Organizational resilience – When rules find their limits

The post-crash 21st century has seen many organizations – not just financial institutions – seeking to enhance their resilience. This is driven by their need to withstand an increasingly uncertain and complex future. The financial industry alone is said to be investing more than $20 billion into 'ways of working'. The ability to prevent unfolding difficulties from developing into crises is increasingly seen as an organizational necessity, yet it is often unclear exactly what this means or what managers can do in practice.

The challenge managers face in their pursuit of resilience can be understood in terms of uncertainty and complexity. Environmental uncertainty is associated with a lack of knowledge about how the future will unfold, leading to the resulting inability to pursue an appropriate organizational response (Milliken 1987). Uncertainty, however, does not automatically trigger a crisis. Problems often occur when points of failure interact with each other, and the nature of the 'coupling' between these elements is of central importance. 'Loose' coupling implies that points of failure are relatively independent, and buffers or slack between them can limit the effects of interconnectivity. Loose coupling provides 'breathing space' to contain failures and they can often be addressed individually, thereby preventing them from gradually destabilizing the whole. In tightly-coupled systems (Perrow 1984), however, interdependencies between elements mean that incidents can build upon themselves and escalate rapidly. These are far harder to respond to effectively.

An exemplar case of a lack of resilience ahead of an actual crisis was the Three-Mile Island disaster in 1979, where management practices were inadequate and too slow to prevent unforeseen points of failures in the nuclear plant to cascade quickly to a crisis (Hopkins 2001).

In need for resilience

Crises such as Three-Mile Island in 1979 or the collapse of Lehman Brothers in 2008 highlight the importance and need for greater resilience capabilities in organizations – appropriate response capabilities and the speed to activate them. The greater the uncertainty and complexity, the greater the need for a flexible, speedy and wide response repertoire. Tighter coupling requires a faster response time to activate those capabilities necessary to deal with the particular novelty of a situation. In principal, two types of approaches to being resilient are required (see Figure 1). Normality – characterized by the expected or anticipated,

certainty and relatively loose coupling - in an organization can be managed through means of forecasting and preventative measures. Implementing standard practices means that this is generally straightforward. Abnormality, though, – characterized by uncertainty and tight coupling – needs capabilities that enable the organization to notice points of failure early enough to allow an effective intervention to contain it.
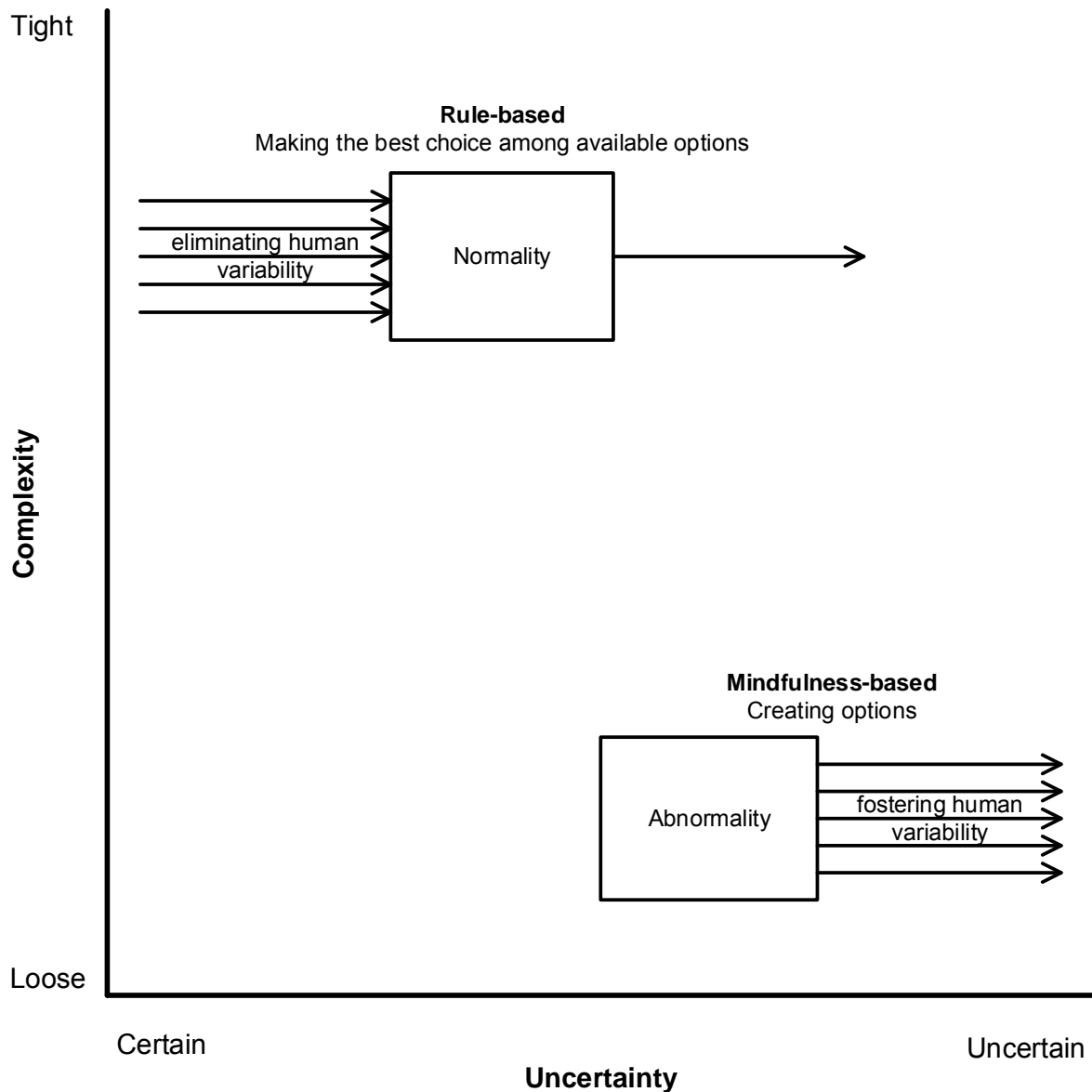
Figure 1: Uncertainty and Complexity

The 'traditional' – and often espoused as 'self-evidently correct' - way to prevent uncertainty and complexity triggering a crisis is to strengthen an organization's rule-based capabilities. These includes explicit processes and complex patterns of practice from an established set of choices, often driven by past experience. The argument behind the implementation of rule-

based practices posits that repeatable packages of instructions help to reduce human variation as a cause of failure. Put simply, failure is 'automated out' of an environment. Uncertainty is made 'fail-safe' through controlled repetition of practices. This is, of course, both sensible and valuable, but is it enough?

At the forefront of being compliant to standardized processes is Enterprise Risk Management (ERM) and Business Continuity Management (BCM). Both frameworks rely heavily on a reductionist quantification of uncertainty - and less so of complexity - and the detailed prescription of processes to be carried out (Fiksel, Polyviou et al. 2015). This allows organizations to program and 'pre-load' actions to deal with 'normal' risks – informed by knowledge gained from their occurrence in the past. However, despite the value of such an 'autopilot' capability, this is unlikely to offer an answer to novel situations or unforeseen circumstances and can even constrain responses at the times when flexibility and speed are most critical.

Consequently, in order to anticipate and contain uncertainty, organizations also tend to cultivate resilient capabilities as a complement to their rule-based systems. They seek to tap into those flexibilities within the human mind. In this respect, 'mindfulness' is a well-established construct in social psychology literature. When mindful, people's experiences are sensitive to their environment and they feel in the present moment (Langer 1989, Langer 1997). It is: "*the combination of on-going scrutiny of existing expectations, continuous refinement and differentiation of expectations based on newer experiences, willingness and capability to invent new expectations that make sense of the unprecedented events, a more nuanced appreciation of context and ways to deal with it, and identification of new dimensions of context that improve foresight and current functioning.*" (Weick and Sutcliffe 2001, p. 32). Mindfulness-based ways of working posit that situated human cognition should be fostered to allow managers to create anticipation and containment capabilities for thinking and acting beyond the realm defined by the expected, imposed by compliance to rules. In this sense it is the antithesis of the rule-based approach.

Mindful capabilities are not capabilities of planning and adhering to pre-loaded actions. Instead, they involve cognitive processes that go beyond planning; at the center of mindfulness is the reflective capacity to question before taking action, to resist the temptation to assume normality and rely on pre-loaded actions, to innovate and improvise when an individual judges that it is necessary. This required when rules find their limits.

To reflect on those two distinctively different resilience capabilities, a routinely-exercised - rule-based - response can be understood as an attempt to make the best 'automated' choice among many of those past-informed choices. The aim is to eliminate human judgement as a source of error, but to define, feed and use the 'autopilot'. This is most effective in environments characterized by low uncertainty and loose coupling. In contrast, a mindful way of working in a particular situation *"is not an attempt to make the best choice from among available options but to create options"* (Langer 1997, p. 114). The aim is to foster situated human cognition, necessary to deal with high uncertainty, where previous rules and routines on which to draw on may not match the problem at hand or are even non-existent. It takes out the 'auto' and places human variability at the forefront in dealing with uncertainty, something a past-informed formal process is ill-suited for.

The practical dilemma is that managers often need to switch from one mode to another or apply both modes of management simultaneously. At times, an 'autopilot' way of working suffices and yet in the face of uncertainty, this 'autopilot' needs to be switched to allow situated human cognition to flourish. It is understood that a rapid switch from rule-based to mindfulness-based management, and vice-versa, is challenging, as managers tend to habitually pursue their chosen way of thinking and working (e.g. Langer 1989, Langer 1997, Fiol and O'Connor 2003, Busby 2006), until external circumstances force them to give up their doctrinal rigidity.

We know, though, that organizations do successfully manage to activate rule-based performance while also activating mindful capabilities, swiftly and appropriately, when necessary. These are required to be enacted before coupled pockets of failure cascade into a full-blown crisis. Surprisingly, there is minimal insight as to how these 'switches' operate in practice, or how organizations deliver both aspects of reliability simultaneously and coherently. How, then, to prepare for and activate successfully both the mechanisms of rule- and mindfulness-based reliability fast enough to counter the unfolding effects of uncertainty and complexity? The study presented here uncovers a range of alternative practices that provide a balance or a switch between these options, depending on the particular circumstances and requirements.

About the research [Text Box]

Our research was designed to shed light on how organizations activate both rule-based and mindfulness based capabilities to prevent incidents – points of failure – from cascading into a

crisis. We worked closely with five cross-industry organizations who outperformed their peers in the period of 2012 – 2014 in terms of indicators such as safety, stability and longevity. These were: two significant UK insurers ('Insure-OpsAlpha' and 'Insure-OpsBeta'), the production section of a large UK power station ('Plant-Ops'), a major new power system product development group ('Engine-NPD') and a research company executing a set of high-tech R&D projects ('Inno-R&D').

Within these organizations we worked with their senior management to identify specific high-performing work units and tracked their ability to deal with incidences associated with uncertainty and complexity; situations that did go not according to plan or were outside the expected variation of quality. For example, in case of Engine-NPD, we examined a major software development project from its inception until its release into production. In contrast, the operation of Insure-OpsAlpha included underwriting key infrastructure in London.

Overall, in these five work-units – covering three ongoing operations and two new projects – we interviewed 83 key decision makers who were involved in the delivery of the operation or project. In order to 'make sense' of each type of response to situations of adversity – associated with complex interactions - we carried out a critical incident analysis (Flanagan, 1954). This involved the exploration of each of these 26 incidents in terms of the organization's state of preparedness to deal with an incident, and the speed to initiate a response. Probing questions in this respect included:

- describe the circumstances, nature and significance of this critical incident
- explain whether you believe the problems and/or the exercised responses to the problems associated with the critical incident were novel
- what did you do to prepare yourself for these problems?
- what did you do in response to this incident?
- how timely were these actions, and what happened next?

The interviews provided an in-depth-understanding about whether and how incidents were prepared for, and the nature, speed and outcomes of the responses. It allowed us to distinguish between pre-planned responses, similar to issues experienced previously, and challenges that were novel in the eyes of the respondent requiring mindful practices to implement original and innovative solutions. The ways in which these organizations managed

these incidents were then reduced to five distinctively different categories of ways of working. We now discuss these resilient modes of management.

Modes of Resilience

Based on our research, we identified distinctively different resilience-enhancing modes of managing incidents characterized by uncertainty and complexity. We labelled these as *Traditional, Infusion, Just-in-time, Entrepreneurial* and *Recovery* and we now describe the nature of each.

Traditional. The *Traditional* mode – we labelled it Traditional as it seems to be a mode of management commonly advocated – approach to managing incidents is to absorb uncertainty with a pre-defined framework of actions. Engine-NPD tended to rely on this mode with the underlying premise that its pre-loaded plans and principles would accommodate any form of abnormality. Past problems and their solutions were transformed into rules and procedures, to which managers were expected to be compliant. Their training encompassed the prediction and prevention of those issues that occurred repeatedly in the past. In cases of abnormal problems, decision power migrated upwards to individuals with higher degrees of authority.

Infusion. A further approach to dealing with uncertainty is to *'infuse'* additional capabilities (although not extra capacity) to deal with incidents. Plant-Ops, for example, had established a relatively high degree of rule-based practices during times of normality, similar to the 'traditional' mode. However, key decision-makers were empowered to go beyond their normal rules and procedures, and when faced with uncertainty these managers did not escalate a response 'away' from them because they are unable (or at times unwilling) to apply a pre-loaded response; they were prepared and authorized to absorb incidents of abnormality alongside their normal operations and respond as they judged most appropriate.

Just-in-time. The *Just-in-time* mode of resilient performance involves the creation of temporarily-deployed mindful capabilities to deal with abnormalities until they are resolved. This often took the form of a team of specialists in a particular field, 'Tiger Teams' - emotionally and structurally detached from the context in which the incident happened - brought together to work on resolving incidents as smoothly as possible, thereby allowing the permanent staff to remain focused on contributing to normal operations relatively

unperturbed. The teams 'parachuted in' when the situation demands it are most often defined in advance, at the outset of a project or operation.
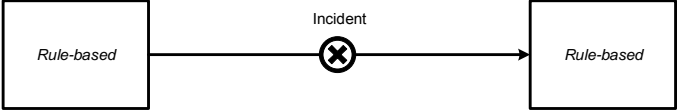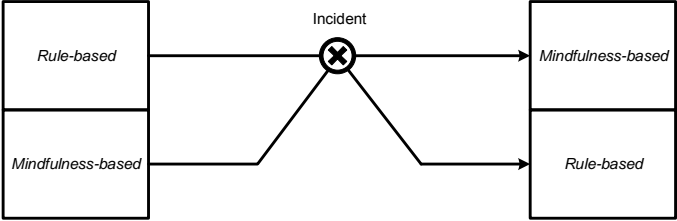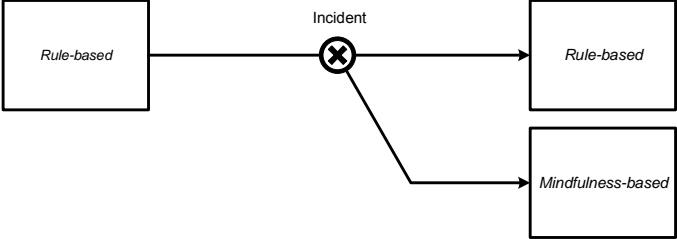
Entrepreneurial. The *Entrepreneurial* mode is to create and maintain permanent mindful capabilities. Here there is limited pre-loading of rules and procedures. Decision makers are 'free' to develop their own way of working in contextually separated operations and projects. Compliance to protocol is replaced by project managers engaging with stakeholders in a discourse of what the problem constitutes and how best to solve it. However, in contrast to the previous cases, uncertainty was not seen as something to be avoided under all circumstances, but instead as an opportunity for innovation. Especially at Inno-R&D, incidents were genuinely perceived as opportunities to learn and improve, unlike those in the other cases.

Recovery. A final alternative of reliable performance – *Recovery* – stands out from the previously described approaches as this one is less deliberate but deployed as an extreme reaction to the situation. In cases of recovery, a switch from rule based- to mindfulness-based ways of working was driven by a crisis and the perception of intense pressure. The adherence to rules was viewed as too cumbersome to deal with the volatility encountered. Entire governance frameworks were abandoned in the light of crisis-like incidents, to be replaced by ad-hoc practices for the crisis period. Whereas other modes demonstrate balance between modes, these examples exhibited a swing from one mode to its polar opposite.

Identifying challenges to Resilience

None of the researched work-units in our case study organizations stuck to a single mode of resilience. However, as a tendency – except for Inno-R&D – all organizations primarily emphasized the 'Traditional' mode. Yet, its inadequacy to accommodate uncertainty and complexity resulted frequently in unanticipated difficulties. Although the resulting Recovery mode led to a short-term improvement in performance, it was not deemed sustainable; and so with the help of some 'self-healing' crises, organizations tended to switch to either Infusion or Just-in-Time.

Unfortunately, there is no panacea for uncertainty, and none of the modes is without its challenges. **Error! Reference source not found.** provides an overview of insights into their preparedness and activation.

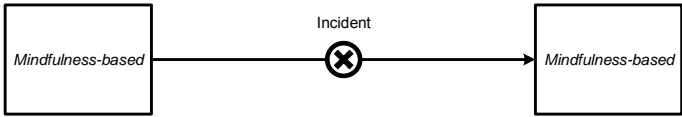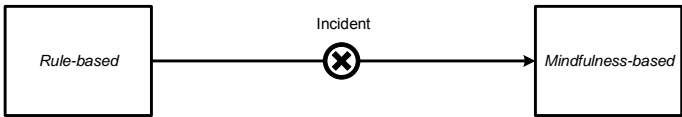| Mode of Resilience	Effectiveness …	Speed of Activation …
	… in dealing with abnormality	
'Traditional Rule-based → Incident ⊗ → Rule-based	**Escalations** Escalations towards authorities, mostly higher up in the hierarchy are used to enable a solution that was not covered by the rule-based framework. Yet, these authorities tend not to have the full understanding of the abnormality, or the time to establish that understanding. **Change of frameworks** The pursuit for responses outside the rule-based framework requires a contractual change.	**Development and authorization of solutions** The creation of responses and in particular their conformance to pre-existing frameworks takes considerable time.
'Infusion Rule-based / Mindfulness-based → Incident ⊗ → Mindfulness-based / Rule-based	**Processing capacity** The single capacity's attention tends to be overwhelmed with dealing with aspects of normality and abnormality at the same time. **Preoccupation with abnormality** Decision makers are engrossed with abnormality, discounting the use of rule-based framework, or largely ignoring normal operations.	**Exploitation of mindful capabilities** The activation of a decision maker's capabilities is fast.
'Just-in time Rule-based → Incident ⊗ → Rule-based / Mindfulness-based	**Increasing capacities** Additional capacities allow the processing power for dealing with aspects of abnormality. **Overlapping boundaries** Normal operations and their deviations from it in the form of abnormalities are intrinsically linked. Decision-maker's responsibilities overlap.	**Not letting go** Decision maker's tend to not let go of both aspects of normality and abnormality, as any delegation of response capabilities is seen as an acknowledgement of not being able to prevent the incident in the first place. **Point of no return** In relation to the previous challenge of no letting an additional capacity to deal with aspects of abnormality, those capacities may be implanted to late to have any significant impact dealing with abnormality.

'Entrepreneurial Mindfulness-based →(Incident ⊗)→ Mindfulness-based	**Inconsistency** The 'freedom' of how to engage with abnormality leads to inconsistency in practices. **Costly** Training and preparation of decision maker's for abnormality is immense. The focus is on leadership training rather than management training.	**Fatigue** Continuous 'alertness' to act on abnormalities may lead in some cases to a 'rushed', and in other cases to a 'delayed' response. However, in comparison to all previously mentioned modes, speed in activating mindful capabilities is highest.
'Recovery Rule-based →(Incident ⊗)→ Mindfulness-based	**Unsustainable** A crisis is often associated with the release of substantial additional resources and capabilities, unsustainable over a long period of time. **Unbearable** Emotions play a significant role in a crisis, as the viability of the entire operation is at stake. Decision makers define this mode as one to avoid under all circumstances because of the sociological impact.	**Improvisation** Sudden unfreezing of rules and routines leads to forms of improvisation.

Table 1: Insights into the Preparedness and Activation of the five modes

Challenges to Traditional. The approach of Traditional offers a stable and transparent – because of pre-loading – way of working. The key capability to be actioned is being compliant to a set of rules and procedures. Such preparedness was, however, challenged by the lack of actual readiness to deal with problems that were not pre-planned, or to which existing frameworks did not provide an answer to. The inability to solve a problem with the pre-loaded set of actions at hand – in particular in Engine-NPD - led often to lengthy periods of escalations, during which progress slowed down or at times halted altogether. The pursuit of novel solutions and accompanying resources – not being covered by existing plans - was hampered by escalations and sometimes to changes to embedded frameworks of rules. In Engine-NPD, the pressure to be compliant to a pre-established framework made changes to working practices slow and cumbersome.

Challenges to Infusion. With Infusion, decision-makers are also compliant to rules and procedures, as portrayed in Traditional. Nevertheless, they are also explicitly empowered, authorized and skilled to deal with situations that go beyond a state of normality. The activation of these capabilities, though, was challenged by the unwillingness and limited capacity of the decision-makers to deal with both normality and abnormality simultaneously. In most of the researched incidents, managers focused primarily on the unfolding events, often paying insufficient attention to the unaffected systems that still had to be monitored and managed.

When managers in this mode activated some of their mindful practices – such as improvisation – they tended to pay heed to the aspects of abnormality. For example, at Plant-Ops, operators tended to focus more on the immediate impact of the events they were experiencing and less on the normal operations. The overload in some cases became so overwhelming that another manager had to step in to take responsibility for so that the leader could focus on the new difficulties. The overwhelming nature of having too much to keep track of may have serious consequences if further risks materialize.

Challenges to Just-in-Time. The simultaneous focus on normality and abnormality by a single manager may overstretch his or her capacity to do so. The application of Just-In-Time techniques of deploying additional resources may alleviate this, but this mode has another distinctive limitation. Boundaries between normal operations and critical incidents can become blurred. In our study, key decision-makers, preoccupied with maintaining day-to-day

operations, were reluctant to allow 'others' to deal with those aspects of complexity that were intrinsically related to their own work units. Arguments about who was responsible for what at times slowed down timely intervention, indicating the practical challenges associated with this response.

At both Insure-Ops Alpha and Beta, the managers dealing with normal operations perceived (rightly or wrongly) the additional, temporarily-deployed staff to deal with the critical incidents as an indicator of their inability to prevent the issues from materializing in the first place. The process was thus viewed as 'suspicious' by the permanent managers, hampering the development of these reactive organizational response mechanisms.

Challenges to Entrepreneurial. Preparedness for the Entrepreneurial mode is to set wide boundaries in terms of freedom-to-act, and to let go of the idea of repeatable, consistent, action. This is something many organizations may feel uncomfortable with. With regards to the speed of activating an Entrepreneurial mode, it was not so much compromised by lack of capacity or overlapping competences to deal with complex interactions, but more with a risk of drifting towards routinization. At Inno-R&D, prolonged periods of absence of failure tempted managers to 'automate' successful practices irrespective of their uncertainty and coupling. This became apparent by small signs of complacency, when managers used their expanding experience to deal with uncertainty and coupling as a rationale for not taking time to reflect and deliberate on incidents. Hence, increasingly, incidents of abnormality were perceived as incidents of normality.

Challenges to Recovery. The mode of Recovery is not necessarily one to be recommended, despite its prevalence in many organizations that we see. Problems are often ignored until a crisis triggers an abandonment of existing rules and routines. In many cases these are replaced with such an extreme degree of mindfulness that the situation can seem anarchic. This can result in doing 'anything necessary' to resolve the situation, including throwing money at the problem.

From our data, though, a crisis-like situation allowed a 'quick' unfreeze of rule-based practices and allowed mindfulness-based modes to be deployed quickly. Nevertheless, such a mode was not sustainable for a longer period of time or not appreciated by stakeholders involved. In many of the crisis-like incidents that were associated with the mode of Recovery,

problems were dealt with swiftly, yet perceptions of "anarchy", "chaos" and "never again" prevailed, an indication of the emotional severity of the situation.

In need for greater preparedness and speed of activation

There is no 'one-size-fits-all' from the modes of resilience that we have identified. Given all their distinctive challenges, they offer a range of solutions to deal with abnormalities associated with coupling and uncertainty. Considering the degree of preparedness and speed of activation of capabilities, Figure 2 highlights under what circumstances these distinctively different modes of resilience should be applied. The 'Entrepreneurial' mode is the speediest and most effective, although it can be considered 'costly' if measured in terms of efficiency. Although 'Traditional' is relatively slow and ineffective in enabling managers to deal with abnormalities, this mode is most suited to environments characterized by stability and linearity; indicators of normal operations. We have deliberately excluded recommending the mode of Recovery, since despite having a disruptive (and indeed potentially positive) effect in triggering new forms of resilience, it was considered by the case organizations as "undesirable" and often as "unsustainable".
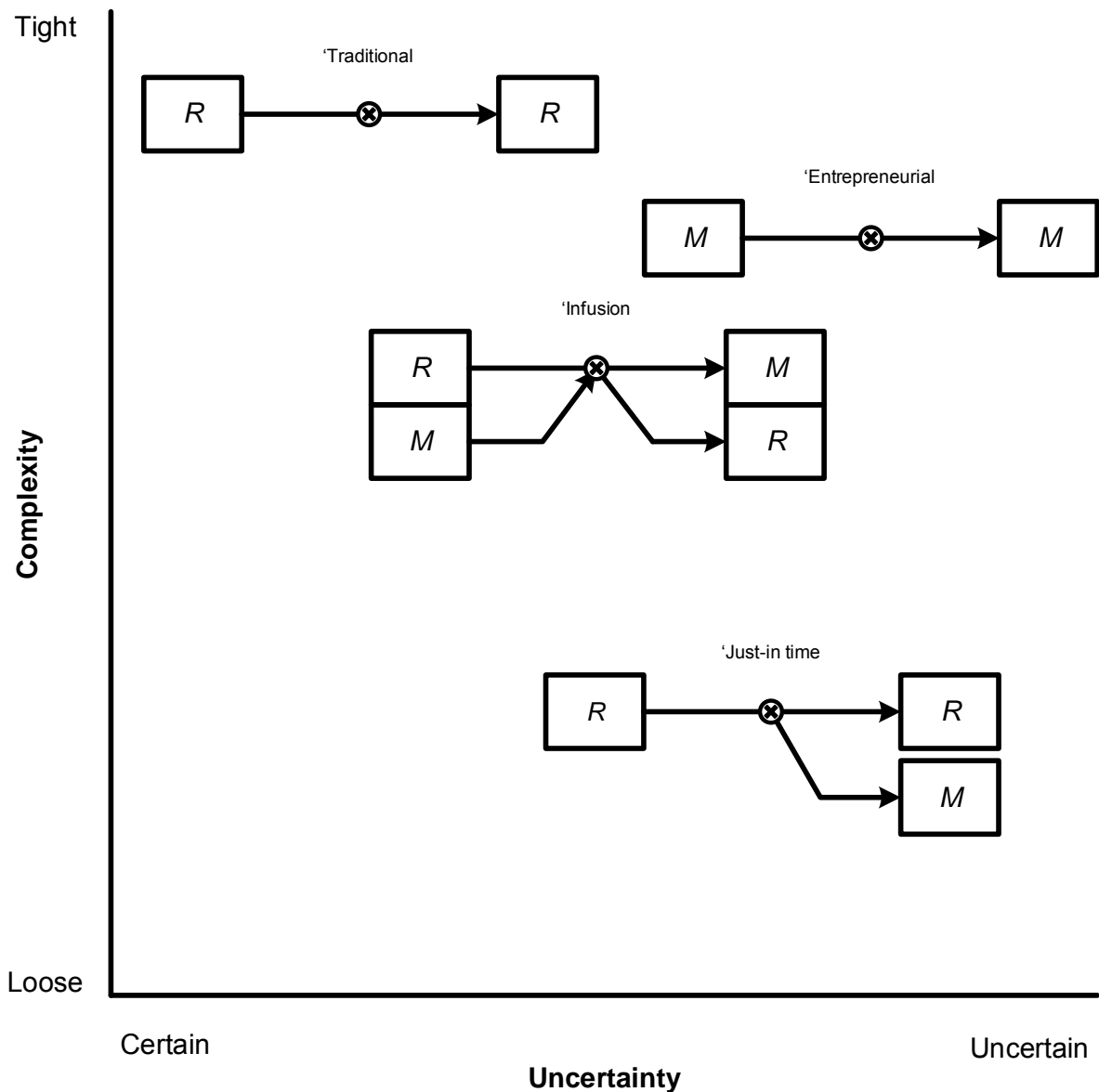
Figure 2: Conceptualization of each mode of management

As mentioned, each mode has its challenges in terms of utilization. The following recommendations are therefore made with a view to enhancing the ability each mode to provide resilience for an organization.

Increasing speed of activation. Approaching the main challenge to each mode of management, Traditional and Just-in-time both start with a rule-based mentality. Rules that do not fit the situation at hand need to be changed, and changed fast enough even in environments characterized by loose coupling. Hence, the drive for compliance to rules needs to be complemented by the ability to change rules, and make rules and process fit the situation at that moment. As a result, any framework of pre-loaded actions needs to be

configured as a 'living', 'breathing' mechanism, open to be changed if the circumstances necessitate it.

Increasing response capacity. The challenge of Infusion is from the inability of a manager simultaneously to balance the management of continuing normality and emerging abnormality. Effecting a suitable response under such conditions requires managers to shift their focus significantly under the constraints of fixed resources. Their processing capability should be rehearsed, monitored and if limitations become obvious, the mode of Infusion may be enhanced by additional Just-in-time capacity.

Synchronising simultaneous use of rule-based and mindfulness-based capabilities. The Just-in-time mode of resilience may well increase the processing capacity to deal with normality and abnormality simultaneously, by temporarily deploying additional resources and capabilities. In this respect, it offers a solution to the challenge and limitation of Infusion. However, although Just-in-time provides greater capacity to deal with events, it may be compromised by overlapping and sometimes conflicting competences between the embedded decision-makers and the external 'parachuted-in' staff. In most of the cases we studied, the manager responsible for a particular work unit could not or did not want to defer to this additional expertise, especially if his or her competence was in any way in doubt. Consequently, if this mode is adopted, the Just-in-time capabilities (and their particular challenges) need to be accepted and synchronized by all parties involved and recognized as additional help and not as a sign of failure or scrutiny.

Last resort. Discarding the rules, though, is dangerous and the 'Recovery' mode with its quite radical implications for changing operational methods may even risk exacerbating the situation. Such a move should therefore be treated with caution, but Recovery may be an opportunity to discard unhelpful processes, while remaining reluctant to 'just do something'. It is an – albeit costly – opportunity to move from one mode of resilience to another.

Towards rule-based capabilities. Even the Entrepreneurial mode suffers under the challenge of a lack of incidents requiring an innovative, mindful, response. The state requires a constant refreshing of the situated cognition that enables the flexibility to manage novel situations; absence can lead to complacency, habitual routinization, and the temptation to 'simply' follow past practices. Consequently, managers need constantly to be challenged in their assumption that the future will unfold in normal patterns. A 'Devil's advocate' may provide

such a useful prompt by raising questions of 'What if?' and pushing managers' assumptions beyond the expected.

Conclusion

Being resilient is not only a question of following rules and procedures rigidly. Resilience stems from an organizational ability to deal with both normality and abnormality. The question is how to do that and how to make it work. From our case-based data we identified five distinct managerial modes: 'Traditional', 'Just-in-time', 'Infusion', 'Entrepreneurial' and 'Recovery'. Each mode of resilience, though, has its own distinct challenges to overcome, and these must be carefully evaluated.

We believe this is an important area for managers to consider and debate in all organizations. The challenge here is not just to evaluate the best theoretical solution, but to ensure that any new ways of working are supported within the organization. Advocating greater flexibility and promoting improvisational solutions, for example, may require a significant cultural shift in organizations that have long promoted a rules-based operational system. Nevertheless, if senior managers can identify a more effective way of working, that journey of change can begin.

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