OK, you have collected a large amount of big data. Now what?

blogs.lse.ac.uk/businessreview/2016/06/20/ok-you-have-collected-a-large-amount-of-big-data-now-what/

6/20/2016

The amount of data that is available to organizations on products, customers, competitors, business operations, etc., is increasing exponentially. This data comes from many sources such as sensors, the internet of things, and websites to name a few. Organizations are collecting and storing large amounts of data. Most of them collect this data with hopes of using it to innovate and gain an advantage over their competitors. But in actuality, only a small percent of companies are using the data they have collected.

According to a recent survey, most organizations only use approximately 40 per cent of the data they have collected. This same source also states that there is a lack of understanding among business managers about how to use analytics to improve the business. For most firms, the data collected is typically left stored in repositories and is not used. Therefore, for organizations that want to use data to innovate, or gain an advantage over their competitors, just collecting it in large quantities is not enough.

Using a case study based upon a media analytics company, my paper looks at how a firm can use data to innovate, and perhaps gain or keep a competitive advantage. More specifically, my paper demonstrates how data becomes information, how information becomes knowledge and how this knowledge turns into competency (human resources), and how all of these come together to create organizational capability (Figure 1). Then this organizational capability, if valuable, rare, inimitable and for which there are no substitutes, can give a firm an advantage over its competitors.

Figure 1 – The flow from data to organizational capability

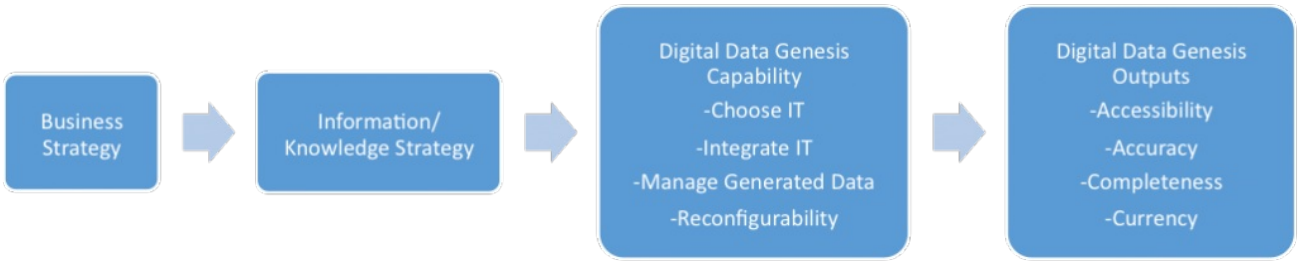
For an organization to use data strategically, it needs to develop an information/knowledge strategy which is aligned with its business strategy. The information/knowledge strategy assures that the data which the organization will be collecting is intentionally collected and aligned with business strategy.

However, before an organization can create a successful information/knowledge strategy, it needs to be somewhat advanced in how knowledge is used throughout the organization. My paper cites an example of stages an organization goes through in order to use knowledge strategically.

As illustrated in my paper, creating a Digital Data Genesis Capability (Figure 2) begins by using the information/knowledge strategy of the organization as a starting point. An organization then chooses IT to generate and capture digital data at the source. An important foundational component of this capability is that IT is aware of enabling or emerging IT technologies, as well as the organization's asset position, its history with regards to its IT/information capabilities, and the path-dependent nature of those capabilities when selecting IT technology to capture and store the digital data.

Next the technology that was selected for capturing the data must be intertwined into business processes. Once the data has been generated, it must be cleaned, stored, and made available for use. Therefore, the organization must have processes and routines for receiving, storing, and disseminating the digital data in a manner that maintains the quality of the data.

Figure 2 – How business strategy impacts information which is available for use in the organization.



The outputs of the Digital Data Genesis Capability are information that is *current* and *accessible* for use, *accurate* in that the data that was sought to be collected is the data that was actually collected, and that the data is *complete* in regards to its intended use.

Once this knowledge is put to use in the organization by employees performing their jobs, it becomes a competency. These competencies then become capabilities, and those capabilities, if they are valuable, rare, and inimitable with no substitutes, can give the organization an advantage over its competitors.

Another finding of my paper is that in turbulent environments, a Digital Data Genesis Capability functions as a dynamic capability. Once turbulence is sensed in the environment, it is an organization's dynamic capabilities that allow it to reconfigure, and gain or release, those capabilities that are no longer providing an advantage. As shown in my paper via the case study, once turbulence was sensed in the environment, the organization gained an understanding of the turbulence. Then using knowledge of the firm's asset position, senior management, with input from IT, altered the business strategy to address the turbulence. The information/knowledge strategy was updated,

and the technology that was selected was intertwined into business processes. The new data was generated and stored in data repositories. This information was then available for use by the organization. That information became knowledge that was used by the employees of the organization to better serve their customers, and allowed the organization in the case study to maintain its competitive advantage.

Based on the findings in my paper, in order for an organization to use data for innovation and to gain an advantage over its competitors, it must be advanced in how it collects and uses data. It is important for organizations to have an information/knowledge strategy that matches the organizational strategy, and that IT has knowledge and input into this strategy. The data that is collected must support the business strategy, and that data must be easily accessible to those needing to use it. In this way, data becomes information, which becomes knowledge, and this knowledge when put to use leads to competency. Competency then leads to capability, and capability can lead to innovation and perhaps gaining or sustaining a competitive advantage.

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Notes:

- *This article is based on the paper Big Data: Innovation and Competitive Advantage in an Information Media Analytics Company, Journal of Innovation Management, JIM 4, 1 (2016) 92-113 HANDLE: http://hdl.handle.net/10216/83250*
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