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## Capabilities and Processes

Suddenly, lots of people are talking about "capabilities." At the recent London BPM/Enterprise Architecture conference there were at least a dozen presentations delivered that mentioned "capabilities" in the title or the description. From my perspective, the term came out of nowhere and has become very popular over the course of the last year or two. During the past two months I have spent quite a bit of time trying to understand just what everyone is excited about.

Some authors have suggested that the term "capabilities" has been around for a long time, but any serious review of the literature suggests exactly the opposite. John Zachman set out to describe all the concepts used in organization architectures in the Eighties and has been working at it ever since. In the current version of his matrix, he identifies 36 cells. Some of the terms are arranged in what he terms a HOW column, some in a WHAT column, and so forth. Zachman, however, does not identify a "capability" as one of the concepts organizations use. [1]

In 2008 the OMG standardized on a number of terms that companies could use to describe their strategic assets in a document called the Business Motivation Metamodel (BMM). [2] There was no mention of "capabilities" in this document. Similarly, the European Community's EFQM Excellence Model, created in 1988, which provides a high level overview of business elements an organization should cover, including processes, does not include "capabilities." [3] A quick review of some of the articles that have been published on "capabilities" in the last few years suggest a similar lack of roots. [4]

Perhaps the oldest use of "capability" by either process or architecture practitioners is the Software Engineering Institute's Capability Maturity Model (CMM), but anyone familiar with that initiative will know that they didn't use "capability" as a technical term but only used it in its generic sense; namely, they suggest that organizations ought to increase their ability to manage processes. [5]

### Towards a Definition

Assuming that "capabilities" is a new term, or a new use of a commonly used generic term, the first thing most readers would ask for is a definition of the term. I have tried to find one—by reading articles and by asking questions in discussion groups. To date, I have to admit that I have no clear idea of what the term "capability" means. There is no one person or article that is commonly credited with an initial use of the term. The rapid rise to popularity of this ordinary language term has resulted in lots of people talking about "capabilities" without any agreement on what the term means.

A typical recent article on Business Capabilities [6] defines the term as follows:

"A business capability, or simply a "capability," defines what a business does. It does not communicate or expose *where*, *why*, or *how* something

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is done—only what is done. Specifically, the business capability is a particular ability or capacity that a business may possess or exchange to achieve a specific purpose or outcome."

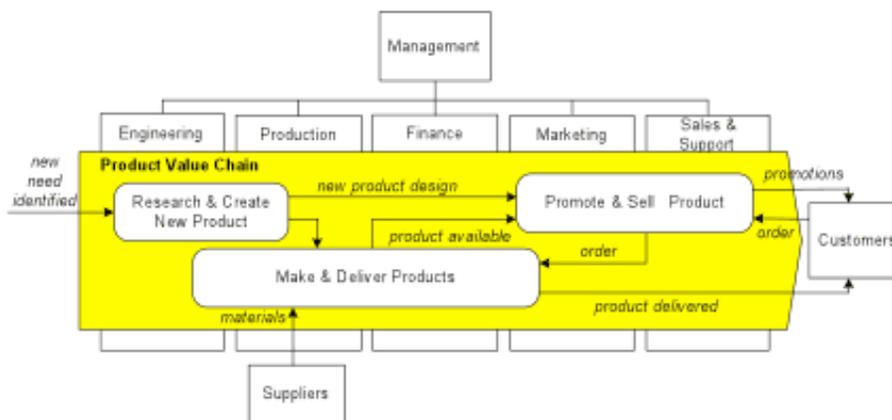
Now I frankly admit that I don't know exactly what it means to speak of "a particular ability...to achieve a specific purpose or outcome."

When I think of a "business process," I think of a system that takes inputs and transforms them into outputs valued by customers of the business. In other words, a process possesses an "ability to achieve a specific purpose or outcome." Put a different way: How would one know one's organization had a given "capability," save by showing one could produce some specific outcome? What would it mean to say you had a "capability" but did not know how to produce the desired outcome? In other words, as far as I can see, according to this definition, a "capability" is just a way of talking about being able to produce what processes produce.

Similarly, I don't see a real difference between WHAT an organization can do and HOW the organization will do it. Consider the high level process: *Manufacture Widgets*. Is this WHAT the organization does or HOW it does it? It seems obvious to me that *Manufacture Widgets* is WHAT the organization does and, that as you look at processes and sub-processes, you begin to delve into HOW the organization does it. (As an aside, Zachman makes a distinction between WHAT and HOW, and considers a process under HOW, but then he considers Data Models as the equivalent concept under his WHAT column.)

### Functions and Processes

When I think of most organizations, I divide their major entities into two types - functions and processes. Functions are usually departments, like Marketing, Accounting, and Manufacturing. Traditional organization charts organize reporting relationships into functional groups. When I think of processes, I think of the chains of activities that organizations use to create value for customers. Activities are usually small units of work that are performed by individuals from functional units, and they are assembled, in processes, to achieve some desired outcome – to produce value for a customer or other stakeholders. (See Figure 1.)



**Figure 1. Functional silos and processes.**

### Capabilities as Functions

The historical argument for functional silos is that they organize specialists with similar skills. Thus, people in accounting are hired and promoted for their accounting skills, while individuals in marketing are hired and promoted for their marketing skills. The problem with relying

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too heavily on this approach, however, is that each of these groups tends to focus on the particular function they are performing, often at the expense of the process that is focused on providing value to customers. Important books on process by Davenport, Hammer and Rummler were written, in large part, to protest the excessive reliance on functional silos and to argue for a more process-focused approach.

If "capabilities" is really just a generic name for the skills and the knowledge possessed by employees in functional units, there's nothing wrong with that. It makes sense that the marketing department might want to catalog the things that marketing is capable of doing. But excessive effort in this direction moves away from process and focuses, again, on specialized functional skills. The problem with this approach, as others have frequently explained, is that skills, in the abstract, don't create value. It's possible to imagine an organization that maintains skills it never uses, simply because those in functional areas imagine they are nice skills (or people) to have. I would argue that every skill maintained by a functional unit ought to be associated with an activity that people in that unit can perform and that those activities should be considered, within the context of a value chain, and either demonstrate that they add value, or be eliminated. Skills (capabilities) that are used for things that don't, ultimately, add value are questionable.

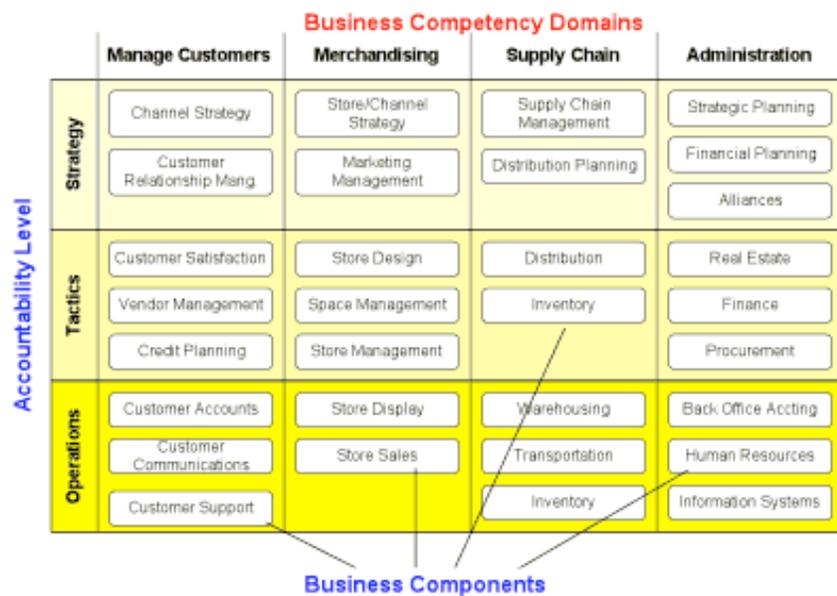
### **Capabilities as Processes**

On the other hand, some writers describe capabilities as if they were more like processes. Those who talk about capabilities in this manner often relate capabilities to IBM's Component Business Model (CBM).

IBM began to introduce their Component Business Model in 2005. [7] Initially, the CBM was positioned as an alternative to Porter's Value Chain Model. The argument ran that a Value Chain was too "linear" and assumed that one always went through a set series of steps to achieve a given output. Instead, those favoring Value Nets argued that, in fact, organizations often created new "processes" on the fly in response to unique situations. The examples pointed to consulting companies that created unique programs in response to unique customer requests, and to organizations that were increasingly tailoring their offerings according to specific customer requests.

IBM's response to the need for a more flexible "value net" approach was to create the Component Business Model. (See Figure 2.) Components were defined within a matrix. One axis described the accountability level (which most of us would describe in terms of core, support and management processes). The other axis described what was originally termed the "purpose" of the activity, but later changed to refer to "business competency domains." (Note how the term "domain" here seems to refer to a function. It would be easy to imagine that the components shown in the matrix are just activities waiting to be assembled into processes.) The emphasis, at least initially, was not on mapping the "purposes" or "competencies" but on mapping the components.

The basic idea behind the initial IBM model was to provide a description of basic business components—sets of activities, if you would—that an organization needed in order to respond to any possible request. By assembling business components, as needed, an organization could create a process that would generate whatever output the customer requested.



**Figure 2. IBM's Component Business Model.**

I reviewed the IBM Business Component Model in July of 2007 and explained that my major concern was that it ignored the key role of the value chain—to determine what was of value to customers, and to provide a way of evaluating how efficiently an organization was responding to customer demands. [8] How do you evaluate the effectiveness of sets of activities grouped as "business components?" One of the major ideas introduced in Michael Porter's Value Chain model was that an organization needed to tightly integrate all of the activities required to produce a product or service. It was the integration, in most cases, that provided the key to the organization's competitive advantage. Porter argued that a competitor could duplicate any given activity or component, but would have a hard time duplicating a large, highly integrated value chain. In addition, there was the idea that one could work upstream from the ultimate value of a product or service, to determine just what value any specific, earlier activity added to the final outcome. [9] This is closely related to Lean's emphasis on identifying value adding activities and eliminating non-value adding activities. If one now shifts to a set of components, as in the IBM CBM approach, how is one to determine what value, if any, any specific component adds?

More broadly, when I first saw the IBM CBM approach, I thought it was an IT approach to thinking about business problems, and closely related to IBM's promotion of the Service Oriented Architecture (SOA). If you begin by thinking of a process as a set of components, you are ready to then move directly to the IT services that support those components. A fine idea for those working on lower level processes, but not helpful, in my opinion, when thinking of the large scale processes and sub-processes that typically make up a value chain.

At some point, IBM relabeled the top axis of their CBM and began calling what they had previously termed "purposes," "competencies." Some suggest that this was the root of today's interest in "competencies." Keep in mind, if you wish to assert this, however, that 1) the IBM CBM has never caught on among BPM people—it's usually described as a proprietary IBM approach, and, 2) as noted above, these concepts were never included in the OMG's BMM classification scheme.)

In any case, those using the IBM approach have usually argued that they were doing process work, and that one created a process by linking together business components to form a specific process in response to a unique request from a customer.

If you take this position, then I would suggest that we are using "components" as a synonym for "activities" or perhaps "sub-processes," and that it's very confusing and, ultimately, an IT-oriented way of talking about business processes.

### **Capabilities as Commodity Processes**

Anyone who has followed activity in the business process area for the past few years will be aware that one major concern has been the identification and standardization of activities that occur in multiple processes or in the same process in multiple locations within the organization. For example, consider the activity, *Update Customer Record*. A large company may use this activity in a dozen places within a single process. If the company has developed its processes over a period of time, employees in different areas may perform this activity in different ways. Similarly, if the company has branches overseas, each different version of the process may be done differently in each country.

The existence of repeated or commodity activities becomes a major problem for the company if it attempts to install ERP software. In essence, the ERP team goes to the business group in different locations, identifies the different ways of handling updates, and proceeds to tailor ERP modules to support the different approaches. When someone steps back and looks at what the organization is doing, it becomes apparent that the organization is supporting many different instances of ERP—all variations on a single ERP module—to accommodate the fact that the same activity is done in a slightly different manner in different locations.

Several leading companies have spent considerable amounts of money trying to address the fact that what is, essentially, the same process, is performed in many different ways. The usual approach is to undertake a survey, identify all of the activities that are, essentially, the same, settle on one way of performing the activity, and then install a single ERP module to support every instance of the generic activity. Some of those who use the term "component" or, more recently, "capability" seem to be trying to address this phenomenon. They seem to want a way a talking about generic or recurring activities as if they were independent of the larger processes or value chains that contain them. There is certainly nothing wrong with having a concept to refer to recurring or commodity activities; assuming one isn't happy with the term "recurring" or "commodity" processes—but the idea of suggesting that the activity is not a part of a process is absurd. Moreover, the idea of creating hierarchies of commodity processes doesn't make much sense, either.

Moreover, a review of the generic or recurring process literature suggests that, in most cases, these are small scale processes, usually processes that can be automated by existing ERP modules, and not the large scale components we find in IBM's CBM. So, again, we are back to the basic problem – different authors are using the term "capabilities" in widely different ways, and often blending elements from incompatible approaches.

### **Business Architects and BPM Process Architects**

As far as I can tell, the use of the term "capability" is being promoted, primarily, by those interested in business architecture, and, especially, by those involved in the OMG's Business Architecture Working Group (BAWG). Regular readers will recall that I wrote an Advisor in November of 2010 on Business Architecture to try to understand how the term Business Architecture was being used. [10] At a recent, joint BPM-EA conference in London, I found the situation among architects more

confusing than ever. Some Enterprise Architects insist that their field ought to embrace all aspects of architecture, and that a business or process architecture is just a subsidiary architecture in a broader Enterprise Architecture. Others hold that EA has become too strongly associated with IT, and argue that the broader architecture is the Business Architecture, and that it includes a subsidiary technical or Enterprise Architecture. No matter what you believe about this, there is clearly an interest in how to create a high level description of what a business is trying to accomplish—and much of this is captured in various descriptions of Business Architecture. I might prefer to call it a Business Process Architecture, but I can certainly live with the term Business Architecture, if that's what most people come to prefer.

Unfortunately, as I pointed out in my November Advisor, the movement seems to be led primarily by folks from the IT community—not to say the Enterprise Architecture community—and their efforts to define a Business Architecture are rather technical. Perhaps, worse, however, they seem to be engaged in an effort to develop a new field of practice and are inventing terms for concepts that are already established under other names.

For years, those of us working in business process have been willing to allow the Enterprise Architects to do their own thing—which largely consisted of defining and cataloging the IT resources of an organization. BPM practitioners focused, instead, on defining the outcomes business people were trying to achieve, defining the processes required to achieve the outcomes and relating those processes to the organization's business models, strategies and goals. This approach is well reflected in the OMG's Business Maturity Model. Those of us working in the BPM tradition speak of a Business Process Architecture when we want to refer to all the things business people need to define and organize. I have never heard a BPM consultant, working with an organization to define its Business Process Architecture, refer to him or herself as a "business architect," but, in effect, for many years, BPM consultants and those heading the BPM efforts at large organizations have been the business architects of their organizations.

When I read recent articles on "capabilities," I come away feeling that the articles were written by people who haven't done much with high level process models—like SCOR or eTOM. I say this, because, as I said above, when you define high level processes, like *Manufacture Widgets*, there is really no difference between saying that it is a process or that it is a capability of the organization.

I suspect that several of the authors who are writing on capabilities conceptualize "processes" as low level sets of activities—of the sort that IT folks typically model and seek to automate—rather than thinking of them as large scale value chains, value streams, and processes like *Manufacture Widgets*. IT practitioners, and some business architects in particular, seem to think of a process as an algorithm—a formal description of a set of steps designed to accomplish a specific output. Used in this narrow way, a "process" is independent of the people who implement the steps, or of the other, external processes that interact with the process being discussed.

BPM practitioners, however, usually take a very broad view of process. Older practitioners, like me, often come out of a general systems background. We think of "process" as just a specific name for a type of system. The largest system is the world. Organizations are examples of specific types of systems that take inputs and transform them into outputs of value to some group of customers. A value chain is a major system or process within an organization that takes some of those inputs and transforms them into one set of valued outputs. A major sub-

process, like *Sell Widgets*, is a sub-process of a value chain, and so on. From this perspective, a given process is always a part of a larger process and has relationships with other external processes. Similarly, the process itself includes not only the pattern of steps, but the people who do the work, any technical elements used to help accomplish a step, and the business rules that govern the decisions that are made.

In the worst case, the enterprise architects, using a cataloging system like the Zachman framework, separate process from goals, people and business rules. To those taking this perspective, a "process" is simply a formal description of a set of steps or activities, quite independent of the many other elements one might consider. To someone working in the BPM tradition, a process is a way of organizing the work of an organization. We assign a process manager for a value chain with the understanding that that individual will be responsible for everything involved in moving from inputs to valued outputs. The process manager will manage not only the formal description of the work, but the people, the business rules, the marketing efforts and the service follow-up to assure that customers are satisfied. In other words, a value chain manager is responsible for planning and managing everything that it takes to achieve the strategic goals the organization has set for the value chain.

Obviously, those working in the BPM tradition, as I have described it, have spent years thinking about how one organizes the business process architecture of an organization. The key elements are an organizational strategy that sets goals, one or more value chains designed to achieve those goals, and a governance system that defines the measures and the management structures necessary to assure that the value chains achieve the goals set for them. For individuals working in this tradition, you define what the organization is trying to achieve by defining goals, and then assigning those goals to processes. From this perspective, talking about the "capabilities" the organization might want to maintain is just a synonym for saying that the organization needs to be able to implement one or more value chains and their associated subprocesses.

### **Summary**

Let me see if I can summarize. Those who are talking about "capabilities" suggest that they are on to something new and useful, and different in nature from business processes.

If the person is inclined to define a "capability" as a function—as a group of skills that a department might maintain—like *Maintaining the Company Books*—then they are moving in the direction of reasserting the value of functional departments, and if this is taken to extremes, they are moving toward reestablishing departmental silos.

If the person is inclined to define a "capability" as something like a business component or a recurring activity, then they are using "capability" as a synonym for a process or an activity, which is just a small process).

In either case, the idea of "capabilities" is introducing confusion into the marketplace. It is hard enough to work with an organization to create a business process architecture that can be used to effectively organize the management and measurement of how well the organization is achieving its goals. To introduce the idea that an organization should first or simultaneously create a map or hierarchy of "capabilities" and then create another hierarchy of processes is to add confusion to an already very difficult and complex task.

Some readers have suggested that they have had more success talking with their management teams about defining their organization's "capabilities," than they have had talking about process. When working with a client I am always very pragmatic—and would always use the word the client prefers. If you find a client who wants to talk about high level "capability maps" rather than a business process architecture, you should certainly use the preferred term. But you should not confuse yourself, or other process practitioners, by imagining that your "capability map" is somehow different from a high level process map. In either case, you are trying to specify what your organization needs to be able to do to achieve its goals.

The good news about the surge of interest in "capabilities" is that individuals who were formerly Enterprise Architects are working hard to establish or promote a new domain which they term "Business Architecture." The Business Architecture Working Group (BAWG) at the OMG has been especially active, and has proposed several new standards, and is talking of preparing a standard for "Business Capabilities." Those of us who have been working with business people to help them understand and use process concepts for the past few decades are happy to see these developments.

I have long argued that an organization should start by creating a good description of its goals and business processes and then align its various resource architectures, human and IT, to its business process architecture. I have always assumed that business managers must take the responsibility for creating the goals and the business process architecture, since it, in essence, describes what the business managers are trying to do with the organization. If former IT architects want to become business architects, I'm all for it, but they are going to find that there are BPM practitioners who are already functioning in that role, and I believe they will be well advised to work with us rather than trying to create a new body of knowledge with a new vocabulary.

I think I am as ready as anyone to embrace new concepts and practices that will expand what BPM professionals can accomplish. On the other hand, I hope to see BPM emerge as an established profession, just as project management has emerged in recent years. For that to happen, BPM needs to establish a core set of principles and practices. I believe that we ought to resist any urge to quickly redefine terms and practices that we have been using for many years. It would be as if physicians kept changing the terms they use for body parts or diseases – it undermines the idea of an established body of knowledge.

Till next time,

Paul Harmon

#### **Notes**

[1] Zachman Framework. See:

[http://en.wikipedia.org/wiki/Zachman\\_Framework](http://en.wikipedia.org/wiki/Zachman_Framework)

[2] OMG Business Motivation Model (BMM) See:

<http://www.omg.org/spec/BMM/>

[3] European EFQM Excellence Model. See <http://www.efqm.org/en/>

[4] Ulrich, William and Michael Rosen. *The Business Capability Map: The "Rosetta Stone" of Business/IT Alignment*. Cutter Consortium Enterprise Architecture Report. Vol 14, No. 2. March 2011. (No reference to the use of the term "capability" prior to 2010.)

Cummins, Fred A. and Henk de Man. *Capability Analysis with the Value Delivery Modeling Language*. Cutter Consortium Enterprise Architecture Report. Vol 24, No.4. April 2011.

Homann, Ulrich and Jon Tobey. *From Capabilities to Services: Moving*

from a Business Architecture to an IT Implementation.

MSDN Library: <http://msdn.microsoft.com/en-us/library/aa479075.aspx>

Polikoff, Irene, Robert Coyne and Ralph Hodgson. *Capability Cases: A Solution Envisioning Approach*. Addison-Wesley, New York, 2006.

[5] Paulk, Mark C. et al. *The Capability Maturity Model: Guidelines for Improving the Software Process*. Addison-Wesley, New York, 1995. For the source of CMM, see:

Humphrey, Watts S. *A Discipline for Software Engineering*. Addison-Wesley, New York, 1995.

[6] Ulrich, William and Michael Rosen. Cited above [4]. This same article goes on the hype "capabilities" by explaining that "business capability has emerged as the "Rosetta Stone" for business communication and collaboration and, more specifically business/IT alignment."

This is the role, of course, that **processes** have been said to play by Rummler, Hammer, Davenport, and almost every other major process author. If we are now to assume that "capabilities" are somehow different from business processes, and better able to play this key role, then we ought to be given not only a good definition of what "capabilities" are, but a clear explanation of how and why "capabilities" are better able to play this role than processes. The article makes a stab at arguing that "capabilities" can play this role, but doesn't really suggest why "capabilities" might be better than processes.

[7] Cherbakov, L., et al. "Impact of Service Orientation at the Business Level." *IBM Systems Journal*, Vol 44, No. 4. 2005. p653.

Glen, Scott. *Consuming Industry-Standard Capability and Process Maps with WebSphere Business Modeler and WebSphere Business Compass*. <http://ibm.com/developerWorks>.

[8] Harmon, Paul. "Value Nets and Value Chains." *BPTrends Advisor*, Vol. 5, No. 12. June 26, 2007.

<http://www.bptrends.com/publicationfiles/advisor200706261.pdf>

[9] Porter, Michael. *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press, Illinois, 1985.

[10] Harmon, Paul. "What is a Business Architecture." *BPTrends Advisor*, Vol 8, No. 19, Nov. 16, 2010.

<http://www.bptrends.com/publicationfiles/advisor20101116.pdf>

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