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Engineering

Big & Fast Data: The Rise of Insight-Driven Business

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Capgemini view

The engineering sector is starting to undergo a transformation in the way it uses data. This is true right across the sector, whether what is being engineered is small, wearable devices for personal use, medical devices, connected and autonomous cars, or the fabric of our industrial infrastructure (power, heat, light, industrial processes), produced by large-scale manufacturers.

We anticipate significant growth in the volume of data generated by these activities. By 2020 it is likely that 40% of all data in the world will be the result of machines "talking" to each other; there will be up to 200 billion sensor-based "things" and 30 billion connected devices[1]. The sector is likely to experience the network effect of an ecosystem of devices bringing much wider value to both the consumer and the industry as a whole – indeed, this is already occurring in some industries. Devices will increasingly have the ability to generate data, analyze it in situ, and take action based on the result. The action may be for the device to collect and process direct user feedback, to embed an instruction into another system, or even to tune itself based on data about current performance.

Start-ups that can monetize data will be a significant force. After a long history of focus on ERP systems, future engineering evolutions will instead be driven by the data generated by products, machines and the Internet of Things. Monetization and revenue/margin growth are likely to be achieved through the provision of data services. It's possible that previously high-margin products will become commoditized, and that engineering organizations will instead battle for leadership in the use of data.

1 http://www.emc.com/leadership/digital-universe/2014iview/internet-of-things.htm

Perception of big data as a disruptor

In our study, respondents from the engineering sector demonstrated a higher than average experience and expectation of disruption. Only 34% said they had not faced significant disruption in the previous three years compared with an average of 42% overall; there was a similar pattern when we asked about expectations over the next three years.

In particular, engineering companies were more likely than the average to have experienced, and to be expecting, disruption from existing competitors developing new products and services. As many as 48% of engineering respondents had experienced such disruption in the previous three years compared with just 33% overall.

Awareness of big data opportunities

Engineering sector respondents had a keen perception of the opportunities associated with big data. They were more likely than average to agree that big data provides new business opportunities (engineering 40%, average 32%), and that big data is becoming a revenue driver in its own right (engineering 30%, average 23%).

They also had a strong belief in the value of data as a business enabler, with 50% agreeing strongly that decision-makers increasingly require data in real time (average 42%), and 36% agreeing strongly that big data is a key enabler of their organisation's effectiveness/competitiveness (average 29%).

Implementation approach

As many as 80% of organizations were in some phase of implementing big data technology, compared with 71% average overall. The scale of adoption in the engineering industry was exceeded only by oil & gas (89%) and telco (84%).

Around 68% of engineering organizations (compared with the average for all industries of 56%) will increase investment in big data over the next three years compared to past investment in information management. Along with oil & gas and telco, engineering organizations were the most likely to have put in place specific big data technology and policies, including restructuring or reorganization to exploit data opportunities – an indication that engineering companies are gearing up to monetize data.

Respondents from engineering companies were even more likely than those in other industries to mention IT as a driver for the big data agenda. The next most common drivers, business strategy, marketing & sales, and personal initiatives by the CEO/COO, were some way behind. We expect that business functions will start to gain in importance as drivers as companies seek to fulfill their ambitions of turning data into a source of revenue in its own right.

Capgemini spotlight on the automotive industry

Still primarily production-driven, the automotive industry is on the verge of a disruptive change. To maintain profitable growth, the industry needs to build the ability to derive insights from data so that it can give consumers the personalized experience that they increasingly expect.

Companies need to start treating data like the new oil powering their industry: difficult to find and expensive to extract, but a hugely valuable asset once refined. The industry currently collects little usable customer or vehicle data, but this will change dramatically in the years to come. A lot of work needs to be done to agree issues around data management, data ownership, analytics and exploitation.

Capgemini has analysed the coming transformation in terms of three key domains:

- Connected Customer – connecting effectively with customers at each touch point throughout the lifecycle
- Connected Vehicle – making the vehicle another "node on the network" to function as an extension of the consumer's home and office
- Connected Insights – transforming data into competitive advantage

Connected Insights will be crucial. It's about applying data science and analytics in order to transform the way companies interact with their customers and grow their business. Companies can gain competitive advantage by applying analytics to customer and vehicle data, producing insights to enable the features and services discussed above.

In this way, companies can build consumer loyalty, reducing the likelihood of defection to another brand. Customer and vehicle data needs to be shared in ways that benefit everyone concerned: manufacturers, dealers and consumers.