

LSE Research Online

[Patrick Dunleavy](#) and Helen Margetts The second wave of digital era governance

Conference paper

Original citation:

Dunleavy, Patrick and Margetts, Helen (2010) The second wave of digital era governance. In: [American Political Science Association Conference](#), 4 September 2010, Washington DC, USA. (Unpublished)

This version available at: <http://eprints.lse.ac.uk/27684/>

Available in LSE Research Online: October 2010

© 2010 the authors

LSE has developed LSE Research Online so that users may access research output of the School. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Users may download and/or print one copy of any article(s) in LSE Research Online to facilitate their private study or for non-commercial research. You may not engage in further distribution of the material or use it for any profit-making activities or any commercial gain. You may freely distribute the URL (<http://eprints.lse.ac.uk>) of the LSE Research Online website.

The Second Wave of Digital Era Governance

Patrick Dunleavy* and Helen Margetts⁺

* Department of Government, London School of Economics

+ Oxford Internet Institute, University of Oxford

Abstract: *Some of the most difficult issues in public management revolve around making strategic choices for the future in an era of rapid social, cultural and technological change. In previous work we drew a contrast between new public management (NPM) approaches, which predominated in the period 1980-2002, and digital era governance (DEG) which grew fast in the 2000s. Since that time the rapid development of societal and technological uses of online processes has been matched by the seismic impact of the 2008 credit crunch and financial crisis, now mapping out as austerity regimes in many OECD countries. In this paper we review the current fortunes of NPM, which has not revived despite the pressure on public spending. By contrast, the first wave of digital-era governance changes have flourished and the importance of key DEG themes has increased – specifically reintegrating government services, pushing towards holistic delivery to clients and responding to the digitalization wave in public services. We also argue for the emergence of an influential ‘second wave’ of digital-era changes inside government, responding to the advent of the social web, cloud computing, apps development and many other recent phenomena moving advanced industrial societies further towards an online civilization.*

"Prepared for delivery at the 2010 Annual Meeting of the American Political Science Association, September 2-5, 2010.
Copyright by the American Political Science Association."

Please send comments and feedback to

p.dunleavy@lse.ac.uk or helen.margetts@oii.ox.ac.uk

The Second Wave of Digital Era Governance

Although their role is still often downplayed in mainstream political science and public administration, the Internet and related information technologies have moved to centre stage in executive government operations in all advanced industrial states, just as they have transformed the operations of business and civil society in these countries. Beginning in the mid 1990s and reaching full effect from around 2002 onwards, the movement of government services online has had major consequences for the previously dominant approach to government sector administration, which scholars now agree in terming new public management (NPM). Along with colleagues we have previously argued that the three macro-themes of NPM are dying on their feet (Dunleavy et al, 2006, and 2008, Chs. 4 and 9; Dunleavy, 2007). These themes are:

- *Disaggregation*, which fundamentally involves splitting up the large bureaucracies developed on Weberian lines in the post-war 'progressive public administration' period. Key aspects of this change from the 1980s to 2000 were agencification of central government functions, more use of quasi-government agencies, creating micro-local agencies (such as locally managed schools and hospitals) and purchaser-provider separation.

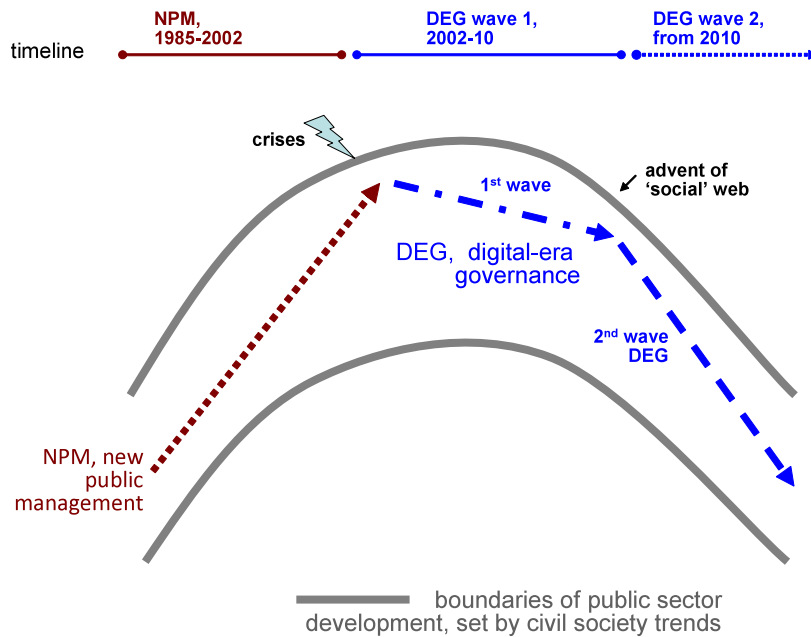
- *Competition*, which moves away from bureaucratic monopoly providers and introduces alternative suppliers via mandatory competition, outsourcing, strategic review, quasi-markets, deinstitutionalisation, asset sales, consumer-tagged financing, and deregulation. And finally

- *Incentivisation*, which strengthens or puts in place economic or pecuniary motivations for actors or organisations to make 'the best' use of resources via privatisation, PFI schemes and Public Private Partnerships, performance-related pay, user charging, public sector dividends, and 'light touch' regulation (as in banking before the 2009 financial crisis).

Each of the themes above has been very influential and has had some good effects in their day, but they have been over-developed in some countries (such as the UK), creating crises in many dimensions. NPM approaches first yielded diminishing returns in the 1990s and later lead to acute crises and reversals of policy in countries hooked on the

approach (especially the UK). And at a fundamental level NPM solutions ceased to fit well with the macro-trends in business and the wider society towards digital era processes, shown in Figure 1. Hence they are now intellectually dead-ends in terms of offering guidance for future changes.

Figure 1: The shaping of first and second wave digital-era governance



Instead we have argued (with colleagues) that a radically new paradigm of public sector development has emerged, one which focuses on three very different themes and ones that are in many ways orthogonal to those of NPM (Dunleavy et al, 2006 and 2008). Note that as Figure 1 shows, the transition from NPM to DEG is not a 'U turn', but instead a radical tacking change in direction from the NPM approach, within an overall pathway of social modernization that has changed dramatically with the development of the internet and online social processes. In particular the first wave of digital-era governance (DEG₁) focused essentially on:

- *Reintegration*, which reverses the fragmentation of NPM by joining-up and trying to de-silo processes, by partnership working, by 're-governmentalising' issues that must inherently be handled by the state, by creating new central government processes to do things once instead of many times, by squeezing process costs, by using shared

services to drive out NPM's duplicate organisational hierarchies, and by trying to achieve radical simplification of services organisation and policies.

- *Needs-based Holism* is a thoroughgoing attempt to create client-focused structures for departments and agencies, to implement end-to-end redesign of services from a client perspective, to put in place one-stop processes (whether windows, or e-windows, or fully integrated one-stop shops), and to create agile (not fragile) government structures that can respond in real-time to problems, instead of catching up with them only after long lags. And finally,

- *Digitalisation* covers the thoroughgoing adaptation of the public sector to completely embrace and imbed electronic delivery at the heart of the government business model, wherever possible - for instance by adopting centralised online procurement, or new forms of automation focused on 'zero touch technologies that do not require human intervention. Digitalisation also is a key stimulus behind radical disintermediation, the effort to strip out layers of redundant or non-value-adding processes and bureaucracies from service delivery. As in private services, this will partly involve making (able) citizens do more, developing isocratic administration (or 'do-it-yourself' government), and a transition to full open-book governance instead of previously very limited or partial 'freedom of information' regimes.

Notice that the digital-era governance thesis carries no connotations of technological determinism or predominance. The three sets of drivers are first organizational and budgetary factors internal to the state apparatus (reintegration); second, citizen- and client-orientated factors in public services (holism); and third, influences from the societal adoption and cultural adaptation of technological drivers (digitalization).

The initial development of digital-era governance has now moved even further away from its anti-NPM beginnings. There have been steepening changes in societal trajectories made possible by so-called 'Web 2.0' developments towards social networking, and very rich forms of media-handling, along with a raft of other rapid and extensive technological and societal changes - all increasing the centrality of online processes. Much of the population have changed how they conduct their social, economic and political lives, with strong ramifications for how they interact with government in on-line environments. Technological developments such as cloud computing and ubiquitous computing also seem likely to offer new potential for alternative organizational forms and

ways of 'producing' digital era governance in the future. In section 2 below we argue that there have been substantial changes or modifications already in the first five years of 'digital era governance', creating a distinctive second wave of forefront DEG changes

At the same time, some of the key context of the end of the NPM era and the launch of the DEG first wave has changed quite substantially. Most western countries have moved out of a decade of substantial economic growth allied with increasing state expenditures. In many countries the financial crisis that began in 2008 has brought the promise of at least a half-decade of dramatic spending cuts, particularly in the public sector, with strong implications for the evolution of public management technologies and solutions. At first sight, austerity pressures may seem particularly opposed to the large-scale of many DEG-related investments.

In this paper we reappraise the DEG model in the light of these developments. First, we briefly review the claim that NPM 'is dead' and show how the post-crisis concatenation of apparently favourable conditions (such as victories for right-wing governments and the pressure to cutback state spending) have not in fact revived or stemmed the decline of the three key NPM themes. Second, we reprise the development of the first wave DEG model components and identify an already powerful second wave of changes that push forward reintegration, holism and digitalization. Third, we explore three possible scenarios for the future working out of the NPM 'legacy' momentum alongside first and second wave DEG trends in an age of austerity and cutbacks. Three main outcomes seem possible: a crisis, which could lead to the halting or reversal of DEG; a pause in the development of DEG; or an expansion of DEG as one way to attain efficiency in a period of shrinking resources.

1 Evaluating the current state of new public management

There is an emerging scholarly and practitioner consensus that NPM has past its peak, but there continues to be some discussion about exactly what this means in terms of its established predominance in public management practices in the Anglo-American countries and (in a more humanistic form) in parts of Europe, such as Scandinavia and the Netherlands. Relatively few authors seem aware that the NPM era has passed (or at least waned), generally in the USA where public management and public administration scholars only belatedly incorporated the concept into their analytic vocabularies. Thus

Eggers and Goldsmith (2008) continue to argue that NPM and the use of complex network structures spanning multiple tiers of government and webs of contractors and sub-contractors can save governments money compared with pre-NPM forms of provision, perhaps responding more to the exigencies of American federalism than to any solid supportive evidence.

A more common scholarly reaction has been to reach for various euphemisms for 'almost in decline' or 'past its peak' to describe the current state of NPM. Thus Hood and Peters (2004) acknowledge that NPM is 'middle-aged' and has accumulated paradoxes and contradictions. In a debate with Dunleavy at the OECD in 2009 de Jouck (2009, p.4) argued emphatically but with little evidence that: 'the NPM paradigm is in trouble but... it is still far too early to speak in terms of a third order change, let alone the fact that a traditional paradigm never completely disappears'. As a result, he claimed, NPM 'is not really dead'.

Of course when we initially argued that NPM 'is dead' we did not mean that it had disappeared or ceased to be applied or was no longer in use. Instead it was intellectually comatose, and failing to grow and spread, except in less industrialized countries still stuck in a Weberian or progressive public administration paradigm from the earlier post-war period. We also acknowledged that even in advanced industrial countries a whole generation of senior public managers and politicians have been trained and socialized into NPM ways of thinking, and thus that it would take some years for the influence of this paradigm to begin to fade and to be reappraised. During this period routinized NPM implementations will of course continue.

We could also normally expect political reverberations and push-backs to NPM ways of working, especially when right-wing parties (closer ideologically to the pro-market, pro-management rhetoric of NPM) come to power. This effort will be most noticeable when these politicians have little recent experience of government office. The Conservative-Liberal Democrat coalition government in the UK elected in 2010 provides a good example. Almost no one in the new ministerial team had previously been a minister, and then dating back to 1996-7, long before the NPM bubble burst. Unsurprisingly, under pressure to cut spending dramatically, and to differentiate themselves from Labour government solutions, the coalition has dusted off a few NPM-style policies, although the extent to which they can be implemented under austerity conditions remains unclear. Yet,

at the same time, the new government has also adopted some prominent 'second wave' DEG policies discussed below.

At this point it is also useful to consider how NPM has interacted with the changes in modern IT and communications technologies that have swept through private sector businesses and civil society since 1995. In the early 1980s NPM proponents for a few years claimed promoting a greater use of IT in public administration as one aspect of their pro-business orientation, but this was always an unconvincing aspect of the overall NPM movement and soon petered out. NPM's emphases upon strong corporate management and organizational fragmentation also sat very uncomfortably with the impacts of the Web in integrating across organizational boundaries and opening the way for radical disintermediation, so that NPM countries have generally fared poorly in exploiting online public administration (controlling for other factors) (Dunleavy et al, 2008, Chs 4 and 9).

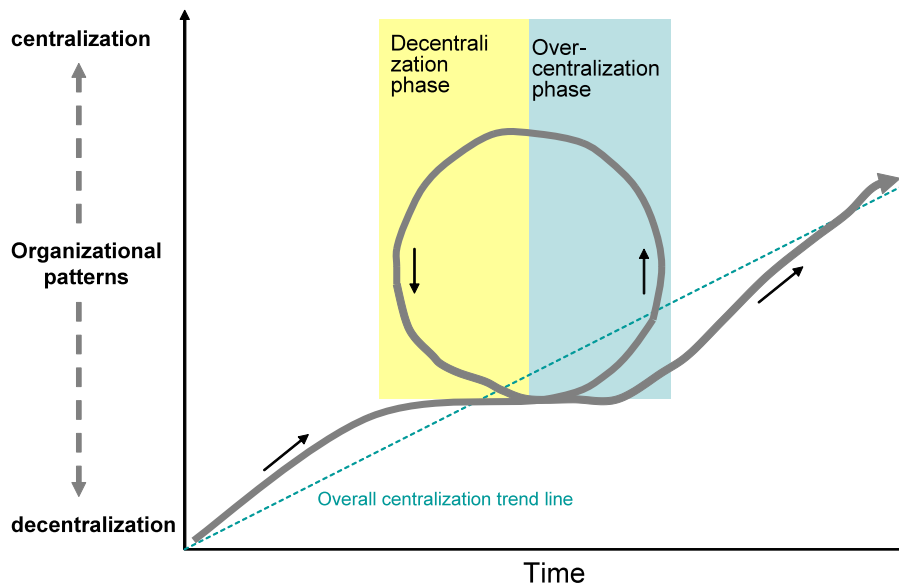
One of the complicating factors in considering NPM's inefficacy in the face of the online government potential has been a widespread difficulty in understanding what the salient impacts of modern ICT changes have been in the private sector, let alone their implications for government – especially on the vexed issues around organizational centralization or decentralization. A powerful case has recently been made by Luis Garicano, John van Reenan and others (Bloom et al, 2009) that in fact modern ICT changes have had rather complex, indeed dialectical (that is, partially contradictory), implications for organisational arrangements in business (see Figure 2 below). First, *networking effects* are centralising. The ability to collect information from more and more data points and to systematise it and analyse it in real-time in ever more sophisticated ways has tended to mean that in modern businesses increased spans of control are possible. Higher tier decision-makers can now keep tabs on more subordinates, be periodically involved in more decisions, insist on being consulted in real-time, and intervene more speedily when key performance indicators go off-trend. The consequences of such changes have been a widely noted thinning out of middle management in modern corporations, a substantial de-layering that has led to flatter, wider hierarchies.

Yet in exactly the same period, and in an equally strong way, a second trend in ICT developments has been for modern databases to be strongly *decentralising*. Modern workers can now access far more information immediately than their predecessors, whether in services or manufacturing industries. This means that grassroots workers can

now handle far more problems themselves, without appealing to superiors. The information they need on adjustments, complications, routines, special case procedures, and so on can increasingly be made available to them at the point of manufacturing or the point of service, so that they can decide issues and ways forward without having to appeal to superiors. Equally lower-tier managers can now handle a wider range of issues without asking for guidance from higher tier offices. Thus the same staff can now handle multiple problems and issues, so long as they have extended ICTs supporting them. This effect tends to strongly shift the locus of decision-making down the organisational hierarchy.

Especially for the DEG approach, the key innovation in the Bloom et al approach is to break down the increasingly meaningless term ‘information and communication

Figure 2: Dialectical changes in centralization and de-centralization patterns of organizational design



technologies’. They argue that morphing together communication and information effects is a ‘serious ‘error’, posing a barrier to analysis. In contrast Bloom et al seek to provide a useful mechanism to consider how organizational responses to digital technologies might vary. Since government IT and online behaviours often play catch-up to trends in the business sector, Bloom et al’s carefully evidenced findings from the private sector are highly likely to apply also to governmental organizations. Hence we seek to pick out amongst the NPM and DEG components discussed below those organizational responses

driven by 'network' (or communication) effects that we expect will provoke a centralising response; and others driven most by 'database' (or information) effects that we expect to provoke a decentralizing response.

Examining in detail the otherwise confusing dialectic of centralization and decentralization in organizational responses provides additional insights into the current status of NPM's elements, and of DEG developments (in section 2 below). Figure 2 captures the thesis-antithesis polarization leading to synthesis that lies at the heart of dialectic. It may also help illuminate the well recognized tendency for organizations to tack in a zig-zag fashion between competing strategies, defended by Roberts (2004) as a perfectly legitimate approach, especially in the private sector where the pace of organizational design changes has generally speeded up in the last decade or so. In the public sector, political alternations by parties in power often add an additional dynamic for periodic changes. But it would be mistake to interpret Figure 2 in too literal a way. Bloom et al (2008) stress that often dialectical processes of the kind they analyse operate strictly contemporaneously and not just sequentially. Each organization (or system of organizations) is tugged in both directions at once by modern ICT changes, although any individual firm, agency or public service delivery system will tend to steer predominantly in one direction for a period of some years.

We systematically (if briefly) review the current state of play across the multiple diverse components comprising the NPM paradigm's three key themes (disaggregation, competition and incentivization) in Figure 3, drawing chiefly on trends in advanced industrial nations. We also roughly separate the components into two columns, distinguishing between centralizing /network and decentralizing/database effects, as discussed above. And we annotate each component to indicate two aspects of its status:

- (a) whether it is dynamic and flourishing, increasing in use and showing innovative adaptation to new circumstances (denoted ☐); or is a now routinized and stable part of the public management toolkit (denoted ~); or thirdly is associated with failures of policy, implementation or excess expenditures and so is being rolled back and decreasing in use (denoted ☐); and
- (b) whether this component is particularly affected in 'austerity' countries that have the strongest budgetary cutback pressures (such as the UK, Spain and Greece at present, but possibly other countries such as the USA in the near

future). The component could be boosted in an austerity climate because it fits closely with effort to save public expenditure, denoted [A+]; or it could be inhibited and used less often because of government cost-cutting, denoted [A-]; or thirdly the net effects of austerity pressures on this component could be small, mixed or contradictory, in which case we make no note.

Looking first at the *disaggregation components* in Figure 3 it is apparent that all but one of the components (the separation out of micro-local agencies) are decreasing in use. Austerity pressures have particularly borne down hard on NPM's characteristic emphasis on strong single-agency, corporate management (which is expensive in terms of multiplying management hierarchies and boosting top public sector pay), on agencification (which creates duplicate managements and associated expenses that are now a luxury good), and on the growth of quasi-government agencies (new governments characteristically cull their predecessors' creations, especially under austerity pressures). However, the separation of micro-local agencies has tended to benefit from pressures to cut spending and from continuing favourable shifts in ICTs and management technologies, so that its decline has perhaps halted. And externalizing services from the government sector makes some political sense in austerity conditions, so long as it does not boost total costs.

By contrast, the *centralizing elements of the competition theme* in NPM (in row 2, column 2 of Figure 3) are faring better, with all elements now thoroughly routinized into public management toolkits in many countries. The old evangelical fervour which expected outsourcing to generate significant savings, culture change or innovations in public services delivery has largely evaporated (Savas, 1987; 2000). Instead these NPM components are seen as useful specific solutions to service provision under the right conditions. Austerity pressures have been inimical to the NPM obsession with performance measurement and the 'audit explosion' (Power, 1994), much of which is already being cut back as not adding value. Quasi-markets have failed fairly conclusively twice before in health services in the UK and Italy, but will be tried again e.g. in the hospital sector of the UK National Health Service. But it remains to be seen if the extra costs of reorganization (£2.5 billion in one expert's view) are sustainable (Walshe, 2010). The decentralizing parts of the competition theme have unambiguously fared worse as austerity pressures mount, essentially because they all cost money to implement, a factor

that also explains the general non-adoption of vouchers. However, there are some autonomous influences tending to increase user control and consumer-tagged financing, although we shall see below that this is now mainly in forms that are actually distinctive to digital-era governance (DEG) changes (see below).

Looking at *the incentivization theme components* the predominance of routinized centralizing elements is clear. The range of NPM tools potentially available to modern managers remains substantial. But all are costly and difficult to use, and experience has shown that many innovations (such as accrual accounting and budgeting) have had either few or net negative impacts. Australia is moving to modify its previously radical system. Two components have unambiguously declined, involving capital markets in projects, which has proved very expensive in the UK's Private Finance Initiative (PFI) programme, leading to high charges and re-financing problems. And re-specifying property rights has similarly failed. State-private sector partnerships (PPPs) and PFIs have also created many cases of instability where the private capital provider can no

Figure 3: Developments in new public management themes since 2005

	Centralizing, networks-based, communications gain developments	Decentralizing, database-lead, information-processing gain developments
Disaggregation	<ul style="list-style-type: none"> - Corporatization and strong single organization management □ [A-] - De-professionalization □ 	<ul style="list-style-type: none"> - Purchaser-provider separation □ - Agencification □ [A-] - Decoupling policy systems □ - Growth of quasi-government agencies □ [A-] - Separation out of micro-local agencies ~ [A+] - Chunking up privatized industries □
Competition	<ul style="list-style-type: none"> - Competition by comparison ~ - Improved performance measurement ~ [A-] - Quasi-markets ~ [A+] - Outsourcing ~ - Compulsory market testing ~ - Intra-government contracting ~ - Public/private sectoral polarization ~ - Product market liberalization ~ - Deregulation ~ 	<ul style="list-style-type: none"> - League tables of agency performance ~ [A-] - Voucher schemes □ [A-] - Consumer-tagged financing □ [A-] - User control □ [A-]
Incentivization	<ul style="list-style-type: none"> - Capital market involvement in projects □ - Privatizing asset ownership ~ - Anti-rent-seeking measures ~ - De-privileging professions ~ - Performance-related pay ~ [A-] - Respecifying property rights □ - Light touch regulation □ - PFI (private finance initiative) ~ [A-] - Public-private partnerships □ [A-] - Unified rate of return and discounting □ [A+] - Valuing public sector equity ~ - Mandatory 'efficiency dividends' □ [A+] 	<ul style="list-style-type: none"> - Development of charging technologies ~ - Light touch regulation □

Notes: □ process is continuing to spread and increase in use.

~ process is accepted part of public management but is not spreading or developing further.

□ process is being rolled back or declining in use.

[A+] process is clearly boosted or accentuated by austerity imperatives.

[A-] process is clearly constrained by austerity imperatives.

longer generate a flow of private finance to cover its share of investment programmes, leading in all cases to the forced transfer of the relevant risks back to government, again at high cost. Performance-related pay and efforts to spread pecuniary (instead of professional or public service ethic) incentives are clearly squashed by public sector pay freezes. Two centralizing incentivization components, unifying rates of return and demanding mandatory 'efficiency dividends' from spending departments, have bucked the general trend, spread to many countries, and been boosted by austerity pressures. The few decentralization elements of incentivization show light touch regulation declining sharply, after the credit crunch has led to a tightening of regulation, especially around financial markets and institutions. New financial regulation architectures have been established in the USA, UK and Europe for ensuring implementation at a systemic level - as opposed to NPM's emphasis on disaggregated, single-organization-focused controls, which failed so severely in the credit crunch in the UK and USA.

Across the whole of Figure 3 it is impossible to identify any substantial sets of components which are growing in use or where politicians or officials any longer expect to realize fundamental changes in how public management operates by deploying further NPM-style initiatives. Clearly austerity measures have opened up some possibilities for governments to seek to save money by involving private contractors in service provision, especially in countries (such as Greece) where this might be a way of forcing through de-privileging of entrenched public sector unions and benefits. But in mature NPM countries, private involvements in public service provision have generally proved expensive over time. Governments with the strongest austerity pressures have reacted by shutting down change programmes, expelling consultants, squeezing contracts, and renegotiating PPPs.

3 The flourishing of first and second wave digital era governance

Turning to a parallel assessment of digital-era governance elements, what developments first justify distinguishing first and second waves of digital era governance? What has changed so radically since 2005 when the model was first set out? In contrast to earlier developments in digital technologies used by governments (such as the first computers, personal computers, information systems and networks) the Internet is distinctive because it is being used on a widespread basis by individuals and social organizations of all kinds. In the early days of computerization in the 1950s and 1960s, governments in

developed nations were innovators, leading the way in developing systems and applications (Margetts, 1999). But with the Internet, citizens and companies are innovating with new technologies faster than states are.

So the social, and technological drivers generated by Web 2.0 applications and social media have already lead to dramatic socio/cultural-tech developments. The most commonly discussed social developments include peer production (Benkler, 2008), the 'democratization of innovation' (von Hippel, 2005), 'crowdsourcing' (Howe, 2006), 'wikinomics' (Tapscott and Williams, 2006), 'cognitive surplus' (Shirkey, 2010) and a range of network effects (Christaki and Fowler, 2009). These developments put pressure on government organizations to innovate in their dealings with citizens, introducing new competition for 'nodality' in social and informational networks (Escher et al, 2006; Hood and Margetts, 2007) and offering the potential for 'co-production' and even 'co-creation' of government services. Such potential should be welcome to policy-makers looking for public service cuts and could lead to new interest in DEG type models.

Furthermore, these social developments have brought with them new organizational forms, through the capacity of the Internet and its users to 'organize without organizations' (Shirkey, 2008). A widespread 'deformalization' of organizations, could generate a governmental response along DEG lines. Quasi-organizations from Facebook groups and multi-authored blogs to discussion sites and peer-produced goods like Wikipedia are all extremely difficult to categorise according to conventional organizational theory and Government officials and policy-makers are often unsettled or confused by the need to respond to these 'informal' organizational developments. In addition, the increasingly important role of large internet-based corporations such as Google and Facebook (now with half a billion users, 26 million in the UK) in social and political life often provoke an uncertain regulatory response. Temporary or evanescent organizations using their facilities can develop suddenly in response to events, which government and policy-makers find difficult to understand or deal with. In the UK an interesting vignette into the new regulatory issues here was provided by the 2010 online lionization of a murderer called Raoul Moat who took his own life when cornered by police. A Facebook UK page secured signatures of support from tens of thousands of people, which triggered various ineffectual UK government efforts up to the Prime Minister's level to shut it down.

With this brief introduction, Figure 4 undertakes the same style of analysis as above for 'first wave' DEG components. It also introduces a detailed consideration of 'second wave' DEG components. We assess the impact of austerity pressures in the same way for both sets. But since all the second wave DEG elements included here are new and increasing development we do not use the sign to label them. The most important feature of Figure 4 is that increasing and rapidly developing elements predominate, across all the second wave components and most of the reintegration and digitization components. There are few increasing elements amongst the first wave holism components, where constraining austerity pressures are also concentrated, because holistic changes normally cost money to devise and implement. Some digitization aspects (such as using rich media and developing comprehensive data bases to exploit lower storage costs) are also inhibited by austerity pressures. But the general picture in Figure 4 is of DEG components either being strikingly boosted by, or not inconsistent with, pressures for deep public spending cuts in those OECD countries with the strongest fiscal imbalances.

First wave reintegration components

These elements are shown in the second row of the Figure and almost all are increasing and spreading, because many OECD countries are now reversing agencification and quasi-government agency fragmentation, seeking to reduce their numbers of central agencies and even ministries (to less than 15 ministries according to OECD (2010)). Reintegration saves governments money by pulling functions back into central ministries, cutting out the extra management costs of multiple agencies, and recentralizing controls of spending and areas like the online web estates of public sector agencies (where previously the late NPM philosophy was to 'let 1000 nettles bloom'). The web-based push to integrate services extends quickly into more fundamentally re-engineering services and removing duplicate services delivery chains, especially where austerity pressures mount up. So the only component of this theme that has not take off as might have been expected is shared services, although it is still working through at a more routinized, bureaucratic level, and may increase faster in countries making big public spending cutbacks.

Figure 4: The development to second wave digital-era governance and the impact of austerity pressures

DEG themes:	Centralizing, networks-based, communications gain developments	Decentralizing, database-lead, information-processing gain developments
Reintegration	<ul style="list-style-type: none"> - Rollback of agencification/ fragmentation □ [A+] - Joined-up governance □ (JUG) - Re-governmentalization, boosted by temporary regovernmentalizations during credit crunch □ [A-] - Reinstating/re-strengthening central processes □ [A+] - Procurement concentration and specialization □ [A+] 	<ul style="list-style-type: none"> - Network simplification and ‘small worlds’ □ [A+] - Re-engineering back-office functions and service delivery chains – de-duplication □ [A+] - Shared services (mixed economy) ~ [A+]
Second wave Reintegration	<ul style="list-style-type: none"> - Intelligent centre (IC) + DD design [A+] - Integration of governmental and national infrastructures - Single tax and benefit systems (using real time data) [A+] - Reintegrative outsourcing [A] 	<ul style="list-style-type: none"> - IC+ decentralized delivery (DD) design [A+] - Austerity-driven central government disengagement and load-shedding [A+] <i>linked to</i> - Radical disintermediation (do it once) in public service delivery chains [A+] - Delivery-level joined-up governance [A+]
Holism	<ul style="list-style-type: none"> - Interactive and ‘ask once’ information-seeking ~ - Data warehousing, pre-emptive needs analysis ~ - Agile government processes (e.g. exceptions-handling, real-time forecasting and preparedness, responses to the unexpected) □ [A-] 	<ul style="list-style-type: none"> - Client-based or needs-based reorganization □ [A-] - One-stop provisions, ask-once processes □ - End-to-end service re-engineering ~ - Sustainability ~ [A-]
Second wave Holism	<ul style="list-style-type: none"> - New wave holistic social insurance developments - Social security systems moving online [A+] - Single benefits integration in welfare states [A+] - Linked-benefits approvals and payment integration [A-] - Single citizen account [A+] - Integrated-service shops at central/federal level [A+] 	<ul style="list-style-type: none"> - Joined-up local delivery of local public services [A+] - Co-production of services, especially in behavioural public policy (‘nudge’) fields [A+] - Client-managed social/health care budgets - Comprehensive online reputational evaluations in public services and government - Citizens testimonials as substitutes for central regulation [A+] - Open book government and citizen surveillance as substitutes for central audit [A+] - Development of ‘social web’ processes within online government, and field services

		[A-]
DEG themes continued:	Centralizing, networks-based, communications gain developments	Decentralizing, database-lead, information-processing gain developments
Second wave Holism, continued		<ul style="list-style-type: none"> - 'Big society' changes linked to austerity and central disengagement [A+] - Reappraisal of 'mission commitment' drivers, e.g staff-sorting, client-sorting and contractor/NGOs-sorting [A+] - The end of the simple 'digital divide', and the advent of new (differentiated) forms of residualization
Digitization	<ul style="list-style-type: none"> - Radical disintermediation (cut out the middle-man) □ [A+] - Active channel streaming, customer segmentation ~ [A+] - Mandated channel reductions □ [A+] 	<ul style="list-style-type: none"> - Electronic service delivery and e-government □ [A+] - Web-based utility computing □ [A+] - New forms of automated processes e.g using zero touch technologies or RFID ~ [A+] - Facilitating isocratic administration, e.g. co-production of services, quasi-voluntary compliance, do-it-yourself forms and tax-paying □ [A+] - Moving towards open-book government (now also full OPG policies) □ [A+]
Second wave digitalization	<ul style="list-style-type: none"> - Government super-sites (and pruning web-estate) [A+] - '100% online' channel strategies (covering all contacts and transactions) and related modernizations [+A] - 'Government cloud' [A+] - Free storage, comprehensive data retention [A-] Government apps [A-] 	<ul style="list-style-type: none"> - 'Social web' shifts to rich technology within online estate [A-] - Freeing public information for re-use, mash-ups etc - Pervasive computing, fuelling transition to ZTTs and capital substitution for labour [A+] Government apps [A-]

Notes: □ process is continuing to spread and increase in use.

~ process is accepted part of public management but is not spreading or developing further.

□ process is being rolled back or declining in use.

All second-wave processes are growing.

[A+] process is clearly boosted or accentuated by austerity imperatives.

[A-] process is clearly constrained by austerity imperatives.

Second wave reintegration components

These elements in Figure 4 are all rapidly developing. The most critical (and general) trend is a slow move towards an 'intelligent centre/ decentralized delivery' (IC + DD) approach, imported from successful private corporations such as Walmart (in the USA) and the somewhat similar Tesco (in the UK, where it accounts for £1 in every £8 spent by consumers). Essentially this means that comprehensive sales and customer information is collected electronically at store level from tills and loyalty cards to create a vast data warehouse that is analysed centrally by specialist analyst units and central management. The centre then orders products into stores and settles strategy. Famously, Walmart's response to Hurricane Katrina was much more effective than the federal government's, because in intelligent design it is not left up to local decision-makers (individual store managers) to set policy or undertake procurement. Their role is solely to handle customers, recruit and roster staff (into much more complex working patterns than a decade ago) and co-ordinate the final logistics of 'just-in-time' deliveries to their store (although procurement is centrally co-ordinated across thousands of suppliers).

This organizational architecture is almost a mirror image of most contemporary governments, especially in federal states, and excepting Scandinavia where data-pooling across tiers of government is historically long-lived. Almost universally central or federal governments are poorly informed about what state or local governments are doing, relying on dated and specially-collected national statistics or intra-governmental reporting systems limited by constitutional and political constraints to understand demand trends. This is a far cry from Wal-Mart's real-time electronic updating at central and regional levels of purchase patterns, hour-by-hour. There is almost universally no real-time government data-pooling from local to regional and national levels, although some bits of such a system have begun to be built in intelligence and surveillance in the USA since 9/11 and exist more widely in some European states. The next decade will see the first piecemeal and later progressive efforts to move to intelligent centre/decentralized delivery patterns in some unitary advanced industrial states, like the UK, especially those under austerity pressures.

Key elements in such a movement form the rest of the second wave reintegration changes. Since the foundation of tax systems and welfare state provisions it has been axiomatic that governments should (a) run their own databases collating data separately

from civil society systems; and (b) run separate tax and social security systems, initially for quite distinct populations. However, in the modern period most citizens have become both taxpayers and recipients of state benefits. So why maintain records on the same people twice? The most cash-strapped ex-NPM state, the UK, is now querying both premises, looking at creating a single, integrated real-time system for taxing and paying social security, one that would draw on the banking system's existing national infrastructure. The idea here is that the immediate responsibility for levying taxes might shift from employers (via PAYE systems) and responsibility for paying tax credits and welfare benefits might shift from the government bureaucracy. In both cases the collection or disbursement of monies would be transferred to the banks, who would tax or disperse additional funds in response to government-issued instructions and tokens in real-time. This is the ultimate 'intelligent centre' design for the welfare state, but elements of it already exist in Scandinavia and the whole scheme is being seriously pursued in the UK.

A key stimulus for UK government interest has been that the UK's tax system is approximately 20 years behind that in Sweden (where taxpayers can see their whole income and tax liabilities by email or mobile phone on 2 April each year, and sign off their agreement with a text message). The UK has also had long-running implementation difficulties in organizing 'tax credits' supposed to run together taxation and welfare state systems in ways that support incentives to work. Tax credit schemes more widely are creating pressures for government to be able to handle real-time information, and to pool together tax and social security databases and field offices. The only other significant centralizing development has been a small trend towards reintegrative outsourcing, where instead of contracting-out producing a fragmented jungle of different contractors and sub-contractors, a single main contractor takes over from government the organization of complex delivery chains (a development also consistent with more privatized 'intelligent centre' designs).

Amongst decentralizing second wave reintegration changes the key stimulus from austerity pressures has been for central government to disengage from supporting many services it previously co-funded, thrusting more of the burden on to state or local governments (as with earlier austerity episodes, such as Canada in 1992-5). In the UK, Denmark and other countries this has intensified strong pressures for the rationalization

of multiple differentiated public service delivery chains, now seen as unaffordable 'luxury goods' (Dunleavy, 2010). The key implication is the merging of previously separate delivery chains, adding to the first wave DEG pressures for one-stop shops and windows. Above all the fundamental push of austerity measures is towards the radical disintermediation of services (cutting out the middle man), especially by exploiting online services changes (see below).

First wave holism components

The advent of austerity pressures has generally had negative effects on this group of public management technologies. Most changes to reorganize service provision around clients' needs cost money and take time to implement or before yielding savings. These 'invest to save' characteristics do not fit well with short-term pressures for financial cutbacks. None the less, there are three generally growing holism components. At a decentralized level, client-focused reorganization and one-stop processes are both growing for service-improvement reasons, despite austerity pressures. Some elements here (such as lead agency arrangements, budget pooling and shared chief executives or services) can also save money. At national government levels pressures for more agile government structures continue to increase, reflecting the development of 'risk society' issues (such as cross-national terrorism, pandemics, energy security and similar issues) to central political prominence (Beck, 1992). Some governments have begun to experiment with more flexible 'directorate' structures than traditional central departments, supported by 'government cloud' IT and central services arrangements. Elsewhere the picture on first wave holism components is that they form an important part of the public management toolbox, and have considerable ongoing momentum but are somewhat on hold in austerity conditions – as with sustainability changes.

Second wave holism components

By contrast, these elements are multiplying, their influence is expanding, and they are strongly consistent with the grain of austerity measures. Amongst the key centralizing trends is the migration of social security systems online, more than a decade after national tax systems began this same journey. One indication of the gap across silos here from the UK is that in 2009-10 three quarters of submissions of self-assessment tax forms were

online, compared with less than 1 per cent of customer contacts with social security recipients that were handled online. Key pioneers of the major changes needed to reverse such differences have been the US Social Security Administration, who moved the registration for the state pension decisively online, with major savings in time and costs; the UK Department of Work and Pensions which belatedly responded to an unemployment surge in 2009 by bringing in online registration for unemployment assistance (called Job Seekers' Allowance); and the Swedish government, with an online only access to a scheme for subsidizing parents taking time off work to care for ill children. Pressures for single benefits integration in the UK and elsewhere (linked to better use of national infrastructures, discussed above) also chime with new European government efforts to operationalize single 'citizens accounts' which will give online access to all interactions with government (rather like a government equivalent of online banking services). More partial integrated service shops online and with regional or big city offices have also been pioneered by Access Canada; and by the Australian transfer of its Medicare scheme to the integrated agency handling its social security and job placement services, Centrelink.

Decentralizing holism components in second wave DEG are also growing strongly and morphing into efficiency and lower-cost formats in countries with the strongest austerity pressures. Cutbacks have particularly boosted joined-up local delivery, with separate delivery chains being merged. A push towards government co-production of services with citizens has been very clear in behavioural public policy fields, the 'nudge' territory where even more interventionist European governments acknowledge that state-only actions are unlikely to be successful (see Thaler and Sunstein, 2009).

The development of online citizen testimonial systems has also seen a push in the UK towards replacing top-down, central controls over and regulation of local delivery in hospitals, schools and local governments by online customer feedback mechanisms (such as the giant UK website NHS Choices) and a strong push for 'open book government' requirements. The hope is that instant patient and family feedback on hospitals will substitute for previous long-winded and after the fact regulatory investigations of problems, which conspicuously failed to prevent service delivery disasters (Dunleavy et al, 2010). Similarly, the coalition government in the UK has followed earlier pioneer efforts in a few US states and abolished its previous key regulator over local government, the Audit

Commission. Instead it has required all local councils to publish details of their spending over £25,000, with the minister claiming that an 'army of citizen-auditors' would replace previous central controls. Online access to all this information, and the participation of NGOs and groups using 'open source'-type approaches to processing the resulting mountains of information, both move co-production of services (in this case regulatory functions) into a new era.

There has also been an almost complete resiling away from NPM corporatization and strong management strategies, with their dependence on high levels of senior pay and duplication of multiple hierarchies. Instead recent economic theory has seen a radical reappraisal of the virtues of 'mission commitment' in terms of sorting staff and clients across public sector agencies, and creating pooling effects favourable to better performance at lower cost (Besley and Ghatak, 2005). This insight has subsequently been morphed by some thinkers on the political right into a 'red Tory' emphasis on worker empowerment within the public sector, as well as 'Big Society' externalizations of roles to NGOs and community organizations (Blond, 2010). This change in tone to re-embrace a distinctive public sector ethos is claimed as a new way to undertake previously failed or repealed NPM micro-local reorganizations, such as the UK's shift in 2010 to universal self-managed local schools and renewed attempt to foster a quasi-market in the NHS.

The online version of many of these moves is the development of 'social web' processes within the government sector, which has made slow progress at central government levels but is flourishing in multiple different formats (mainly still experimental) at delivery level. For instance, in Sweden the care of mentally handicapped people has begun to move into mixed care circles, bringing together state professional and family/friends. Such care networks can be much more realistically co-ordinated in real time via online 'social web' mechanisms that make everyone's information and inputs available to all partners. Similar schemes, plus the growth of more implementable e-health care regimes, are likely to be key to the next digital revolution in care of the elderly and long-term sick, chiefly through government-run schemes (West and Miller, 2009) but perhaps also through privatized provision in the USA and European style, fund-based health care systems. However, all these initiatives are under threat from austerity pressures, as is the personalization of care budgets, although this remains a growing trend.

A key impetus to the online development of more holistic second wave initiatives has been the ending of the conventional 'digital divide' in advanced industrial countries. For instance, the UK Department of Work and Pensions had remodelled all its processes in 2000-2 around phone-based access, because it was convinced that its unemployed, poor, ill and elderly 'clients' would never be online. Yet the department discovered with a shock in 2008 that 51 per cent of its claimants were already online, and that the proportion would grow rapidly. The end of the conventional digital divide has been fuelled by cheaper PCs, broadband and the growth of internet-capable phones and intermediate devices, which will be pervasive in advanced industrial societies by 2015. Of course, smaller and more fragmented pockets of digitally disabled people will persist, amongst the elderly or ill, people who are less literate and the acutely poor. And new forms of market-based residualization processes will constantly crop-up, for example, the joining-up of identification and financial payments systems may create new forms of disadvantage for people with poor credit histories and weak financial skills. But the days of blanket 'digital divide' limits on the provision of public services online are now over.

First wave digitalization components

Six of the eight components listed in this grouping are expanding rapidly, responding to the ongoing digital-era wave that is still transforming business and civil society operations in advanced industrial societies, in particular the ongoing changes from 'social web' and Web 2.0 (and later) developments in commerce, cultural life and how people relate to each other. Public management digitalization changes are generally in catch-up mode, in a period when 26 million UK citizens are on Facebook, while the UK government still struggles to get beyond text-based websites, to operationalize modern search within government sites, and to grip either the tech or social aspects of Web 2.0 changes (Dunleavy, 2007). Despite some hopeful statements of what Web 2.0 means for government (Mergel et al, 2009), there are reasons to believe that this situation is true of most OECD governments' web estates.

Yet the pressures for radical disintermediation that have wreaked major changes in many commercial sectors continue to develop. For example, in the form of cloud computing seem about to transform cultural consumption also (Leadbetter, 2005). They also have great traction in the public sector, especially in austerity countries. Their impact

is essentially centralizing in more unitary countries. A key boost has been given to mandated channel reductions by the concern to cut back spending, with in-person contacts in the UK public sector costing on average £9 each, phone transactions around £3.50, but online contacts under £0.40. This trend explains why customer segmentation and channel strategies are de-emphasizing as past complexities are increasingly resolved, and policy makers can assume that the vast majority of citizens can go online.

Decentralizing digitalization components are also still growing despite the recession and austerity, since most e-services cut government transaction costs. Utility computing is spreading into government applications amongst small and medium agencies, albeit a little slowly because of government's stronger privacy and data security worries. And larger organizations may use cloud solutions for non-recurring tasks. The Belgian government opted for it as a way of handling the extra work involved in the EU presidency, for instance (Auwers, 2010). More rapidly growing has been a push for isocratic ('do-it-yourself') administration, which still has a long way to run in public services. 'Open book government' (OPG) has secured notable successes and already rocked many boats, for instance fuelling the scandal over the expenses of UK parliamentarians in 2009. Open book government has greatly expanded from previous restrictive FOI regimes, where many requests for information were refused on commercial or policy-sensitivity grounds.

OPG instead rests on a general expectation that all government information will be online in accessible formats and capable of detailed scrutiny.

Second wave digitalization components

The key centralizing components here arise from the development of online transactions past being the majority form of government-citizen interactions to becoming the near-universal form. This is an important transition in an austerity climate because generally you need to achieve 80 per cent online users in order to realize the greatest economic benefits from online transactions and information-seeking replacing phone, paper or in-person transactions. In the UK in 2009-10 the tax agency (HMRC) introduced an element of mandation, which pushed online income tax self-assessment forms up from just over half of submissions the year before to 74 per cent. The change allows HMRC to plan large-scale workforce cuts, and to project a shift to 90 per cent + online transactions. So called

'100 per cent online' or 'all online' channel strategies force central departments to assume online interactions, with in person, on-paper and by-phone contacts as marginal extras to the online mainstream.

There is no agreement on the way to maximize other forms of government web traffic, since information giving cannot be mandated in equivalent ways to transactions. One radical (possibly foolhardy) experiment has been the UK effort to concentrate all G-C interactions in a few carefully edited government supersites, inevitably guaranteed huge Google-visibility. The UK is also pioneering a 'government cloud' solution to next generation computing for all medium and small agencies, effectively trying to play catch-up for their previous lack of a government-wide enterprise architecture plan. The one area of centralizing digitalization changes that has not fared well still under austerity pressures is the exploitation of almost-free IT memory and data storage, which still at massive scale can create cost pressures – yet the trends here are still strong and ineluctable, so that increased data warehousing will almost certainly resume even if there is a two or three year pause in the most fiscally challenged countries.

The decentralizing digitalization components are also growing, but show a more mixed picture in austerity conditions. The development of ever cheaper pervasive computing is fuelling a long-run push towards increased capital intensification in the public sector (think automatic river monitoring, traffic systems, and pervasive RFID chips instead of human staff) and a belated take-up of 'zero touch technologies' (ZTT) innovations long developed in large private sector services. Freeing public information and data for universal re-use in mash-ups and other applications is a new element in European contexts, one that has had to struggle hard against the NPM stress on agencies recharging users for information in order to raise finances (often via privatization). Again the spread of rich media and social web technologies into the public sector is developing in Scandinavia, but remains muted in the bigger states, and does not fit well with austerity pressures. For instance, most government networks and databases have been built for adequate capacity assuming text-only web formats – adding in video, images, social web functionalities can easily trigger a need for substantially scaled new investments in networks and equipment, which are expensive even with falling IT prices. Although all OECD countries expound 'digital economy' strategies for fast broadband and increased skills development, the intra-government component that was widely recognized in the

early 2000s online drives has mostly attracted insufficient attention and commitment so far, outside of a few countries such as South Korea. The widening gulf in 'look and feel' for public websites compared to business best practice is still likely to produce new investments after a pause, or alternatively the increasing societal marginalization of the public sector online estate and declining government legitimacy and 'nodality' (Hood and Margetts, 2007).

Finally, across both columns there is a potential for government 'apps' to develop as a key form of government- to-citizen and government-to-business communication. Such applications use semi-closed platforms accessed via low power devices (such as mobile phones) using the Internet but not the Web. The attraction here is that apps might provide a solution to a paradox of secure communication that has evaded government solutions for many years. For instance, while the UK's HMRC department has managed to get 74 per cent of its 9 million self-assessment income tax payers to submit their tax forms online, it still sends out 75 million paper notifications of tax codings, payments due and so by mail, at high expense and with diminishing efficacy. This combination of online transactions but snail-mail communications reflects an intense form of security over phishing and other e-crime forms on emails and the Web, which apps-based communications might usefully improve (Anderson and Wolff, 2010; Naughton, 2010). Although, for example, the UK open government data initiative has led to a number of apps using government data created by third party developers, few governments have so far developed any apps that use personal data, or even begun to think how to do so.

4. Crisis, investment pause or expansion?

How will the legacy NPM momentum and the two developing DEG waves fare in the immediate five years of acute austerity pressures? The first possibility we consider is a crisis for DEG. Under this scenario, the NPM model remains alive and well, and is even strengthened by austerity as public bodies turn to contracting, outsourcing and privatization as the key way to cut public sector budgets. Renewed fragmentation and disaggregation would result from moves to break up governmental projects to enable small providers to compete - particularly on IT projects in countries like the UK and Australia where ICT contracting has been striking uncompetitive over many decades now. 'Big Society' initiatives to involve civil society groups in public services provision, or rather

to delegate welfare-loads to them, could mesh with a revival of decentralist forms of NPM.

As yet we see few signs that even with ostensibly favourable political impetus from right wing governments any sustained or substantial revival of NPM is feasible. The UK Conservative-Liberal Democrat government has launched an effort to cut some areas of public spending by 25 to 40 per cent to 2015, but even here it has protected some areas of state activity – including the huge National Health Service – and its expenditure plans still project increased public spending over the parliament. At the same time many aspects of its programme aim directly at countering past NPM ‘excesses’ in public services, reviving a low pay/public service ethos, reinstating professionalism against NPM’s managerial hierarchies and so on. Different trajectories may be followed in other countries cutting back services such as Greece, where NPM solutions have previously been little applied and entrenched public sector privileges were never addressed in the 1980s or ‘90s. But this is at best a ‘catch-up’ spasm rather than a pioneering renewal of NPM that has any wider applicability in other OECD countries.

The only way in which a ‘second wave’ of NPM could be envisaged that creates a crisis for DEG developments would be if a country moves decisively away from its existing level of state intervention into a ‘shrinking state’ or even a ‘withered state’ pathway – of which there were no signs in any OECD country before the credit crunch, with state expenditures generally growing consistently across the 2000s. However, such a radical change is still possible, perhaps especially in the USA under the newly right-wing strategies being advocated by some sections of the Republican party. Yet even here, although the threat of radical change is always present, the wider context has been one in which the USA moved to fill a key gap in its medical insurance set-up, a step that will prove difficult to unravel if it can survive to implementation in 2014 and after.

The second scenario we consider is that of a lengthy (up to five year) ‘investment pause’ in the transformation of the public sector, with large-scale DEG schemes that clearly can be investment-heavy being kicked into the long-grass. Instead government bureaucracies would focus on ‘squeezing’ their existing assets and online estate for lower-cost, smaller scale improvements than have been attempted before the credit crunch. Developed nations are already spending around 1 per cent of GDP on government information systems, and more than that at some periods and in some countries, such as

in the UK under Labour governments in the 2000s. Radical disintermediation programmes often rely on large-scale digitization initiatives such as identity management systems, tax systems modernization and electronic patient records requiring major investment. Such investment requires a growth era and is unlikely to occur in a period of austerity. In the UK for example, the coalition government elected in 2010 has placed a moratorium on any IT investment of over £1 million and several large-scale initiatives have already been abandoned. In some countries, especially the UK, past disastrous IT investments have reputationally damaged digital-era solutions. So public sector managers incentivized to cut back are unlikely to view taking on responsibility for major IT projects with enthusiasm. Cultural barriers to electronic government (Margetts and Dunleavy, 2003) are likely to lead conservative bureaucrats to welcome cutbacks in this area, using austerity as a pretext for halting IT investments.

Under this scenario, patterns of government administration and especially the online operations of public services will fall progressively further and further behind the technologies and modes of operating of private sector organizations over the next five years. Although a short run pause on IT developments might have minimal implications, even in two years the gap between government and the private sector, and government and society will have increased and it will become more difficult to catch up. Public sector pay freezes will also work to reduce government's ability to recruit skilled IT staff and are likely to create an ever-increasing state dependence on major IT corporations just to keep existing delivery systems in being. Government organizations will face increasing social pressure to look more like private and social enterprises, caused by the social media technologies discussed below – but they will find it increasingly difficult to do so. We do not see any future possibility here where a lower tech government apparatus, more labour intensive than any private sector counterparts and more dated in its organizing and IT technologies, can sustain productivity unchanged for more than a few years. It will be possible to make short-term productivity gains by freezing pay and cutting staff, but the likely result will be emerging crises scattered across public administration, and a progressive atrophying of the state's capacity to carry out the tasks that citizens will continue to demand.

In contrast to the previous possibilities, our third scenario would see a major expansion of DEG as a response to a range of social, technological and organizational

drivers (albeit with a one to two year investment hiccup intervening in the most austerity-pressured states, or in the USA in future). The key social drivers for government innovation come from the unrelenting waves of technological and social changes that show no signs of easing off. As tranches of social, political and economic life move on-line, people expect to interact with government in the same way as they do with firms, banks, social enterprises and each other, which puts pressure on governments to make use of these applications and focus on their on-line presence. From a technological perspective, the current economic climate will pressurise government agencies to make use of developments such as cloud computing and open source software, which allow organizations to obtain software for free or share it (in modularised form) with other organizations and hence reduce development costs.

Under this scenario, policy-makers would reach out to digital technologies, Web 2.0 applications and newer technological developments precisely for their potential to produce cost savings and conform with programmes of cutbacks. As the UK government's 'Digital Champion', Martha Lane Fox, put it shortly after the 2010 general election: 'There are going to be huge cost cuts and digitalisation is an enormous piece in the puzzle. For refuseniks [citizens reluctant to interact with government online], there may just not be a choice... Government is not going to be able to ignore the enormous cost savings of communicating electronically with people' (*The Daily Telegraph*, 21May 2010).

NOTES

REFERENCES

- Anderson, Chris and Wolff, Michael. 'The Web Is Dead. Long Live the Internet', *Wired*, 17 August 2010.
- Auwers, T. (2010) 'How the European Union went for cloud cover', *Guardian Public*, 5 July 2010, www.guardianpublic.co.uk.
- Barzelay, Michael and Campbell, Colin (2003) *Preparing for the Future: Strategic Planning in the US Air Force* (Washington Dc: Brookings).

- Beck, Ulrich. (1992) *Risk Society: Towards a New Modernity* (London: Sage) (translated from the German *Risikogesellschaft*, Suhrkamp Verlag, 1986).
- Benkler, Y. (2006) *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (Yale University Press).
- Besley, T. and M. Ghatak (2005) 'Competition and incentives with motivated agents', *American Economic Review*, 95 (3), 616 – 636.
- Binz-Scharf, Maria Christina and Lazer, David (2008). *A New Order of Things: Managing Novelty and Cooperation in E-Government Projects*. Boston: Harvard University. Faculty Research Working Papers Series, No: RWP08-048
- Blond, Phillip. (2010) *Red Tory: How Left and Right Have Broken Britain and How We Can Fix It*. London: Faber.
- Bloom, Nicolas, Garicano, Luis, Sadun, Raffaella and Van Reenen, John. (2009) 'The Distinct Effects of Information Technology and Communication Technology on Firm Organization', London: Centre for Economic Performance, CEP Discussion Paper No 927.
- Brudney, J.L. and England, R.E. (1983) Toward a Definition of the Coproduction Concept', *Public Administration Review*, 43(1), 59-65.
- Cabinet Office (2005) *Transformational Government – Enabled by Technology* (London: The Stationary Office). Cm 6683.
- Carr, Nicholas (2005) 'The end of corporate computing', *MIT Sloan Management Review*, Spring 2005, vol.46, no. 3., pp. 66-73, Also available as Reprint No, 46313
- Christakis, N. and Fowler, J. (2009) *Connected: The Surprising Power of Our Social Networks and How they Shape Our Lives* (Little, Brown & Co).
- Cormode, G., and Krishnamurthy, B. (2008). Key differences between Web 1.0 and Web 2.0. *FirstMonday - Peer Reviewed Journal of the Internet*, 13(6), 1-19.
- Deek, F., P. , & McHugh, J. A. M. (2008). *Open Source Technology and Policy*. Cambridge: Cambridge University Press.
- Drechsler, W. (2005) 'The rise and demise of the new public management', *Post-Autistic Economics Review*, 33, 14.
- Dunleavy, Patrick. (2007) 'Governance and state organization in the digital era', in Robin Mansell, Chrisanthi Avgerou, Danny Quah and Roger Silverstone (eds.) *Oxford handbook on information and communication technologies*. Oxford: Oxford University Press, 404-426.
- Dunleavy, P. (2010) *The Future of Joined up Public Services* (London: 2020 Public Services Trust and ESRC).
- Dunleavy, P., Margetts, H., Bastow, S., Callaghan, R. and Yared, H. (2002) *Government on the Web II*. London: The Stationery Office, HC 764 Session 2001-02.
- Dunleavy, P., Margetts, H., Bartholomeou, P., Bastow, S., Escher, T., Pearce, O. and Tinkler, J. (2007) *Government on the Internet: Progress in Delivering Information and Services Online*. London: The Stationary Office, HC 539 Session 2006-07.
- Dunleavy, P., Margetts, H., Bastow, S. and Tinkler, J. (2006) 'New Public Management is dead. Long live digital-era governance', *Journal of Public Administration Research and Theory*, 16 (3): 467-494.
- Dunleavy, P., Margetts, H., Bastow, S. and Tinkler, J. (2008) *Digital Era Governance: IT Corporations, the State and e-Government*. Revised Edition. Oxford: Oxford University Press.
- Dunleavy, P. (with Juan Francisco Bassili-Gallo, Matteo Bocci, Daniel Brieba, Taekon Kim, and Jane Tinkler) (2009) 'Delivering decentralised public services: How e-government adds value', Paper for OECD, Paris: OECD.
- Eggers, William D. and Goldsmith, Stephen. (2008) *Government by Network: The New Public Management Imperative* (Boston: Deloitte Research/Ash Institute, Harvard University).
- Escher, T., Margetts, H., Petricek, V. & Cox, I. (2006) 'Governing from the centre? Comparing the

- nodality of digital governments', paper to the 2006 Annual Meeting of the American Political Science Association, 31 Aug-4 Sept.
- Fishenden, Gerry. (2010) 'Freezing public sector IT – what is the government aiming to achieve?', <http://blogs.lse.ac.uk/politicsandpolicy/?p=2555>
- Fountain, Jane. (2001) *Building the virtual state: Information technology and institutional change*. Washington, DC: Brookings Institution Press.
- Fountain, J. E. (2008). Challenges to Organizational Change: Multi-Level Integrated Information Structures. In V. M.-S. a. D. Lazer (Ed.), *Government Information Technology: From Electronic Government to Information Government* (pp. 63-
- Hood, C. and Margetts, H. (2007) *The Tools of Government in the Digital Age*. Basingstoke: Palgrave.
- Hood, C. and Peters, G. (2004) 'The Middle Aging of New Public Management: Into the Age of Paradox?', *Journal of Public Administration Research and Theory*, Vol. 14, No. 3: 267-282.
- Howe, J. (2006) 'The Rise of Crowdsourcing', *Wired*, 14 June.
- Leadbeater, Charles. (2010) Cloud computing: how information giants are setting the pace for the internet's next decade', *The Observer*, Sunday 7 February.
- Lukensmeyer, C. J., & Torres, L. H. (2008). *Citizensourcing: Citizen Participation in a Networked Nation* (Charlotte, North Carolina).
- Kable (2010) 'HMRC sees new record for online tax returns', 2 February. At <http://www.kable.co.uk/hmrc-online-tax-returns-record-timms-02feb10>
- Margetts, H. and Dunleavy, P. (2003) *Cultural Barriers to E-Government*, Academic Article published by the National Audit Office 4th April 2002 (HC 704-III) in conjunction with the Value for Money report 'Better Public Services Through E-Government' (HC 704), available at www.governmentontheweb.org and www.nao.gov.uk
- Mayer-Schönberger, Viktor and Lazer, David (2007) *Governance and Information Technology: From Electronic Government to Information Government*. Boston, MA: MIT Press.
- Ines Mergel, Charlie Schweik, Jane Fountain (2009) *The Transformational Effect of Web 2.0 Technologies on Government*. Social Science Research Network (SSRN).
- Naughton, John. (2010) 'Are the iPhone and iPad killing the world wide web?', *The Observer*, Sunday 22 August 2010
- Nooteboom, Bart (2005) *Learning and Innovation in Organizations and Economies* (Oxford: Oxford University Press). New Edition.
- O'Donnell, Gus (2004) *Financing Britain's Future. Review of the Revenue Departments* (London: HM Treasury), Cm6163.
- OECD. (2007) *E-Government Project: E-Government Service Delivery Co-operation Across Levels of Government*. Paper 10, October, Number: GOV/PGC/EGOV(2007)2. Paris: OECD.
- OECD (2010) *OECD Value for Money Study: Building on Basics* (OECD, Paris: Public Governance and Territorial Development Directorate Public Governance Committee) GOV/PGC/SBO(2010)7, 24th June
- Office for National Statistics (2005) *Atkinson Review: Final Report – Measurement of Government Output and Productivity for the National Accounts* (London: The Stationary Office).
- Power, M. (1994) *The Audit Explosion* (London: Demos).
- Savas, E. (1987) *Privatization: The Key to Better Government* (Chatham House, NJ: Chatham House).
- Savas, E. (2000) *Privatization and Public-Private Partnerships* (Chatham House, NJ: Chatham House).
- Shirky, C. (2008) *Here Comes Everybody. The power of organizing without organizations* (New York: Allen Lane)
- Shirky, C. (2010) *Cognitive Surplus* (New York: Allen Lane)
- Sunstein, C. (2007) *Republic.com 2.0* (Princeton University Press)

- Surowiecki, J. (2004). *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations*: Random House
- Tapscott, D. and Williams, A. (2006) *Wikinomics: How Mass Collaboration Changes Everything* (Portfolio).
- Thaler, M. and Sunstein, C. (2009) *Nudge: Improving decisions about health, wealth and happiness* (London: Penguin).
- United Nations (2006) *Innovations in Governance and Public administration; Replicating What Works* (New York: United Nations).
- US PIRG Education Fund (2010) *Following the Money: How the 50 States Rate in Providing Online Access to Government Spending Data*
- Von Hippel, Eric (2005) *Democratizing Innovation* (Cambridge, Mass: MIT Press).
- von Hippel, E. (2005b). Open Source Software Projects as User Innovation Networks. In B. F. Joseph Feller, Scott A. Hissam, and Karim R. Lakhani (Ed.), *Perspectives on Free and Open Source Software* (pp. 267-278). London, England: MIT Press.
- von Hippel, E., & von Krogh, G. (2003). Open Source Software and the 'Private-Collective' Innovation Model: Issues for Organization Science. *Organization Science*, 14(2), 209-223.
- Walshe, K. (2010) 'Reorganisation of the NHS in England', *British Medical Journal*: 341: c3843.
- Weber, S. (2004). *The Success of Open Source*. Cambridge, MA: Harvard University Press.
- West, D. M. (2004). E-government and the transformation of service delivery and citizen attitudes. *Public Administration Review*, 64(1), 15-27.
- West, Darrell M. (2008) *Improving technology utilization in electronic government around the world*. Washington DC: The Brookings Institution.
- West, Darrell M. and Miller, Edward Alan (2009) *Digital medicine: health care in the Internet era*. (Washington DC: Brookings Institution Press.
- White, Anne and Dunleavy, Patrick. (2010) *Making and Breaking Whitehall Departments: A Guide to Machinery of Government Changes*. London: Institute for Government. Also Web published at http://www.instituteforgovernment.org.uk/pdfs/making_and_breaking_whitehall_departments.pdf and www.lse.ac.uk/collections/LSEPublicPolicy/.../400043_IFG_Report_acc.pdf.
- Zittrain, J. (2008) *The Future of the Internet and How to Stop It* (London: Penguin).