ISKO Singapore: Data Science Meets Information Science Meets Knowledge Management – with Dave Clarke and Patrick Lambe
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Edited chat transcript

Brett: Working with the US Army: over the past year the role of data has become more important. He spends time trying to orchestrate data visualisation, KM, IM, and the IT side, so that e.g. data visualisations can go directly into briefings, not via packaging into PowerPoint. KM contributes to the understanding of what each discipline needs and what they want help with, what decisions need to be made and what actions need to be driven.

Patrick: IM and KM have some history of trying to work together. Less so with the data side, but this has been changing quickly over the past year or so. Some KM folks still think the data side of the house is outside KM's remit.

Dave: DS deals with "data in the wild" - messy and noisy data, vs. IS which deals with ordered data/ information. It is maths/statistics based – vs. IS which is linguistic and semantic. DS is driven by/enabled by IT - and this is an increasing trend.

Giny: Sometimes, data science could also be top-down. It depends on how the senior management interpret the results.

Dave: The intersection between IS and DS has potential for a virtuous circle - each can benefit the other. DS can enrich taxonomies, IS can enhance extraction of meaning from data. The two sides do not always recognise this. DS folks sometimes say we can get everything we need from data and algorithms. IS has been operating effectively for a long time without DS support, so they don't always appreciate how they can work together.

Ana: Just yesterday I was talking with a legal firm. They have a KM team which is actually all about IS and that have nothing of DS going on (at least not in a strategic and conscious way). I don't think they even recognise the need for it. But I see data being handled by IT teams who rarely see the point / need to talk with the Librarians or KMers in the organisation.

Brett: Good point @Ana. I agree. Info Science without Data Science is an analog library, I would think...

Jutta: Agree as well! This can be a competitive space.

Patrick: the role of data in the organisation has been politicised since the 1970s, when enterprise computing because widespread, and managers started to see the need to get better value from the data that was then locked up in siloed systems. This is how software architecture evolved, to separate the application layer from the data layer so that data could be combined and integrated across systems. Alongside that there was a move to elevate the status of data management, and show its strategic value - this is

how the "infamous" (because misleading) DIKW pyramid became so popular. This is a politicised space where different centres compete for attention and resource.

Brett: Data cannot "Tell a story". Data requires context to become information. Information is data+context+human application+need for action/decision.

Ana: Indeed, Brett. What I see is that the context is offered by people discussing the data in meetings but hardly anything is poured into Information and tangible Knowledge artefacts that can be retained and made available to the rest of the organisation (and of society when you look at this in a wider context). Note: I'm also passionate about public open data and civic tech.

Edgar: Data scientists might disagree with you @Brett. I often hear them say something like "let the data tell the story".

Jutta: Is metadata missed or ignored as a connecting factor?

Brett: Metadata is the beginning of context that helps curate data into useful information. DIKW is useful - if I have data points such as wolf trees girl red, I need knowledge to put them together in different ways to tell a story. Human intelligence is needed to interpret the data.

Ana: I don't like the DIKW model. I started working around this alternative to support and anchor my work for a client. https://www.linkedin.com/pulse/data-knowledge-innovation-ana-neves/

Patrick: see also David Williams, https://jemi.edu.pl/vol-10-issue-1-2014/models-metaphors-and-symbols-for-information-and-knowledge-systems

Brett: Data, like "The Force" is all around us... when you "select", then it stops being data....it stops being messy

Patrick: But data is not a fundamental particle upon which e everything else is built, as the DIKW pyramid suggests. Data is a designed artefact, it comes out of processes and deliberate actions, and it sits in systems designed for specific purposes. The selection of data is also a knowledge based action.

Dave: The difficult in data science of "black box" algorithms where it is not possible to see how or why a certain results has been produced. The importance of being able to explain how the algorithm works, so that it can be directed, managed, tuned with confidence.

Patrick: Article by Gary Klein https://www.psychologytoday.com/ie/blog/seeing-what-others-dont/202007/aiq-artificial-intelligence-quotient

Brett: The point of all the rules is to help humans do work. Data Science in and of itself may be interesting but requires some defined purpose to be valuable.

Ana: KM includes things that IM doesn't. But does KM include everything that IM does? I.e. is IM a subset of KM?

Brett: @Ana - concur. KM is an Integrating function, especially now...

Brett: The irony is that KM is most effective where work happens, but effective KM programs need to be strategic/enterprise wide to gain appropriate resourcing.

Patrick: This is one of the greatest challenges in KM, having the ability to shuttle back and forth between the strategic view and down into very specific work contexts where it can deliver value, and to maintain the connection between the two. DS can help by providing that very contextual orientation, and IS/IM can help by providing structured "modules" that can be deployed across multiple contexts, so that individual custom solutions don't have to be built each time.

Ana: I think KM gains from being strategic for resourcing but also for continuity and ensuring the required broad view that allows data, info and knowledge to be actually meaningful from a business perspective.

Brett: I'd offer that "purpose" is a significant part of each point of the KM-IS-DS triangle.

Jutta: On the common elements across all three domains - is it systems integration or systems interoperability?

Brett: Both. There should be a 4th Ring for "Info Technology". We cannot forget or ignore the technical capability that enables the pipes and storage for moving data and the tools and software used to do things with data.

Dave: Taxonomies are now increasingly being used not just for resource discovery but also for describing processes (not just concepts), and these structures can help to automate decision processes.

Brett: The challenge is to bring competing parties that don't really understand each other together to show how they can create value together as a coalition.

Audrey: One element for orchestration is socializing a common vision e.g. on what David is saying we have been identifying business cases which require to evolve the infrastructure graph architecture and as part of this bringing the data science and IS teams onboard is essential to successfully deliver on this vision.

Ana: There is also a "weakness" for KM: it's a puzzling discipline for many and conveys the sense of something very new, of change, and that is scary for many.

Brett: Some KM practitioners are too clever by half - in the zeal to be seen as relevant, they sell promised results that aren't always easy to achieve.

Patrick: @Brett - the data science side is not innocent of that either.

Ana: And KMers fail to find ways of showing the impact of KM for the business.

Edgar: DS and IS may be considered "too technical" by many KM practitioners, for them to feel confident about taking on the role of orchestrating the 3 disciplines.

Brett: @Edgar. Exactly right. In one sense, I was "that guy" a year ago"

Giny: But when data scientists' results are reviewed and validated by SMEs or the top management, then the decision making will be shifted to favour from the SME or the top management, not to objectively reflect the base's situation. How can we strike a balance?

Ana: We desperately need good examples that show the connection between the 3 areas.

Edited by Patrick Lambe