

Exploring Crisis Management in UK Small- and Medium-Sized Enterprises

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Despite a long-established crisis management literature that focuses on large enterprises, crisis management planning in the context of small- and medium-sized enterprises (SMEs) is less extensively researched. Using data collected from 215 SMEs in the United Kingdom, this paper explores the perceptions and experiences of SMEs' managing directors in relation to crisis management planning. Furthermore, the paper examines differences in perceptions between planning and non-planning SMEs. Analysis reveals six factors that correspond to resilience through planning, financial impact, operational crisis management, the perfect storm, the aftermath of survival and atrophy. Results indicate how the experience of crisis and the type of crisis of type encountered affect managers' assessment of whether planning can be used to address crisis prevention and lower impact.

1. Introduction

Much has been written about strategic planning in small- and medium-sized enterprises (SMEs) to associate planning with improvements in company performance, and the crisis management literature abounds with studies about crisis management in a large enterprise context. Crisis events such as the California brownouts of 2000; power failures in New York and the US north-east in 2003; the severe acute respiratory syndrome outbreak in Southeast Asia and North America in 2002–2003; the outbreak of foot-and-mouth disease in the United Kingdom in 2007; the terrorist attacks in the United States, Spain and the United Kingdom in 2001, 2004 and 2005; the BP oil spill in the Gulf of Mexico in 2010; and the Tōhoku/Sendai earthquake and tsunami in March 2011 are reminders of the vulnerabilities to which societies and economies are exposed. An aggregated perspective on the impact of a crisis event with its focus on total economic damage, the general impact on the local environment and large enterprise losses may distract from the scale of effects

faced by SMEs. For instance, at least 100,000 small businesses were affected by the Deepwater Horizon disaster in 2010, costing BP \$7.8 billion to settle compensation claims (Goldenberg, 2012). In central Thailand, following the floods in October and November 2011, over 500,000 SMEs in the country were affected due to the cessation of production at Honda, Toyota, Western Digital, Hitachi and Canon. The damage to upstream supply chains, largely comprising SMEs, resulted in the loss of 2 million jobs and monthly losses totalling \$2.5 billion during this period (Perwaiz, 2012). Small firms are not only vulnerable to interruptions and oscillations in the supply chain arising from natural disasters, human-induced interruptions such as industrial action may affect smaller firms disproportionately (AXA, 2011), and firm size has been associated with recovery from natural disasters, with small firms the most vulnerable in the case of such events (Corey & Deitch, 2011). Despite their size as individual entities, however, the importance of SME resilience is recognized as a component of broader community and economic resilience through their provision of human resources as

first responders, and operational resources through direct supplies and subcontracted activities on behalf of larger enterprises (Cabinet Office, 2012).

While many studies seek to understand the motivations and perceptions of managers relating to crisis management planning in large firms (for instance, Ashmos, Duchon, & Bodensteiner, 1997; Pauchant & Mitroff, 1992; Penrose, 2000), a paucity of empirical evidence prevails in relating this to the SME context. This study moves beyond previous studies about crisis planning in SMEs in the United Kingdom by shifting the focus away from simply what the organization *has* in terms of plans and resources for crisis management to examine senior managements' – in particular, the managing directors' – perceptions and experiences of crisis threats. The paper proceeds as follows: first, it considers the features of the crisis management literature and where efforts have been made to examine crisis management in SMEs. Next, the paper formally articulates its research objectives and the associated research strategy, and this is followed by the presentation of findings derived from data collected from 215 SME managing directors in the United Kingdom.

2. Literature review

2.1. Crisis management planning

Tracing back to the work of Hermann (1963), organizational crisis arises from a surprise event that threatens high-level goals and provides little time for managers to respond, and similar conceptualizations remain (Rosenthal, 2003). Mitroff and Alpaslan (2003) classified a broad range of crises into seven categories: physical crises (accidents, product recalls or loss of utilities), personnel crises (staff illness or death, industrial action or staff criminality), external criminal crises (terrorism or malicious product tampering), information crises (cybercrime or information theft), natural disasters (earthquake, flood or storm), economic crises (economic recession or loss of a major customer) and reputational crises (Internet defacement or malicious rumours). Whether the causes of crisis are mundane or exotic (Pearson & Sommer, 2011), crises present a severe threat to the survival of organizations.

As a business activity, crisis management involves planning and coordination to prepare for, and respond to, threats that may prevent or impede operational activities. Many threats have a low probability of occurrence but are severe in their consequences not least due to their ambiguity (i.e., the source, nature and extent of a threat may not be immediately visible or known to managers) and the limited time that managers have to respond (Billings, Milburn, & Schaalman, 1980; Mitroff, Pauchant, & Shrivastava, 1988; Pearson & Clair, 1998; Weick, 1988).

The association between planning and the enhancement of preventative actions and/or responses to organizational failures, accidents and interruptions is central to the crisis management literature. Key features of this literature include a chronological view of the crisis process (Fink, 1986; Seymour & Moore, 2000; Smith, 1990; Turner, 1976, 1994), a socio-technical view of crisis causation (Lagadec, 2004; Pauchant & Mitroff, 1990; Perrow, 1984; Smith, 1990; Turner, 1978), classification techniques for crisis types (Burnett, 1998; Gundel, 2005; Mitroff et al., 1988), an understanding of post-crisis organizational learning (Boin, 2008; Elliott, 2009; Elliott & MacPherson, 2010; Toft & Reynolds, 1997; Veil, 2011; Turner, 1976; Weick & Sutcliffe, 2003) and stakeholder perspectives (Acquier, Gand, & Szpirglas, 2008; Brunet & Houbaert, 2007). The field is not without its polemics, not least in relation to the crisis proneness of organizations and whether crises are inevitable or entirely preventable (see Navestad, 2009; Roberts, 2009; Shrivastava, Sonpar, & Pazzaglia, 2009). The dysfunctions and imperfections of management, organizational systems, product and process design, and decision making are, alongside external threats, the foci of crisis management scholars. Recent attention has been placed on the capacity of organizations to build resilience against internally and externally derived threats to their activities so that they are able to absorb the pressures of the crisis and recover to their pre-crisis state (Crichton, Ramsay, & Kelly, 2009; Somers, 2009).

Relationships further emerge as important elements within many constructs that are germane to crisis preparedness. de Bruijne, Boin, and van Eeten's (2010) recent evaluation of the resilience concept highlights the interdependencies within socio-technical systems as the level of interactions for a systematic evaluation of resilience within organizations. Haavik (2011) developed this idea to show that the relations between components and properties in a socio-technical system strongly influence the causation of events, making this a primary focus for safety assessments. This echoes the notion of multiplexity (the number and diversity of relations networks) within the adaptive capacity (Staber & Sydow, 2002) that allows organizations to deviate, learn and adapt to challenges that can include acute crises. Extending and developing Weick's (1998) improvisation, Baker and Nelson (2005) position the activity of *bricolage* used by entrepreneurs to reconfigure resources into new routines and practices. The role of relationships in the formation and enhancement of social capital is important in the development of resilience (Johnson & Elliott, 2011). Beyond resources and systems at the intra- and inter-organizational levels, relationships provide dynamic connections between new and existing resources, and new and existing networks in a community resilience context. Community

characteristics are found to be an important determinant of family business growth and survival (Haynes, Danes, & Stafford, 2011), and the specificity of relationships to the interdependence as a determinant of complexity is posited within contemporary treatments of system failures (see Schulman, 2011 for a review). Inter-organizational relationships are also emblematic of recent contributions to high-reliability organizational research in a study of high-reliability systems (O'Neil, 2011). Parker, Stern, Paglia, and Brown (2009) associated psychological, bureau-organizational and agenda-political factors with a disregard for the prevention of the worst effects of events such as Hurricane Katrina and 9/11. These factors characterized the preconditions of policy and preparedness that subsequently amplified the scale of impact.

Business continuity management (BCM) is one process through which organizations can formalize and organize their resources and provisions to respond to a crisis. BCM is worthy of consideration within the context of crisis management as it shares many of the aims of crisis management (prevention, improved response, reduced impact, learning to prevent reoccurrence), and its processes echo chronological, socio-technical, learning and stakeholder views within the crisis management literature. Furthermore, government agencies, regulations and legislation require organizations to have BCM in place (Herbane, 2010a) and national standards such as PAS200:2011 directly associate BCM with crisis management (British Standards Institute, 2011). BCM represents three decades in the development of planning and management practices for the prevention and recovery from business interruptions. Its origins can be traced back to the information technology (IT) contingency planning and disaster recovery planning approaches used by organizations from the 1970s onwards (Gallagher, 2005; Pitt & Goyal, 2004; Swartz, Elliott, & Herbane, 2003) and has become an ongoing process supported by senior management (NFPA, 2007). As a management process, BCM has a broader remit than the IT-centric disaster recovery planning approach and 'identifies potential threats to an organization and the impacts to business operations ... (and) ... provides a framework for building organizational resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities' (British Standards Institute, 2012, p. 1).

The practice of BCM can be observed across a number of sectors including financial services (Herbane, Elliott, & Swartz, 2004), construction (Low, Liu, & Sio, 2010), government agencies (Lindstrom, Samuelsson, & Hagerfors, 2010), utilities, health care and logistics (Woodman & Hutchings, 2011). Furthermore, a number of national and international standards (such as CSA Z1600, NFPA 1600, ISO27035 and ISO22301) have

introduced standardized processes for organizations, and BCM forms a legal and regulatory requirement in a number of sectors, including financial services and utility generation and supply. Recognition of the need for SMEs to have BCM has also grown. For example, the US Financial Industry Regulatory Authority requires that small-member firms should create and maintain business continuity plans (BCPs) (FINRA, 2010), and local government agencies in the United Kingdom are required to provide support for SMEs in the creation of a BCP in accordance with the 2004 Civil Contingencies Act (Herbane, 2011).

Across the decades, scholars have placed most of their attention on management practice dealing with the occurrence of crises and business interruptions among large firms. Fragments of attention towards a notion of crisis management in smaller corporate entities can, however, be observed within the early literature on small business management. For example, Timmons (1978) portrayed crisis management as a non-planned reaction to the failure of an intended plan, and Robinson (1979, p. 20) characterized crisis management as an intuition-driven process 'focusing on day-to-day decisions with relatively short time spans' that may be a precursor to formal strategic planning. Such views of crisis management contrast with a contemporary view of systematic processes of prevention and recovery engaged to deal with a broad variety of threats. Recovery from an interruption is rarely complete and entire, and outcomes from a crisis may range from failure to precarious, conflicted, durable and complete types of success (McConnell, 2011).

2.2. Crisis management in SMEs

Acknowledgement of the paucity of research into formal crisis management planning in small firms has emerged in the recent literature. In the preamble to its quantitative study of 162 US companies, Spillan and Hough (2003, p. 400) observed that 'historically, crisis management scholars have focused on larger organizations with little relating this discipline to smaller businesses'. The study reports a higher concern about crises from SME managers resulting from their personal experiences of a crisis rather than the presence of a formal crisis management team, and respondents with experience of crisis management express higher concern about crises. The study also finds little focus by managers on crisis planning in small firms. Examined within the context of Hurricane Katrina, Runyan (2006) also noted the dearth of crisis management research in small firms and reiterates the high level of impact of a crisis on small firms given their lower levels of preparedness, higher vulnerability and dependence on government and local agencies, and the greater psychological and financial impact of a crisis upon the owner-manager. A

further distinguishing characteristic of the SME context is that different stakeholders may have varying perceptions about the stability of the business, and this could play a role in the identification and recovery from threats that may jeopardize long-term survival (Bodmer & Vaughan, 2009). Keller, Powell, Horstmann, Predmore, and Crawford's (2005) study of information security in 60 small US firms indicates that the formalization of processes to prevent information systems crises becomes more tangible as small firms grow. In contrast to formalization, Jin (2010) found that smaller firms appear to be more aware of crises because (due to their more limited resources) they attach a higher level of concern to internal problems than larger organizations do.

Research in the United Kingdom indicates that SMEs have a lower degree of formalization in their crisis plans and low levels of business interruption insurance to cover some (but not all) of the costs incurred as a result of an operational outage. Herbane (2010b) found that SME owner-managers frame risks in two ways – a 'growth vulnerability paradox' (where growth and diversification are perceived to reduce risk) and the 'risk elastic' (where a growth opportunity is eschewed in order to reduce financial uncertainty). This study also suggests that financial resource limitations, limited time in which to respond and the loss of control are dimensions that define the severity of a crisis for SME owner-managers. Respondents in the study engaged in limited opportunities for learning from personal or vicarious experience of crises and were further constrained by inadequate support for SMEs to develop the skills and expertise to implement business continuity planning. Despite the insights derived from that study and others such as Sullivan-Taylor and Branicki (2011), their exploratory approaches and small sample sizes place limitations on the generalizability of assertions relating to the nature of SME managers and owners' perceptions of crisis. In contrast, snapshots provided by large-scale surveys in the United Kingdom identify a lower incidence of crisis management provisions in SMEs (Bank of Scotland, 2003; Barclays, 2007; Economist, 2005; Woodman, 2006). One UK-based (Woodman & Hutchings, 2010) study finds that 29% of small firms had BCPs, 49% of medium-sized firms have BCPs and 65% of large firms have BCPs, providing further support for the association between the formalization of planning and organizational size.

2.3. Research objectives

The role of planning in the generation of both the plan and the greater managerial awareness of the context in which the plan resides suggests a broader business-orientated approach to crisis management planning than a function- or threat-specific approach. As crisis

management planning seeks to prevent and/or reduce the impact of a wide variety of crises, useful distinctions between planning and non-planning firms may also be indicated in the differing assessments of the degree of impact from specific crisis types. With the central role of the managing director in the adoption and authorship of formal strategic planning in SMEs, set alongside evidence of small firms' orientation towards planning for specific contingencies and resource constraints, contextual factors are likely to be important in the decision to formalize planning. Whether this formalization extends to crisis management planning may also depend on contextual factors such as the experience of crisis, perceptions of severity of a crisis threat and the perceived ability to plan for specific crisis threats.

Given the lower levels of adoption of formal crisis management processes among SMEs, and the potential role of moderating factors (such as the experience of crises, the perceived difficulty of planning for specific threats and the severity of impact presented by specific threats) on the managerial perceptions of the planning–performance link, the objectives of this study were to examine:

- Perceptions of SME managers in relation to crisis management planning and moderating factors that affect these perceptions.
- Differences in perceptions between planning and non-planning SMEs.

3. Methodology

3.1. Instrument development

The data were collected using a mail questionnaire in order to reach a larger base of respondents than would be achievable using semi-structured interviews, and data collected using the questionnaire could be subjected to statistical analysis using exploratory factor analysis to examine the underlying perceptions of respondents. The instrument used in this study (see Appendix 1) was developed to ask respondents to rate their organization's experiences of specific crises, whether they believed those specific crises were threats to their business, and whether they believed that they could plan for such crises. Respondents were asked to rate the importance of nine different types of impact that could result from a crisis (loss of sales, reputation, legal action, etc.), and were also asked to indicate their agreement about 11 statements about risks, resources and planning for crises (providing measures of their attitudes towards risk and crisis management). Responses were measured using a 5-point Likert scale. Crucially, respondents were asked to indicate whether the company had a formal crisis management plan, and they were also given an opportunity to provide some additional information about their organi-

zation, and (where applicable) plan age, testing procedures and annual budget. The Mitroff and Alpaslan (2003) nomenclature of crises was used as this provided a clear distinction between seven crisis types (physical, personnel, external criminal, information, natural, economic and reputational), and reflects the crisis types included in a number of other classifications (Burnett, 1998; Gundel, 2005; Mitroff et al., 1988). Self-reports are essential and appropriate for this study because the targeted respondent is the most senior strategic decision-maker within the SME (in their role of owner-manager/managing director), and the study sets out to identify and understand their experiences, perception and priorities relating to crisis management within their business. Notwithstanding, the design of the study recognizes concerns with common method bias but sets out to deal with these proactively (Conway & Lance, 2010). Furthermore, the design of the questionnaire and pre-testing sought to remove item overlap and to ameliorate method effects by avoiding reverse-coded items, assuring anonymity, reducing evaluation apprehension (scale items that might appear to be judgemental) as procedural remedies to unintended measurement error (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003).

3.2. Sampling and data collection

In the United Kingdom, SMEs (1–249 employees) accounted for 59.8% (13.7 million) of private sector employment and 49% (£1,589 billion) of private sector turnover in 2009 (Department for Business Innovation and Skills, 2010). Numbering 4.8 million, SMEs account for 99.9% of all private enterprises in the United Kingdom. A representative random sample of SMEs located in the United Kingdom was derived from the Bureau van Dijk 2010 FAME database, which includes 7 million companies in the United Kingdom and Ireland. In accordance with Recommendation 2003/361/EC, the European Commission defines small- and medium-sized firms as follows: a small firm has a fewer than 50 employees and a turnover/balance sheet total no greater than €10 million. A medium-sized firm has between 51 and 250 employees and a turnover no greater than €50 million or a balance sheet total of not more than €43 million. In addition, micro-firms are defined as having fewer than 10 employees and turnover/balance sheet totals less than €2 million (European Commission, 2010). From a list of 20,914 firms meeting this definition of an SME, a random selection of 1,000 firms led to the sampling frame used. Following a pre-test of the instrument to remove duplication and ensure clarity, questionnaires were posted for the attention of a named managing director. The mailing included a personalized covering letter, the questionnaire and a pre-paid return envelope. From

the questionnaires posted to these companies, 42 were returned undelivered (addressee had gone away), and of the remaining 958,215 usable responses were returned, yielding a response rate of 22.4%.

The number of responses is deemed to be satisfactory given that response rates have been found to be suppressed in other studies with characteristics similar to this study including the sensitive nature of the subject matter (Mitroff et al., 1988), senior managers as the targeted respondents (Hunt & Chonko, 1987) and questionnaire length (Raymond, Julien, & Ramangalahy, 2001). Moreover, the response rate achieved in this study compares favourably with those achieved in studies using similar-sized sample frames (Fraj-Andrés, Martinez-Salinas, & Matute-Vallejo, 2009; Huurne & Gutteling, 2008; Mitroff et al., 1988). The participating organizations ranged in size from 2 to 247 employees [mean = 39.7, median = 28, standard deviation (SD) = 40.6] and the median age for firms in the sample is 10 years (min = 2, max = 160 mean = 15.8, SD = 20.8). A total of 22% ($n = 47$) of respondents have a crisis management plan with spending on crisis planning averaging £10,181 per annum. In order to check for the possibility of response bias, a comparison of means in the variables of early and late respondents was carried out using the approach used by Armstrong and Overton (1977). t -Tests indicate no significant differences in the items used in the study across the early and late respondents. A random sample of 50 respondents and 50 non-respondents from the original database was subjected to an independent samples Kolmogorov–Smirnov test, using company age (since incorporation) and the number of employees in the respondent and non-respondent groups. The p -values reported for age and employees were .446 and .270, respectively ($p > .05$).

4. Results and analysis

4.1. Perceptions of SME managers in relation to crisis management planning

To examine the underlying conceptual structure of SME managers' perceptions of crisis management planning, analysis of the data involved the use of exploratory factor analysis using Varimax rotation with principal component analysis (following Cattell, 1978; Hair, Anderson, & Tatham, 1987). Exploratory factor analysis of the data indicated that 19 of the 20 items (impact and crisis attitudes) used in the analysis could be represented in a simple structure (Bartlett's test of sphericity: $\chi^2 = 1465.66$, $DF = 190$, $\text{sig.} = .00$; Kaiser–Meyer–Olkin measure of sampling adequacy = .79). The *Survival* variable (I9 in Appendix 1) did not load. Using an item inclusion criterion of .5 and an eigenvalue of 1 as a cut-off point, Varimax rotation produced six orthogonal

Table 1. Rotated Component Matrix

	Factor					
	(1) Resilience through planning	(2) Financial impact	(3) Operational crisis management	(4) The perfect storm	(5) The aftermath of survival	(6) Atrophy
Planned better	.88					
Resilience via CM	.84					
CM not needed	-.74					
Changes	.62					
Recovery costs	.56					
Loss of sales		.77				
Legal action		.76				
Supplier reaction		.69				
Severity		.55				
Predictable			.65			
Running business			.61			
Day-to-day			.61			
High impact				.77		
Unpredictable				.73		
Direct revenue					.76	
Insurance rises					.51	
Reputation					.48	
Financial impact						.50
Lack of control						.75
Eigenvalue	5.0	2.1	1.6	1.3	1.2	1.1
Percentage of variance explained	25.0	10.7	8.1	6.6	6.0	5.7
Cumulative variance explained	25.0	35.7	43.8	50.4	56.4	62.1
Cronbach's α	.87	.82	.80	.77	.72	.75

Extraction method: principal component analysis. Eigenvalues > 1.0. Rotation method: Varimax with Kaiser normalization. 5-point scale used for items (1–5 with higher scores indicating stronger agreement). Rotation converged in 14 iterations.

CM, continuity management.

factors that explained 62.1% of the total variance (Table 1). The six factors extracted using this approach are presented in Table 1. The six factors correspond to resilience through planning, financial impact, operational crisis management, the perfect storm, the aftermath of survival and atrophy.

The conceptual distinctiveness of the six factors extracted is supported by the absence of correlations between the aggregate item scores of the variables that constitute each factor (at best, the overlap between factors was reflected in 3.20% of shared variance). Although orthogonal rotation resulted in a clear (i.e., simple) structure for interpretation, this method assumes that underlying constructs are independent (not correlated). In order to examine the potential for correlation between the six factors, a surrogate comprising the component correlations from an oblique rotation that generated a highly similar six-factor structure was used. Table 2 supports an interpretation that the intercorrelation of the emerging components/factors is low. Confirmation of the conceptual distinctiveness of the factors is particularly important given the interpretation of factors 1 and 3 that represent two differing perceptions of crisis planning (strategic crisis management and operational crisis management, respectively).

Table 2. Component Correlation Matrix

Component	1	2	3	4	5	6
1	1.000	-.085	-.037	.083	-.208	-.142
2	-.085	1.000	-.054	-.042	-.158	.099
3	-.037	-.054	1.000	.062	.095	.001
4	.083	-.042	.062	1.000	-.060	.061
5	-.208	-.158	.095	-.060	1.000	-.005
6	-.142	.099	.001	.061	-.005	1.000

Extraction method: principal component analysis. Rotation method: Oblimin with Kaiser normalization.

4.1.1. Factor 1: resilience through planning ($\alpha = .87$)

Factor 1, *resilience through planning*, contains five items and explains the largest variance (25%). This bipolar factor represents a preference towards a planned response to a crisis rather than a reactive response (.88) particularly given the negative loading of the statement that a crisis management plan is not needed because the manager has detailed knowledge of the business (–.74). Attached to the importance placed upon crisis management in improving organizational resilience (.84) are an appreciation of the costs of recovery (.56) and operational changes (.62) that follow a major crisis. Items that do not load this factor include

those that constitute factor 3, and their absence from factor 1 indicates that crisis management is not perceived by respondents to be a short-term, functional and tactical activity. Factor 1 expresses the extent to which a formal and predetermined response to a crisis is believed to reduce the organizational costs of recovery and the prevention of crisis reoccurrence rather than simply obviate immediate financial damage arising from the crisis. This factor does not indicate the presence of planning in respondents' organizations but instead highlights respondents' associations between planning and resilience.

4.1.2. Factor 2: financial impact ($\alpha = .82$)

The four items that contribute to the second factor, labelled *financial impact*, include three crisis impact-type items: loss of sales to rivals (.76), legal action (.76) and supplier reaction (.69), associated with a characterization of crisis severity in financial terms (.55). Factor 2 explains 10.7% of the total variance. The key components of the *financial impact* factor indicate that while the severity of the crisis may be determined simply by financial losses, these do not simply accrue from the immediacy of lost sales during an interruption but also those arise from the post-recovery actions by stakeholders upstream and downstream in the supply chain. This factor reflects a multifaceted understanding of the implications of a crisis upon an organization beyond the immediacy of lost sales and, notably, the extended time period over which the impact of a crisis might be manifest (echoing the importance placed on the post-crisis phase). The loading of the severity item on to this factor reveals a distinction (supported by factor 3) between the uncertainty that may accompany the day-to-day management of an SME and events that constitute a more acute and destructive threat to the survival of the business.

4.1.3. Factor 3: operational crisis management ($\alpha = .80$)

Factor 3 comprises three items and accounts for 8.1% of the variance. Labelled *operational crisis management*, this factor conveys a sense that senior managers of SMEs associate a form of operational crisis management with the constant vigilance and organization needed to manage known risks as an integral part of running the business (rather than as a separate exercise in strategic crisis management planning embodied in factor 1). This triplet factor represents a concern that risks can be predicted (.65) and incorporates an association between crisis management and the day-to-day running of the business (.61) in the context of the perceived high-risk activity of running the business itself (.61). Given that factor 1 represents crisis management as an outcome of a formal planning process, this should be

distinguished as strategic crisis management in contrast to the operational crisis management represented by factor 3.

4.1.4. Factor 4: the perfect storm ($\alpha = .77$)

Factor 4 represents the dimensions that constitute the characteristic of a high-priority crisis. This doublet factor is labelled *the perfect storm*, as other than rapid onset, the latent characteristics of a high-priority crisis are reflected in this factor such as unpredictable nature (.73) and a greater importance attached to infrequent, high-impact threats than frequent, low-impact threats (.77).

4.1.5. Factor 5: the aftermath of survival ($\alpha = .72$)

Characteristics of post-crisis survival make up the fifth factor, labelled *aftermath of survival*. Within this factor, three crisis impact items have loaded: direct revenue loss (.76), rises in insurance premiums (.51) and reputation (.48). The latter item has been included in this factor given its proximity to the loading exclusion threshold (<.5) and support for the inclusion of items with loadings above .4 for large sample sizes in Kline (1994) and Hair et al. (1987). This construct (factor 5) denotes the pressure facing organizations in the aftermath of a crisis in sustaining their pre-crisis operating margins through higher insurance costs and the additional costs that may be necessary to repair and restore the SME's reputation among its stakeholders. Other costs such as direct recovery costs and operating changes (to prevent reoccurrence) have not loaded on this factor (loading on factor one instead), suggesting that managers distinguish between proactive crisis management costs and reactive crisis management costs.

4.1.6. Factor 6: atrophy ($\alpha = .75$)

Factor 6 consists of the two characteristics that represent a view of crisis as a situation with a lack of control over events and the outcome (.75) and that is determined by its severity in financial terms (.50). Within this doublet factor, the degree of prediction is not a characteristic of this factor (items relating to this loaded on other factors mentioned earlier). The label *atrophy* denotes a relationship between a crisis and the partial or complete deterioration of operating resources and the diminution of control over the situation.

The strength and nature of factor 1 (*resilience through planning*) means that the data support the assertion that SME managers perceive formal crisis management planning as a way to improve organizational resilience. Contrary to the idea that SMEs have little appreciation for formal crisis management, SME managers not only have an appreciation of formal crisis management and its claimed benefits but that they also distinguish between

Table 3. Moderator Effects

Dependent variable: attitude to crisis management planning				
Source	Sum of squares	DF	F	Sig.
Corrected model	8.189 ^a	23	2.592	.000
Intercept	535.465	1	3897.834	.000
Experience of crisis	1.837	13	1.029	.426
Planning status	3.482	1	25.344	.000
Experience of crisis $\times$ planning status	.649	9	.525	.855
Error	26.239	191		
Total	2246.512	215		
Corrected total	34.427	214		

^a $R^2 = .238$ (adjusted $R^2 = .146$).

operational crisis management and strategic crisis management (supported by the characteristics of the *atrophy* and *perfect storm* factors). Of course, the appreciation of formal crisis management does not necessarily translate into its presence within an SME, thereby raising questions about what might be the barriers to its initiation, resourcing and implementation.

4.1.7. Moderating factors

In order to consider moderator effects on attitude to crisis management planning (based on a composite measure based on the 11 viewpoint statements and with statement 10 reverse-coded), analysis of variance was carried out, using the following three independent variables: planning status, perceived vulnerability (based on the significant threats items) and ability to plan (based on the ability-to-control items). A model (Table 3) that included experience of crisis and planning status as independent variables conformed to the homogeneity of variances (Levene's test of equality of error variances: $p > .05$). The analysis confirms a significant main effect for planning status on attitudes to crisis management planning ($F = 25.344$, $p < .05$), but reveals no significant main effect for the experience of crisis on attitudes to crisis management planning ($F = 1.029$, $p > .05$). Furthermore, analysis reveals that there is no significant difference in the effect of experience of crisis on attitudes to crisis management planning for planning and non-planning firms ($F = .525$, $p > .05$). The results indicate that planning and non-planning firms do not differ in terms of the experience of crisis but that there is a difference in their attitudes towards crisis management planning.

4.2. Severity of impact

The perceived severity of impact arising from specific crisis types will vary between planning and non-planning SMEs. The independent-samples *t*-test evaluates whether significant differences existed in the responses

of SMEs with crisis plans ($n = 47$) and SMEs without crisis plans ($n = 168$) in terms of their experiences of specific types of crisis, the degree of threat and impact posed by these crises, and whether they believed that specific types of crises could be planned for. SMEs with crisis plans are hereafter referred to as *planning* firms, and SMEs without crisis plans are referred to as *non-planning* firms. Readers will note that the low proportion of planning firms among SMEs reflects previous studies cited in Section 2.3. Respondents were asked to indicate the extent to which the following nine types of impact were important in the aftermath of a crisis: direct revenue, impact on reputation, loss of sales to rivals, legal action, negative supplier reaction, recovery costs, changes to prevent reoccurrence of the crisis, insurance premium rises and company survival. Table 4 indicates that significant differences exist between planning and non-planning SMEs in the level of importance attached to five of the nine types of impact. For each of these five types of impact (post-crisis changes, supplier reaction, recovery costs, legal action and loss of sales to rivals), planning firms rated these impacts as more important than non-planning firms. The data support the notion that organizations with an experience of crisis management planning will have a more explicit understanding of the impact of specific crisis types and, therefore, appreciate the broader impact that a crisis may have on its results, reputation and resources. Three of the impacts that do not differ significantly (reputation, direct revenue and survival) are considered to be highly important to both planning and non-planning SMEs but reflect a coarse-grained view of crisis impact as they are associated with direct commercial factors (income, differentiation and the ability to trade). The data in Table 4 support the idea that respondents in planning firms have attached a greater level of importance to a broader set of impacts that extend to the response of stakeholders upstream and downstream in the supply chain, costs that may arise in addition to those associated with organizational recovery and measures to prevent reoccurrence in the process

Table 4. Rating for Specific Types of Post-Crisis Impact

Type of impact	$\bar{X}$ Planners and non-planners (<i>n</i> = 215)	Rank	$\bar{X}$ Planners (<i>n</i> = 47)	$\bar{X}$ Non-planners (<i>n</i> = 168)	<i>t</i>
Changes (to prevent reoccurrence)	2.4	9	3.4	2.2	6.28*
Supplier reaction	2.6	7	3.5	2.4	5.49*
Recovery costs	2.5	8	3.3	2.3	5.32*
Legal action	3.1	5	3.8	3.0	4.80*
Loss of sales to rival	3.8	4	4.1	3.7	2.11*
Reputation affected	4.5	2	4.6	4.4	1.94**
Direct revenue losses	4.6	1	4.5	4.7	1.36
Survival threatened	4.4	3	4.5	4.4	.79
Insurance premium rises	2.7	6	2.7	2.9	.64

Scale 1–5 (rated from 1 to 5; unimportant to very important).

p* ≤ .05; *p* ≤ .01.

Table 5. The Ability to Plan for Specific Threat Types

Threat type	$\bar{X}$ Planners and non-planners (<i>n</i> = 215)	Rank	$\bar{X}$ Planners (<i>n</i> = 47)	$\bar{X}$ Non-planners (<i>n</i> = 168)	<i>t</i>
External	2.3	7	2.8 (7)	2.2 (7)	3.47*
Natural	2.7	6	3.1 (6)	2.6 (6)	2.86*
Personnel	3.5	3	3.8 (3)	3.5 (3)	2.30*
Physical	4.1	2	4.3 (1)	4.0 (2)	2.23*
Economic	2.9	4	3.2 (4)	2.9 (4)	2.02*
Reputation	2.8	5	3.0 (5)	2.8 (5)	1.19
IT	4.3	1	4.3 (2)	4.2 (1)	.35

Scale 1–5 (strongly disagree to strongly agree).

**p* ≤ .05.

IT, information technology.

improvement activities within the post-crisis phase (Karakasidis, 1997; Smith, 1990). Such impacts are of second-order importance to non-planning firms given their lower ratings compared with planning firms and the ratings given to direct revenue impacts.

4.3. Planning for specific crisis types

SMEs with crisis management plans were more positive about the ability of organizations to plan for five of the seven crisis types specified in the questionnaire. The results shown in Table 5 indicate that the mean values of five crisis types differ significantly between planning and non-planning firms. Whether the SME has a crisis management plan or otherwise, the highest rated crisis types that respondents believe can be planned for are personnel, physical, and IT crises, and these, in turn, are characterized by (1) a high level of tangibility at onset (a strike, accident or computer failure is immediately evident to the respondent) and (2) a propensity to be triggered within the organization (rather than be caused by external factors such as terrorism, natural disasters

and economic crises). Reputation and external criminal crises such as terrorism or product tampering were rated as the least possible to plan for (perhaps unsurprisingly given that the timing and targeting of such events are beyond the control of the SME alone). The high and similar scores for planning and non-planning SMEs for IT crises should, perhaps, not be surprising as these are well-established resources that have recognizable vulnerabilities and modes of failure but for which restoration options are known. The similarity in the overall rankings of the crisis types between planning and non-planning firms suggests that planning status does not substantially affect SME managers' rankings. Moreover, the literature has already highlighted the presence of IT planning within SMEs and contingency planning contained therein.

4.4. Experience of crisis and perceived degree of threat

SME managers' experiences of crises are not directly reflected in their perceptions of the degree of threat.

Table 6. Experiences of Crisis and Perceived Degree of Threat

Perceived threat	$\bar{X}$ Planners and non-planners (<i>n</i> = 215)	$\bar{X}$ Planners (<i>n</i> = 47)	$\bar{X}$ Non-planners (<i>n</i> = 168)	<i>t</i>	Experience (in past 3 years)	$\bar{X}$ Planners and non-planners (<i>n</i> = 215)	$\bar{X}$ Planners (<i>n</i> = 47)	$\bar{X}$ Non-planners (<i>n</i> = 168)	<i>t</i>
Economic	3.9 [1]	3.6 [2]	4.0 [1]	2.11*	Physical	1.5 [3]	1.8 [3]	1.4 [3]	3.10*
Personnel	3.3 [5]	3.1 [5]	3.4 [5]	1.76**	Personnel	1.3 [4]	1.4 [4]	1.2 [5]	2.07*
External	2.5 [7]	2.3 [7]	2.6 [7]	1.59	IT	2.1 [2]	1.9 [2]	2.2 [2]	2.03*
IT	3.7 [2]	3.5 [3]	3.8 [2]	1.26	Natural	2.7 [6]	1.3 [6]	1.2 [6]	.81
Natural	2.7 [6]	2.8 [6]	2.7 [6]	.39	Economic	2.3 [1]	2.2 [1]	2.3 [1]	.78
Physical	3.6 [3]	3.6 [1]	3.6 [3]	.33	External	1.1 [7]	1.2 [7]	1.1 [7]	.65
Reputation	3.4 [4]	3.5 [4]	3.4 [4]	.30	Reputation	1.3 [5]	1.4 [5]	1.3 [4]	.60

Scale 1–5 (Threat = strongly disagree to strongly agree; experience = never to very frequently).

* $p \leq .05$; ** $p \leq .01$.

Rank denoted in square brackets.

IT, information technology.

This is not the same as the binary differential denoted by planning status *per se*, but of the alignment between experience of specific crises and the perceived threat that these crises present. Table 6 presents the differences in values for the perceived levels of threat and the recent experience of crisis for planning and non-planning firms, along with aggregate scores and rankings for the seven categories of crisis. The data indicate no significant differences in the perceived threat presented by five of the seven crisis types between planning and non-planning SMEs. Only the threat of economic crisis (arising from economic recession or the loss of a major customer) showed a significant difference ($t = 2.11$, $p < .05$) in the mean at the .05 level. The recent experience of crisis among SMEs in the sample showed significant differences in the case of three crisis types, notably, physical crisis ($t = 3.10$, $p < .05$), personnel crisis ($t = 2.077$, $p < .05$) and IT crisis ($t = 2.031$, $p < .05$). However, contrary to an assumption that SMEs with crisis management plans will have encountered fewer instances of specific types of interruptions (a potential indication of resilience), the data in Table 6 indicate this only in the case for IT-related interruptions. Only in the case of IT-related crises did planning firms have a statistically significantly lower incidence of the threat than non-planning firms. Thus, despite the differential in terms of planning status, respondents in the study were not discernibly differentiated in terms of the perceived threat of specific crises, and Table 6 provides further support for the finding reported in Section 4.1.7 that there is no significant difference in the effect of experience of crisis on attitudes to crisis management planning for planning and non-planning firms. Of course, the specific nature of the crisis management plan and whether the presence of a formulated response preceded the experience of the specific crisis, along with whether the planned response was understood to be appropriate in guiding recovery from the threat, may play a role in determining the perceived threat of spe-

cific crisis types. With these in mind, the data nonetheless tentatively challenge the association between the experience and perceived threat of a specific crisis among planning firms, and highlight the need for additional research to understand the drivers for the adoption of crisis management planning in SMEs.

5. Conclusions

Previous studies about crisis management have largely focused on the experience of, and management processes for, crisis management in a large enterprise context. This study focuses on the managing directors of UK-based SMEs and their perceptions of threat, impact and the ability to plan for specific types of crisis threats. Managers in this study associate formal crisis management planning with improved resilience and have a multifaceted understanding of the longer-term impacts of a crisis, but these do not necessarily correspond with a high level of formal adoption. Managers also appear to distinguish between strategic and operational crisis management, the latter being concerned with predictable risks and the challenges of running the day-to-day operations of the business. A further distinction between proactive crisis management costs and reactive crisis management costs is identified in this study. Planning and non-planning firms did not vary in their ranking of the ability to plan for specific crisis types and associate the ability to plan for a specific type of crisis with its tangibility (with physical and IT crises ranked highest overall). In addition, the perception of threat for five of the seven crisis types did not differ significantly between planning and non-planning SMEs. Few differences were found in the incidence of interruption between planning and non-planning SMEs other than IT-related interruptions. Managers' experience of crises is not directly reflected in their planning priorities. The importance attached to specific types of post-crisis impact was found to differ between planning and

non-planning SMEs. Planning firms prioritize a broader set of impacts than non-planners, and this points to an enhanced understanding that managers derived from the undertaking of planning itself, akin to Moyer's (1982) findings in a strategic planning context.

The timing of the data collection (after the 2008–2009 global financial collapse) is likely to have been an important factor in respondents' ratings of crises given that economic crisis is rated the most frequently experienced crisis type and the one perceived to present the greatest impact upon the business. As the connections between planning and resilience are salient among the managing directors of UK SMEs, a myopia of preparedness remains. Future studies should examine the barriers to adoption and the implications of these for managers and stakeholders (be it supply chain partners, regulators, governments or financiers). Attempts to examine the influence of industry characteristics on attitudes and preparations towards crisis management planning would further develop this, as yet, underexplored area of SME research.

Having reflected on their experiences of business-level crises, SME owner and managers should place attention to their firms' exposure to a wide variety of crisis events in terms of their likely occurrence, the impact of such events in terms of operational interruption and short- and longer-term financial effects, and the ability of the firm to invest in measures that can reduce (or remove) both occurrence and impact. Firms with an IT plan may reach an anodyne conclusion that they have planned for a highly tangible and controllable crisis, but this should not be conflated with a sense of broader business resilience. Firms with a single IT recovery plan have made a start on the road to a broader crisis management posture but should ask whether their experiences of such planning can be focused on non-IT crises in order to enhance broader business resilience. Firms without plans should consider which types of crisis should be the focus of their efforts to move from reaction to prevention, and to adopt a facility or process focus rather than single resource focus. In this way, the firm can develop crisis management capabilities that address the inability to carry out a process or operate within a given facility (both of which may combine multiple human and physical resources).

In a world of transboundary crises (Boin, 2009; Lagadec, 2009), organizations are not isolated from what seemingly are distant, uncertain and intangible threats to their activities and survival (e.g., take the spread of swine flu and the contamination of foods with the synthetically produced Sudan 1 red dye). Indeed, with their lower formalization of crisis management planning, SMEs stand to be more exposed to borderless risk activities and failure cascades (Smith & Fischbacher, 2009) than larger corporate entities. A potential counterbalance is, however, emerging through the recogni-

tion of the role of governments in augmenting business resilience (O'Brien, 2008; Rhinard, 2009) through national and local resilience cooperation and support networks (Walker & Broderick, 2006).

The picture identified and presented in the paper suggests that SMEs' posture in relation to crisis management planning largely resembles a disaster recovery planning approach owing to the priority placed on the protection of IT resources given their cognizance of the threat and their experience of IT-related crises, coupled with a strong belief in their ability to plan for such crises. This focus continues with the single contingency focus identified in the antecedent literature (Bergeron & Raymond, 1992; Bradbard, Norris, & Kahai, 1990), but this should not be conflated with the managerial ignorance that can augment crisis proneness (Roux-Dufort, 2009). Indeed, an alternative explanation is that SME managers are functionalist in their approach to crisis management because of resource constraints and they adopt a precautionary approach through which they focus on what are understood to be the most tangible and predictable crises for which restoration plans can be generated and deployed. This pragmatic judgement may, however, present a limitation to broader-based crisis management as a capability designed to address multiple threats to an organization that is itself conceived of as a single-system collection of resources that determine resilience and vulnerability.

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Appendix 1: Survey Instructions and Scales

Experience of crisis

5-point Likert scale ranging from never to very frequently:

How frequently has your business encountered the following crises in last 3 years?

- T1 Physical crises such as fires, accidents, product/process failures or loss of utilities (gas, electricity, water, telecommunications)
- T2 Personnel crises such as industrial action, staff criminality or loss of key staff/managers
- T3 External criminal crises such as terrorism or product tampering
- T4 Information technology crises such as cybercrime or information theft, hacking, or data loss
- T5 Natural disasters such as flooding or storms
- T6 Economic crises caused by economic recession or loss of a major customer
- T7 Reputation crises such as malicious rumours or bad publicity

Impact of a crisis

5-point Likert scale ranging from unimportant to very important:

How important do you believe the following are in the event of a crisis?

- I1 Direct revenue loss
- I2 Impact on reputation
- I3 Loss of sales to rivals
- I4 Legal action
- I5 Negative supplier reaction
- I6 Recovery costs
- I7 Cost of changes to prevent reoccurrence of the crisis
- I8 Insurance premium rises
- I9 Company survival

Business resilience threats and planning

5-point Likert scale ranging from strongly disagree to strongly agree:

To what extent do you agree that the following are significant threats to your business?

Threats T1 ... T7

5-point Likert scale ranging from strongly disagree to strongly agree:

To what extent do you believe it is possible to plan for the following crises?

Threats T1 ... T7

Your views about risks and crisis management

5-point Likert scale ranging from strongly disagree to strongly agree:

Please indicate the extent to which you agree with the following:

1. I am concerned about risks that cannot be predicted.

2. Infrequent but high-impact threats are more important than frequent but low-impact threats.
3. I am concerned about risks that can be predicted.
4. Running the business is itself a high-risk activity.
5. The day-to-day running of the business involves crisis management.
6. Crisis management is only necessary in the event of a severe crisis.
7. A crisis is a situation in which there is a lack of control over events and the outcome.
8. A crisis is a situation that is determined by its severity in financial terms.
9. A planned response to a crisis is better than an ad hoc response.
10. A formal crisis management plan isn't needed because I have detailed knowledge of the business.
11. A business can be made more resilient to a crisis through formal crisis management processes and resources.

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