

Is process improvement irrelevant to produce new era software?

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Abstract. Narrow focus is the key to success for organizations of all kinds and sizes. Focus can be diluted by emphasizing the "wrong kind" of software process improvement. That's right: traditional software process improvement may impede the successful development and deliver software, particularly innovative and total solutions. In fact, adherence to traditional software process improvement can cause an organization to become blind to competitive forces. This presentation gives a preview of a new set of improvements that are tailored to the new styles of software development and to the new market realities about time to market, our tolerance of quality concerns, and relentless focus on convenience.

Many other commentators, including distinguished ones at this Conference, have observed the tension between high software quality and demands of the Internet Age. To some degree, we have all been vindicated because the pressure to produce software at Internet speed has diminished as the dot-coms have receded into the economic landscape. On the other hand, we will always have the tension between high quality and the other non-functional attributes of software projects, such as effort, duration, and features.

Therefore, we have to find a permanent solution to the question of how to instill quality into software that must be developed quickly. I have found the answer in an odd place: the management literature on strategy.

Focus on what?

How many strategies are there? Three, according to *The Discipline of Market Leaders*. The best organizations focus on only one of these three, while maintaining threshold levels of the other two. The three strategies are:

1. **Operational excellence:** These organizations have a "formula" for their service or product. Their menu of choices is small, limited, and with that menu they deliver excellently. They are usually the lowest cost providers because they are the highest quality producer for their market segment. Standard examples are McDonalds and Federal Express.

2. **Product innovativeness:** These organizations pride themselves on maximizing the number of turns they get in the market. They introduce many new products, selling innovation and features as opposed to, say, price. Examples are Intel, 3M, Sony, and Bell Labs. They measure their success by the number of new product introductions, the number of patents, and/or the number of Nobel prizes.
3. **Customer intimacy:** These organizations seek to be a total solution. Whatever the customer wants gets added to the menu. The menu is (infinitely) long and custom-made for each engagement. “Schmoozing” is an important part of customer intimacy.

Each of these three strategies offers something completely different to the clients of the organizations, and therefore each performs its operations in support of its strategy in completely different ways. This is critical to quality professionals because high quality is not what all of the clients expect. Therefore, it does not make strategic sense to every kind of organization to have high quality.

Specifically, operationally excellent organizations offer high quality as an integral part of their strategy. It is not optional, not just desirable. These organizations love and use the Software Engineering Institute’s Capability Maturity Model (SEI CMM), and ISO 9000, and all other quality standards. Quality is, in fact, how operationally excellent differentiate themselves, so quality is critical. And it is worth mentioning that while operationally excellent organizations do not innovate products (they have a small, stable menu), they are very process innovative.

Product innovative organizations distinguish themselves by imaginatively assembling features, so that their products and services are unique. From product innovative organizations we buy creativity, features, sexiness. Quality is important, but it is not what we clients are buying. In fact, we are quite tolerant of quality problems in new products and services. Just think about how we love to hate Microsoft!

And customer intimate organizations are not the cost, quality or innovation leaders. Rather they take care of all functions in a certain area. For example, large global accounting firms not only audit books, but also give tax advice and prepare tax forms, suggest and implement accounting systems, recruit accounting people, and even implement all computer systems. They will do everything related to the finances of organizations, even stretch the truth!

From a process perspective, customer intimate organizations need to have an architecture. The architecture facilitates the quick addition of features and offerings to the base, to the “base,” the backplane.

At the risk of repetition, there are only three strategies, and each one offers a different thing of value to clients. Operationally excellent organizations offer quality, product innovative organizations offer a unique combination of features, and customer intimate organizations offer an infinite menu of features. And therefore, each type of organization values quality generally and process improvement specifically very differently.

Quality is directly related to strategy

The Discipline of Market Leaders notes that (1) firms that try to offer more than one strategy are not as successful as those that focus on one and only one, and (2) all organizations must present at least a threshold level of the two disciplines that they do not focus on. Therefore, quality is important to all strategies, but only really important to one (operational excellence). The other two strategies should have “good enough” or “just enough” quality and that is appropriate, as much as it makes our skins crawl!

How much is “good enough” or “just enough” quality? The marketplace specifies these values, so benchmarking and customer satisfaction surveys tell us. To have quality in excess of what the marketplace values is a waste of resources and dilutes focus from the strategic advantage of the organization.

This can be illustrated by looking at planning. Planning is the key to the SEI CMM and all operationally excellent organizations. Predictability is highly valued. But how would you plan innovation in a product innovative organization? And how valuable is planning in a customer intimate organization when the requirements are intentionally vague? After all, for innovative and customer intimate organizations, the plan is not a deliverable!

The new quality: convenience

So, what is the quality function in an organization to do? The short answer is to represent the end-customer, to be the voice of the customer. The quality organization is a filter that lets only “good” products and services into the marketplace. One of the “ilities” (that is, quality attribute) this new era of systems and software is *convenience*, and clearly there is too little of it.

Why, for example, would a person watch a movie on a little computer screen rather than a larger one, as on a television or in a movie theatre? Why would a person read a book on a grayish, reflective little screen rather than a white, flat paper? Why would a person type out a message when he or she could just as easily pick up the (mobile?) phone and talk? Why would a person wear an always-on e-mail device on his/her belt? One that has teeny, tiny keys? Why would a person get on an airplane and travel across an ocean to attend a conference instead of sitting at his or her computer screen and interact that way?

The answer, of course, is convenience. Convenience is a feature, one sought in all strategies. And it is a differentiator in all strategies, too. We might think of convenience as an innovation, but many of us eat at an operationally excellent firm, McDonald’s, precisely because of convenience. Or we might use a Nokia product, clearly innovative, precisely because it so convenient.

Convenience is a new “ility” that we quality professionals will have to learn about and then encourage our organizations to adopt, define, and operationalize. We will become the gate through which only convenient systems pass, and that will become the new reality of the new economy.

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