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When Should a Process Be Art, Not Science?

by **Joseph M. Hall** and **M. Eric Johnson**

Can a successful European sales process be rolled out worldwide, or should regional teams be allowed to perform their individual magic? Does it make sense for a manufacturer to invest in developing and documenting a detailed process that complies with the latest ISO standards, or would more employee training and empowerment lead to higher quality? Can quality be improved by managing surgeons like nurses or auditors like mechanics? Executives in almost every industry face similar questions about how to handle their processes. There are some processes that naturally resist definition and standardization—that are more art than science. Helping executives understand which should not be standardized and how to manage artistic and scientific processes in tandem is the purpose of this article.

The idea that some processes should be allowed to vary flies in the face of the century-old movement toward standardization. Process standardization is taught to MBAs, embedded in Six Sigma programs, and practiced by managers and consultants worldwide. Thousands of manufacturing companies have achieved tremendous improvements in quality and efficiency by copying the **Toyota Production System**, which combines rigorous work standardization with approaches such as just-in-time delivery of components and the use of visual controls to highlight deviations. Process standardization also has permeated nearly every service industry, generating impressive gains.

With success, though, has come overuse. Process standardization has been pushed too far, with little regard for where it does and does not make sense. We aim to rescue artistic processes from the tide of scientific standardization by offering a three-step approach to identifying and successfully integrating them into any business. We argue that artistic and scientific approaches need not be at odds but must be carefully harmonized.

What Is an Artistic Process?

What we call "art" is often described as "judgment-based work," "craft work," or "professional work." The common thread in such work is variability in the process, its inputs, and its outputs. Art is needed in changeable environments (for example, when raw materials aren't uniform and therefore require a craftsperson's adjustments) and when customers value distinctive or unique output (in other words, all customers don't want the product or service to perform or be performed the same way).

If both of those conditions aren't present, a mass or mass-customization process, not an artistic process, is the answer. If a firm is operating in a highly variable environment and produces variations in products or services that customers do *not* value, chances are it has nascent or broken processes. In those instances, a firm needs to learn how to bring the environment under control. (See the exhibit "The Process Matrix.")

The Process Matrix

This simple tool can help managers categorize processes and consider how they might or should change.

Mass processes are standardized processes that are geared to eliminate variations in output. They're appropriate when the goal is completely consistent output for a narrow range of products or services. In such cases, all artistic discretion should be eliminated. Steel, cars, and consumer financial services are examples of industries where mass processes are widely applied.

Mass customization uses a scientific process to produce controlled variations in output. Assemble-to-order products like Dell's personal computers and cars in BMW's "Build Your Own" program fall into this category. While the number of possible combinations might be enormous (BMW claims more than 130 million configurations), output variability is limited to combinations of predefined components. In many cases, mass customization represents the best of both worlds: control and variation. But when customers demand true customization ("I want a pink computer with a fabric-covered chassis that complements my office"), it will fall short.

Nascent or broken processes can't produce the consistent output that customers demand. Out-of-control processes are common when a product or process uses radically new materials, technology, or designs. In these situations, managers should consider whether controlling output variation is feasible or desirable. If variation can't be controlled but customers can be persuaded to value it, an artistic process is the solution. If customers won't tolerate variation, the focus should be on understanding its causes and creating a standard process. Boeing did this for its new 787 Dreamliner, the first commercial aircraft with a carbon composite airframe: The company conducted test runs to learn how to standardize the process for manufacturing fuselage sections.

Artistic processes leverage variability in the environment to create variations of products or services that customers value. They rely on the judgment and direct experience of craftspeople. Building Steinway pianos, serving passengers on flights, and developing radically new software applications are but a few of the processes that meet those criteria. Before choosing art, it's critical to make sure that customers really value output variation. Some managers delude themselves into believing they need artistic output when the vast majority of customers really want a standard product.

Let's look in more detail at the conditions that favor artistic processes:

Highly variable environment.

Scientific process management calls for blindly reducing variability. But sometimes variability cannot be avoided. Take the inconsistencies in the wood used in the soundboards of pianos. In other cases, the costs of decreasing variability outweigh the benefits—for instance, if doctors applied a cookbook approach to treating complex diseases. The traditional scientific approach to such situations is to try to tame the environment by imposing complex rules that spell out what to do in every possible circumstance. Not only does that reduce accountability, but it often causes workers to switch to autopilot instead of trying to understand the specifics of each job.

That was a conclusion reached in 2006 by executives at Ritz-Carlton, the hotel chain renowned for its high quality. After decades of demanding that employees strictly adhere to a 20-point list of customer service basics, the company's management realized that the specified routines weren't adequately addressing the widely ranging expectations of the luxury chain's customers, who had become younger, more diverse, and more tech savvy, and often traveled with children and other family members. The company's leaders also saw that expanding the list to address every possible situation that an employee might encounter would be futile. As a result, they shifted to a simpler 12-point set of values that allowed employees to use their judgment and improvise. Tightly defined process dictums (like "always carry a guest's luggage," "escort guests rather than point out directions to another area of the hotel," and "use words like *good morning, certainly, I'll be happy to,* and *it's my pleasure*") sometimes felt stuffy and out of place. Management replaced them with looser value statements (such as "I build strong relationships and create Ritz-Carlton guests for life" and "I am empowered to create unique, memorable, and personal experiences for our guests"). The change encouraged employees to sense customers' needs and act accordingly. Customer satisfaction improved.

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