

Davenport and Prusak on KM and big data/analytics: interview with David J. Pauleen

David J. Pauleen

Abstract

Purpose – Larry Prusak and Tom Davenport have long been leading voices in the knowledge management (KM) field. This interview aims to explore their views on the relationship between KM and big data/analytics.

Design/methodology/approach – An interview was conducted by email with Larry Prusak and Tom Davenport in 2015 and updated in 2016.

Findings – Prusak and Davenport hold differing views on the role of KM today. They also see the relationship between KM and big data/analytics somewhat differently. Davenport, in particular, has much to say on how big data/analytics can be best utilized by business as well as its potential risks.

Originality/value – It is important to understand how two of the most serious KM thinkers since the early years of KM understand the relationship between big data/analytics, KM and organizations. Their views can help shape thinking in these fields.

Keywords Knowledge, Knowledge management, Big data, Analytics, Business intelligence

Paper type Viewpoint

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Introduction

Larry Prusak and Tom Davenport were at the forefront of the emergence of knowledge management (KM) in the mid-late 1990s. Their book *Working Knowledge: How Organizations Manage What They Know* (1998) was critical in setting the direction of KM. Their subsequent work, together and separately, encompassed a number of areas related to KM, including storytelling, information ecology, social capital and more. Tom Davenport has more recently published in the areas of analytics and big data, with articles in Harvard Business Review (HBR) and the recent book, *Big Data @ Work* (2014).

This interview was conducted via email in 2015 and 2016.

Pauleen: How has KM evolved in the 15-20 years since you first wrote about it?

Davenport: I don't really do a lot with KM these days, but I am a casual observer. The biggest change is that no one views KM as new and exciting anymore. In the companies and organizations that still use it in a substantial way (mostly professional services firms), it has become a semi-mainstream activity with career paths, defined budgets, etc. I don't hear these people talking much about tacit knowledge anymore – KM is what you can capture and manage through technology. The technologies are

mainstream, offered by mainstream vendors like Microsoft, IBM, and HP. There is still a widespread view that culture and organizational structure and process are key to the success of KM, but I don't hear a lot about explicit initiatives to change them with KM as the driver.

Prusak: I'm not in total agreement with this [. . .] I think there is plenty of action in the whole subject of knowledge and learning, though it's not always called knowledge management. While it is true that many managers, taking the lead from economists and business school professors, equate knowledge and information or even technology, there are still plenty of organizations around the world starting new, truly, knowledge-based ventures. This is especially true in Asia and parts of Europe.

Pauleen: How do you define big data/analytics?

Davenport: In the beginning of my work on analytics, when I was coming from KM, I defined it as "data-derived knowledge". I think that's still the case, but I didn't get a lot of resonance from the marketplace from that message. I generally define analytics now as the systematic use of data and analysis to drive decision-making and action. "Big data" originated as data that was relatively large, unstructured, and fast-moving, but it has become a somewhat generic term to describe all data and analytics efforts. It was never a very good term, since the "big" part of big data is seldom the most troublesome or noteworthy aspect. Lack of structure is a much bigger issue.

Pauleen: In what ways can KM conceptually act as an intermediary between big data/analytics and management decision-making?

Prusak: I would say this is unlikely to happen, though I think it's a fine idea. The function and – dare I say – personality types who are devoted to analytics are rarely the same as those focused on knowledge [. . .] they carry different tool kits and have different ideas as to how drive better decisions.

Davenport: I do think that this should be the case, as both analytics and KM are designed to produce insights that drive better decisions. Over the years I have seen a few companies (Intel, PNC Bank) that used KM as the "umbrella" for both traditional text-based KM and analytics. I thought it was a great idea, but it didn't spread. I don't know of anyone who is doing that now, even when both concepts are well-established within an organization.

Overall I would say that there is not enough awareness that the primary purpose of both concepts is to improve decisions. Most organizations don't even know what their most important decisions are, and they couldn't tell you whether their decisions are getting better or not. It's probably because decision-making is all tied up with power, ego, and so forth.

In general, I have found that people who are comfortable with text-based knowledge are not particularly comfortable with numeric data and analytics, and vice-versa. For example, you find people with information backgrounds and library science people often gravitating toward KM, but they seldom gravitate to quantitative analytics. This is unfortunate, in that big data and analytics could benefit from some of the organizational and cultural aspects of KM. But I don't see it changing anytime soon.

Prusak: I would agree with this [. . .] except I would add that many general managers and those interested in strategy and human capital issues are also driven to look at knowledge – in the sense of focusing on some aggregate within the firm – networks, communities and practices in particular.

Pauleen: To make big data/analytics work, what's required in terms of tech, personnel, training and education?

Davenport: This is a big question! I wrote a couple of books about this. There is lots of ferment in both the tech and personnel space for analytics and big data. In tech, the primary focus is on open-source data processing and storage tools like Hadoop. There is a whole industry devoted to developing and distributing these tools, even though no one makes a lot of money from it.

On the personnel side, there is much focus on what a “data scientist” is, what skills such a person needs, and where to hire them. I co-authored a Harvard Business Review article called “Data Scientist: The Sexiest Job of the 21st Century.” These jobs combine computational, analytical, communication, and business skills, and they are very much in demand. It reminds me of the “knowledge engineer” roles in expert systems in the 1980s.

McKinsey said a few years ago that in the USA alone there was a need for 1.5 million “data-savvy managers”. We are not even close to developing that number so far. But there are over 100 degree programs in analytics and data science that have sprung up over the last couple of years in the USA alone.

Pauleen: How do you understand the similarities and differences between KM, Big Data/ Analytics and Business Intelligence? What would a taxonomy of these look like with regard to management decision-making and organizational strategy?

Prusak: I think that KM as practiced today is also quite interested in those forms of knowledge we are beginning to call “know-how”, which is of course a blend of the explicit and tacit and is the source of value in almost any organization. I just read a report that stated that approximately 70 per cent of the value in the market caps of the S&P 500 are in intangibles [. . .] much of which is in the form of know-how as well as social capital factors.

Again, I would think that any smart organization would use whatever insights they can get their hands on to make decisions.

Davenport: A formal taxonomy is probably beyond me, but it's easy to distinguish between these three concepts. KM in practice in most organizations is about textual and in some cases image-based information – captured, recorded, and accessed when desired by a user for an *ad hoc* purpose. Big data and analytics are generally about quantitative data, and there is an important step involving analysis of the data – typically by statistical or mathematical means, but sometimes through visual analytics. The goal is to extract insights from the analysis and use them to inform decisions. Business intelligence has the same goal, but it is almost always done through the use of descriptive analytics or reporting – there is seldom any predictive or prescriptive (recommendation-oriented) analytics used. All three should be used to inform decisions and actions, although there is often a poor connection between the sourcing of data or knowledge, the analysis thereof, and the decisions being made.

Pauleen: Does big data mean big knowledge?

Prusak: No I don't think these things are so joined at the hip. They are related things, and should perhaps be managed in some tandem manner, but one is human based and the other is mostly not. A pretty fundamental difference I'd say.

Davenport: If by “big data” you mean the more specific use of the term involving large volume, relatively unstructured, fast-moving data, the answer is generally no. One might say that the bigger the data, the lower the amount of knowledge extracted from it through analysis. Another phrase for this is “big data often equals small math”. The reasons for this are speculative; some say that it's because the transformation of unstructured data into structured data for analysis requires so much work that there is little time or energy left for analysis.

Pauleen: Should organizations jump in or wait and see?

Davenport: Jump in, in my view. There are lots of potential benefits from analyzing big data and adding it to small data. Big data is often about the external world – about customers and non-customers, for example – so it provides a new perspective on the business environment. We have seen many benefits in insights and business understanding from small data, and there is no reason why big data wouldn't add to the value. The other potential benefit is that big data can be used to create new products and services based on the data and analytics. Companies like Monsanto and Du Pont Pioneer, for example, are providing "precision planting" advice as well as their usual mix of seeds and agricultural chemicals.

Pauleen: What are the possible risks?

Davenport: If an organization just dived into a pile of big data without any business objectives, it could waste a lot of time and money. So it's important to have a clear target for what you want to accomplish with it. There are also risks involving breaches of customer data or privacy, so organizations have to have governance structures and policies in place that limit that risk. That was true of small data as well, however.

Pauleen: What are your thoughts on government and non-profit sector' use of big data?

Davenport: There are many examples of this – from Singapore's use of road and car sensor data to manage traffic to the United Nations' use of "hunch" data to identify global problems before they happen. Governments have sponsored a global movement toward "open data" – making data available on citizen-oriented processes and activities available to all for analysis and insight. If you like using an app to know when your bus or train is arriving, you can thank the open data movement for that.

Pauleen: What is the future of big data?

Davenport: I have written about "analytics 3.0", in which organizations combine big data and small, traditional decision support and newer "data products", and in which they dramatically increase the scope and scale of analytical activity. This is what the most sophisticated organizations are doing today, and more organizations will move in this direction. One might also say that some pockets of organizations are at the "4.0" level, which I would describe as highly automated and networked environments in which most or all decisions are made without human intervention. Financial trading and electricity flows fall into this category. Unfortunately, we don't understand these environments very well and they often break down. We need much better insights about how they work before they arrive on a large scale.

Pauleen: What trends do you see developing – perhaps related to eCommerce, MCommerce, Ubiquitous Commerce, the Internet of Things and total connectivity?

Davenport: Other major trends include massive amounts of data from the "Internet of Things", which will give us data about many aspects of the physical and social environment. I think we need more activity with regard to the "analytics of things" to make sense of all this data, and then of course it has to be converted into decisions and actions.

Many big data and analytics environments already involve a lot of automated decisions, and more are coming. Automation was once restricted to mechanical and low-end service processes, but is now penetrating knowledge work. One of the great challenges of our age will be how humans can add value to these processes.

Pauleen: How will they affect Big Data-KM models for business application and management decision-making?

Davenport: I think the most important trend at the intersection of big data and KM is the “cognitive computing” movement, which is a branch of artificial intelligence and big data. Systems can now “read” and make sense of massive amounts of document-based knowledge. Where we once assumed that analytics and KM were intended to inform human decisions, they are now frequently used to make decisions themselves. This has massive implications for how we run organizations and societies, and we are only just beginning to understand them. I would hope that analytics and KM researchers would be actively engaged in this process of understanding.

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