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IoT Technology Is Now Proven—But Where Is the Money?

Expectations are high for the Internet of Things (IoT). It promises to solve many of today's complex problems, from organizing city traffic to revolutionizing manufacturing. By

leveraging big data analytics, the IoT creates possibilities for completely new insights into markets, businesses and societies, and new business opportunities related to connectivity, artificial intelligence (AI) and IoT devices are fast emerging.

On the other hand, machine-to-machine (M2M) communication has been around for much longer. Some see M2M as part of the IoT, while others challenge this view or even consider this subject a rather academic question. There is, however, one important aspect to be highlighted: In traditional M2M solutions, we typically have dedicated devices generating a specific type of data, often transmitted through an industry-specific protocol to a dedicated M2M application. The solution is based on a pre-defined value chain, and if the generated business value is exceeding the costs introduced by the value chain, then we have a positive business case.



But what if the business value does not exceed the costs? In that case, we need to get creative and search for additional sources of revenue. Who else could benefit from the data collected or from access to certain device capabilities? What additional value could be created when the data is enriched, for example, through correlation with other data from different types of sensors or data providers? Which additional services could be created based on a broader range of devices and data streams leveraging the same infrastructure?

The purpose of these questions is to find multiple ways to monetize data and device capabilities. And as a result of people asking them, we see an ecosystem of players evolving

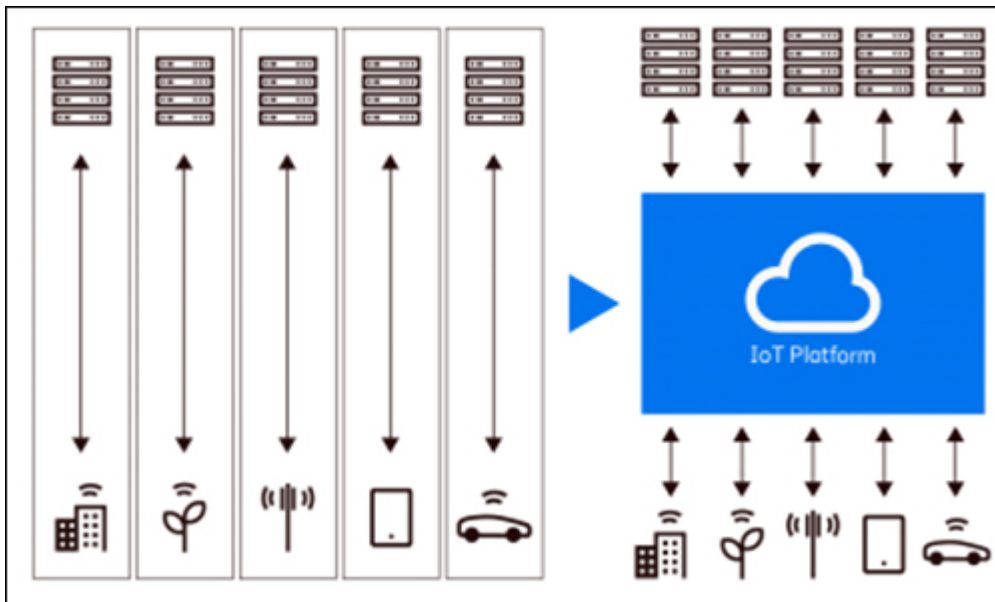
around IoT infrastructure, working together to “co-create” value for address-specific customer needs, such as managing urban traffic or enabling smart homes, among others.

Essentially this is a transition from vertical silos to a platform-driven approach, which not only is a different technology concept, but also requires a different approach to business model development. And it is at the transition point from M2M to IoT where the classical value chain of a vertically integrated M2M solution is evolving into a value network with different value and revenue flows between different players in an ecosystem.

The Dawn of the Ecosystems

An ecosystem is a community of living organisms in conjunction with the nonliving components of their environment (such as air, water and mineral soil), interacting as a system (see related Wikipedia page). Applying this well-known concept from nature to the IoT, we see multiple players in an IoT ecosystem interacting with each other to jointly co-create value for enterprise customers and consumers.

IoT ecosystems are typically developed around a common core, which corresponds to shared and common assets, ranging from shared business ideas and culture to technologies, platforms, processes and standards.



Contributions may include access to device capabilities, data, connectivity and services ranging from data enrichment (analytics, correlation) and creation and visualization of insights to operational and AI-enabled automation services. As a result, IoT ecosystem stakeholders are linked together through value streams, which can consist of revenues and tangible and monetizable IoT products and services, but also values such as innovation, knowledge, reputation or emotions (not always directly monetizable, but potentially still very relevant for customers).

An important aspect of functioning ecosystems in nature is that they are well balanced. All inhabitants in a balanced ecosystem have a sustainable life. An IoT ecosystem is in balance if all players are operating on profitable, individual business models, and if all business models within the ecosystem are complementary to each other (which does not exclude competition in certain areas). This reflects the principles of a shared economy (see Network-centric business models for health, social care and wellbeing solutions in the internet of things).

From M2M to IoT: A Bit of Evolution and a Lot of Disruption

The concept of platforms is well-known in our industry. It's all about structuring a set of defined functionalities in a

layered architecture, exposing these functionalities through standardized interfaces, and using them as a base upon which other applications, processes or technologies can be deployed. From a technical perspective, the transition from M2M to IoT can be seen as an evolution—a lot of hard work for sure, but definitely not rocket science.

The commercial perspective, however, shows a different picture. The mass-deployment of IoT sensors and the related availability of high-resolution digital data enables new, digitally enabled business models for industries which have so far been driven primarily by physical products. This creates tremendous transformation pressure! The automotive industry moves from selling cars to providing mobility as a service; the manufacturing industry is moving from supply chains to ecosystem orchestration; agriculture companies are starting to sell growth of plants rather than fertilizers; and mining equipment manufacturers are starting to sell tons of extracted minerals rather than equipment—you name it!

The true challenge to turning the IoT into a commercial success is not technology. The technology has been proven by proof-of-concepts in almost all industries around the globe. The true challenge is to turn digital business model innovation into reality. Therefore, not only do IoT platforms have to be seen as a means to connect devices with applications, but first and foremost, they have to be seen as platforms to enable digital business model innovation in ecosystems.

Digital business model innovation in ecosystems is not a piece of cake, but it can be done. Here are some practical tips:

1. Think outside your own industry box—business model innovation is a lot about combining and adopting business model patterns developed in other industries.
2. Think business value rather than products and technology—often said, but seldom done.
3. Dare to embrace ecosystem complexity rather than falling

back to M2M times by trying to keep it simple—build a methodology and use tools for IoT business modeling.

Interested in a systematic approach to IoT business modeling? Read our new report, “Developing viable business models in complex IoT-ecosystems.”

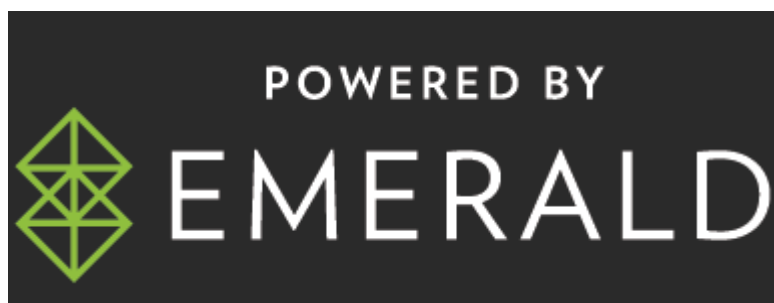
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