Business Process Flexibility:
Weick's Organizational Theory to the Rescue

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Abstract. For organizations to flourish in a changing environment, their business processes need to be flexible. Designing flexible business processes is a challenge. We use Weick's theory of organizing to propose some principles for designing flexible business processes and derive some requirements for business process and support system.

1   Introduction

It has become a cliché to say that organizations face a turbulent, rapidly changing environment. However, the more things change, so the saying goes, the more they remain the same. Today's turbulent environment also presents quite stable properties. Organizations need to be flexible so that they can adapt to the changing aspects of the environment without losing their adaptation to its unchanging aspects.

Business processes describe the way an organization acts on itself and on its environment. Business process flexibility suffers from the dilemma that whenever some part of a process is made flexible, some other part is made inflexible. Using an analogy with a famous example, when Archimedes said he could lift the world, he also requested a stable anchor point from which to proceed. The same can be said of business processes, whenever some part of a business process is made flexible, another part needs to be made inflexible to act as an anchor point to the flexible part.

In this paper, we very briefly discuss some of the principles of organizational flexibility proposed by Weick [6]. We apply these principles to examples of threat and resource management and derive a few general purpose requirements for Business Process Support (BPS) systems.

2   Organizational Flexibility

Flexibility is necessary for maintaining the fit with a changing environment without losing identity [4]. In other words, it is an adaptation to a changing environment. The key point in flexibility, therefore, is to know when and what to change and when and

what not to change. This judgment is made difficult by what Weick [6] calls *equivocality*, "the richness and multiplicity of meanings that can be superimposed on a situation that organizations must manage". For Weick organizations have three main processes, *enactment*, *selection,* and *retention*. With enactment an organization acts on its environment (or even creates its environment). With selection, an organization selects interpretations of this environment. Selection reduces the equivocality of the environment and its resulting interpretations act as constraints on subsequent enactments. With retention, the organization remembers its enactments and selections. It uses this memory for further enactments and selections.

As an example of different interpretations that apply to a given situation, consider the relationships of an organization with its customers. Any customer represents an opportunity for doing business but also a potential threat. Can a given customer be trusted or not? How does the organization separate "good" customers from "bad" ones? For that matter, what counts as a bad and good? For any given dealing with an existing or potential customer, such questions arise and one of several interpretations needs to be selected.

For Weick, organizations need to conform to the general systems law of requisite variety [1]. Requisite variety says that to successfully regulate a system (maintain its identity separate from the environment), the system needs to have as much variety as its environment. Hence organizations need to maintain variety to maintain their capacity to interpret the variety in the environment.

However, organizations also need stability and effective actions which go against variety. Weick,[6, p. 221] argues that to be flexible,

"Organizations need variations so they can deal with changes in the environment, and they need strong guidance from the past to develop efficiencies. The way to finesse these contradictory demands is to use the past as a partial constraint on the present."

This means that organizations need not only retain what they have learned but also forget some of these lessons in order to act differently. They need to maintain sub-optimization so that their business processes don't become too rigid and they need to maintain equivocality in their interpretations of themselves and their environment.

Weick [6, p. 217] argues that an

"organization can reconcile the need for flexibility with the need for stability in several ways: by some form of compromise response, by alternation between stability and flexibility, or by simultaneous expression of both tendencies in different portions of the system."

For Weick "only the solutions by alternation or simultaneity make sense. A compromise response typically accomplishes neither flexibility nor stability."

Weick further argues that flexibility is achieved if either enactment or selection is performed with doubt about the validity of what has been retained whereas the other is performed without doubt. In other words, the organization can act with no doubt if it chooses to doubt what it knows of its environment or it can act with doubt and trust what it knows.

Business processes participate in Weick's concept of enactment. They are defined so that there is a standard way of acting within an organization. This standard way is called a process type. Process instances are spawned based on the type [3]. The be-

havioral perspective of the process [3] prescribes when and under which conditions actions are performed in the process instance. The resource perspective prescribes the kind and amount of resources consumed and produced by the actions. In the next section we briefly discuss how these two perspectives influence the flexibility of the process instances that are based on the process type.

3   Threat and Resource Management in Business Processes

Some of the actions prescribed in a process type can be seen as regulative actions [5], [2]. They act against threats to the stability of the organization. The regulative actions prescribed in a process type can be performed either unconditionally (the action is performed in every process instance) or conditionally (the action is performed only under some conditions). Unconditional actions retain resources irrespective of the existence of threats. This can be seen as less flexible than conditional actions [7]. For example, the process type may require credit checking to be performed on all clients irrespective of a suspicion that they may not be credit worthy. Performing this action each and every time is obviously inflexible.

Conditional actions are only performed if a threat is identified. For example, run a credit check only if there are reasons to believe that the client may not be credit worthy. This arrangement may be more flexible because it retains fewer resources but it comes with two risks: not detecting the threat and therefore not performing the action when needed and falsely detecting a threat and wasting resources addressing it [7]. Moreover, the capacity to detect threats (e.g. the client may not be credit worthy) has to be available at all times. This is an unconditional action. This action itself has to be exercised regularly so that it doesn't become rusty. Hence, conditional actions rely on unconditional ones.

Furthermore, an unconditional action creates a protective environment where flexibility is possible. In the credit checking example, if we know that credit checking is performed every time, we can be much more flexible in later stages of the process because we know for sure that credit checking has been performed.

The point is therefore that a combination of conditional and unconditional mechanisms is necessary to maintain flexibility. This combination depends on the nature of the organization and its environment. For example, in an environment where many people are not credit worthy, an overall process may be more flexible if credit checking is performed unconditionally. Also, since the environment keeps changing, there must be the possibility to change actions from conditional to unconditional.

Actions in a process transform some resources, i.e. take some set of resources as input and transform them into some other resource as an output. This output is then further transformed by subsequent actions. A resource can be accumulated in reserves such as a batch of requests to be handled or engines to be mounted in cars etc. The management of these reserves has implications for business process flexibility. Reducing reserves has long been seen as an enabler of flexibility. Just in time manufacturing and zero level inventory, for example, improve flexibility because changes can be made to products with little writing off of already manufactured goods. However, this scheme is inflexible because in the event of a surge in demand the organization

will not be able to respond in time unless it has accumulated reserves elsewhere that it can quickly transform into manufactured goods.

The point is that in a resource bound organization one form of reserve limits the accumulation of another form. Accumulating resources in too large reserves may limit the possibility to have other reserves (e.g. money *and* inventory). Too low inventory limits the ability to quickly react to surges in demand. Too much inventory limits the amount of cash on hand. Evenly spreading resources is not necessarily a good design either because it may also be inflexible with respect to surges.

So, too few reserves enable some flexibility with respect to some threats (e.g. product change) at the loss of flexibility to other threats (e.g. satisfying surges in demands). Accumulation of small reserves, on the other hand, permit less precise forecasting and enable flexibility with respect to changes in consumption. Accumulation of large reserves is useful for countering threats that are sure to present themselves.

Business processes that rely on inventory that doesn't belong to the organization but to one of its suppliers may be seen as the flexibility panacea. Unfortunately, they too create inflexibility; in this case with respect to changes in suppliers. A supplier that manages the inventory of a client organization is more difficult to replace than one that simply delivers its goods to its client.

Combining the ideas about selection and retention with threat and resource management, it appears that what counts as a threat or a scarce resource is a selection of an interpretation influenced by retention. Many threats can thus be seen as opportunities and many scarce resources can turn to be ample resources. Of course, the contrary is also possible. A few examples are: A "bad" customer can turn out to be a "good" customer over time, or vice versa. An ample resource that was taken for granted, such as cash flow in a successful business, can become scarce. A scarce resource, such as market size for a given product, can be grown by introducing an innovative product.

4 Encouraging Flexibility with BPS Systems

As we have seen in Section 2, to be flexible organizations need to maintain variety in either enactment (business processes) or selection (their interpretations of themselves and their environment). Enactment and selection rely on retention (the memory of what has happened). Organizations tend to get stuck in rigid enactments and selections due to too much retention of the lessons of the past. Flexible business processes depend on new interpretations which require doubting these lessons. However, too much doubt leads to inaction. An organization also needs to maintain some of the lessons to be able to design effective business processes.

A BPS system therefore needs to provide for both effective business processes, variety of interpretations, memory…and amnesia.

For the design of business process types, a BPS system therefore needs to offer the following:

- Support for a variety of interpretations of the current state of affairs and the changes that have happened since the last time the process has been revised.
- Help in deciding when a business process type needs to be changed because of changes within the organization and in the environment
- Help in selecting the appropriate interpretations from this variety so that an effective process can be designed.
- Help in designing a set of conditional and unconditional actions that address the present interpretations of threats.
- Help in designing the use of resources to match envisioned demands.

For the handling of business process instances, the requirements for a BPS include the following:
- Support for accurate assessment of present threats, e.g. is it reasonable to believe that the current customer is credit worthy so that a complete credit checking is not necessary.
- Support for effective navigation within a business processes instance, see for example [4].
- Help in deviating from the prescribed process type by maintaining a variety of interpretations of the current state of the process instance, e.g. by yielding to specific customer demands.

How these requirements are implemented and what other requirements are needed based on Weick's organizational theory (for example, alternation between change and stability) seems like a good research question to be further investigated.

5   Conclusions

In this paper we described some elements of flexibility in organizations and business process based on Weick's organizational theory. We showed the difficulty in designing flexible processes with the examples of threat and resource management. We identified some very general requirements for BPS systems to help with improving this flexibility. Being only a position paper, it is impossible to discuss other elements of organization and business process flexibility. This is left for a future paper.

6   References

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