supported by the introduction of **electricity** into the industrial process. The **Third** Industrial Revolution (late 20th Century) leveraged **IT Technologies** to advance **automation and motion control** in manufacturing. This brought about a level of production and efficiency that had never been seen before. The **Fourth** Industrial Revolution, which is under way, is focused on **robotization**, enabling machines to perform more complex tasks and being

able to adapt to a redefinition of these tasks. Machines are therefore approaching the flexibility of human labor.

A broader view provided by Josh Sutton from Publicis.Sapient defines Industry 1.0 as the Agricultural era (150 years long), Industry 2.0 as the Industrial era (75 years long), Industry 3.0 as the Information age (40 years long) and **Industry 4.0** as Connected Intelligence with an unknown length, but an expectation that the trend of acceleration of cycles continues.

And why does it matter to us?

“The speed of current breakthroughs has no historical precedent. When compared with previous industrial revolutions, the Fourth is evolving at an exponential rather than a linear pace. Moreover, it is disrupting almost every industry in every country.” (Klaus Schwab, Founder and Executive Chairman, World Economic Forum).

What is Artificial Intelligence?

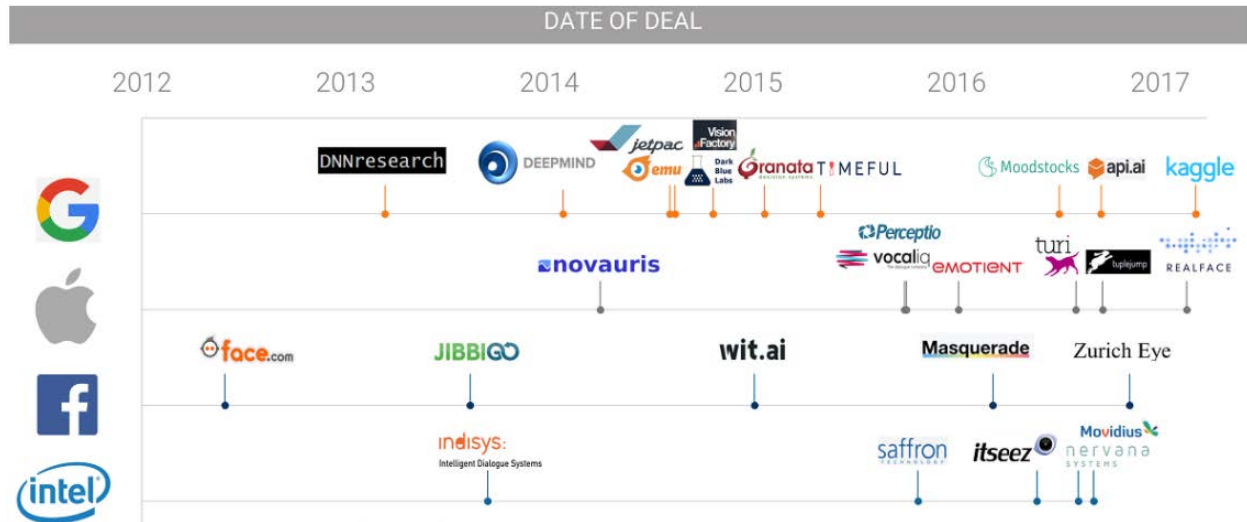
If you think about the basic functions that make us as humans intelligent, you can separate them into (1) the ability to perceive/sense, (2) the ability to relate that sensory input to experiences and knowledge that we have previously gained, (3) to recognize patterns, draw conclusions, inform decisions based on that relationship (and to get better at doing so over time), and (4) to be able to communicate the outcome of that process back to our environment.

Machines have been able to perceive and sense for a long time. With a dramatic increase in processing power, it is now economical to equip them with many more sensors and collect a wider array of data from those sensors. In terms of experiences and knowledge, the universe of accessible data is growing exponentially and once again, the rapid rise of computing capability makes it possible to harness that vast data universe more easily. The most critical breakthrough in giving machines the semblance of intelligence comes in their ability to interpret the information. Progress in natural language processing, the ability to interpret unstructured data, the rapid advance of self-optimizing algorithms, are only some examples to illustrate how machines are increasingly capable of replicating complex cognitive processes while relying on less guidance to perform these tasks. And we are quickly becoming used to the machines communicating back to us in what feels like a natural form of interaction (Siri, Alexa, etc.). It is the combination of these advances that drive the impact of Artificial Intelligence. We will soon come to expect that “suggestions” we receive by sites or digital assistants (ranging from where to dine and what to buy to what to invest in) feel “intuitively right” as they are based on the broadest available data set about our preferences and behaviors and presented in a human like, conversational style of interaction, supported by facts if desired.

Who are the key players in AI?

There is a broad universe of AI players, some focused on specific capabilities, some on certain industries, and others looking to assemble platforms of capabilities. Companies like Ecosystem.ai (Jay van Zyl) are monitoring the rapid evolution and changing interconnections in this space.

One clearly emerging trend is the desire by leading technology companies to establish a strong position in AI capabilities through acquisitions of emerging companies. There is the equivalent of a race to incorporate capabilities into their platforms to enhance functionality and ease of use. The chart below (source: CB insights) illustrates the activity of some of the key players.



Who will be impacted by AI?

Forrester estimates that 25% of all jobs, globally, will be impacted by AI in some form by 2019. Three years is a very short timeline to prepare for that change. AT Kearney is estimating that 13% or 19 million jobs in the U.S. will be replaced by 2024. Many impacted jobs are going to be “cognitive” jobs, ranging from customer service to sales, decision making and advisory jobs in banking, insurance, and investment management, and in many other industries. A rapid and comprehensive wave of job displacements will leave scores of workers scrambling to refocus their careers, retrain for new expectations, or adjust to longer periods of unemployment between active work periods. If that change comes upon us quickly, how will we build educational resources, adjust on the job training, and deal with fundamentally altered workforce dynamics?

“As a society, we are entering uncharted territory.” (Marc Benioff, Salesforce CEO, 18 January 2016)

“Accelerating artificial intelligence (AI) capabilities will enable automation of some tasks that have long required human labor. These transformations will open up new opportunities for individuals, the economy, and society, but they have the potential to disrupt the current livelihoods of millions of Americans.” (Office of the President of the United States, “Artificial Intelligence, Automation and the Economy” December 2016)

But with these changes come not only threats, but also opportunities for increased competitiveness of those who embrace AI and adapt to the new environment faster than others. Every CEO should have the following questions on top of their agenda:

- How will AI change the competitive dynamics of my industry?
- Where can we take advantage of AI in our products and services?
- How can we leverage AI to optimize our internal processes and capabilities?
- Where should we be investing to be well positioned in an AI based future?

And these questions and the actions they trigger are relevant NOW, not in a distant future. In a recent survey by RAGE Frameworks, a Boston based AI specialty provider, to C-level executives, 82% of respondents indicated that AI will be part of their organization's overall IT spending in 2017. The most important driver for that investment was Revenue Generation (80%+ of those who will invest in AI quoted Revenue increase as a motivation) followed by Cost Reduction, Making Better Management and Strategic Decisions, and Driving Greater Business Intelligence and Insights.

How exactly does AI create this type of impact?

The power of AI comes from three distinct pillars. (1) Insight Generation, (2) Customer Engagement, and (3) Business Acceleration.

Insight generation is achieved by accessing large amounts of data, both structured and unstructured (the ability to “read and understand” unstructured information is one of the hallmarks of “intelligent platforms”), and to derive insights from that data based on patterns related to an individual consumer or based on patterns comparing that individual to many other “similar” individuals. The availability of data on the web in general, and our tendency to “share” much of our lives in social channels specifically has increased the transparency of patterns. This “data haven” combined with exponentially increased computing power is the basis for intelligent insight generation.

Customer engagement is facilitated through increasingly intuitive ways of interacting with the digital world. We speak to Siri or Alexa and we increasingly expect to be understood and to receive adequate responses and actions. Natural language abilities enable AI driven platforms to deliver their insights in a way that feels increasingly human-like, which in turn drives our acceptance and enables the elimination of the actual human interface. Chatbot capabilities are advancing from clumsy tools to assistants and will soon reach “expert and savant” levels, reducing the need and the desire to “speak to a real person”.

Business acceleration occurs through the deployment of a range of tools which optimize business outcomes. Capabilities include Machine Learning (complex algorithms that leverage large sets of data and excel at pattern matching), Causal/Semantic solutions (large knowledge bases that enable systems to understand how concepts are related to each other), Voice to Text translation, Character Recognition, and Vision (the ability to extract content and meaning from images), among others. It is the combination of these tools and solutions in business applications that creates value through higher speed, higher accuracy, and dramatically lower cost. Advanced software tools and code platforms allow developers to effectively and efficiently apply these capabilities in targeted solutions.

The goal is typically not to entirely replace the human aspect, but to empower the decision with data and insights, taking away the need for “lower level cognitive tasks” such as data collection and analysis, research, identification of options, relaying of information, etc. and focusing the human task on applying pattern recognition, experience, and judgment. AI supported medical diagnostic tools for example can dramatically reduce error rates when combined with human judgment.

How might an organization get started with Artificial Intelligence projects?

(contributed by Kathy Henrich)

Artificial Intelligence projects must be integrated with the business strategy and built on data. Data may come in the form of structured, unstructured or dark data which was previously unreadable by computers. Increasingly, data comes from a combination of internal sources, public data, or partner data. For example, LinkedIn data is vital in HR applications; weather data is often critical in risk planning and in understanding consumer behavior; Twitter provides valuable insights on trends. When combined with internal data, external data can create valuable insights which help companies increase revenues or reduce risks.

Clients must also consider how to implement artificial intelligence tool sets to gain insights from that data and integrate the knowledge gained into ongoing operational processes. The task of leveraging the technology may seem daunting. Few companies have data scientists on staff and the skills are difficult to find. However, companies have multiple options to gain advantage from artificial intelligence.

1. Traditional algorithm building - This may be best suited for large organizations or for unique applications which will create significant differentiation. One example would be military applications.
2. Pre-built algorithms on the cloud which can be leveraged – Some examples are text to speech and speech to text applications from IBM, Google, and Microsoft via public cloud. Tone analysis and personality analysis are other good examples.
3. Prepackaged applications with integrated AI capabilities SAP, Salesforce.com, BMC, and others are integrating AI capabilities into their applications. Therefore, the algorithms to improve efficiency or gain new insights are embedded into the software. The differentiated value will be gained by the organization based on the creativity of applying those algorithms to their business and the accessibility of data.
4. Service Provider Utilization – More and more service providers are integrating artificial intelligence to gain efficiencies. For example, IBM, as a technology service provider, has leveraged their history to automate handling of IT tickets. Human resources and recruiting outsourcers can gain differentiation in the marketplace by providing efficiencies to their clients.

Interestingly, clients who have an artificial intelligence strategy also tend to be early adopters of other disruptive technologies. A 2017 study conducted by IBM's Institute for Business Value showed that many AI "re-inventors and aspirationalists" also had adoptions plans for the Internet of Things, Cloud, Mobile, and Blockchain. These technologies provide rich data sets from which artificial intelligence can create insights or differentiate operations.

AI Pulse Update AI Summit Recap 9/27 - 9/28, San Francisco, CA

(contributed by Damani Short, Lexico Consulting)

In September 2017, AIBusiness.org—an educational hub working to bring forward the latest news deciphering the impact of AI in business—hosted *AI Summit* in San Francisco, CA. The event brought together over 120 speakers, 50 exhibitors, 80 press/media, and more than 2000 delegates in total. The information, strategies and critical success factors which surfaced from executives at leading corporations spanning the globe provide key insights for companies' journey with incorporating AI.

AI Integration Journey: Rapidly Moving Beyond the Early Adopter

Companies are amassing substantial wins with AI and traction is quickly moving beyond the 'Early Adopter' populous. Businesses tend to fall into one of several categories in terms of their integration journey of AI:

1. AI is a key component of a company's Digital Transformation program. Employing AI to fuel a holistic transformation of the company's product/service offerings and operational delivery models.
2. Employing AI for specific high-yield opportunities or use cases.
3. Commercial technology providers enhancing existing product suites with AI and/or incorporating new AI products and platforms. Additionally, there are a few outliers like Google who are adopting an 'AI First' mindset in every aspect of their business

Key Insights

While the items below were identified as critical in all cases, the manner in which they're addressed will vary based on which category they're in and where they are in their journey.

Insight #1: Business vs Technology Driven Initiative

AI efforts need to begin and end with an emphasis on delivering **business value**. The most successful efforts showcased at the Summit were measured in terms of business outcomes and business value. These metrics should then drive solution design, testing, and implementation approaches, ensuring the direct tie of the solution to business value realization. In effort to combine business value with the end user experience, one of the leading practices highlighted a methodology where they vet Key Performance Indicators with end-users before starting any project to ensure the appropriate focus and linkage from business value realization all the way to the end user experience. More broadly speaking, presenters consistently highlighted the importance of business value realization being at the helm of prioritization and governance modeling. Conversely, failure examples cited instances where teams led with operational and technology related metrics. In turn, these examples fell short on business outcome realization. While both business and operational metrics are important, a focus on business value based metrics help narrow the focus on sub-metrics in areas of people, process and technology, and ensure a direct benefit to the business.

Insight #2: People First

The **human element** was trumpeted more loudly than any other overarching theme. While workforce/talent gaps were cited as a major challenge, many other people-centered topics were discussed as being critical success factors.

Culture

First was the notion of required culture changes to enable success. The need for C-Suite ownership, engagement, and actions were highlighted specifically. An example is the imperative to create and encourage a safe environment allowing teams to safely 'fail fast', and operate as a learning community. This sentiment echoes other recently available research. In "The Digital Transformation PACT," a study performed by Fujitsu, 68% of survey respondents cited 'fear of failure' as being a hindrance to successful digital transformation projects. Additionally, under the culture change moniker was the need to provide sufficient resource support in terms of subject matter expertise (both functional and technical) which requires a combination of internal and external resource allocation.

Change Management

Second, Executives consistently voiced the belief that implementing AI was primarily was a change management challenge rather than a technology challenge. While debatable, it's clear those who are winning have an enormous amount of emphasis in the change management arena. Furthermore, criticality of fusing together elements of people, processes, and technology through techniques such as Design Thinking, were touted as effectively enabling success.

Governance & Ethics

Third, AI brings a unique set of challenges when it comes to governance and ethics. Specific governance mechanisms arise with algorithm development, business rules, monitoring and escalation protocols, especially in cases where human life, community safety, and other critical matters are at stake. AI also introduces a myriad of new and/or increasingly complex ethical challenges, which admittedly, are just beginning to surface.

Insight #3: Technology Needs

In the **technology** arena, several points were illuminated. With the proliferation of AI technology providers and the components required in a given solution stack, company's need to be ensure they've got capacity and expertise to address vendor/partner management. Several more prominent technology providers, also perform the integrator role to assist with managing solution providers in the solution stack. Designing an extensible solution architecture is imperative recognizing components within the solution stack will continuous evolve. Last, and most frequently communicated, was the need to have a strong focus on data. Organizations need to account for a data preparation phase in their timelines, and incorporate data management as an ongoing workstream through the program lifecycle.

Companies in various categories and stages of their AI journey need to ensure their roadmap accounts for these three topics (amongst others) to realize intended business objectives.

How does the “Internet of Things” fit in?

Today approximately 5.5 billion devices are connected to the internet. Many of them are phones, tablets and computers. Estimates vary on the expected growth, but numbers point to the possibility of 20 billion devices by 2020. Many of these devices will be appliances, equipment, vehicles, etc. who equipped with a growing number of sensors will produce an enormous amount of additional data. The availability of that data and the technologies to interpret it will help improve many processes from Manufacturing, Agriculture, Resource Management, and Security to Retail Experiences, Healthcare, Financial Decisioning and Management, and many more.

One of the hallmarks of our effort is that we try to explain Technology in a way that is easy to understand. So, we asked a student, Brandon Reed - a Kinesiology junior at CSUMB, who had no prior knowledge of the Internet of Things, to research the topic and create a simple explanation. Here is the outcome of his efforts:

“Basically, anything and everything can be networked to talk to each other. There are a lot of things in our homes that could benefit from being a little smarter. A coffee pot linked to my alarm clock would ensure that the coffee is ready when I walk into the kitchen. A timer can do the trick too, but the timer does not know when I change my alarm clock. Connected devices exchange that type of information. We enable the devices through sensors, computer chips, and Wi-fi (or some other form of networking), allowing us to use computer programming to control the devices and have them work together. Lights and thermostats who can sense your presence in the home, refrigerators and cupboards who keep an inventory of goods and generate a shopping list for you. In addition to smart homes, there will be the Industrial Internet of Things. Machines in factories are equipped with sensors, generating data about the production process, the quality of produced goods, the need for maintenance, and much more. Every step of the industrial process (resource gathering, processing, logistics, manufacturing, assembly) will become much more efficient, intelligent, and autonomous. The cost of things produced will drop, while the quality increases.”

There are many great resources on the web to learn more about IOT and we encourage you to begin your own journey of discovery.

And what is Blockchain?

After starting the initiative with a focus on AI, then expanding it to include the Internet of Things, I recently traveled on a plane and sat next to a senior manager from IBM. After explaining ACTION Wisconsin to him, he said: “Don’t forget about blockchain, you would be making a big mistake.” I had to admit that I did not really get that topic (just like I did not get AI a year ago). Thankfully one of our core team members found a very basic description on LinkedIn by Jamie Skella, which I am summarizing below.

Blockchain is a technology that allows to record information or a transaction in way that is highly secure. The nature of that security comes from the fact that each transaction is recorded in many exact duplicate copies of the “record book” or ledger, hence the reference to a distributed ledger. No single copy can be falsified as it would be noticeable when comparing it back to the other copies, and nobody can access all of the copies at the same time, therefore making it secure.

Potential applications of this technology can be (1) Recording financial transactions between people (in this case even without involving traditional financial institutions because their role as trusted mediator of the transaction is replaced by the secure nature of the technology itself), (2) Facilitating secure voting and recording the outcomes in a way that any recount would create the exact same result, (3) Managing the assessment and payment of Royalties, for example in the music business, (4) Creating a marketplace for trading energy without involving traditional energy providers (e.g. with houses generating energy autonomously and trading surplus and need among each other). While many applications are in their early stages, the principal idea can be applied to many contexts. And just as the internet or smartphones once seemed like a fantastic idea and now are a reality, so are the new technologies coming to real life, only in a much shorter cycle of adoption.

A Blockchain Journey of Discovery

One of the great benefits of our grassroots efforts is to meet other experts and passionate individuals. Heather Sullivan is the associate director of external relations for Marquette University's College of Business. She and her husband, blockchain expert and Ethereum developer Steven Anderson, had been quietly absorbing information about bitcoin and later blockchain and smart contracts for a few years. After attending the first "Distributed: Health" blockchain hackathon in Nashville in the fall of 2016 and in recognizing the huge disruptive potential of blockchain technology, they returned to Milwaukee wondering if they could locate any innovators in the blockchain space in Wisconsin. Over the next year, Heather put out feelers and began building a grassroots initiative around blockchain and distributed ledger technology.

This fall, in collaboration with faculty and staff from the colleges of Business, Arts and Sciences and Engineering at Marquette, Heather is helping the university take its first step in bringing together a community around this emerging technology via a half-day conference scheduled for Thursday, November 9 from 8 a.m. to Noon at the Weasler Auditorium at Marquette. The purpose of the conference is to discuss the applications of blockchain for industry, government and academia and will bring together regional experts from Wisconsin and Illinois to discuss where the puck is moving. Speakers include Marc West, CTO of Fiserv; Jennifer O'Rourke, Illinois Blockchain Business Liaison and Deputy Director of Entrepreneurship, Innovation and Technology for the State of Illinois; and Lamont Black, Assistant Professor of Finance at DePaul University. There will also be a panel discussion moderated by Dr. David Krause, finance professor and director of Marquette's Applied Investment Management Program, and featuring panelists including Bob Cornell of Northwestern Mutual, Bill Caraher of von Briesen & Roper, Michael Adam of DocLaunch, Girish Ramachandra of WIPFLI and Derek Urben of Coinigy. Questions about the event and about Marquette's blockchain initiative can be directed to Heather Sullivan at heather.sullivan@marquette.edu.

The Awareness Challenge in Wisconsin

Over the past months we have spoken to many representatives of private businesses, trade associations, or educational institutions. We have also spoken to policy makers, state agencies, and other entities in the field of Economic Development. The feedback from most individuals has been that Digital Disruption (most initial conversations focused on AI only) has not been on the top of their radar screen and that they did not think they were an exception.

Example of initiating AI awareness

In the fall of 2016, sponsored by one of my clients, I had the opportunity to visit the Banking Disrupted conference in Silicon Valley, organized by the Silicon Valley Innovation Center, and form contacts in the FinTech and AI community. It was immediately evident that the topic of AI was far more advanced and closer to “here and now” than I had previously known, than any dialogue I had been part of previously had indicated. I felt an immediate obligation to share this insight, but it would not be feasible to shuttle large numbers of executives and decision makers to Silicon Valley, so the information had to be brought to them in an efficient way. I was then able to draw enough attention and curiosity among my client to bring a group of leaders together for one day – a symposium on AI.

We invited a combination of thought leaders and AI solution providers (with market ready and deployed offerings) to Milwaukee. The event was a combination of general education on the dynamics of AI and very specific illustration of tangible applications that are being deployed by organizations as we spoke. The format worked and the event was a wake-up call for the leadership team. Several initiatives to explore the benefits of AI in various business areas have since been launched.

Other examples of increasing awareness

At the recent Tech Expo held annually by Camera Corner Connecting Point in Green Bay, CEO Rick Chernick introduced Keynote speaker Stephen DiFranco from iotadvisory.com in California to educate the audience about the basics of the “Internet of Things”. His speech was not only an excellent basic education, but left all audience members with the call to action to identify their first IOT project. A recent partner meeting of Audit and Consulting firm WIPFLI focused on the threats to their industry through AI. And there are probably many more examples that are happening at a local level and in certain informed circles.

It is however our belief that the intensity of dialogue about this topic in Wisconsin is substantially lagging other states (specifically California and the East Coast). Addressing this awareness gap one organization at a time would not be sufficient given the speed with which AI is proliferating and new capabilities are being developed.

Opportunity to change these dynamics

To comprehensively enhance the competitive positioning of the State of Wisconsin with respect to the development and application of AI technologies, we believe we need a concerted effort involving the full suite of economic stakeholders.

Here is our approach on how to advance this topic.

Step 1: Creating a resource coalition

From our modest beginnings of being a team of 2, then a team of 4, we have been able to involve many capable and motivated individuals and continue to openly welcome all who want to contribute.

Step 2: Focused Awareness Creation

To raise awareness, establish higher familiarity with the terms and underlying trends, illustrate the likely impact on various industries, job classes, and regions and highlight opportunities from taking action, we need to create an efficient forum for the various parties to gain access to the best available expertise on the topic.

This will include

1. Creating a content inventory with the following components: A) The basics of Digital Disruption (key information about the various technologies), B) Real life applications of those technologies and illustrations of their impact in organizations (case examples in Wisconsin, out of state examples, practitioner perspectives), C) Projection of Impact, both in existing formats as well as possibly a custom research effort focused on Wisconsin, D) Emerging responses (again including in-state and out-of-state practices), E) a list of experts on various related topics that can be accessed by the Wisconsin stakeholders for information and collaboration (some may require compensation for their services).
2. Building a resource portal to access this content, leveraging the “First Light” portal technology of Aurora WDC. The current portal design will focus exclusively on Artificial Intelligence.
3. Developing communication and distribution channels. A newsletter, webcasts and other means can be leveraged to create a vivid stream of information on the topic throughout the year. Wherever possible, existing distribution capabilities of partners should be leveraged.
4. Leverage of existing events through resource partners (events that are scheduled through the end of the year and beyond, which would be willing to dedicate a portion of their agenda to the topics)
5. Supplemental dedicated online educational events. A cost-effective way of connecting experts with Wisconsin stakeholders is a series of interactive webinars. The recorded webinars would be added to the resource inventory.
6. Supplemental larger scale events to build collective momentum. We are considering a series of regional events (in a roadshow format) to reduce the logistical effort for the participants. To orchestrate this road show we will need
 - Partners in the regions who have experience organizing events, can bring the relevant audience to the table, and are willing to become involved. To reduce the economic risk for these regional partners we are suggesting state level financial support (see subsequent chapter). In essence, these events should however be organized in a self-funding format (i.e. participants pay a fee, sponsors contribute funds).
 - A content partner who will source AI experts and bring them to Wisconsin to join in-state experts for focused presentations and panels.

Step 3: Development of a Collaborative Action Plan

We do not believe that an action plan can be organized at a single initiative level nor can it be entirely centrally coordinated. The various participants from commerce, education and economic development will formulate individual and in some cases coordinated responses across a wide range of topics. We hope that the awareness phase will spurn many more such activities than are already under way today.

Targeted Outcomes

The Fourth Industrial Revolution, like each that has come before it, will create Winners and Losers. The goal is to optimize the relative position of the State of Wisconsin and its key constituents.

- Identify opportunities for job creation related to the new technologies (vs. ceding these opportunities solely to the current centers of influence such as Silicon Valley)
- Protect state jobs by enhancing the competitiveness of state businesses and organizations through the adoption of AI technologies, recognizing that such an adoption in itself has the potential to eliminate job elements. Taking a “wait and see” approach on the other hand may delay near term impacts, but will lead to sweeping job losses in the mid- and long-term as in-state players are unable to compete with adopters of the new technology and their accelerate capabilities and efficiencies.
- Update and upgrade educational programs to meet the current and future workforce needs related to AI

Opportunities to become involved

If after reading this position paper you are feeling less certain about the future, but more certain that something needs to be done – welcome to the club. Individually, we are not experts or masters, but collectively we can make a difference. We have an open-door policy and welcome all who are willing to contribute.

Signal your support

Allow us to use your name, business name, organization’s name, etc. in this position paper to illustrate the increasing breadth of support we are garnering. There is no monetary obligation that goes along with this.

Make introductions

Feel free to share this paper as you tell others about this initiative. We love connecting with others who are already working on this or related topics, who have been considering working on it, but did not know where to start, or who are hearing about this for the first time, but have the opportunity to involve others in their company, organization, trade association, or region.

Join one of our dedicated teams

We meet approximately every two weeks, rotating to different locations in Wisconsin to involve local stakeholders. You can also join our meetings remotely. Please contact one of the team leaders for additional information (see earlier section in this document).

Make your venue/channel accessible

If you are representing a group of interested stakeholders (e.g. members of your trade organization, employees of your company, individuals who come together at one of your conferences), work with us to help bring the best experts, content, and discussion about these topics to your stakeholders. We can help you find articles for a newsletter or speakers for an event.

Examples of recent events with Collaboration from Advancing AI Wisconsin

8/29 Kurt and Oliver on “Fresh Take” radio program with Josh Dukelow (see podcast link)

<http://www.whby.com/2017/08/29/how-will-artificial-intelligence-change-your-world/>

9/25 Wisconsin County Executives Meeting, Oliver Buechse will introduce Advancing AI Wisconsin and The Digital County

10/4 Next Generation Manufacturing Summit (by BizTimes Milwaukee), participation in a roundtable discussion

Examples of upcoming events with Collaboration from Advancing AI Wisconsin

10/26 MadREP (Madison Region Economic Development) will feature Kathy Henrich

10/31 sySTEMnow Conference: Laura Schmidt will lead a panel featuring among others Ken Kortas and Oliver Buechse

11/3 TEC Meeting in Green Bay, Kurt Hahlbeck and Oliver Buechse will speak about the initiative to a group of business leaders

11/16 Bay Area Workforce Development Board, Kurt Hahlbeck and Oliver Buechse will speak about the initiative

12/4 The 2017 Mid-America Competitiveness Conference & Site Selector Forum, invitation to be on a panel discussion (via Steve Jahn, Momentum West who is on the Board of MAEDC - Mid-America Economic Development Council) that will include Oliver Buechse, Kurt Hahlbeck, Laura Schmidt, Kathy Henrich and Ken Kortas

12/7 The New North Summit. Advancing AI Wisconsin will host one of the breakout sessions featuring Kathy Henrich, Tony Puerto, Kurt Hahlbeck and Oliver Buechse

Opportunities to learn more

There is an abundance of resources and activities on the web on each of these subjects. The information below is just a small, point in time collection to help you get started in your own journey of discovery.

Conferences

The list of conferences below does not indicate any form of endorsement. It is simply a list of upcoming events. Please review the description for each event to determine whether it fits your needs.

Blockchain 360, New York, NY, October 23-24, 2017

Minds and Machines (Industrial IOT focus), San Francisco, CA, October 26-27, 2017

Blockchain event at Marquette University, Milwaukee WI, November 9, 2017 (see earlier section)

Technology Executives Club (Milwaukee Athletic Club): Emerging Technologies and Digital Transformation Seminar, Milwaukee, WI, November 10, 2017 (7:30-12:00)

The Machine Learning Conference, San Francisco, CA, November 10, 2017

IOT World Forum, London, UK, November 15-16, 2017

Blockchain Expo North America, Santa Clara, CA, November 29-30, 2017

AI Expo North America, Santa Clara, CA, November 29-30, 2017

IOT Tech Expo North America, Santa Clara, CA, November 29-30, 2017

AI World Conference and Expo, Boston, MA, December 11-13, 2017

Industry of Things World USA, Hilton San Diego, CA, March 8-9, 2018

Artificial Intelligence Conference, New York, NY, April 29 – May 2, 2018