

Quantum computing will be key for the take off of IoT

written by Julia Weinzettl - www.taskfarm.com

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IoT Strategist, CEO at Amyx+ and IBM IoT Futurist

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Within the next years the biggest changes and strongest influence from IoT will be seen in the industrial sector and in critical infrastructure, with focus on Middle East and South America as legacy is of less importance there and the implementation of IoT is an opportunity for expansion. Due of the growing amount of data that IoT produces, the real take off of IoT will happen together with quantum computing as then computing and security obstacles can be solved at the same time, says Scott Amyx, IoT Strategist, CEO at Amyx+ and IBM IoT Futurist.



Source: Oil And Gas Jobs Register.

What economic sector will be most influenced by IoT within the next years?

Scott Amyx: In my opinion the primary focus near term is still

the industrial side. That's fairly a canvassing statement. IoT will have strong influence in supporting the automotive industry, the building industry and consumer electronics, but fundamentally we are really talking about a b2b in some cases a b2b2c type of situation. Now additionally we are going to see momentum around critical infrastructure – electric grid, gas pipelines, telecommunications for example are starting to be influenced by IoT, specifically the regions we are going to see arise are the Middle East as well as South America.

Why there?

Scott Amyx: This not too surprising as in more mature markets like the EU and North America utilities or energy companies are primarily compliance and regulation driven. In order to make these types of investments cost savings and efficiency in automation has to be overwhelming. If you already have an existing set of infrastructure it's difficult to overhaul it as it's incremental, whereas in the case of South America and the Middle East, investment in IoT basically is an opportunity for expansion. We are talking about laying down a brand new set of fiber optics next to utilities – whether it's gas lines or electric lines – under the ground. More importantly they are interested in getting very granular data at each point. It's not just some data at the end mile or at the beginning and the end of the transmission but it's actually the data in the process. One application for this data is for analytics but it's also increasingly used for security. Which is a double sided sword, because as we start to allow these IP addressable types of connectivity, we need to make sure that there are no potential gaps opened, that leave a backdoor entry into the entire system of the grid. It's not just a matter of economy but also a political and military defense issue.

If we look into the future within the next ten years what changes will we find in our society because of the technological advancements?

Scott Amyx: I think there will be quite some changes in the next ten years, but I wonder if this time frame is closer to the next twenty or twenty five years. At the moment there is a lot of discussion and controversy around the topics of AI, robotics and 4th industrial revolution and its role in society. We all know that there is going to be a huge job loss as the world economic forum has stated it and many more. It's a bit of a given known.

What is your view on this matter?

Scott Amyx: One thing that people don't really appreciate is that there is a difference between task versus job. For instance if you think about the old days when there was an actual person who would route phone calls and connected your call to where you wanted to call. That's a task and that's where automation comes in.

I think what people have to recognise is that tasks will be automated – whatever those tasks are – but the jobs are just going to change. Moreover it's not simple labor destruction it rather is a fluid, dynamic reconstruction of the labor economics. So the automation of tasks will lead to the loss of some jobs not needed any longer – like there is much less need for blacksmiths since the invention of the car – but it will emerge into the creation of new jobs. The way I see it is that automation helps us to increase the standard of living. If I can automate ten tasks that frees me up to have more time and resources as I don't have to allocate money to that tasks any more. That means I can reallocate my time and effort into other things. The future of jobs is in human to human relationships in particular in empathy business models.

Do you have examples for that?

Scott Amyx: If you look into the last ten years, there has been a significant rise in empathy roles such as coaching, spiritual leaders whether it's yogis or others, as well increasing counseling and psychotherapy. Let's take this into

the future: when we travel different parts of the world sometimes what we are looking for is connection, maybe I just want to have coffee with somebody – another human being – in a new city that I'm not familiar with or maybe I want a tour guide – not because I can't access my map – but because I want to connect with another human. These kind of jobs will not only not vanish but increase.

Coming back to the topic of IoT – do you think that the major breakthrough will come once we change to quantum computing?

Scott Amyx: Yes, and the reason for that is, as you are probably aware, in the internet of things, there are some pervasive and some dogmatic challenges that the industry faces. One would be the interoperability or lack of security which is one of the biggest challenges but here is a ton of other issues that prevent IoT from truly taking off. Some of the benefits of quantum computing is that it will handle computation faster as well as handle more complex computations that are fundamentally different from the classical computers. That allows for us data crunching, the ability to run all the inputs at the same time and get immediate results mainly because of the factoring aspect, the memory space and sequential processing that will not be supported real time by classical machines.

With IoT the volume of data, different data types and the metadata is increasing. We are capturing data from couches and floors, walls and paints, agriculture and water. The other important part is security. Both primarily to solve difficult cryptography as well as to create security. This is hugely important and is the notion of quantum key distribution. Predictive data analytics will be able to be handled and will literally support machine learning. That will produce so much complexities whether it's around discovery, cybersecurity, finance or health care. All these very complex optimisation problems especially in support of machine learning and deep learning of neural networks will be supported. If you

developed a very complex system like a smart city IT implementation you will have an IoT system just for lighting that connects one building. This system will then connect with other lighting systems across the city, with the traffic IoT systems, the CCTV IoT systems, water systems and so forth and so forth. You have layers and layers of systems and systems. How do you verify that everything is working correctly? Well, quantum can potentially handle a lot of the verification and validation process quickly.

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About Scott Amyx:

CEO at Amyx+, IBM IoT Futurist, European Commission, United Nations, Wiley Author, TechCrunch, Voted Top IoT Expert by Inc., Postscapes & IoT Institute, Winner of the Cloud & DevOps World Innovation Award

Scott Amyx received the Gartner Cool IoT Vendor 2017, Cloud & DevOps World 2016 Award for Most Innovative and was voted Top Global IoT Influencer & Expert by Inc. Magazine, Postscapes, Top IoT Authority by the Internet of Things Institute, and Top 10 Global Speakers by Speaking.com. Scott is a thought leader, speaker, and author on the Internet of Things and the Managing Partner at Venture1st and CEO of Amyx+. Scott has been nominated to the World Economic Forum as a committee member for the Future of the Internet and has been nominated by global luminaries for TED Talk. The Republic of Korea nominated Scott to represent cutting-edge research and case studies on the Internet of Things at the ITU Telecom World, United Nations 2015 in Budapest. Gerson Lehrman Group (GLG), AlphaSights, 10EQS, and other research firms look to Scott for unrivaled insights and pulse on the changing IoT landscape.

Scott has over 19 years of large-scale strategy and implementation experience, managing double digit million

dollar projects across multiple verticals. In his last corporate position as VP of Product Management, he helped the company be acquired by a Fortune 500 publicly traded company. Scott has also started numerous startups and successfully sold a company. He has a master's degree in applied microeconomics/public policy from the University of Chicago. Scott was a national Sloan Fellow at Carnegie Mellon University.

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