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# Debate: Systems Thinking and Public Sector Performance

**John Seddon and Carlton Brand**

Taiichi Ohno's innovation—the Toyota Production System (TPS)—is a challenge to management conventions. The TPS produces cars at the rate of customer demand. It does not 'make and sell', but 'makes to order'. Taiichi Ohno put different products in the same manufacturing line and focused on producing at the rate of demand, making only what customers want (Ohno, 1988). The TPS developed new methods to manage unconventional ideas: balancing demand, managing flow, materials being 'pulled' through the system. These new methods soon became thought of as tools: 'takt time', 'Six Sigma', value-stream mapping, 'kanban' and 'poka-yoke' are among the better known.

Using these and other tools will improve processes in the public sector because the processes themselves are poor, but the opportunity for improvement is much larger than this. The greatest leverage for change is achieved when one understands the organization as a system, as Ohno's innovation demonstrated in manufacturing.

**Service Versus Manufacturing**
Service differs from manufacturing. Aside from

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**Figure 1. Command and control versus systems thinking (from Seddon, 2003).**

| Command and control thinking | | Systems thinking |
|---|---|---|
| Top-down, hierarchy | **Perspective** | Outside-in, system |
| Functional | **Design of work** | Demand, value and flow |
| Separated from work | **Decision-making** | Integrated with work |
| Output, targets, standards: related to budget | **Measurement** | Capability, variation: related to purpose |
| Contractual | **Attitude to customers** | What matters? |
| Contractual | **Attitude to suppliers** | Co-operative |
| Manage people and budgets | **Role of management** | Act on the system |
| Control | **Ethos** | Learning |
| Reactive, projects | **Change** | Adaptive, integral |
| Extrinsic | **Motivation** | Intrinsic |

the obvious lack of making physical things, the customer is involved in production and the service agent is involved too. There is much more variety of demand. So instead of thinking of the system as one that pulls physical things together to manufacture at the rate of customer demand (the essence of the Toyota system), you have to think about the system as one that brings (largely) intangible things together in response to the variety of customer demands. This different purpose leads you to different methods, for you learn there are different problems to solve. When you solve these problems you learn how to design services from which customers can 'pull value'—i.e. get what they want. Moreover, as service improves, costs fall.

**Demand: The Greatest Point of Leverage**
There are two major types of demand in service organizations:

• Value demand—what we are here to provide, for example: can I have a service; can you help me solve a problem?
• Failure demand—demand caused by a failure to do something or do something right for the customer: what is happening to…it hasn't arrived…I don't understand…

In local authorities it is not unusual to discover that 80% or more of the demand into call centres is 'failure demand': the result of a service that doesn't work very well. Local authority call centres were created in the UK because they were mandated by government—ministers assumed access was synonymous with service. In many cases the new call centres

simply absorbed the waste created by poor services and institutionalized it. Using process improvement techniques in such an environment is to work at the margins at best.

Taking a systems approach requires studying demand to understand why citizens call. It is to understand the frequency and predictability of value and failure demands, which will tell you what is not working for citizens and show the priorities for service improvement in order to stop the calls coming in. Understanding the value demands helps the determination as to whether the calls can be serviced in the call centre or whether the call centre should be used as only a switch. These simple strategies lead to a reduction in call volumes and more efficient delivery of services. Operating at this 'system' level achieves far more than can be achieved by attention to processes.

**Does Government Guidance Help?**
The systems approach reveals that one major hurdle to managing in this way is the guidance offered to local authority managers by the many specification bodies created to drive improvement. Following guidance, call centre managers focus on service levels, transaction costs and worker activity. Just as Ohno discovered, to focus on activity is to fail to realize that the performance of an individual is governed by the system, to focus on cost is to fail to realize that costs are in flow, not transactions. Something Ohno did not discover for he did not work in service systems was that to focus on service levels is to fail to realize that the capacity of the system can only be improved by changing the characteristics of demand.

Failure demand is a product of the system and it cannot be eradicated without changing the system. As we study service flows, we find (as with call centres) that the measures mandated by government are the causes of sub-optimization (waste). Because managers are obliged to focus on these measures they can be blinded to the purpose of the system.

Take, for example, planning applications. The failure demand associated with this service (typically around 40% of the total demand into the service) is caused by working to targets. In planning there is an eight-week (56 days) target. You learn, when you take a systems view of the work, that the target causes planners to refuse applications (which could have been approved subject to some modifications), give consents with conditions (which could have been dealt with in the planning process) and ask applicants to withdraw their applications otherwise they will be refused. It is the measure—an arbitrary measure—that drives this behaviour. Typically 20 to 30% of planning applications churn back through the system as rework. It is not uncommon to discover that services rated highly in achievement of targets terms are very poor services from the customers' point of view.

## Results Beyond Targets

Taking a systems approach to planning leads to results that would have been considered inconceivable if set as a target: the majority of applications being processed in less than 25 days; and that includes a 21-day statutory consultation or notice period. Just as Ohno learned, it is a paradox: using measures derived from the work leads to greater improvement than managing with arbitrary measures. The choice of measure is determined by thinking of the purpose of the service from the customers' point of view, in this case it means end-to-end time. This is expressed as a capability measure, a control chart in Deming's (1982) terms, showing the nature and extent of variation. The job of management is to work with the workers to understand and remove all the causes of variation, things that cause delay, and remove them. It results in a completely different design for dealing with planning applications: a fundamental change to structure, roles and measures.

A focus on processes, by whatever method, is to ignore two major issues, both system phenomena:

• The leverage offered by working on changing the characteristics of demand.
• The requirement to remove all arbitrary

measures from the system, as they both cause waste and prevent improvement.

We have found this to be true across all local authority services. McQuade, on p. 57 in this issue shows that the same is the case for housing services. What is common across all services is that they have become subjected to specifications and subsequent inspection (for conformance) and the ideas promulgated in this way are based on command-and-control thinking.

## Flow Versus Scale

At the heart of the command-and-control philosophy is the notion of economies of scale. In manufacturing, Henry Ford's mass production system was the original exemplar. In the public sector, this is manifest by the unquestioning belief in the idea of shared services structured around organizational functions, rather than the flow of work. If we were to give a comparative label to the TPS, it would be 'economies of flow'. In very many local authority services this means equipping the front-end of the service, the place that transacts with customers, with the means to absorb the variety of demand. In, for example, benefits processing, this means providing benefits expertise at the point where people claim their benefits, a 'smart' front-end rather than a 'dumb' front-end. It also means having no split between front and back-office, for creating this handover is found to drive massive waste into the system.

The systems approach reveals major opportunities for improvement and at the same time presents a critical challenge for public sector management conventions. Just as Ohno learned counter-intuitive ideas by learning about designing and managing work as a system, local authority managers learn counter-intuitive things when they learn to look at work from a different point of view. ■

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