Preparedness as an Organizational Capability: A Maturity Framework for Emergency Management in Small and Mid-Sized Organizations

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Abstract

Small and mid-sized organisations are often told to "have a plan", yet a written plan says little about whether an organisation can act when an emergency arrives. This conceptual paper argues that emergency preparedness is better understood as an organisational capability: a patterned, practised and resourced way of anticipating, responding to and learning from disruption. It draws on Winter's distinction between ordinary capabilities, dynamic capabilities and ad hoc problem solving; on Perry and Lindell's caution that a written plan can eclipse the planning process that preparedness depends on; on the capability maturity model tradition and a review of business process maturity models that found prescriptive guidance weak; and on studies of small businesses facing crises, disasters and extreme events. The paper proposes a five-level preparedness maturity framework (reactive, documented, practised, integrated and adaptive) assessed across five dimensions: risk understanding, planning process, roles and people, exercising and learning, and external relationships and resources. Six propositions address the limits of documentation, the role of exercising, owner-manager framing, size-appropriate design, external relationships and the economics of investing in capability. No original empirical data are presented.

Keywords: emergency preparedness; organisational capability; maturity models; small and medium-sized enterprises; business resilience

Introduction

When a flood, fire, cyber incident or regional power failure strikes, large organisations can often call on dedicated risk managers, continuity staff and spare capacity. Small and mid-sized organisations often cannot. The owner-manager of a twenty-person distributor, the operations lead of a regional clinic or the director of a local manufacturer may carry emergency planning alongside a full set of other duties. Runyan (2006) found a lack of planning among small businesses after Hurricane Katrina. Even where a plan exists, it may be a document written once, filed and never used. When an emergency arrives, the organisation then improvises, sometimes well and sometimes badly.

Advice to these organisations often reduces preparedness to a deliverable: write a plan, keep a contact list, store a copy off site. These steps have value, but they treat preparedness as a thing an organisation possesses rather than something it is able to do. The difference matters. A document can be complete and still be unknown to the people who would need to use it. A list of suppliers can be accurate and still fail if no one has asked those suppliers what they would do in a regional disaster. Preparedness that exists only on paper may give leaders confidence that is not matched by the organisation's ability to act.

This paper argues that emergency preparedness in small and mid-sized organisations is better understood as an organisational capability. A capability, in the sense used here, is a patterned and repeatable way of performing an activity that is sustained by investment and practice. The argument builds on Winter's (2003) account of capabilities, which places the strategic substance of a capability in the patterning of activity and notes that creating and sustaining that patterning usually requires costly investment. It also builds on the emergency management literature, in particular Perry and Lindell's (2003) review of the relationship between plans, training and exercises.

If preparedness is a capability, it can be developed in stages, and the stages can be described. The paper therefore borrows the logic of maturity models, which describe how an organisation's practices in a domain develop from informal and individual to defined, practised and continuously improved. Maturity models have been used widely in software and business process management (Paulk et al., 1993; Röglinger et al., 2012). They have also been criticised for describing stages better than they guide improvement (Röglinger et al., 2012). The framework proposed here attempts to keep the descriptive strengths of the maturity logic while giving more attention to what a small or mid-sized organisation would actually do to move from one level to the next.

The paper makes three contributions. First, it brings together capability theory, emergency planning research and research on small businesses in crisis to argue that preparedness should be assessed by what an organisation can do rather than by what it has written. Second, it proposes a

five-level, five-dimension maturity framework scaled to organisations without dedicated emergency management staff. Third, it offers six propositions that can be tested in future empirical work.

The paper is conceptual. It does not report original data. Its claims about cited studies are limited to what those studies report, and its propositions are offered as hypotheses for later testing, not as established findings.

Literature Review

Capabilities, routines and ad hoc problem solving

Winter (2003) defines ordinary, or "zero-level", capabilities as those that allow a firm to make a living in the short term, and dynamic capabilities as those that extend, modify or create ordinary capabilities. Two features of his account are useful for thinking about emergency preparedness. The first is that the strategic substance of capabilities lies in the patterning of activity, and that creating and sustaining such patterning typically requires costly investment. The second is that firms can change without relying on dynamic capabilities at all, through what Winter calls "ad hoc problem solving". Whether an organisation invests in higher-order capabilities depends on the costs and benefits of that investment compared with ad hoc problem solving.

This framing helps interpret how a small organisation may respond to a rare emergency by relying on ad hoc problem solving: the owner and a few trusted staff work out what to do as events unfold. Winter's account suggests that this is not necessarily irrational. Building a patterned response capability costs time and money, and for a small organisation those costs are felt directly. The question for a preparedness framework is therefore not whether ad hoc problem solving is bad but when the expected benefits of a patterned capability exceed its costs, and how those costs can be kept low enough that the investment makes sense.

Planning as a process, not a document

Perry and Lindell (2003) observe that, particularly after the attacks of 11 September 2001, governments invested heavily in writing emergency response plans, and that this emphasis on the written plan tends to draw attention away from the planning process itself and from the original objective of community emergency preparedness. Their paper reviews the concepts of preparedness and emergency planning and their relationships with training, exercises and the written plan, and it offers ten planning process guidelines drawn from the preparedness literature on natural and technological disasters.

Although their focus is community and government planning, the central point transfers directly to organisations. A written plan is an output of planning, but preparedness depends on whether the people who will respond understand their roles, have practised them and have resolved the questions that a real emergency would otherwise force them to answer under pressure. Perry and

Lindell's attention to the relationships among the plan, training and exercises supports treating these as linked elements of one capability rather than as separate compliance tasks.

Maturity models and their limits

The capability maturity model for software development presented sets of recommended practices in key process areas that had been shown to enhance software development and maintenance capability (Paulk et al., 1993). It was designed to help developers select process improvement strategies by determining their current process maturity and identifying the issues most critical to improving their processes. Version 1.1 was revised in response to feedback from the software community, including a workshop attended by about 200 software professionals.

The maturity model idea has since spread widely. Röglinger, Pöppelbuß and Becker (2012) describe maturity models as a prospering approach to improving a company's processes and business process management capabilities, and note that so many have been produced that practitioners and scholars risk losing track. Their review of ten business process management maturity models found that the models sufficiently addressed basic design principles and principles for descriptive use, but hardly met the principles for prescriptive use. In other words, the models were better at describing where an organisation stood than at guiding it to a desirable level and showing how to improve. The authors also note that adopters in industry require more elaborate support in the form of ready-to-use and adaptable instruments for assessment and improvement.

That criticism is directly relevant to emergency preparedness. A small organisation does not need another way to discover that its preparedness is weak. It needs to know which next step will produce the greatest improvement for the least cost. A preparedness maturity framework that serves small organisations should therefore include, at each level, a concrete description of the practices that mark progress to the next level.

Small businesses and crisis

Herbane (2010) observes that small business research and crisis management research have developed as two established but largely uncoupled fields: the small business literature has paid little attention to crisis management, and the crisis management literature has paid little attention to small businesses, despite growing regulation requiring companies to have crisis or business continuity arrangements. Using case studies of four small businesses in the United Kingdom, he identifies four themes: understanding risks, three-dimensional crisis, learning from crisis and stifled support systems. His data suggest that owner-managers may frame risks in two ways, which he calls a "growth vulnerability paradox" and the "risk elastic", and he calls for a crisis-based view of small business research.

Runyan (2006) interviewed stakeholders in five Gulf Coast communities in the United States to examine how small businesses responded to and recovered from Hurricane Katrina. His findings

include a lack of planning by small businesses, vulnerability to interruption of cash flow, lack of access to capital for recovery, problems caused by federal assistance and serious infrastructure problems that impeded recovery. Several of these findings concern matters that lie partly outside an organisation's control, such as infrastructure and access to capital, while others, such as the absence of planning and exposure to cash-flow interruption, are matters an organisation could address before an event.

Sullivan-Taylor and Branicki (2011) examined how small and medium-sized enterprises manage the threat and actuality of extreme events. They note that large organisations have been the traditional focus of empirical work on organisational resilience, even though the heterogeneous small and medium-sized enterprise sector makes up the great majority of United Kingdom industry and routinely operates under uncertainty. In a comparative study, participants from small and medium-sized enterprises showed a perspective and approach to resilience that differed from those of participants from larger organisations. Drawing on data from 11 decision makers, the authors examine resilience capabilities such as flexibility and adaptation in relation to organisational size and conclude that a one-size-fits-all solution to creating resilience has limitations.

Detecting disruption and measuring resilience

Burnard and Bhamra (2011) develop a conceptual framework of a resilient organisational response, focusing on the detection and activation features of an organisation's response to disruptive events, and draw attention to the implications for small and medium-sized enterprises. Their emphasis on detection and activation is useful because it locates part of preparedness in the period before a response begins: the ability to notice that something is going wrong and to move from normal operation into a response mode.

Lee, Vargo and Seville (2013) argue that organisational and community resilience are interrelated and interdependent, so that organisational resilience is a critical component of a community's ability to plan for, respond to and recover from emergencies. To invest in resilience, they argue, organisations need to understand their strengths and weaknesses and to evaluate the effectiveness of their strategies. They develop a survey tool for that purpose. Their work shows that resilience-related attributes can be assessed, and it supports the principle that assessment should inform investment rather than serve as an end in itself.

The gap

Taken together, these strands point to a gap. Capability theory explains why patterned responses require investment and when ad hoc problem solving may be preferred. Emergency planning research warns against equating preparedness with a document. Maturity model research offers a way of describing developmental stages but has struggled to provide prescriptive guidance. Research on small businesses shows that their framing of risk, their resources and their recovery

problems differ from those of large organisations. What is missing is a framework that treats preparedness in small and mid-sized organisations as a capability, describes how it develops and gives each stage a concrete next step.

Conceptual Framework and Propositions

A five-level preparedness maturity framework

The framework proposed here describes five levels of preparedness maturity. The levels are the author's construction, informed by the maturity model tradition but not taken from any single model.

Level 1: Reactive. The organisation has no shared approach to emergencies. Response depends on the judgement and availability of one or two individuals, usually the owner or a senior manager. Knowledge of critical suppliers, customers and systems is held in people's heads. This is the level at which Winter's (2003) ad hoc problem solving is the organisation's only response mode.

Level 2: Documented. The organisation has written an emergency plan, contact lists and perhaps evacuation procedures. The documents may be accurate, but few people have read them and they have not been tested. Responsibility for the plan often sits with one person.

Level 3: Practised. Key staff know their roles and have rehearsed them, at least through discussion-based exercises. The plan has been changed in response to what those exercises revealed. The organisation can describe what it would do in its most likely emergencies without consulting the document.

Level 4: Integrated. Preparedness is connected to ordinary management. Risks are reviewed when the business changes, for example when a new site opens, a major customer is won or a critical supplier is replaced. Preparedness tasks are assigned to more than one person, and suppliers, landlords and local partners have been consulted about their own arrangements.

Level 5: Adaptive. The organisation learns systematically from exercises, near misses and real events, and adjusts its arrangements as a matter of routine. It has relationships with external partners that can be activated in an emergency and contributes to the preparedness of others in its community.

Five dimensions of assessment

Each level is assessed across five dimensions, because an organisation can be advanced in one and weak in another.

1. **Risk understanding.** How well the organisation knows which hazards could stop it operating and which activities, people, suppliers and systems are most critical.

2. **Planning process.** Whether planning is a recurring process involving the people who would respond, or a one-off writing task.

3. **Roles and people.** Whether responsibilities are clear, shared and backed up, so that the response does not depend on a single person being available.

4. **Exercising and learning.** Whether arrangements are tested and whether lessons lead to changes.

5. **External relationships and resources.** Whether the organisation has arrangements with suppliers, customers, landlords, insurers, local authorities and peer organisations, and whether it has access to the cash, equipment and space a response would require.

The framework's practical value lies less in assigning an overall score than in identifying the lowest dimension. Because the response to a real emergency depends on all five, the weakest dimension is likely to limit performance. For each dimension, the framework pairs the description of the current level with a short list of actions that would move the organisation up one level, responding to Röglinger and colleagues' (2012) observation that maturity models often provide weak prescriptive guidance.

Proposition 1: The limits of documentation

Perry and Lindell's (2003) concern about the written plan has a testable implication. If the plan can eclipse the process, organisations whose preparedness consists mainly of documentation should not perform markedly better in an emergency than organisations with no plan at all, while organisations that have practised their arrangements should. The difference would lie not in the existence of a plan but in whether the people who will respond have worked through it.

Proposition 1. Among small and mid-sized organisations, the existence of a written emergency plan that has not been exercised will be weakly associated with response performance, whereas the frequency of exercises involving the staff who would respond will be more strongly associated with response performance.

Proposition 2: Exercising as the mechanism of capability building

Winter (2003) places the substance of a capability in patterned activity. Patterning develops through repetition, and in emergency management a low-risk form of repetition is the exercise. A discussion-based exercise asks participants to talk through a scenario; a functional exercise asks them to carry out selected tasks. Both convert a written intention into practised behaviour, and both expose gaps that a document cannot reveal, such as a contact list that no one can find or a decision that no one is authorised to make. Exercising is therefore treated here as the main mechanism by which an organisation moves from the documented to the practised level.

Proposition 2. Small and mid-sized organisations that conduct at least one exercise a year and revise their arrangements in response will progress from the documented to the practised level more often than organisations that revise their plans only in response to external requirements.

Proposition 3: Owner-manager framing as a gatekeeper

Herbane (2010) reports that owner-managers may frame risk through a "growth vulnerability paradox" and the "risk elastic". Whatever the precise mechanism, his findings suggest that the owner-manager's view of risk shapes whether and how crisis management is resourced in small businesses. In a small organisation the owner-manager often controls both the budget and the agenda. If that person regards emergencies as remote, or regards preparedness as a distraction from growth, preparedness will remain at the reactive or documented level regardless of what staff believe.

Proposition 3. In small organisations, the owner-manager's framing of risk will moderate the relationship between available resources and preparedness maturity, such that resources are converted into higher maturity mainly where the owner-manager treats emergencies as a credible threat to the organisation's survival.

Proposition 4: Size-appropriate design

Sullivan-Taylor and Branicki (2011) found that small and medium-sized enterprises approached resilience differently from larger organisations and cautioned against a one-size-fits-all approach. When a small organisation adopts a template written for organisations with dedicated staff and multiple sites, the result may be a long document that no one can maintain, which pushes the organisation back toward the documented level. A framework designed for small and mid-sized organisations should instead favour short, task-focused arrangements that the organisation's own staff can keep current.

Proposition 4. Small and mid-sized organisations that use preparedness arrangements scaled to their size, measured by the length and number of documents and the number of people needed to maintain them, will sustain a given maturity level for longer than organisations that adopt templates designed for large organisations.

Proposition 5: External relationships as a substitute for internal redundancy

Small organisations may have little spare staff, equipment or premises. Lee, Vargo and Seville (2013) emphasise that organisational and community resilience are interdependent, and Runyan (2006) found that problems in infrastructure and access to capital, which lie partly outside the organisation, impeded small business recovery after Hurricane Katrina. These findings suggest that a small organisation's preparedness depends substantially on relationships beyond its walls. Agreements with suppliers about priority during shortages, arrangements with peer organisations to share space or equipment, and an established relationship with a bank or insurer may substitute in part for redundancy that a small organisation cannot afford to hold internally.

Proposition 5. For small and mid-sized organisations, the strength of pre-arranged external relationships will be more strongly associated with the speed of recovery after a disruption than the level of internal redundancy.

Proposition 6: The economics of investing in capability

Winter (2003) argues that whether an organisation builds a higher-order capability depends on its costs and benefits relative to ad hoc problem solving. For small organisations, the cost side is immediate and visible, while the benefit side is uncertain and may never be realised. Preparedness programmes for small organisations are therefore more likely to be adopted if they keep the cost of each step low and link preparedness to benefits that arise in normal operations, such as clearer knowledge of critical suppliers or reduced dependence on a single key person. Investments that pay off only in an emergency are likely to be deferred.

Proposition 6. Preparedness improvements that also deliver benefits in normal operations will be adopted by small and mid-sized organisations at higher rates than improvements whose benefits arise only during emergencies.

Discussion

From possession to performance

The central argument of this paper is that preparedness should be judged by what an organisation can do. This shifts attention from the plan to the people and patterns that would carry out a response. In capability terms, the reactive organisation relies on ad hoc problem solving, while the practised and integrated organisation has developed a patterned response that can be activated quickly. The documented level sits uneasily between the two. It has some of the appearance of a capability without much of the substance, and it may give leaders false confidence.

That risk of false confidence is the main practical reason to distinguish documentation from practice. If an owner-manager believes the organisation is prepared because a plan exists, the incentive to invest further disappears. A maturity framework that labels documentation as only the second of five levels makes clear that writing a plan is a beginning rather than an end.

Why maturity, and why caution

The maturity logic offers small organisations a way to see their current position and the next step. But maturity models also carry risks. Röglinger, Pöppelbuß and Becker (2012) found that business process maturity models were much better at description than prescription, and a preparedness framework could easily repeat that weakness. There is also a risk that organisations will treat a maturity level as a target to be certified rather than a capability to be used. For these

reasons the framework here is offered as a self-assessment and improvement tool, with each level paired with a short set of actions, rather than as a standard to be audited.

A further caution concerns the ordering of levels. Maturity models imply that organisations progress through levels in sequence. In practice, an organisation could have strong external relationships (a level 4 or 5 characteristic) while lacking any written plan (a level 1 characteristic). The dimensional structure of the framework is intended to accommodate such uneven profiles. The overall level is less informative than the profile across dimensions.

Preparedness and the owner-manager

In larger organisations, preparedness can be delegated to specialists. In small organisations it often cannot. The owner-manager's attention, time and view of risk therefore shape the capability directly. Herbane's (2010) case studies suggest that owner-managers frame risk in particular ways, and the framework accordingly treats the owner-manager as a gatekeeper. This has two implications. First, efforts to improve preparedness in small organisations should address owner-managers' framing of risk, not only provide templates. Second, a preparedness capability that depends entirely on the owner-manager is itself fragile, because the owner-manager may be unavailable during an emergency. Moving beyond the documented level requires sharing roles and knowledge.

The organisation and its community

Lee, Vargo and Seville (2013) link organisational resilience to community resilience. For small organisations, this link runs in both directions. A small business depends on local infrastructure, suppliers and customers, and its recovery depends on theirs. At the same time, small businesses are part of what makes a community function, and their failure deepens a community's losses. The adaptive level of the framework therefore includes contributing to the preparedness of others, for example by sharing lessons with peer organisations or taking part in local business continuity networks.

Ad hoc problem solving reconsidered

It would be wrong to dismiss ad hoc problem solving entirely. Winter (2003) presents it as a legitimate alternative to investment in higher-order capability. Small organisations can be flexible, and their staff may be used to improvising. The framework does not seek to eliminate improvisation but to give it a foundation: clear roles, known critical dependencies and practised communication. An organisation at the practised level still improvises, but it does so from a position in which the predictable questions have already been answered.

Practical Implications for Leaders of Small and Mid-Sized Organizations

The framework suggests several practical steps that leaders can take without dedicated emergency management staff. They are offered as general observations for organisational planning, not as professional advice for any particular organisation.

Assess by dimension, not by document. Leaders can use the five dimensions to identify where their organisation is weakest. A simple self-assessment, completed by more than one person, may reveal that the organisation knows its risks reasonably well but has never practised a response, or has a plan that depends on one person.

Identify the few things that would stop the organisation. A short list of critical activities, people, systems and suppliers is more useful than a comprehensive risk register that no one maintains. For each item, leaders can ask what would happen if it were unavailable for a day, a week and a month.

Exercise before rewriting. Rather than starting with a new document, leaders can hold a one-hour discussion-based exercise in which key staff talk through a realistic scenario. The gaps that emerge can then shape a short, usable plan.

Share roles and back them up. Every critical role in a response should have at least one named alternate. This reduces dependence on the owner-manager and on any other single person.

Build external arrangements in advance. Leaders can talk with key suppliers, landlords, peer organisations and financial providers about what each would do in an emergency. Even informal understandings, recorded briefly, can partly substitute for redundancy the organisation cannot afford.

Link preparedness to everyday benefits. Knowing critical suppliers, documenting key processes and cross-training staff all help in normal operations. Presenting preparedness work in these terms makes it easier to justify and sustain.

Review when the business changes. New premises, systems, major customers or key suppliers are natural triggers for a short preparedness review. Tying review to change rather than to the calendar keeps arrangements current with less effort.

Limitations and Future Research

This paper has several limitations. First, it is conceptual and presents no original data. The framework and propositions are derived from existing literature and from reasoning about the circumstances of small and mid-sized organisations. They require empirical testing.

Second, several of the cited studies examine specific events, such as Hurricane Katrina (Runyan, 2006), or specific national settings, such as the United Kingdom (Herbane, 2010; Sullivan-

Taylor & Branicki, 2011). Their findings may not generalise to all regions, sectors or hazard types. The framework is intended to be hazard-neutral, but the relative importance of its dimensions may differ between, for example, a cyber incident and a flood.

Third, the levels of the framework are the author's construction. Although informed by the maturity model tradition, they have not been validated. Future research could develop and test an assessment instrument, building on survey-based approaches such as that of Lee, Vargo and Seville (2013), and examine whether the levels and dimensions are empirically distinguishable.

Fourth, the propositions involve outcomes, such as response performance and recovery speed, that are difficult to measure and that occur only when an emergency strikes. Longitudinal studies that assess preparedness before events and track outcomes afterwards would be valuable, as would studies of exercises as a proxy for performance.

Fifth, the framework does not address sector-specific regulatory requirements. Some small and mid-sized organisations, such as healthcare providers or financial services firms, face mandatory preparedness obligations. How such obligations interact with the capability view proposed here is an open question.

Future research could also examine how owner-managers' framing of risk changes after an organisation experiences a disruption, whether peer networks accelerate progress through the maturity levels, and how public support programmes can be designed to strengthen preparedness capabilities rather than encourage paper compliance.

Conclusion

Emergency preparedness in small and mid-sized organisations can easily be treated as a document to be written rather than a capability to be built. Drawing on capability theory, emergency planning research, maturity model research and studies of small businesses in crisis, this paper has argued that preparedness should be understood as a patterned, practised and resourced ability to anticipate, respond to and learn from disruption. It has proposed a five-level maturity framework, assessed across five dimensions, that is scaled to organisations without dedicated emergency management staff and that pairs each level with concrete next steps. Six propositions offer a basis for empirical testing. The framework's central message for leaders is simple: a plan is a starting point, and the measure of preparedness is what the organisation can do when the plan is needed.

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