Human Resource Management Review xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Human Resource Management Review

journal homepage: www.elsevier.com/locate/humres

Structural influences upon coordination and performance in multiteam systems

Ramón Rico [a,*], Verlin B. Hinsz [b], Robert B. Davison [c], Eduardo Salas [d]

[a] University of Western Australia, Business School, Australia
[b] Department of Psychology, North Dakota State University, United States
[c] University of Kansas, School of Business, United States
[d] Department of Psychology, Rice University, United States

ARTICLE INFO

Article history:
Received 31 July 2016
Received in revised form 12 February 2017
Accepted 16 February 2017
Available online xxxx

Keywords:
Multiteam systems coordination
Multiteam systems performance
Functional process interdependence
Integration mechanisms
Confluent/countervailing effects

ABSTRACT

Building upon organizational design and boundary spanning and multilevel literatures, we propose a theoretical framework that extends previous work on the drivers of multiteam system (MTS) coordination and performance. Our proposal integrates aspects of functional process interdependence and different integration mechanisms used within MTSs to better elucidate how different coordination processes emerge. The framework exposes potential countervailing or confluent effects of coordination processes on performance and, thereby, reconciles seemingly incongruent findings regarding the effect of different approaches to coordination on MTSs performance. In addition, our framework helps managers consider the multilevel nature of MTS coordination processes in ways that assist them in selecting an approach to effectively address the coordination challenges inherent in these complex systems.

1. Introduction

The leading organ transplant organization in the world, the Spanish National Transplant Organization, transplanted 2552 kidneys, 285 lungs and 249 hearts in 2013. This complex, life-saving and hope-giving task is only possible because of an extremely well-coordinated system of highly specialized teams. From a team of psychologists and grief counselors who talk to a heart-broken family to authorize a donation, to an intensive care unit (ICU) team keeping the vital organs viable after brain death of the donor, to a surgery team that extracts the donated organs, to a transplant coordinating unit arranging teams to transport the organs and coordinating the recipient surgery and anesthesia teams to receive the organs and complete the transplant. These teams have goals of their own to achieve, yet as highly interdependent members of an integrated system of work, their ultimate success is defined by a common superordinate goal – the successfully transplant of an organ. Achieving this life-saving goal requires effective integration and coordination of activities both within and across team boundaries. Highly interdependent teams of specialists, each with their own goals, yet sharing a superordinate goal (or set of goals), is the quintessential description of a multiteam system (Mathieu, Marks, & Zaccaro, 2001).

Multiteam systems (MTSs) are enacted to address complex and urgent problems across a broad range of economic sectors. Environmental disasters, security crises, agricultural crop developments, cleaner energy, more sustainable mobility, key military operations, scientific discoveries, medical operations, and space exploration are examples of productive activities managed by teams of

* Corresponding author.
E-mail address: ramon.rico@uwa.edu.au (R. Rico).

http://dx.doi.org/10.1016/j.hrmr.2017.02.001
1053-4822/

Please cite this article as: Rico, R., et al., Structural influences upon coordination and performance in multiteam systems, *Human Resource Management Review* (2017), http://dx.doi.org/10.1016/j.hrmr.2017.02.001

interdependent teams. Consequently, understanding the drivers of MTS performance and learning to manage them effectively continues to be a matter of great interest to scholars and practitioners alike (de Vries, Hollenbeck, Davison, Walter, & van der Vegt, 2016). Extant research has identified coordination of activities within and between component teams as a key determinant of MTS performance, yet a more nuanced description of how effective coordination might be realized in practice is yet to be articulated. The purpose of this paper is to present a theoretical framework that describes how coordination processes emerge across levels in MTSs and to explain how coordination processes relate to effective performance in multiteam systems.

MTSs are complex organizational units that can be conceptualized as tension systems in which effective functioning requires reconciling the opposing forces emanating from the simultaneous need for both self-reliant component teams and a tightly coupled system (Lewin, 1936; Mathieu, Luciano, & DeChurch, 2017). The notion of tension systems was articulated by Luciano, DeChurch, and Mathieu (2015) when describing the structural forces that power MTSs and concurrently threaten their performance. Differentiation structural forces are boundary-enhancing forces that bolster the differences within a system. Specific to MTSs, organizing component teams by specialization enhances team membership salience while diminishing MTS identification. As a result, inter-group conflicts and workflow disruptions increasingly impair system performance (Rico, Hinsz, Burke, & Salas, 2017). Dynamism structural forces are disruptive forces that increase uncertainty and destabilize a system (Luciano et al., 2015). Shifts in the performance environments faced by MTSs alter goal priorities and, thereby, task demands (i.e., dynamic centrality; Davison, Hollenbeck, Barnes, Sleesman, & Ilgen, 2012). The resultant workflow disruptions impair effective MTS governance and goal attainment.

Accordingly, creating MTSs that work effectively requires compensating for both differentiation and dynamism forces such that a state of dynamic equilibrium is achieved within the system. MTS scholars have proposed that coordination is a key compensatory process that serves to stabilize a MTS (Marks, DeChurch, Mathieu, Panzer, & Alonso, 2005; DeChurch & Marks, 2006; Mathieu, Maynard, Taylor, Gilson, & Ruddy, 2007). However, extant research has shown that coordination in a MTS is more complex than originally thought (Davison et al., 2012; Lanaj, Hollenbeck, Ilgen, Barnes, & Harmon, 2013). Findings suggest that unfettered direct coordination between members of different component teams (i.e., anyone with anyone) is inefficient and becomes increasingly detrimental to MTS performance as relational and information processing complexity increases. Although coordinated action within component teams remained positively related to MTS performance, the use of informal coordination mechanisms between component teams causes MTSs to operate like a large undifferentiated team, negatively impacting the effects of between component team coordination on MTS performance. These findings illustrate that MTSs coordination processes may have confluent (i.e., convergent) effects within and between component teams, but they can have countervailing (i.e., opposite) consequences on system performance as well (DeChurch & Zaccaro, 2013). Thus, while coordination is clearly vital to MTS success, its main performance enhancing role appears to change across levels within the system.

Therefore, for the advancement of the MTS science and for the proper management of these ubiquitous systems in practice, it is necessary that the factors contributing to the countervailing or confluent effects of coordination processes on MTS performance be identified and understood. That is the first goal of the theoretical framework we propose here. In addition, our aim is to develop a theoretical framework that has practical application as well; thus, our second goal is to provide guidance as to what managers might do to maximize confluent and minimize countervailing process consequences of coordination in MTSs.

Building upon coordination, organizational design and boundary spanning literatures, we propose a framework that contributes in several ways to extant knowledge in the MTS field. The theoretical framework expands previous work and deepens our understanding by relating aspects of functional process interdependence and different integration mechanisms used within MTSs to better understand how different coordination process types (i.e., implicit and explicit) emerge and drive performance (DeChurch & Mathieu, 2009; Zaccaro, Marks, & DeChurch, 2012). The framework also reconciles seemingly incongruent findings regarding the effects of coordination on MTSs performance by considering the multilevel nature (i.e., within and between component teams) of MTS activity. Finally, the framework helps managers consider the multilevel nature of MTS coordination processes in a way that assists them in selecting an approach to address the coordination challenges inherent in these complex systems effectively. Fig. 1 provides a summary of the framework and the related propositions.

2. Theoretical background and propositions

The highly specialized component teams that comprise a MTS pursue a shared superordinate goal or set of goals in addition to their own goals. Teams are functionally interdependent and, thus, the processes employed by component teams to accomplish tasks and achieve system-level goals involve reciprocal influence, reliance, dedication, and common interest (Mathieu et al., 2001).

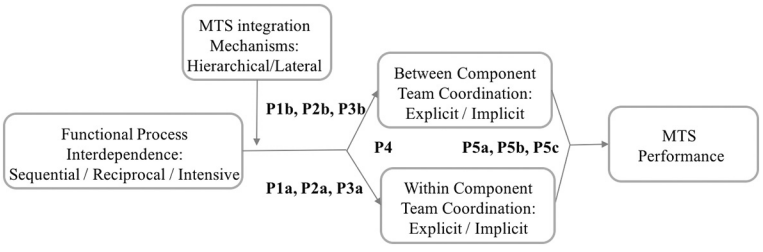

Fig. 1. Structural and temporal influences on coordination processes and MTS performance.

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