

INTERNET OF THINGS

'Biggest Thing Since Anything'

By Tom Schuman

One popular definition of the Internet of Things (IoT) is: A network of everyday devices, appliances or other objects equipped with computer chips and sensors that can collect and transmit data through the internet.

Question 1: What does that mean?

- For industrial giant Emerson and others, that's helping make oil and gas investments more profitable. Improving the production capacity of a well from 88% to 93%, for example, could mean a difference of \$100 million in one year.
- Johnson & Johnson is reportedly the first pharmaceutical company to win approval from the Food and Drug Administration to shift a product from batch to continuous manufacturing. No more stopping production, taking samples, sending to a lab and waiting for results. In-line sensor technology will eliminate the separate testing and sampling steps.

Question 2: What does that mean for me?

- John McDonald, CEO of CloudOne in Fishers, gives a popular example. We paraphrase here: Your car radio picks up on the fact that it's 3:00 a.m. and you aren't driving as safely as you had been

earlier. There is a 24-hour Starbucks ahead; your payment information is sent ahead to the store and your favorite hot drink is ready when you drive through.

- Damage from faucet leaks becomes a thing of the past. Bob Rodenbeck, director of research and development at Delta Faucet in Indianapolis, says the company will be launching in 2017 a leak detection device that alerts the homeowner before damage occurs.

CloudOne continues to accumulate widespread recognition for its work in helping companies develop and implement IoT solutions. McDonald, the enthusiastic and charismatic leader, admits, "I listen to myself sometimes giving examples (of IoT impacts) and think, 'What a lunatic.'"

But he quickly returns to form with this IoT assessment: "I think it can be the biggest thing since anything."

How big is big?

Consultants McKinsey & Co. estimated in late 2015 that IoT could generate as much as \$11.1 trillion a year in economic value. It also estimates that nearly 70% of that value will flow from business-to-business applications.

McDonald outlines the four elements that need to be in place for a successful IoT project:

1. Ideation – idea of data-driven service
2. Developers – people that can code and maintain software/data models attached to those ideas
3. Cloud services – operations, analytics, data services
4. Edge computing – blockchain technology, sensors, networks that ease transfer of information

"No one has all those pieces under one hood," McDonald shares. "If a company needs to renovate its products for IoT, those skills exist in small companies in pieces. (The question is) how do you bring those things together."

News is expected soon about one or a series of IoT labs in Indiana that would help integrate people and resources.

"Something like co-working spaces," according to McDonald. "Launch Fishers with concrete floors that you can roll a jet engine into. It's like a new form of incubator."

Chief supporter

Ian Steff is an unabashed advocate of Indiana's current and future position in the IoT world. Much of his optimism is based on existing industry strengths (advanced manufacturing, agriculture, automotive, life sciences and more) being paired with both business and university research capabilities.

As chief innovation officer for the Indiana Economic Development Corporation, Steff terms it as a "convergence forming new sectors." The Pence-Holcomb administration's \$1 billion entrepreneurship initiative announced in July 2016 is key to



There is no doubt in the mind of Ian Steff, Indiana's chief innovation officer, that Indiana is and will be an IoT leader.

overcoming challenges.

“The IoT revolution is ours to lead,” he exclaims. “Why? Because you see that industry leaders throughout the state coming together and fully recognizing the ability to capture data, embed sensors in engines or other devices that provide real-time feedback is certainly a market that Indiana is well poised to take to the next level.”

The challenges referenced earlier?

“Talent is certainly one thing that will be very important – talent generation from major research universities, from the community college system,” Steff continues. “It will also take availability of capital. That could take the form of venture capital, and the (administration’s) plan does just that.”

Steff spent significant time working for the Semiconductor Industry Association before coming to Indiana in May 2014. He notes that he and Indiana Secretary of Commerce Victor Smith recently met with those industry leaders in Silicon Valley. The invitation is open for them to visit Indiana for a first-hand look.

“We are on the map of everyone who knows anything about this industry in terms of our leading-edge research. We have a great diversification of our manufacturing base. The co-location of this R&D in a place where one is actually making things is not trivial. No other states come close to that,” he says, punctuating the excitement in his voice by adding, “I’m very passionate about this.”

Business case

For Delta Faucet’s Rodenbeck, IoT is all about people and customers. He notes that the company started watching the evolution as long as five years ago before “getting serious” a couple of years back with some research activity.

“In the past, we’ve never been able to find out where our products are placed, how they are used, how long they stay in service,” he states. “This can create a deeper relationship with your customers and bring value in ways that they probably never imagined or envisioned.”

The research told company leaders that “what people really value is protecting their home.” Thus, the leak detection device.

Will it be successful?

“(For customers), is it a real tangible benefit – did it make a difference or save me money? Ultimately, for businesses you have to see sales. There are probably some more natural connections to other industries, but you just have to find out what the lever is and exploit it.”

While there remains the potential for IoT to be the “biggest thing since anything,” Rodenbeck believes that answer is not clear yet.

“It’s at that stage where we’re not sure how big it’s going to be. We’re still a little uncertain how this is going to impact our industry,” he contends. “It’s already into a lot of people’s homes – the innovators. It hasn’t gone mainstream yet, but it’s working its way up to the early adopters. We want to be on the front end of that wave, not the back end of it.”

McDonald agrees with the assessment of the current state of IoT. “We’re still not collecting massive streams of data and knowing how to compile them and collaborate and use cognitive technologies to understand what they’re telling us. Why can’t my car order coffee for me? No one is collecting all the data streams yet.”

After two years of teaming with others to host an IoT conference in Fishers, McDonald calls the current climate the “arms dealer phase. Some of them are shooting their feet off. It’s a dangerous phase but exciting as companies try to figure out what their game plan is here.”

On the way

While the IoT story has yet to play out, there are plenty of players in the game. McDonald points to the Illinois Technology Association and its Chicago-centric Midwestern IoT Council. There



CloudOne, working with customers nationally and globally, has been recognized with numerous awards for its tremendous growth.



are the tech strongholds of Boulder, Colorado; Austin, Texas and the Bay Area. International manufacturing challengers include Japan, Korea and Germany.

But two more examples illustrate how the world has been and will continue to change.

“One morning you woke up and went an entire day without seeing a pay phone and you never realized it. In fact, you have been living for years now without pay phones,” McDonald reminds. “But when you and I grew up, they were everywhere. They were five to a street, every street corner; a hotel had 20.

“I think many of the things related to IoT are going to be like that. There are going to be things we used to have to do that are automatically handled for us without us consciously realizing we no longer do them anymore.

McDonald goes on: “I was mowing the lawn. The plastic chute that attaches to the side of the mower came off and I rolled over it with the mower. It was Saturday morning, 9 a.m. There is a number stamped on the inside. I put in the part on the first link to the page on Amazon and there’s my little plastic chute available for same-day delivery. No longer than six hours later, a guy pulls over and drops the box off with the plastic chute. That’s astonishing to me.

“Think about how you had to have done that 10 years ago,” he continues. “You would go to the Toro dealer and it was closed. You would go back on Monday. There was a big parts book on the counter. They said, ‘We’ll order it.’ They call when the part is in and you wouldn’t



Lawnmowers and faucets – two common items impacted by IoT.

be home. It would be a month before you would get that part.”

No matter whether it’s plastic lawnmower part or medical supply chain advances, Steff is confident Indiana is set to compete.

“One is making sure the venture capital environment is readily accessible to those with ideas. Second is working with the university system and ensuring we have industry-driven partnerships promulgating throughout the state,” he offers in reference to the public sector role.

“That is not just an accident we call them industry-driven partnerships. We want to be tapped into the heartbeat of industry.

“The role of the state is as a convener of interested parties. You will not see the state say, ‘Here is where we need to go on IoT’; you will see the state asking questions of all those coming together: Where do they need to go on IoT to meet their customer needs and to create jobs here in the state of Indiana?”

RESOURCES: John McDonald, CloudOne, at www.oncloudone.com | Bob Rodenbeck, Delta Faucet, at www.deltafaucet.com | Ian Steff, Indiana Economic Development Corporation, at www.iedc.in.gov



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