

Measuring and Managing Performance in Complex Organizational Settings

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Welcome to a Brave New World

On the 17th of November 2019, the world changed, but at that moment in time, no one knew what COVID-19 was or was aware of the impact it was going to have on the global economy and the way we live our lives. This single event has changed what was already a very complex social and economic environment into something even more uncertain and unpredictable. Six months later, organisations right across the world are still having to reconfigure their operations to deal with the new situation. This event is extreme and unprecedented in living memory, but it does provide a unique opportunity to explore and understand the processes, practices and art of using performance measurement to manage operations and to effect change.

A reminder of the previous world

Even before the current crisis, the world was changing fast, and we were already at an inflection point. In differential calculus, an inflection point is a point on a continuous plane curve where the curve changes from being concave to convex or vice versa. When applied to business, a point of inflection denotes a period of significant change. It is a period in which past practices, perspectives, and frameworks are no longer as attractive or relevant. There is strong evidence to suggest that we are now at the next point of inflection in the development of performance measurement and management (PMM) systems – an accumulated effect of changes driven by increasingly more complex business environments. Indicative of this increasing complexity are the following major shifts:

- A shift from a focus on cost to a focus on other dimensions of performance, including innovation, responsiveness, sustainability, resilience, and security (Melnyk et al., 2010).
- The increasing importance of the customer.
- An accelerating rate of change (due in part to rapid changes in technology).

- The emergence of new media (e.g., social media) by which customers can make their pleasures (and displeasures) known and by which firms can better predict customer demands and attitudes.
- An explosion of data (often referred to as big data) that begs to be analysed and used.
- An increasing demand for better visibility and transparency within the supply chain.
- A recognition that operations management and supply chains are now being viewed as strategic, rather than tactical, aspects of management.
- Turbulent environments demanding that managers take action in the absence of “perfect information” and in the presence of considerable uncertainty (recognizing that proceeding on what could be seen as “poor” decisions has to be weighed against the potentially catastrophic consequences of failure to act).

Today’s organizations find themselves embedded in social and natural systems characterized by unprecedented levels of complexity. Striving to grow and improve performance, they are having to deal with disruptive technologies, blurring organizational and market boundaries, shifting competitor and stakeholder landscapes, new distribution channels and rapidly changing customer needs. On top of this, they also need to contend with volatility fuelled by natural disasters, increasing political interventions in trade agreements and intellectual property, and growing threats in cybersecurity.

Such changes demand a re-examination of PMM theory and practice – the focus of this special issue. For this special issue we are looking for papers that help us understand the emerging theories and practices as management control at the heart of the traditional PMM paradigm evolves or is replaced.

Leading organizations have always tried to keep pace with the changes in their environments, adapting their approach to performance measurement and management to meet the needs of the time. We have observed this happening to costing and management accounting systems during the emergence of factory production, vertically integrated manufacturing and multi-divisional enterprises at the end of the 19th and beginning of the 20th Centuries (Johnson, 1972, 1975, 1978, 1981). We have also observed this happening again in the late 1980s and early 1990s when outdated costing systems were replaced, and multi-dimensional measurement systems were developed and introduced – systems that enable companies to compete in a consumer-driven world (Johnson and Kaplan 1987; Neely et al 1995; Wilcox & Bourne, 2003). But we have moved on again and in this new world complexity, speed volatility and emergence is creating a challenge for managers as they endeavour to respond to changing demands in a timely fashion (Melnyk et al., 2014, 2017; Bititci et al., 2018)

The Focus of this Special Issue

Over the last 25 years, this journal has spearheaded the research into how organizations measure, manage, and improve performance. This research has moved from the creation of multi-dimensional frameworks (Neely et al., 1995) to exploring their effects in organizations (Pavlov and Bourne, 2011). Early research took the view that performance measurement and management (PMM) systems were needed to direct and control the organisation. Indeed, there has been a considerable focus on using PMM systems to enable the alignment of strategy and operations by cascading objectives, indicators, and targets (Hanson et al., 2011; Micheli and Mura, 2017). More often than not, such approaches have emphasised measurability, stability and controllability. However, the changes in business environments, as outlined in the preceding section, make it apparent that traditional

approaches to measuring, managing, and improving performance are struggling to keep up with the change (Melnyk et al., 2014; Bourne et al., 2018; Bititci et al., 2018). These settings demand new ways of thinking that explicitly acknowledge the complexity, dynamism, interconnectedness, and the emergent nature of the challenges faced by organizations.

Prior work in operations management has gone some way towards recognizing these issues and proposing ways of understanding and theorizing complexity within and across organizations. This research has been carried out in multiple organizational settings, including supply chains (Choi et al., 2001; Surana et al., 2005; Turner et al., 2018; Bai & Sakis, 2019; Zhao et al., 2019), logistics (Nilsson & Darley, 2006), lean thinking (Saurin, 2013; Ferreira & Saurin, 2019), project management (Maylor and Turner, 2017), decision support systems (Baldwin et al., 2010), risk management (Jamshidi et al., 2016) and, indeed, performance measurement and management (Bourne et al., 2018).

Some studies have explicitly drawn on complexity theory, in its widest sense, with authors using concepts such as complex systems (Saurin, 2013; Ferreira & Saurin, 2019), complex adaptive systems (Zhao et al., 2019; Choi et al., 2001; Surana et al., 2005; Nair & Reed-Tsochas, 2019), and evolutionary complex systems (Baldwin et al., 2010) to improve our understanding of organizations and their environments. Others have focused on complexity as a characteristic of organizations and projects, identifying and theorizing practices for managing complexity (Geraldi et al., 2011; Maylor and Turner, 2017; Turner et al., 2018).

More broadly, research in operations management has demonstrated that the emergent and unpredictable nature of modern organizations and their environments is the result of unanticipated variability, diversity of elements and their interactions (Saurin, 2013), the interaction between agents and their environment (Nair & Reed-Tsochas (2019) and the nature of the systems themselves (Bourne et al., 2018). As such, these environments are difficult to describe and understand, let alone manage and improve.

Within the literature, researchers have dealt with these challenges in one of three ways: (1) by proposing better tools and practices for dealing with complexity (e.g., Jamshidi et al., 2018; Nilsson & Darley, 2006; Zhao et al., 2019; Bai & Sakis, 2019); (2) reducing complexity (Maylor & Turner, 2017); and (3) introducing alternative perspectives, such as a “System of Systems” view (Bourne et al., 2018), and various guiding frameworks (Nair & Redd-Tsochas, 2019). However, although this work has created a platform for thinking about complexity, it has not focused specifically on PMM and its role in complex environments (Bourne et al., 2018 and Alexander et al., 2018 being notable exceptions).

Consequently, this has left underexplored crucial questions as to what performance actually means in a complex system and how we should think and go about measuring, managing, and improving it. For example, operating in complex settings may mean that prediction and control are exceedingly difficult, if not impossible, and therefore PMM systems and practices may need to emphasize learning, adaptation and interpretation, rather than alignment, optimization, and a relentless pursuit of “objective” performance data.

Given the nature of this change, we can build on previous research but, in the context of the current crisis, we must also understand the emerging management challenges and be open to new perspectives. Extreme situations require appropriately crafted solutions, and although many mistakes will be made, there will be some exceptional new approaches which should be captured

and explored. Further, we must remember that *“whether you can observe a thing or not depends on the theory which you use. It is the theory which decides what can be observed.”* (Heisenberg, 1926). So, we are also looking for new theories and theoretical frameworks and lenses to make sense of this new world.

Suggested Topic Areas

This special issue invites papers that explore the task of measuring and managing organizational performance in complex organisational settings. We are not wedded to a specific theoretical approach or empirical setting, but we will seek to maintain a tight focus on PMM and complexity as the central subjects of this special issue.

Topics include but are not limited to:

- The role of PMM in complex change, reconfiguring operations and communicating intent
- Practices and procedures for measuring performance in complex organizational settings
- The usefulness of measures for informing decision making in complex environments
- The perils and usefulness of using real time data
- The interpretation of big data: approaches, practices, tools and insights
- Governance practices and structures for complex organisational settings
- The design and use of performance measurement at different levels of the organisation
- Performance management and the limits to management control
- Conflicting issues of autonomy and control
- Complexity-driven approaches to managing performance in networks and ecosystems
- Alternative approaches for managing performance in complex systems, including automated decision making, AI, and mixed human and cybernetic approaches
- Performance management practices for dealing with complexity
- The effects of performance measurement and management on performance in complex and volatile environments
- Re-imagining the link between strategy and performance
- Process-based, non-linear, and recursive models and frameworks for managing performance
- The role of history and path-dependence in designing PMM systems and managing performance
- Approaches to embracing complexity to guide emergence and performance
- New theories, theoretical frameworks and lenses for analysing PMM systems in complex environments

This special issue will be linked to the 2021 PMA: Performance Management Association conference to be held at the University of Groningen, the Netherlands in the summer of 2021. However, authors are welcome to submit their manuscripts directly to the Journal.

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