

Architecture vs. Product vs. Document Centric Innovation

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Product-Centric Innovation (PCI): Information, process, and even organizational structure are based on the configuration of the product and its parts breakdown structure. The enhancement requests, problem statements, business opportunities, features, market requirements, product requirements, and manufacturing & development requirements for a particular part are accessed in context and with knowledge of the parts of a product. Today almost all PLM software applications are product-centric. In the past, within industries such as automotive, heavy equipment, transportation, and aerospace manufacturing, this was all that there was. But new trends are developing.

Architectural Centric Innovation (ACI): This is much like the older PCI described above, but more modern and focusing on the software architecture instead of hardware configurations. Some agile methods are still using this approach, but new trends are developing even as the ACI approach is being refined.

Document Centric Innovation (DCI): This was the first approach to engineering and development. Artifacts such as the systems spec, requirements document, bill of materials, parts list, entity diagrams, etc., are all part of the document-centric world. 25 years ago, many predicted that this would be completely gone by the year 2000. Don't know what was so special about that year, but all sorts of things were going to begin and end then. There have been shifts, but DCI persists, and new trends are developing.

So, how should information regarding innovation and intellectual property be created, stored and accessed? Is this question only addressed in the tight circles of knowledge management? The answer is no, and here's why. Let's say you're thinking of buying a new requirements management software tool. If you do any kind of research, you're going to be asked to choose between document-centric and database-centric tools. I don't mean to pick on requirements management tool vendors. Any vendor supporting the innovation process will be classified this way by the analysts and others with any experience with more than a few tools. Even folks

using the tools, who might recommend one over another will say something like: "It depends on whether you prefer this approach or another...". What are you going to do, just pull your knowledge management expert out of your pocket, and hope you can understand what she tells you?

In Texas, we have a saying: "If you don't stand for something, you'll fall for anything". Why won't people just take a stand? Let me share with you one perspective. Many years ago, maybe even thousands, (I've been told it was even back in the days of the Egyptians and the Great Pyramids), there was a division of labor, the workers and the designers or architects. Well today, things have shifted around, and continue to shift, but what we saw at the end of 2011, could still be explained by this division of labor and trends.

In the beginning there were only two divisions of labor. Over time, the trend has been to continue to divide the innovation process into smaller segments, each segment with the two primary divisions of labor: the architects and the builders. The point was that with all this dicing and slicing, it depended on who you were and which division of labor you dwelled in, as to what approach to information management you preferred, and what tool someone should recommend to you.

Initially, software applications only focused on automating the divisions of labor (I can only imagine what this looked like in ancient Egypt: perhaps space men!). Then the approach was to integrate the divisions, so information could be more easily shared, but today, we see a fundamental shift in what software applications are doing; as a direct result of shifts in organizational roles and responsibilities.

Over twenty years ago, Peter Drucker was speaking of today's shifts when he said; "Work will be done by specialists brought together in a task force that cuts across traditional departments". Nowhere is this shift clearer than in the case of the product management team. He also said in his 1988 book '[The Coming of the New Organization](#)':

- "Coordination and control will depend largely on employees' willingness to discipline themselves. ... Behind these changes lies information technology."
- "Clues to what the new, information-based organizations will require come from other

knowledge-based entities like hospitals and symphony orchestras. First, a 'score' - a set of clear, simple objectives that translate into particular actions. Second, a structure in which everyone takes information responsibility by asking: who depends on me for what information? On whom do I depend?." The 'score' would be the activities of Seven Pillars of Collaborative Product Management, the item on which you depend would be the Seven Pillars themselves.

The trends and pressures that Peter Drucker spoke of back then surround us today. To remain competitive, businesses are converting themselves into organizations of knowledgeable specialists. These might be thought of as a hybrid of the architects and builders of yesterday. Members of the product management team and all who participate in the innovation process are such knowledgeable specialists.

Knowledgeable specialists require a different knowledge management system than what yesterday provided. Separate, or even integrated PCI, ACI, or DCI doesn't support what is needed in the competitive environment that Peter Drucker predicted, and what we're seeing today.

What is working today, is a knowledge management system that can provide PCI, ACI, and DCI views of the same information. At times, depending upon their current activity, today's knowledgeable specialist might require a PCI view of enterprise information. While performing a different innovation activity later in the day, they might require one of either or a combination of both the ACI or DCI views.

Yesterday, tool analysis's would have said, when asked what tool they recommend, "It depends on ...". Today, they are compelled to say: "The one that offers an ACI, PCI, and DCI view of your enterprises information."

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