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Reliability and Resilience as Dimensions of Organizational Performance: introduction

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Reliability and Resilience as Dimensions of Organizational Performance: introduction

Erik Hollnagel

Mines Paris Tech
erik.hollnagel@crc.ensmp.fr

Benoît Journé

University of Maine and University of Nantes (IEMN-HAE)
benoit.journe@univ-nantes.fr

Hervé Laroche

ESCP Europe
laroche@escp-eap.net

Ce numéro spécial propose d'appréhender la fiabilité et la résilience organisationnelles comme des dimensions de la performance. Ce faisant, il contribue à sortir ces deux dimensions du cercle des spécialistes du risque pour les inscrire dans le champ plus large du management des organisations tournées vers l'efficacité économique. Les trois articles proposent des études de cas approfondies dans des secteurs variés : transport ferroviaire, petit électroménager et tourisme. Ils abordent la construction de la fiabilité et de la résilience dans les équipes projets, à travers des technologies de l'information et en tant que processus d'apprentissage post-crise. Une des contributions majeures de l'exploration de ces différents contextes est de souligner l'importance de la dimension temporelle et des dynamiques sociales dans la construction de la fiabilité et de la résilience.

Mots clés : fiabilité, performance, résilience, temps.

This special issue aims at a better understanding of organizational reliability and resilience as dimensions of performance. Organizational reliability and resilience are thus reframed as concepts relevant to the management of organizations seeking economic efficiency, beyond safety / risk issues. The three articles develop in-depth case studies in various industries: railway transportation, domestic appliances, and tourism. They address the construction of reliability and resilience in project teams through information technology and as a post-crisis learning process. A major contribution of the exploration of such different contexts is to underline the importance of time and social dynamics in the construction of reliability and resilience.

Keywords : performance, reliability, resilience, time.

It is customary for studies of reliability and resilience to pursue two main avenues of analysis. Firstly, they examine the way in which organizations specifically deemed 'high-risk' achieve a high level of performance in the field of reliability and resilience and thereby attempt to leave their mark on the blueprint for High-reliability Organizations (HROs). Secondly, their research often seeks to analyze major accidents in order to understand the flaws of the organizations in question.

Nonetheless, perhaps because these studies have gone beyond their core focus to provide an extremely powerful insight into the workings of the organizations in question, their readership has quickly surpassed the rather limited field of risk specialists. Of particular note in this regard is the great interest which has been shown in the work of K. E. Weick, as well as the influence of a number of monographs such as that by D. Vaughan (1996). Thus, studies of reliability and resilience have moved beyond their initial field of specialism and integrated into the more general discipline of organization analysis. We need look no further than the special issues of *Organization Studies* dedicated to K. E. Weick (2006) and the naturalistic decision-making perspective (2006), or, more recently, the issue of *Human Relations* (2009) dedicated to the social construction of safety. Conversely, this trend towards a wider readership has led to a focus on more general problems and issues. One example is the recent special issue of *Organization Science* (2009) on 'Learning from Rare Events', which embraces a new category of problems in the form of 'rare events' or 'unusual experiences', drawing both on classic safety-related incidents (a railway accident, for instance) and on well documented strategic moves (such as business acquisitions). In *M@n@gement*, the same trend is patent in research into the ways in which communities of practice contribute to resilience (Josserand, 2004) and in Journé and Raulet-Croset's methodological offering (2009) on the concept of situation.

This two-fold movement led to the call for papers which, in turn, brought this special issue into being. Indeed, we believe that performance marks a crossroads between traditional reliability and resilience issues and economic and management-related concerns both practically (for instance, how safety performance affects financial performance, or how different aspects of performance are reconciled) and theoretically (how the concepts of reliability and resilience can be integrated into and inform common theoretical approaches in management science). In short, the aim of this special issue is to draw on the benefits of thematic cross-fertilization and to showcase the tensions associated with performance drives as a means of establishing organizational reliability and resilience issues within the field of management.

In this spirit, the articles in this special issue present reliability and resilience from a number of different angles. Reliability and resilience are analyzed in several organizational and management contexts, and a great deal of care is taken to avoid their being limited exclusively to the domain of high-risk organizations; the focus is broadened, rather, to include organizations with a more general interest in the pursuit of production efficiency. Thus, the first article applies resilience to a number of plans to modify railway signaling systems in an attempt to prevent accidents from resulting from critical situations. The second analyzes the reliability of a design tool in the innovation process employed at an industrial organization. The third studies the way in which businesses learn from externally-provoked crises and build their capacity for resilience when faced with exogenous events.

The first contribution (Stéphanie Tillement, Thomas Reverdy and Céline Chollez) is also, in one sense, the most conventional, in that it deals

with a railway safety problem. It examines organizational resilience by adopting an interactionist approach to analyze the actions of groups in situations of constraint. Much of this paper's originality lies in its ability to demonstrate how organizational resilience does not mean a great deal to the individuals involved. It also suggests that in order to manage resilience, this notion has to be redefined according to the different types of group to which it is being applied. The management, then, must be responsible for orchestrating the conditions necessary for this collective redefinition and to ensure that this is compatible with the other objectives being pursued by the organization as a whole. Issues relating to power and asymmetrical relationships between different groups at work are at the heart of this analysis.

The second article (Valéry Merminod, Caroline Mothe and Franz Rowe) shares with the first an interest in design projects. Whilst the first paper focuses upon designing reliability, however, the second analyzes, rather, reliability in design. Productivity, and therefore financial performance, are at stake when discussing the reliability of the process by which new products are designed in a highly competitive environment, where the streamlining of new product development cycles is a key variable in the business's ability to compete. This article explores two contexts in which so-called Product Lifecycle Management (PLM) technology is used within one business (in the small electrical goods sector) and analyzes the effects which this technology exerts upon the reliability and productivity of the new product development process. In both these contexts (internal development and co-development), the PLM tool improves both reliability and productivity in the development process. However, the results are obtained through perceptibly different means in each of the two scenarios.

The third paper (Gulsun Altintas and Isabelle Royer) moves away from projects, but deals nonetheless with a context in which significant environmental pressures apply. In this case, however, the organizations being studied (which are in the tourism sector) come under threat not from direct competition but from sudden changes in activity due to external events. These organizations do not respond to threats by developing long-term means of improving their capacity for resilience. Rather, they function reactively. The question dealt with in this article, therefore, is to what extent their reactions bring improvements which increase the organizations' capacity to face subsequent crises. The study suggests that such post-crisis improvements are indeed achievable, and that they are two-fold: firstly, the organizations in question learn better to withstand the predicaments themselves, and secondly, they adapt their strategies and thereby become less susceptible to future crises.

Besides a general methodological tendency towards qualitative case studies, these three papers share a number of common features despite the diversity of their respective subject matters. All three articles discuss organizations having to deal with complex environmental conditions and activities which involve facing unforeseen and potentially risky events. In spite of this, such risks never form the central (let alone the sole) focus of a given case study. This means that resilience and

reliability are considered in the context in which they are managed as they inform the decisions and tensions around which the life of the organizations functions. Organizational resilience and reliability can neither be confined to the specialist domain of risk management nor watered down into the motto according to which 'safety is everyone's responsibility'. Instead, they are examined here as a matter for management, and constitute a hefty responsibility in a field where knowledge and practices are less than perfect and are scarcely based upon scientific principles (Mintzberg, 1980). This special issue thus combines the social construction of reliability and resilience with a management dimension which is rarely at the fore of analysis in the field (*Human Relations*, 2009).

All of the cases presented here, meanwhile, are rather long-term in scope, and stretch over years rather than hours, minutes or seconds. This hints at the fact that resilience can be long in coming; rather than resulting from sudden organizational reactions or management instructions, it is endowed with significant temporal depth which is undoubtedly instrumental in its success. This is an original consideration, and one which the issue throws into particular relief for the reader. Indeed, the temporal aspect has never been at the fore of work dedicated to organizational reliability and resilience. It is only indirectly introduced into the work of the Berkeley group (Roberts, 1990) in discussions of the safety culture in relation to reliability and resilience (Weick, 1987), which we assume takes some time to be established. It is a culture which does not seem to be particularly deeply rooted in the history and practices of the organization; rather, it seems to be based on a sense of voluntarism on the part of the management which insists on values which are supposed to form a constant reminder of the importance of safety (Weick and Sutcliffe, 2001). Approaches oriented towards resilience engineering (Hollnagel, Woods and Leveson, 2006) do not give sufficient emphasis to the role of time in developing these abilities within organizations. Analysis of the principles which guide resilience engineering takes priority over the time needed for design and implementation and producing the desired effects. Even Wildavsky (1988), who from the outset defines resilience as a learning and discovery process with a focus on dealing with the unexpected, tends to reduce the temporal aspect of this learning process to an accumulation, build-up or repository of past experience. The metaphor used is more biological (drawing on the human immune system) than historical in nature. Should we see authors' relative lack of interest in the temporal dimension involved in building reliability and resilience as being symptomatic of a lack of social legitimacy? That is perhaps the case. The hypothesis is at least worthy of further attention if we consider that recognition of the temporal depth of resilience and reliability inevitably boils down to our recognizing that systems functioned for a while with less safety and resilience than was imagined at the time. This, in turn, can lead to doubts about the current performance of organizations in this domain. To take this hypothesis further, we can equally see that time exerts a greater presence in the analysis of accidents. It is associated with the gradual degeneration of resilience capacities and the degree of reli-

ability of the organizations in question. Vaughan (1996) demonstrates how the phenomenon of 'normalization of deviance' gradually develops and spreads as part of decision-making processes, and ultimately causes accidents. This analysis is taken up and significantly extended by Starbuck and Farjoun (2005) as they underscore the accumulation of imbalances in the logic of efficiency and safety, which often reveals the organization's inability to learn concrete and lasting lessons from its past failures. Though via different means, such arguments meet with the approach adopted by Perrow (1984), for whom time works to the advantage of the accident, which lies 'dormant' in the system 'until its time comes'.

The three articles in this special issue thus weave a network of previously neglected links ranging from safety in transport systems to strategic resilience, from project management to organizational improvement, from the implementation of developed technological tools to more or less spontaneous group dynamics. Compared with HRO-based approaches, these contributions as a whole cast a more critical eye over the organizational and management conditions required for resilience. Empirical stumbling blocks and theoretical ambiguities are thrown into clearer relief. Such is one of the contributions of this special issue, which also constitutes an invitation to further the movement of thematic cross-fertilization and convergence discussed above.

Erik Hollnagel is Professor and Industrial Safety Chair at Mines ParisTech (France) and Visiting Professor at the Norwegian University of Science and Technology (NTNU) in Trondheim (Norway). He has for many years worked at universities, research centers, and industries in several countries and with problems from several domains, including nuclear power generation, aerospace and aviation, software engineering, healthcare, and land-based traffic. His professional interests include industrial safety, accident analysis, cognitive systems engineering, cognitive ergonomics and intelligent human-machine systems. He has published widely and is the author/ editor of 17 books, including three books on Resilience Engineering.

Benoît Journé is Professor in Management at the University of Maine (faculty of Law, Economics and Management) and at the University of Nantes (IEMN-IAE). His research themes are managerial practices (decision-making, sensemaking, communication) and high reliability organizations (nuclear industry).

Hervé Laroche is Professor in the Department of Strategy, Organizational Behaviour and Human Resources at the ESCP Europe Paris Campus. He is currently dean of the ESCP Europe Ph.D. program in Paris. His research themes are organizational decision processes and middle managers' work.

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