Innovation in the public sector: spare tyres and fourth plinths

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Abstract

The article takes a design perspective on the issue of innovation in the public sector. It argues that innovations aimed at improving the efficiency of the public sector seriously risks making it dangerously fragile at a time when it needs to become more adaptable. Drawing on Donald Schön's ideas on the role of government as a facilitator of learning, rather than as 'experimentor for the nation', the paper argues that more attention should be paid to resilience and redundancy as key principles for policy designers.

Introduction

The emphasis placed upon the need for the public sector to become more innovative has been a central argument of (so-called) 'new public management' (NPM) since the late 1980s. This has resulted in considerable redesign of public sector organizations and institutions and modes of policy delivery. Much of this has been influenced by the belief that, where public goods and services could be delivered through markets, they should be privatised in some form or other, and that what remains within the public sector could be redesigned so as to make them behave as if they were subject to (quasi) market forces and become more 'business like'. The key design aims have been to ensure that the public sector should be so reformed as to make it more efficient, effective and economic, and give value for money to the taxpayer. In this paper I want to consider this belief in marketization, '3Es' and VFM and other varieties of NPM as an approach which can fail to take account of a number of critical aspects of good design and may well produce a public sector that has been over- designed for poor performance and increasingly unfit for purpose. Indeed, I want to argue that the emphasis on making the public sector more lean and mean – that is more efficient and better able to deliver value for money – seriously risks making the public sector dangerously fragile at a time when it needs to become more robust, resilient, adaptable and able to cope with rapid and cascading change and the stress of managing organizations working at full capacity.

Following Herbert Simon's definition in his *Sciences of the Artificial,* I take design to be an appropriate way of thinking about human beings as problem solvers. The natural sciences, he argued, are concerned with knowledge of 'how things are', whereas design is concerned with knowledge of 'how things ought to be.' When we study public policy we are engaged in the task of understanding human beings as they seek to design artifacts so as to attain goals and solve their problems. Hence, he argued:

> Everyone designs who devises courses of action aimed at changing existing situations into preferred ones. The intellectual activity that produces material artifacts is no different fundamentally from the one that prescribes remedies for a sick patient or the one that devises a new sales plan for a company or a social welfare policy for a state. The proper study of mankind is said to be man..[but if] people are relatively simple [and] most of their complex behaviour may be drawn from their environment, from their search for good designs…then we can conclude that, in large part, the proper study of mankind is

> the science of design, not only as the professional component of a technical education but as a core discipline for every educated person. (Simon, 1996: 111 / 128)

Human beings design physical artifacts – chairs, laptops, buildings- but they also design non-physical artifacts as well: rules, laws, policies, organizations and constitutions. Perhaps, as Vincent Ostrom argues, we might better characterize design less to do with the 'artificial', and more about the '*artifactual*' (Ostrom, 1997) . In this sense, policies, organizations, institutions and so forth are human artifacts, just as much as parliamentary buildings. However, although human beings have clearly got better and better at the design of 'objects', we have a less obvious success record in the design of what we might term the 'non-objective'. The reasons for this were nicely expressed by Rittel and Weber when they noted the gap between designing for benign problems and those which are 'wicked'. They argued that the problems that scientists and engineers usually focus on are mostly 'tame' or 'benign'.

> As an example, consider a problem of mathematics, such as solving an equation; or the task of an organic chemist in analysing the structure of some unknown compound; or that of the chessplayer attempting to accomplish checkmate in five moves. For each the mission is clear. It is clear, in turn, whether or not the problems have been solved. Wicked problems, in contrast; have neither of these clarifying traits; and they include all public policy issues.(Rittel and Webber, 1973: 160)

Policy problems are 'malignant', 'vicious' circles, 'tricky', and 'aggressive', and it is very dangerous for us to treat them as if they were 'tame' and 'benign'. Policy problems, they note, have no definitive formulation; no point at which you stop; solutions are not true or false; no test for a solution; every solution has a consequence; there are no well-defined set of solutions; wicked problems are unique; they are symptomatic of other problems; they do not have simple causes; and have numerous possible explanations which in turn frame different policy responses; and designers are not allowed to fail in their attempts to solve wicked problems. (Rittel and Webber, 1973: 161-66) Most, if not all problems addressed by policy designers are in this sense 'wicked'. Indeed, it may well be that public problems are not *problems*, so much as *paradoxes*: puzzling conditions that cannot be 'solved'. If this is case, the gap between our capacity to design objective artifacts and our capacity to design solutions to public problems is doomed to grow ever wider. Hence we appear to be able to design ever smarter technologies but seem destined to live with government that, in the face of rapid change and growing complexity, gets relatively dumber and dumber. And, as a consequence, perhaps, citizens become ever more disillusioned by the disparity as between how smart their physical artifacts are, and how good *Wal-Mart* and *Nike* are, but how ineffective (and plain stupid) government and politicians are. The results of this disenchantment with politics is, of course, well charted (Pharr and Puttnam, 2000). To design smart policy, governments must develop the capacity to learn, to transform themselves, to be resilient, to maintain redundance, and create space to be creative – to allow emergence to occur. The argument deployed by the advocates of marketization in various forms is, from this perspective, a very powerful and convincing story. Markets are simply *better* at learning, experimenting , and innovating, than public sector organizations. Therefore, if you want better solutions to public problems, design government out, and design more market mechanisms in. Markets are simply better at dealing with rapid change and complexity

than government: businesses learn or they go bust, whereas government fails to learn, and society goes bust.

From a design perspective, the critical issue is how to design policies and modes of policy delivery which have a capacity to learn. Closely coupled with a capacity to learn is the capacity to design for *failure*. Markets work so well because they generate considerable failure. Markets work by failure and experimentation: businesses that survive and thrive are those which learn to change and adapt and those that cannot or will not simply decline and eventually die. As Paul Ormerod notes, in business, as in nature 'most things fail' (Ormerod, 2005). In politics, however, most things are very rarely allowed to 'fail'. (When was the last time you can recall a politician admitting that: "Yes, we tried that, but actually it did not work. So its back to the drawing board!"). This argument about the importance of failure also pertains to the design of human (physical) artifacts. Henry Petroski for example, brilliantly shows how the story of successful design is actually that 'form follows failure' (Petroski, 1992). Good design is invariably the story of trial and error. Failure is the critical aspect of the design process. Designers, like business men and women, are good at learning from failure. The philosopher Karl Popper summed this up well when he emphasied that the open society was, above all, an experimenting society which improves by learning from failure, mistakes and errors. The closed, or totalitarian society has, in contrast a zero tolerance for failure. The tyrant throughout history has ever been averse to criticism or failure: the result has, in turn, been big mistakes from which no one could actually learn. The open society proceeds through learning from little mistakes (Popper, 1960: 88) . It is the fear of failure that in the end does for the dictator and the tyrant. Nobody wants to tell the boss that they screwed –up! There is no learning curve in the closed society.

The challenge of designing public policy in societies that are undergoing rapid change and increasing complexity was addressed (in an almost prophetic way) by one of the great theorists of the learning society, Donald Schön. *Beyond the Stable State* still repays careful reading for students of public policy, although it was written back in the 1970s. Schön's arguments have a special relevance for the issue of public sector innovation, not least because it was a book which had such little influence. Indeed, it constitutes a kind of benchmark against which to set a good deal of the attempts to redesign the public sector in recent decades. Schön argued that we had to understand the shift from being a pretty stable society to one which was fundamentally unstable due to the accelerating pace of change facing industrial societies. This called for a new way of thinking for both individuals and society as a whole. He showed how the old command and control models would become increasingly inappropriate and that 'network' type organizational designs would replace hierarchical models. This went for the business world as well as for government. We had to redesign our organizations to facilitate learning.

> Social systems must learn to become capable of transforming themselves without intolerable disruption. But they will not cease to be dynamically conservative - not if dynamic conservatism is the process through which social systems keep from flying apart at the seams. A learning system, then, must be one in which dynamic conservatism operates at such a level and in such a way as to permit change of state

> without intolerable threat to the essential functions the system fulfils for the self. Our systems need to maintain their identity, and their ability to support the self-identity of those who belong to them, but they must at the same time be capable of frequently transforming themselves. (Schön, 1973: 57)

The dominant design for innovation has, he argued, been the *centre- periphery model*, and its elaboration in the form of the *proliferation of centres model*. However, he (correctly) discerned the emergence of new modes of diffusion, in business firms and social movements. Centre-periphery models were giving way to forms of *complex networks* and human beings were no longer simply defined by the organizational membership, but as members of complex network patterns. In such conditions:

> The principal problem of design shifts from the design of a product or technique to the design of a network…and the pattern of social learning shifts from successive 'sweeps' of limited innovations from a centre throughout a periphery, to the formation of self-transforming networks. (Schön, 1973: 108)

As for policy making, the implications of his analysis was clear:

> For government to become a learning system, both the social system of agencies and the theory of implementation must change. Government cannot play the role of 'experimentor for the nation' seeking first to identify the correct solution, then to train society at large in its adaptation. The opportunity for learning is primarily in discovered systems at the periphery, not in the nexus of official policies at the centre. Central's role is to detect significant shifts at the periphery, to pay explicit attention to the emergence of ideas in good currency, and to derive themes of policy by induction. The movement of learning is as much from periphery to periphery, or periphery to centre as from centre to periphery. Central comes to function as a facilitator of society's learning, rather than as society's trainer. (Schön 1973: 166)

One of the main problems for the way in which innovation has taken place in the public sector in so many countries has been that, far from learning being *facilitated* by government, government has taken upon itself the role of directing experiments for the country as a whole. Learning has primarily taken place at the centre rather than at the periphery. We see this pattern at its most extreme in Britain, where under successive Conservative and Labour governments, innovation has been something which has been *imposed* from the centre, rather than something which has *emerged* from the periphery. Ironically, but perhaps inevitably, both the governments of Thatcher and Blair have been strong on advocating market decentralization, but were responsible for a massive shift towards political centralization. Local government has, as a consequence almost disappeared. Not much chance in this approach of learning from failure in a system which is driven by success- as measured by performance outcomes. *Learning* from failure has been less in evidence than the *fear* of failure. Now the question that Schön's argument raises is : 'can a society successfully learn, if it is not willing to permit or risk failure?'

As we noted above, learning from failure appears to be at the heart of successful design when it comes to pens, chairs, laptops, etc., but it also appears that learning from failure is actually discouraged by systems which stress learning from success and which is intolerant of individuals and organizations failing to meet specified targets. Innovation appears in this model to be essentially a one way street: government innovates, and those

tasked with policy delivery carry out policy as prescribed by the centre. As we can see in the case of the Blair governments in Britain this has given rise to so many areas of policy in which those tasked with policy delivery have been on the receiving end of a constant stream of innovations, with barely a spare moment to take breath before another reform strikes. Education is a case in point. Since coming to power in 1997, the Blair government has introduced numerous reforms/initiatives aimed at major or radical change. Education has not been alone in being subject to 'initiativitus', but given the priority attached to 'education, education, education' in New Labour's agenda it has suffered more than most areas of the public sector. This is key design issue for public sector innovation. *Has innovation actually been the result of a learning process as described by Schön, or has it been the result of the centre paying less heed to the periphery, and imposing innovation downwards. Has innovation been the outcome of learning and 'form following failure', or has it been produced by creating a mentality of showing that you have hit targets and have not 'failed'?* Innovation that is not grounded in failure is likely to be innovation that is grounded in very thin soil indeed. When fear of failure replaces a capacity to experiment and create trial and error learning, the result is *unlikely* to be an artifact that actually works. I would suggest it is also unlikely to produce a policy that 'works'. Aaron Wildavsky, in one of the defining texts of policy analysis, *Speaking Truth to Power*, nicely captured this role of error in human problem solving when he argued that:

> Error must be the engine of change. Without error there would be one best way to achieve our objectives, which would themselves remain unaltered and alterable. The original sin, after all, was to eat of the tree of knowledge so as to distinguish between good and evil. However great our desire, however grand our design, we ordinary mortals can only play at being God. (Wildavsky, 1987: 404)

Good design is *always* driven by the engine of error. When government tries to play God and imposes a supposedly intelligent design, rather than to allow space for evolution, emergence, and human problems solving through trial and error, the results, as Wildavsky argued, are invariably poor design.

A key design principle that seems to be critical for those who design physical artifacts is that of *resilience*. Given Schön's argument that organizations face a more unstable world and less predicatable world, it follows that our capacity to anticipate the future is not what is was when the world moved a good deal slower. One way of looking at the learning society model, where experimentation takes place all over the place, is that we do not place all our eggs in one basket: by allowing learning to take place in a more decentralized fashion we better manage the risk of big mistakes, and we increase the likelihood that more solutions will be generated. We also make society as a whole more resilient: better able to bounce back and cope with the unexpected. Wildavsky, who wrote a good deal about this issue (in the context of risk) had this to say about resilience as a design strategy:

> A strategy of resilience [as opposed to anticipation] requires reliance on experience with adverse consequences once they occur in order to develop a capacity to learn from the harm and bounce back. Resilience, therefore, requires the accumulation of large amounts of generalizable resources, such as organizational capacity, knowledge, wealth, energy, and communication, that can be used to craft

> solutions to problems that the people involved did not know would occur. Thus, a strategy of resilience requires much less predictive capacity but much more growth, not only in wealth but also in knowledge. Hence it is not surprising that systems, like capitalism, based on incessant and decentralized trial and error accumulate the most resources. (Wildavsky, 2005)

An obvious question must therefore be asked: do innovations in public management make policy delivery more or less resilient? If we see the task of designing innovative public management as one of building knowledge and capacity at the centre and facilitating centralization and command and control, we may well be improving 'policy capacity', but as a result actually reduce the resilience of those organizations that deliver the policy. In other words, innovation in public management involves a trade-off between increasing the capacity of the centre to direct change in a certain direction, and enabling organizations and individuals who work in them to develop their capacity to be resilience. A second question thus arises: should we manage risk by learning at the centre, or learning at the periphery? When we think about the design of resilience, it may well be that Schön's model is far more appropriate to the (more risky) unstable state than the stable state of old. The would –be designer therefore faces a difficult trade-off when it comes to the challenge of planning for the management of risk: balancing the requirements of resilience (decentralized trial and error learning) with the utilities (political and other) derived from innovation as centrally driven, monitored and control. In simple terms this means that innovation for resilience carries the risk of government having to let go.

However, learning is all about risk. A complex society which exists in a world which is full of uncertainty, has to learn how to deal with risk, by developing a capacity for resilience: organizations must be designed for flexibility and adaptability. This does not sit well in the minds of (policy) risk-averse politicians who have promised that education – or whatever- will improve. In which case, the trade-off will have a tendency – where it can – to enhance command and control in public innovation than the facilitation of policy learning in the periphery. Centralization carries the risk, however, that it may give rise to organizations and individuals who react poorly to situations which require flexibility and bounce back. In a world in which terrorism and environmental threats – amongst many others – require organizations to develop a greater capacity for resilience, innovations which may undermine the growth in this capacity should give us serious pause for thought. Above all we need more resilient schools, hospitals, transport systems, police services and so on, not less resilient modes of policy delivery. A strategy for more resilient public policy suggests that we recognize the importance of polycentric designs (See Elinor Ostrom, 2002 on this point), in which all the eggs are not in one basket, and in which the centre is not the only public agency capable of innovative problem solving, and in which the periphery is not afraid of making mistakes, but has a capacity to think and act under the pressure of events. The way in which the Katrina disaster in America in 2005 was handled is a lesson for policy makers in this regard. Fear of failure can lead to inaction so as not to fall foul of criticism. (*Time Magazine*, 2005)

Linked to the role of resilience in the design of public policy is the equally important issue of *redundancy*. Lidwell, Holden and Butler defined redundancy as : 'the use of more elements than necessary to maintain the performance of the system in the event of failure of one or more of the elements'(2003: 166). This is an absolutely core principle in good design. The higher the risk of failure being very costly, the higher the level of redundancy in complex designs. Aircraft, bridges, and all manner of technology are designed to take account of system failure, and the need for systems to have back-ups. A spare tyre is an excellent piece of redundancy. We could take the risk of driving a car without a spare tyre, we might well calculate that the tyre costs us X amount (in petrol) more per mile as a result of having to drive around with a spare tyre. If we consider the car in terms of maximum efficiency, then we might conclude that it would be best not to keep a spare tyre at all. But of course, only a fool or an idiot would think that the savings would be preferable to the risk: so most of us carry a spare tyre. What if innovations to improve the efficiency and value for money of an organization severely compromise the ability of that organization to respond to failure, stresses and shocks? What if innovations lead to organizations operating without any spare tyres? These organizations would be essentially lacking in any robustness so as to maintain themselves and carry on delivering the services for which they were created. Without a degree of redundancy such organizations would prove to be highly inflexible, and unable to adapt to changing conditions or unexpected eventualities. Now, according to the kind of public choice theory which underpins much of the arguments of NPM, public sector organizations cannot be as efficient as those which operate in a market, as they tend not to operate at so-called X efficiency. The public sector is therefore held to be inherently less efficient and generate 'waste' and excess 'fat'. The problem is that what may be held to be waste and fat may well constitute a necessary level of spare capacity sufficient for the organization to be able to cope with stresses, shocks and failures. From the point of view of X efficiency a spare tyre is little more than waste or fat. A system – school, hospital, railway - which has little or no spare capacity is sitting on the edge of disaster, as a minor failure could lead to major failures in delivery. A spare teacher, bed, train carriage, may constitute 'waste', but it may also constitute a vital level of spare capacity without which a school, hospital or railway system is in deep trouble – and pupils, patients and travellers suffer. Complex physical artifacts such as jumbo jets make extensive use of redundancy and spare capacity – no one would fly in a 747 without them – and yet the redesign of public services may well give rise to situations in which they are required to operate very close to the margins without a spare tyre and with little room to manoeuvre. In such situations we would say that they are being stretched to breaking point. The principle of designing for redundancy reminds us that what is efficient may not be what is effective when it comes to actually delivering a service in an uncertain and unpredictable world.

The existence of spare capacity also raises another important issue for innovation (possibly *the* most important) : *the space to be creative.* One of the consequences of a system operating at a very tight margin, and in which there is little tolerance of learning from failure, is that there is not sufficient space for people to experiment, try things out, play, explore new ideas, question existing ways of thinking (in Schön's sense, double loop/ reflective learning). In other words, there is little space to allow for *emergence*.

(This has been a particular focus of the growing literature on complex adaptive systems which , in my view, confirms many of Schön's original insights. See, Mittleton-Kelly, 2003) Schön's point in *Beyond the Stable State* was that a world which was more uncertain and less stable really required a good deal more creativity in how it addressed its complex problems – hence government could only *facilitate* learning, it could not and should not aspire to being the sole learning institution. The unstable state required a political system in which there were multiple points of learning, rather than one dominant centre. Effectively, what Schön was arguing for was a high degree of redundancy in policy learning: a range of spaces in which new ideas and solutions could emerge and be disseminated to other problem solvers. However, all too often (and here I am thinking specifically about the British experience) there is neither space within organizations for innovation (as so much activity is about compliance) and there are insufficient numbers of 'peripheral' policy makers thinking out of the Whitehall box. The dominance of Whitehall - not withstanding devolution to Scotland and Wales – means that, just as there is little redundancy in service delivery in the public sector, there is also a marked lack of redundancy in policy formation.

Perhaps an appropriate metaphor for the importance of space for innovation may be seen in Trafalgar Square, a stone's throw from Whitehall. For many years the fourth plinth in the square has been empty. This was due to the fact that back in the nineteenth century the money ran out, and there was insufficient funds for a fourth statue. In subsequent years there was little agreement at to what to do with the plinth, so it remained empty: a redundant plinth. Happily, in recent years a 'solution' did emerge: use the plinth as an experimental space for sculpture. In other words, the redundancy of the space emerged as being a *solution*, not a problem. So now, if you visit the square, you can expect to see a different sculpture every few years. It provides a wonderful space in the middle of London for creativity and experimentation. Perhaps we can read this as a parable of what does *not* happen in nearby Whitehall – and Westminster. Given the top-down approach to public sector innovation in Britain, there appears to be scant attention to the need for creative and innovative policy space. Little can emerge from the spaces outside central government, and what counts for innovation is what is imposed from the centre on public services and local government. Thinking in terms of design suggests that the neglect of issues such as designing for failure, resilience and redundancy results in the lack of fourth plinths : the absence of space from which new designs can emerge. If so, then the arguments of Schön still stand as a warning to those who believe that innovation is something which is the product of policy designers at the centre.

About the Author

Wayne Parsons is Professor of Public Policy at Queen Mary, University of London. He is the author of *Public Policy: An Introduction to the Theory and Practice of Policy Analysis*. This paper draws on his forthcoming book, *Redesigning Public Policy: New Directions in Theory and Practice*.

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