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# **Managing the complexity of outcomes: a new approach to performance measurement and management**

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## **Keywords**

Complexity, outcomes, performance management,

## **Abstract**

Governments, philanthropic agencies and public sector organisations have given increasing primacy to outcomes across their operations in recent years, particularly within the domain of performance management. We argue that societal outcomes challenge public agencies to respond to four specific forms of complexity - compositional, experiential, dynamic and governance complexities - which taken together confound the conceptual basis of traditional performance management systems. We adopt this understanding of complexity in a constructive capacity to consider the design parameters of

a complexity-appropriate performance management system. We conclude that two theoretical transitions are necessary in a complexity-appropriate performance management approach: a shift from principal-agent theory to stewardship theory, and from technical to social management control theory. We explore the characteristics which such a model of performance management might take in practice, and conclude by outlining a research agenda to explore the potential applications of this new approach.

## **Introduction**

It is now commonly taken as granted that public services and social interventions should be commissioned, managed and evaluated based on their contribution to societal outcomes – key indicators of social value such as health inequalities, educational attainment, criminal behaviour and psychological wellbeing. Methods of outcome-based performance management (OBPM) have become increasingly commonplace in public and non-profit management settings, promising better aligned performance incentives (Heinrich 2002; Schedler and Proeller 2010), goal-focussed collaboration and innovation (Heinrich 2002; Carter et al. 2018; Fraser et al. 2018), and more efficient utilisation of public finances in a context of fiscal retrenchment (HM Government 2011). The empirical record of outcomes-based reforms however offers little support for these purported benefits (Wimbush 2011; Fraser et al. 2018; Clist 2019), and cautions that they can instead create a range of counteractive effects, encouraging gaming behaviours (Lowe and Wilson 2017), eroding trust and working cultures (Keevers et al. 2012), and creating intractable measurement and attribution problems (Bovaird 2014).

The scholarly response to these deficiencies has centred around developing procedural and methodological fixes to measurement and attribution processes (Boyne and Law 2005; Mayne 2007). In this article we undertake a broader conceptual analysis of outcomes, developing and expanding an alternative view developed in public health and social ecological literatures that outcomes are emergent products of complex systems, not linear consequences of individual activities or interventions. Drawing on key theoretical strands of the complexity sciences, we extend this view by

elaborating four conceptual dimensions of complexity which we argue all societal outcomes present, which we term compositional, experiential, dynamic and governance complexities. We adopt this conceptual typology to critique the standard outcome-based performance management archetype, rooted in Agency Theory (Jensen and Meckling 1976) and technical management control systems theory (Johnson and Kaplan 1987; Smith and Bititci 2017), and conclude that this model is fundamentally limited in its ability to cope with the complexity which outcomes present.

We then adopt the four forms of complexity in a constructive capacity, transposing the challenges posed by complexity into design parameters for a new conceptual approach to OBPM systems. Building on recent complexity-informed performance measurement and management literature (Melnyk et al. 2014; Bourne et al. 2018; Okwir et al. 2018), we explore two key theoretical transitions might support an alternative approach to performance measurement and management – a shift in focus from technical to social control mechanisms, and from Agency Theory to Stewardship Theory. We finally discuss the practical implications of how public and non-profit organisations might go about embodying such a complexity-informed management practice.

## **The outcomes problem facing performance management**

Performance measurement and management (PMM) systems became widely adopted as part of the New Public Management (NPM) reforms of the 1980s and 1990s (Hood 1991). Advocates of NPM warned that the lack of market-based performance signals in public sector organisations would encourage inefficiency and waste, and advocated borrowing the results-based incentive and reward systems used in the private sector (Gore 1993; Osborne and Gaebler 1993). Results-based management systems sought to base accountability and performance incentive structures on the achievement of measured ‘results’, rather than compliance to process, and in so doing realize an array of conceptual benefits including better-motivated workers, more innovative and entrepreneurial managers, improved transparency and more direct public accountability (Hood 1991; Heinrich 2002; Bevan and Hood 2006; Wynen et al. 2014).

PMM control and incentive systems were structured in accordance with Agency Theory (Jensen and Meckling 1976) as a classical agonistic principal agent problem where one party (the agent), acts on behalf of another (the principal). In Agency Theory, information asymmetries between the agent and principal create the risk of ‘agency costs’, such as shirking, resource appropriation or subversion. Agentic autonomy was therefore seen as a risk to organisational performance, and so PMM systems operated to align the two parties’ interests through basing incentives on the demonstration of ‘results’ set by principals. Other NPM reforms such as privatisation, the creation of quasi-markets, and organisational disaggregation created further agonistic principal-agent splits, such as those between new employers and employees, commissioners and contractors, lower and higher subsidiary units, or regulators and semi-autonomous organisations (Grand 2010). To accomplish this, PMM systems borrowed from parallel developments in the private sector (Johnson and Kaplan 1987) by establishing a range of ‘technical’ management control systems (Smith and Bititci 2017; Bourne et al. 2018) built around objective, quantitative performance indicators. Theories of technical management control, with their roots in cybernetic theory, sought to base managerial decision making on formalized, routinely-collected, quantitative elements of PMM systems (Tessier and Otley 2012; Smith and Bititci 2017). Under these conditions, the performance of ‘agents’ could be assessed against objectively-assessed variation in performance indicators and agents could be held directly accountable for their resultant impact.

Early PMM systems were predominantly concerned with output control and process efficiency (Hood 1991; Heinrich and Marschke 2010). These systems soon became criticized for their narrow and introspective concern with organisational performance (Heinrich 2002; Schedler and Proeller 2010), which jarred with the increasingly fragmented governance landscapes which emerged under NPM reforms (Christensen and Lægreid 2007) and the growing footprint of governance networks and partnerships evident across the 1990s (Kickert et al. 1997). Outputs also failed to reflect a genuine concern with ‘what mattered’ to service consumers, conflicting with NPM’s emphasis on choice and customer satisfaction (Heinrich 2002). PMM systems in the public and non-profit sectors accordingly moved towards measures of ‘outcomes’ and ‘impact’, understood as the end value created by services

and interventions (Heinrich 2002; Boyne and Law 2005; Borgonovi et al. 2017; Lowe and Wilson 2017).

OBPM brought two key conceptual benefits. Firstly, OBPM promised an improved incentive structure which aligned the interests of service commissioners, practitioners and users around the achievement of publically-valued outcomes, permitting all parties to pull in the same direction (Heinrich 2002) By removing requirements for compliance, OBPM could then spur performance-managed actors to innovative and entrepreneurial responses to improve service results (Wynen et al. 2014). Secondly, OBPM sought to improve the quality of managerial decision making by basing performance judgements upon a dispassionate assessment of objective performance data. Thus, whether one was a parent choosing the school to enrol their children, a public manager seeking to improve team performance, or a senior government official choosing which service intervention to commission, OBPM sought to enable rational decision making based on reliable outcome data.

Empirical evidence for both claims has remained weak however, despite widespread interest and uptake of OBPM models in many sectors and countries (Perrin 2006; Carter et al. 2018). Reviews of payment by results initiatives (Clist 2019) and social impact bonds (Fraser et al. 2018) paint an underwhelming picture of effectiveness of OBPM. Other reviews (Perrin 2006; Mayne 2007; Wimbush 2011) of OBPM note ongoing difficulties in the implementation of technical management control systems, in particular around measurement and attribution problems (Boyne and Law 2005; Bovaird 2014; Jamieson et al. 2020). More troublingly, empirical literature also documents a range of performance paradoxes, wherein OBPM implementation has actually undermined performance. The requirement for objectivity has resulted in ‘output distortion’ where measurability distorts organisational focus, giving a misleading picture of effectiveness (Bevan and Hood 2006). Studies have routinely demonstrated that, consistent with Campbell’s Law (Campbell 1976) and Goodhart’s Law (Strathern 2009), outcomes-based reforms have routinely created powerful perverse incentives for gaming and distorting performance information (van Thiel and Leeuw 2002; Bevan and Hood 2006). The distal, multi-dimensional nature of outcomes have also proved difficult to reconcile with

the requirements for objective, unambiguous indicators and accounts for performance (Bovaird 2014; Jamieson et al. 2020).

What is not clear at this stage is the extent to which these problems can be addressed by technical and methodological fixes, or if they stem from more fundamental theoretical deficits. Public management scholarship has in general adopted the former opinion, offering methodological invention and workarounds to the wicked issues of outcomes-based management (Boyne and Law 2005). Other authors have recommended that outcomes-based approaches are used only in those areas which conform straightforwardly to the measurement, attribution and incentivisation process (Giacomantonio 2018). In the latter case, the utility of outcomes-based approaches diminish to a small corner of the social policy world, undermining their central position within policy reform discourse (HM Government 2011).

This paper takes another approach, to revisit the NPM-based OBPM archetype rooted in Agency Theory and technical performance control theory, which has evaded any significant scrutiny in the transition from output to outcomes-based management. The increasing complexity of the modern business operating has led PMM theorists to conclude the simplistic and reductionist tendencies of PMM theory must be rethought to fit an increasingly complex operating environment (Melnik et al. 2014; Braun and Hadwich 2016; Bourne et al. 2018; Giacomantonio 2018). Modern public and non-profit management presents an arguably ‘more complex’ (Bourne et al. 2018) environment than many business sectors, as OBPM demands increasingly ambitious and innovative responses to tackle outcomes within a fragmented, dynamic and often fiscally-constrained governance landscape (Lowe et al. 2020). In the following section, we explore how complexity manifests in the unique and distinctive context of the public sector, specifically as it relates to its primary purpose: the realisation of public value and the improvement of outcomes.

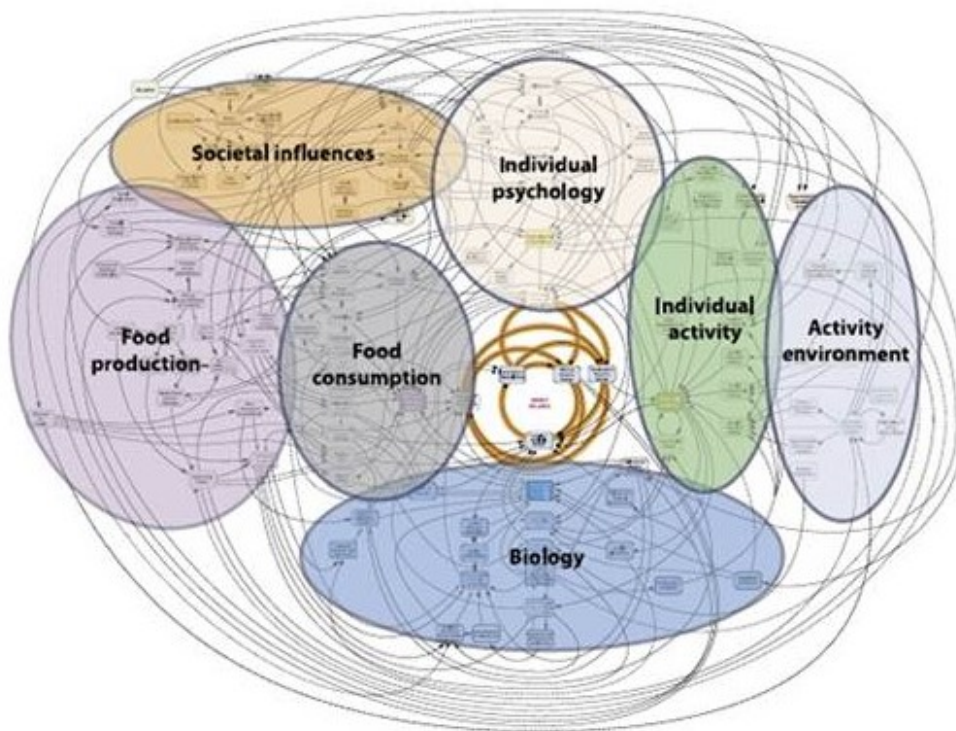
## **Complexity and the management of public service outcomes**

Performance management scholarship in the public sector has in general understood outcomes as being triggered following a causal sequence of inputs, processes and outcomes (Pollitt and Bouckaert 2004; Boyne and Law 2005; Schedler and Proeller 2010). While genuine societal outcomes – often themselves called ‘impacts’ in the results-based management literature – are determined by a far larger array of external factors, this view implicitly holds that it is possible to disaggregate the contribution of intervention effects from external factors for accountability and attribution purposes.

A contrasting view can be found in public health, health geography and social epidemiology literatures, which has drawn on complexity theory to reconceptualize outcomes as emergent products of interdependent complex systems (Roux 2007; Curtis and Riva 2010; Finegood 2011; Jayasinghe 2011; Rutter 2011; Fink et al. 2016). In this view, outcomes are determined by interdependent, dynamically interacting factors that cannot be wholly separated into component parts. As an illustrative example, Figure 1 presents the findings of a 2007 effort by the UK Government’s Foresight Programme to model the interconnected and nested sets of factors governing the emergence of obesity, spanning psychological, social, economic and environmental spheres (Vandenbroeck et al. 2007).

Figure 1. The UK Government Office for Science Obesity Systems Map (Vandenbroeck et al. 2007).





The diagram shows obesity as emerging from the dynamic interaction of a constellation of factors spanning multiple nested systems, including individual biological and psychological processes, and broader social and economic determinants. Compared with the standard logic models, this presents a radically different view of performance. Performance is determined not by the effectiveness of internal service processes or models of social intervention, but by how effectively an entity engages as an element within a broader complex system. Despite the visual complexity of the obesity map however, we contend it nevertheless remains a substantial underrepresentation of the complexity presented by outcomes. In the following section we develop this perspective and discuss four key forms of complexity – compositional, experiential, dynamic and governance – which we argue characterize all societal outcomes.

### **Compositional complexity**

The first dimension of complexity we term compositional complexity, in reference to the complex interrelation of the multiple and diverse parts which collectively determine outcomes. The obesity diagram illustrates vividly the wickedness of outcomes in the traditional sense (Rittel and Webber 1973), since both the mechanics of their formation and the efficacy of potential solutions become highly uncertain. Outcomes can be expected to be impacted by a large variety of external factors, themselves often unpredictable, uncontrollable, high-level and distal to organisational processes.

Compositional complexity relates not just to the multiplicity of causal factors, but also to their interdependency. Complexity theory cautions that constituent elements of complex systems are causally interdependent and mutually reinforcing, and therefore that causal products are emergent and irreducible to individual constituent factors (Byrne and Callaghan 2014; Boulton et al. 2015).

Tackling just one factor underpinning any societal outcome is unlikely to be effective, since those factors are likely themselves to be reinforced by other interdependent factors. Social problems in complex systems can therefore be characterized by resilience and intractability. Conversely, small changes to individual factors can have large and disruptive effects when positive feedback loops are triggered, radically and unpredictably altering the overall causal composition. The multiplicity and interdependency of causal factors means that performance is not determined by the efficiency of individual parts, but by how effectively those parts interrelate (Melnyk et al. 2014; Braun and Hadwich 2016; Bourne 2017). Importantly for PMM systems, this means that individual actors within a complex system cannot reasonably be singled out and held accountable for the results which the system produces as a whole.

### **Experiential complexity**

While outcomes are often framed in policy discourse as unified aggregate factors with a universal causal makeup, they differ markedly in how they are experienced by individuals across populations. The conditions which lead individuals into and out of outcome states like obesity, homelessness, or poverty are often highly individualized, and appropriate solutions must therefore similarly varied. To

fully ‘map’ the problem of obesity, we would in reality require a separate systems map for every obese individual in the country. How any outcome is experienced by individuals is similarly varied – ‘wellbeing’ for instance is a contested concept which is socially determined by those individuals experiencing them. Experiential complexity therefore refers to the scope and variety of experience, needs and strengths which characterize aggregate outcomes, including how they are achieved, valued and prioritized in different people’s lives.

Experiential complexity is closely related to Ashby’s (1956) concept of variety, which refers to the number of possible configurations a given system can assume. In accord with Ashby’s (1956) Law of Requisite Variety, viable systems must be capable of at least matching the variety of demand presented to them by their operating environment. In PMM literature, variety is understood to reduce the applicability of aggregate performance indicators and to complicate information processing within internal organisational functions (Okwir et al. 2018). In the public sector, variety is an even more significant challenge since while private businesses can choose to target specific cohorts of customers, public organisations must appeal to a broad range of the public, often dealing with individuals with urgent, multiple and intersecting needs.

### **Dynamic complexity**

The obesity diagram is not static, but represents a mere snapshot of system dynamics, much of which will have altered in the years since it was produced. The property of co-evolution, in which systems respond unpredictably to variations in their internal parameters and their external environment, constantly reformulates patterns of causation (Boulton et al. 2015). Outcomes are therefore also subject to dynamic complexity, referring to the dynamism and instability of their causal make-up.

Dynamic complexity can manifest at the macro-level, for instance through socio-cultural trends, economic shocks, policy changes, or technological innovations. The effects of these factors are often uncontrollable, unpredictable, and require services and social interventions to adapt to a new performance landscape. Dynamic complexity also pertains to the level of the individual, where sudden

changes in the life circumstance of service users, for instance relationship breakdowns, the loss of employment, or changes in health conditions, can dramatically alter the form and type of service intervention required at a case-by-case level. In either situation dynamic complexity adds a further layer of uncertainty which PMM systems must contend with – the lack of longevity of effective interventions and the relevance of any performance measures adopted.

### **Governance complexity**

Complex systems are characterized by multiple autonomous self-organising agents with power and influence dispersed across relationships amongst them (Murphy et al. 2016). Outcomes are always transboundary problems, requiring contributions from a range of semi-autonomous actors to tackle effectively. Modern public service landscapes meanwhile which have become increasingly fragmented and polycentric (Kickert et al. 1997; Christensen and Lægreid 2007), particularly following many years of NPM reforms. Accordingly modern public service landscapes are subject to Governance Complexity (Kickert et al. 1997; Moynihan et al. 2011) requiring the mobilisation of resources and knowledges from a range of self-organising and semi-autonomous entities.

In contrast to the other three dimensions of complexity, this is a limitation of the control rather than knowledge needed to navigate complexity. Even if, theoretically, these other dimensions were to be surmounted, any change agent would face an additional barrier in their limited power and influence over others needed to tackle outcomes effectively. Traditional PMM systems were developed largely for intra-organisational control in large organisations, leading PMM theorists to question their utility in an inter-organisational level where control is dispersed or absent (Melnyk et al. 2014; Bourne 2017). In addition to the epistemological limitations brought about by compositional, experiential and dynamic complexity, Governance complexity therefore brings about the challenge of mobilising the necessary contribution and commitment needed to tackle shared problems across the requisite diversity of autonomous partners (Moynihan 2011).

## The implications of complexity for performance measurement and management

Building on the complexity sciences and their application within organisational theory and PMM scholarship, Table 1 presents a conceptual typology of the complexity of outcomes across the four forms explored in the previous section. This provides a conceptual framing of complexity tailored to the unique and distinctive context of public management. This typology relates each form to a particular characteristic of complex systems, each of which is argued to carry significant implications for PMM system design.

**Table 1. Conceptual typology of the complexity of outcomes, and its implications for performance management practice**

<b>Condition of complexity</b>	<b>Complexity theory principle</b>	<b>Explanation</b>	<b>Implication for practice</b>
Compositional complexity	Interdependence	Outcomes are determined by independent configurations of multiple factors linked together through feedback loops	<b>Causal uncertainty.</b> Causation cannot be reduced to individual contributions, and ‘agents’ cannot be held directly accountable for outcomes
Experiential complexity	Variety	Each person has their own experience of an outcome - how it has been achieved, how it is valued, and how it may be improved	<b>Heterogeneity of need.</b> Outcomes cannot be effectively standardized across beneficiaries of services and interventions
Dynamic complexity	Co-evolution	What counts as a desirable outcome, and the causal make-up of those outcomes, is constantly changing	<b>Instability over time.</b> Outcome indicators and targets cannot remain static, and ‘best practice’ is constantly changing
Governance complexity	Self-organisation	Power and control are dispersed across a range of autonomous partners	<b>Lack of control.</b> PMM systems cannot control all the relevant factors which contribute to any outcome

In the traditional OBPM archetype, technical management controls – the formalized, routinized quantitative metrics of PMM systems – are held to drive learning and trigger strategic adaptation based on identified best practices. Our analysis however indicates that technical controls can only generate performance judgements which are incomplete due to compositional complexity, which lack universal relevance due to experiential complexity, and which may be ephemeral due to dynamic complexity. This makes the link between cause and effect highly uncertain, since what ‘worked’ before may not work in the near future, and is unlikely to have worked for everyone. The complexity of outcomes means that what counts as best practice, success or good performance is always context-dependent and that uncertainty is therefore an inevitable element in decision making (Lowe and French 2018). Architects of PMM systems will face substantial ambiguity over which metrics to adopt to monitor performance, and how performance information may be interpreted in retrospect for performance appraisal. The final dimension, governance complexity, is an additional barrier to agents utilising whatever partial knowledge is gained from performance information to design and implement effective social interventions.

The assumption taken from Agency Theory that extrinsic incentives applied within agonistic principal-agent relationships will lead to improved performance is also undermined. Principals cannot access the information they need to design effective PMM control systems, while agents are deprived of the autonomy to adapt their approach based on their particular operating context. A complexity-informed conceptual analysis of outcomes implies that outcome-based accountability is unreasonable and counterproductive to enforce, since it will often be impossible to control external factors, or to adjudicate with any real authority over competing claims to impact. The uncertainty and lack of control agents face is instead likely only to amplify perverse performance incentives, since gaming performance or distorting performance information becomes the only feasible approach to ensuring success and avoiding sanction.

This complexity-informed analysis of OBPM suggests that PMM systems based on principal-agent relationships and technical management controls are significantly limited in their ability to effectively improve outcomes. This contributes an explanatory narrative for the poor empirical record of OBPM described earlier in this chapter, suggesting that OBPM is likely to heighten perverse performance incentives and generate misleading conclusions from around partial, out of date or over-generalized performance information. In this view, the poor performance of outcomes based approaches in practice does not follow poor implementation or methodological deficiency, but is rather a feature of the PMM paradigm itself.

The complexity of modern business operating environments prompted to pose the question “Is PMM fit for the future?”, and for leading PMM theorists to begin to revisit the theoretical foundations of PMM theory (Beer and Micheli 2018; Bourne et al. 2018). We consider the challenge for public sector organisations is at least as strong – and that the conceptual analysis of outcomes undertaken here can provide a basis for revisiting, rather than merely confounding, the assumptions of traditional OBPM.

### **A complexity-informed theoretical basis for outcomes-based management**

We have argued that OBPM systems have failed to function effectively because the theoretical basis used to construct and manage PMM relationships – agency theory and technical managerial control systems – are undermined by the inherent complexity of outcomes. Complexity theory has attracted enduring interest in public management and policy scholarship (Teisman and Klijn 2008; Eppel and Rhodes 2017) however complexity has in general been positioned as a problem, rather than a solution, to public management practice. We consider that the four forms of complexity provide a constructive foundation from which to theorize an alternative conceptual basis for OBPM which responds explicitly to the view of outcomes as emergent products of complex systems. We describe two key theoretical transitions which may enable PMM systems to respond to complexity: moving from agency theory to stewardship theory, and from technical performance control to social control.

## **From agency theory to stewardship theory**

Agency theory has provided a suitable relational basis for constructing accountability and incentivisation systems based on results. Agency theory however provides no organising schema for organising performance management relationships where no central hierarchical authority exists, for instance within inter-organisational partnerships or alliances (Bourne et al. 2018). More fundamentally, agentic autonomy is understood as an organisational cost (Jensen and Meckling 1976), rather than an essential capacity to cope with the varied, rapidly changing and causally complex circumstances brought about by compositional, experiential and dynamic complexities. One promising alternative theoretical basis is Stewardship Theory (Davis et al. 1997; Dicke and Ott 2002; Schillemans 2013). Originating as a critique of Agency Theory, Stewardship Theory presumes that principals and agents share a motivation to achieve an organisation's purpose. Service managers and commissioners are advised not to constrain agency, but instead that "a steward's autonomy should be deliberately extended to maximize the benefits of a steward, because he or she can be trusted." (Davis, Schoorman, and Donaldson 1997, pp 28).

Compositional, experiential and dynamic complexities make the link between activities and outcomes highly non-linear, context-specific and unstable over time. This demands that organisations be capable of providing flexible or adaptable enough service solutions to the public, often in the absence of direction from formalized and pre-ordained performance metrics (Melnik et al. 2014). Most significantly, this view calls for an extension of autonomy of frontline and public-facing professionals to respond to the presentation of complexity at its source – for instance, between a care giver and care recipient. By trusting that agents are both inclined and equipped to respond effectively to the complexity of their operational contexts, Stewardship Theory legitimizes a relaxation of the monitoring and attribution burden by enabling operation through trust in the absence of hierarchical control and formal results-based accountability. Stewardship theory would therefore reframe performance management as a dynamic and emergent process accomplished by ongoing learning and



revision among those traditionally occupying 'agent' roles, in return for a relaxation of the formalized monitoring and accountability burden.

Stewardship theory may also offer a useful means for navigating governance complexity by helping construct inter-organisational performance management relationships. We have argued that PMM systems based on Agency Theory are also of limited value in informal and multi-agency environments where contractual principal-agent relationships cannot be established. In this view, the purpose of specifying shared outcomes would form the basis for building inter-organisational alliances to respond to key shared challenges. Stewardship may provide a framing for brokering and maintaining key inter-organisational alliances based on shared principles, providing focal points for brokering alliances and undertaking collaborative action.

From the perspective of stewardship theory, performance improvement in a complexity-informed context is primarily a function of the intrinsic motivation of stewards to learn, collaborate, and organize activities in a socially responsible manner. As a mechanism for governance however, this can be argued to rely on a naively optimistic view of human nature, particularly since collective stewarding behaviours can be undermined by 'free riders' who work instead to shirk work or behave opportunistically. While this may be offset by high levels of public service motivation in the public sector workforce (Perry and Wise 1990), we consider that stewardship is a desired but not assumed propensity in the public sector workforce. In addition, increasing autonomy for those traditionally understood as 'agents' can create coordination challenges (Hoverstadt 2010), and measurement difficulties in aggregating information for collective decision making (Cook and Miller 2012). While stewardship theory establishes a conceptually appropriate relational structure for complex behaviours therefore, it lacks a suitably robust control system.

### **From technical control theory to social control theory**

PMM systems have relied on technical management controls, particularly formalized, quantitative outcome data - to drive better managerial decision-making. In complex environments however, useful performance information is context-dependent, time-limited and individualized, which diminishes the validity and relevance of long-term, aggregate and unidimensional performance indicators. PMM scholars have suggested that a focus on 'social controls' may provide an alternative means of coordination and performance improvement in these situations (Child 1973; Ouchi 1979; Smith and Bititci 2017; Beer and Micheli 2018; Okwir et al. 2018).

Social controls operate through emergent, cultural and behavioural elements of organisational control by appealing to the "emotive, affective elements" of organisational behaviour (Smith and Bititci 2017). The PMM literature describes how Social controls amplify, nurture and capitalize on intrinsic motivational drivers through emphasising values and core beliefs (Simons 1994; Alvesson and Kärreman 2004), enacting symbolic behaviours which emphasize these values (Schein 1992; Malmi and Brown 2008) and creating new organisational and inter-organisational norms and routines which can enact a form of peer-based or horizontal accountability (Ouchi 1979; Simons 1994). For Bititci et al. (2015, pp.170-187) social controls are the art rather than the science of performance management.

Value-based controls Simons (1994) calls for the emphasis of mission, purpose and value as directives for organisational behaviour. Common examples of this in practice include mission statements, statements of purpose and other organisational belief systems which convey values (Simons 1994). The significance of collective values brings to light Moynihan's (2011) argument that leaders 'set the table' for effective performance management. Leadership must ensure social controls extend beyond merely codified statements of purpose, and connect with factors which resonate with values and inspire purposeful use of performance information (Moynihan et al. 2011). Leaders should therefore encourage the creation of a 'developmental culture' which encourages learning and adaptability as a normative good and accepted professional competency (Zammuto and Krakower 1991). The use of social controls within PMM systems is a key aspect of complexity-appropriate PMM practice,

encouraging employees to use performance information purposefully for learning and performance improvement (Moynihan et al. 2011) rather than to satisfy accountability burdens.

Additionally, governance complexity makes it necessary to operate in an inter-organisational environment where performance is collectively determined and formal hierarchical accountability is not possible to enforce. Social controls may be the only feasible mechanism of coordination in many inter-organisational contexts. This challenges leadership to translate organisational goals into factors which resonate with values not just of employees, but of actors beyond the organisational boundary. PMM systems can then facilitate the creation of shared goals which can provide platforms for inter-organisational collaboration, help construct alliances, and enact a form of horizontal accountability by “[inculcating] norms that center on social impact” (Moynihan et al. 2012,pp.478).

A focus on social controls therefore challenges the view of PM as a technical-rational endeavour involving only routinized, aggregated and formalized performance metrics commonly adopted, legitimating a broader view of useful performance information involving qualitative and context-specific insights. This is not to say however that technical control elements of PMM systems should be abandoned altogether, however technical performance information be considered in concert with a range of contextual information. Importantly, (Smith and Bititci 2017) argue that the effects of PMM systems depend on the interplay between technical and social elements, with technical controls operating in service of social controls.

We contend that the combination of Stewardship Theory and social control theory provide an alternative basis from which to theorize and construct an alternative model of outcome-based performance management which responds to the four forms of complexity described previously. Stewardship Theory provides an alternative basis for the construction of performance management relationships which assumes congruence in the motivation and goals between those traditionally

occupying principal and agent roles, including managers and practitioners, or commissioners and delivery bodies. Stewardship Theory advocates enhancing the responsibility and autonomy of stewards to engage with an unpredictable and changeable context and capture the non-routine performance information essential to engaging with complexity. Given that stewardship is a desired but not assumed state for public officials, theories of social control provide mechanisms to inspire, guide and inculcate stewarding behaviours which respond to complexity. By appealing to professional standards, normative codes of behaviour, organisational values or aspirations of better performance, social controls therefore provide motivated stewards with some role boundary through which appropriate actions can be undertaken, without diminishing their ability to navigate unplanned and emergent contexts.

## **Outlining a complexity-appropriate model of performance management**

We contend that the combination of Stewardship Theory and social performance control theory allows us to outline the contours of an alternative model of performance management which is conceptually appropriate to the demands of complexity. Table 2 shows how this model contrasts starkly with the traditional model of OBPM which developed in the context of NPM in both its conceptual foundations and operational mechanisms.

*Table 2. Two models of outcome-based performance management*

	Traditional OBPM	Complexity-informed OBPM
Conception of outcomes	Outcomes are the result of service processes and interventions	Outcomes are emergent properties of complex systems
Theoretical basis	Technical performance control, Agency Theory	Social performance control, Stewardship Theory
Value proposition	Improvement emerges through the extrinsic incentivisation of agents based on results control  Performance information provides management with the means to pursue objective decision making	Improvement comes through the intrinsic motivation of stewards to achieve public value.  Performance information promotes learning based on deep contextual knowledge

Coordination mechanism	Clear and measurable goals, accountability structured around results	Leadership features promoting shared values, norms and symbolic behaviours, developmental organisational cultures
Focus of performance information use	Accountability	Learning
Decision making authority	Top-down / managerial	Bottom-up / practice-based

The two models begin their divergence in their conceptualisation of outcomes. A complexity-informed OBPM adopts the view developed by public health and social determinants scholarship, that outcomes are external, dynamic and emergent systemic properties. Performance in this context is not determined by the internal effectiveness of processes, but by how effectively an organisation can engage with this external complex system. With Stewardship Theory providing a relational basis for PMM and social performance control theory providing a coordinational mechanism, a complexity-appropriate PMM system would offer a very different value proposition to traditional OBPM. Rather than extrinsic incentivisation coupled with objective decision making driving performance improvement, performance is more a function of intrinsic motivation and the capacity of individuals and organisations to learn and adapt autonomously to the complexity of their presenting context.

These two bodies of theory provide the basis for two broad models of OBPM which can be functionally differentiated at three key operational parameters. Firstly, since goal incongruity and fragmentation are critical issues in complex governance situations, a complexity-informed OBPM system retains an important coordinational function. If it is impossible or counterproductive to enforce direct accountability for outcomes, it may still be possible to build collective stewardship for them. Social control theory affords a range of mechanisms, for instance mission building, value-based controls (Simons 1994; Tessier and Otley 2012) norms and horizontal accountability (Ouchi 1979), and symbolic action (Schein 1992). This creates a key role for leadership to inspire, connect and build momentum for change both within and across organisations. Models of leadership such as integrative leadership (Crosby and Bryson 2010), transformative leadership (Moynihan et al. 2011) and complexity-informed models of leadership (Uhl-Bien et al. 2007), all provide useful theoretical context for operating in this way.

Secondly, the two models differ in how performance information is used for improvement purposes. Decision making which is based entirely on routinized, aggregated, formally reported and singularly quantitative performance information lacks the contextual relevance to inform effective decision making in complex environments. A broader view of useful performance information, legitimating the viewpoints of those engaging directly with complexity, is critical to effective practice (Lowe and French 2018; Lowe et al. 2020). The use of technical performance data remains critical in a complexity-informed archetype of OBPM, however this should be used primarily for learning purposes, not for holding people accountable for movement in indicators. Leaders can help the uptake of performance information for improvement by helping foster a developmental culture, encouraging learning and tolerating responsible failure.

Thirdly, in traditional OBPM strategic and budgetary decisions are reserved for those occupying ‘principal’ roles – such as funders, commissioners and service managers – who are often detached from the context in which performance information originates. Rather than harnessing performance information to inform centralized and managerial decision making, a complexity-consistent response instead would work to build decision-making autonomy and promote rapid learning and adaptation amongst lower organisational units and others occupying traditional ‘agent’ roles (Bourne et al. 2018). To respond to complexity, this should involve extending autonomy to practice-engaged professionals, where complexity can be understood and tackled most directly. This requires trusting and investing in the expertise and capacity of staff to act responsibly and with substantial autonomy, a role which extends beyond the ‘discretionary’ powers commonly derogated to frontline employees (Lipsky 2010).

Taken together, these parameters set out a very different model of performance management to the traditional OBPM and the methods which currently preoccupy policy discourse. A complexity-informed OBPM model seeks to create the conditions for good performance to emerge through motivating collective stewardship of outcomes and promoting iterative learning based on contextualized performance information. Adopting a complexity-informed OBPM practice constitutes

a far more significant institutional challenge for public service organisations since it involves changing deeper-seated cultural norms of risk tolerance, hierarchy and accountability. Nevertheless, having articulated the contours of this approach, it is possible to identify examples of initiatives and organisations which exhibit this model strongly. A particularly clear example for instance is the Buurtzorg model of community nursing, a large-scale initiative which has positioned frontline autonomy, systemic integration, and a learning culture as key elements of its successful approach (Monsen and de Blok 2013).

## Conclusions

Building on the view of outcomes as emergent products of complex systems advanced in public health and social epidemiology scholarship, this paper has undertaken a conceptual analysis of implications of complexity for PMM systems in the public sector. Its principal contribution to public administration and non-profit research is the development of a new conceptual taxonomy of the complexity inherent to public service outcomes and an exploration of its implications for PMM system reform. We have argued that outcomes present four forms of complexity with which PMM systems must contend:

- Compositional complexity, which results from the interdependence and inter-determinance of the causal factors from which outcomes emerge
- Dynamic complexity, which results from the coevolution of interacting factors and the instability inherent to their environment
- Experiential complexity, which results from variety, both in the multitude of causal pathways to shared outcomes and in how such outcomes are experienced and valued by individuals
- Governance complexity, which results from the heterogeneity of actors involved in creating social outcomes, and the absence of a single locus of control for those actors, itself increased by the fragmentation of modern public service landscapes

By making these forms of complexity visible, the conceptual taxonomy enables us to locate the noted deficiencies and paradoxes of OBPM at the conceptual and paradigmatic level, rather than as procedural or methodological shortcomings. The second and more significant theoretical advancement made has been to adopt these four forms of complexity in a constructive capacity towards theorising an alternative model of OBPM which responds meaningfully to the complexity of outcomes. This latter trajectory has been explored in business PMM literature (Bourne et al. 2017; Melynka et al. 2014; Okwir et al. 2018) however has not yet been substantially explored in the distinctive context domain of public service.

We develop two particular theoretical literatures which might enable an alternative form of OBPM, and which may assist in theorising new ways of embedding an outcomes-focus. We argue that Stewardship Theory provides a promising alternative conceptual architecture for designing performance incentive systems, allowing PMM systems to capitalize on agentic autonomy and motivate learning. Secondly, we argue that focussing on social controls in place of technical management controls may help to create the permissive and enabling learning cultures necessary to motivate learning and build a collective sense of responsibility for outcomes.

The chapter delineates between two archetypes of OBPM, although it is granted that PMM systems may exhibit some elements of one (e.g. an extra-organisational focus on stewardship) while rejecting others (e.g. maintaining vertical accountability within organisational functions). We consider however that an integrative approach, blending elements of both OBPM archetypes will not be straightforward, since motivation-crowding effects can displace stewardship behaviours and be culturally abrasive to learning cultures (Deci and Ryan 1985). There are also certainly situations where a more traditional approach to PMM is appropriate in simple and even complicated environments – for instance the standardisation of certain clinical procedures for patient safety. However for reasons elaborated at the beginning of this article, where initiatives are focussed on genuine societal outcomes we consider that



public organisations may find themselves with little choice but to move toward a complexity-informed OBPM archetype.

There are signs of this shift occurring in contemporary public management practice. Organisations like Buurtzorg have undertaken strikingly similar approaches to those advocated here, including promoting the autonomy of self-managing teams to respond to situated needs (Monsen and de Blok 2013). The Scottish Government has adopted an outcomes-focus in its performance measurement system which promotes collaboration and learning without enforcing outcomes-based accountability (Mackie 2018). Funders and public sector commissioners have begun to explore complexity-informed approaches to OBPM by refocusing accountability on learning rather than measurable results and by seeking to influence the conditions needed for outcomes to emerge (Davidson et al. 2017; Lowe et al. 2020).

As noted earlier in this chapter, academic studies adopting complexity theory have provided more insight into the challenges than solutions precipitated by complexity. We consider that by integrating a complexity-based critique of PMM with a critical analysis of outcomes, new constructive research trajectories for PMM and public administration scholarship are revealed. Scholars are prompted to ask very different questions, for instance, how do public organisations recruit and retain employees who exhibit high degrees of intrinsic and pro-social motivation, and how might they be socialized to take on a stewardship role in performance management relationships? Which leadership approaches can best assist PMM systems to inspire learning, collaboration and collective improvement? How can technical performance indicators best work in service of social controls operating in PMM frameworks? The developing theory and practice of complexity-informed management provides a promising context to explore further the mechanics of a complexity-informed public management practice described in this chapter, and the challenges and opportunities this affords in practice.

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