

Abstract

To date the relationship between crises, organizational crisis management, and learning has been understudied. In an effort to broaden theoretical understandings of the relation between crisis and learning, this article analyses the crisis management and learning processes of two public organizations during a sequence of two failures. A framework of rigidity versus flexibility in response is utilized in the analysis. The findings are discussed in relation to their implications for the nexus between crisis and learning. The study concludes by raising four hypotheses for further research.

Key words

Crisis management, flexibility, organizational learning, threat rigidity

FLEXIBILITY AND RIGIDITY IN CRISIS MANAGEMENT AND LEARNING AT SWEDISH PUBLIC ORGANIZATIONS

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INTRODUCTION

The acute operational and technical aspects of coping with emergencies and crises, such as saving lives, protecting property and allocating resources, are important tasks in traditional emergency management. The public expects managers in all parts of society to fulfill these tasks in a correct and efficient manner. Equally important are the symbolic and communicative aspects of politico-strategic crisis management. Public managers need to be seen as credible, responsible, accountable and ready to act in difficult situations if they are not to compromise their intra-organizational positions or their relations to the external environment, including other organizations, mass media and the public. Today crisis management and communication capacity – including the ability to make sense of and frame urgent problems, muster support for and justify actions to solve such problems, and to learn from these experiences – are part of general public management skills that are necessary in mediated political environments (Boin *et al.* 2005). To maintain or strengthen credibility and legitimacy in crises – understood here as situations that involve serious threats to the basic structures or the fundamental values and norms of an organization, which under time pressure and highly uncertain circumstances necessitates making crucial decisions (Rosenthal *et al.* 1989: 10; cf. Stern and Sundelius 2002; Smith 2006) – is vital for any public manager as it can make or break careers of public and political actors and organizations (Lewis 2002). The ability to learn from crisis experiences is a key asset for building crisis management capacities (Stern 1997).

So far, however, the relationship between the critical dimensions of crises, crisis management and learning has been underdeveloped in the literature (Carley and Harrald 1997: 317; Boin *et al.* 2005: 134; Nohrstedt 2007: 7). One reason is that there is a substantial lack of empirical studies within the field of organizational learning (Fiol and Lyles 1985; Lähteenmäki *et al.* 2001; Dekker and Hansén 2004: 212; cf. Bapuji and Crossan 2004: 397). By drawing on findings from crisis management literature, literature on organizational learning and from empirical case studies, this article intends to bridge the knowledge gap on the connection between crisis and learning – the latter understood here as purposeful efforts based on the experiences of organizational members working within a community of inquiry to create new understandings to act upon (Argyris and Schön 1978; Dekker and Hansén 2004; Boin *et al.* 2005). I apply two theoretical frameworks representing optimistic and pessimistic appraisals of how organizations respond to crises to a set of crisis management and learning data. The analysis aims to establish how organizational rigidity and flexibility might affect public organizations' crisis management and learning, and how well the two theories may explain organizational outcomes in regard to crises in general.

The case under study covers two fires in the power company Birka Energi's local cable tunnel in north-western Stockholm that led to a thirty-seven hour blackout in eight city districts in March 2001 and to a fifty-four hour blackout in the same area in May 2002. The power failures seriously affected businesses and public administration as

well as the daily lives of residents as some 50,000 people and 700 businesses employing another 30,000 were deprived of electricity. In the Swedish national setting the duration and the scope of the blackouts were without modern precedent (Aktuellt 2001). The events posed similar challenges to two organizations: the city's command and control unit (CCCU), consisting of the City Executive Office and the Fire Department, which represents a fully public organization, and Birka Energi, which represents an organization that is more of a hybrid with a combined public and market orientation (cf. Joldersma and Winter 2002). Two noteworthy aspects of the crises included the fact that both the blackouts occurred within fourteen months of each other and that the organizations were managed to a large extent by the same individuals. The case is particularly interesting for dealing with crisis management responses and their implications for learning because it allows for contrasting organizational responses before and after recent crisis management experiences.

DESIGN AND METHOD

Crisis researchers interested in public management have mostly dealt with individual incidents rather than reoccurring accidents (Elliott and Smith 2006: 291), which is problematic from a learning perspective. The present case analysis addresses this weak point in the literature. Due to the limitations of the study (foremost that it encompasses only two organizational responses to two organizational crisis events), the study should be understood as a 'heuristic case study' in the sense that it promotes inductive identification of new hypotheses for further research rather than producing generalized knowledge (George and Bennett 2004: 75).

The study uses an ex-post reconstruction and process tracing method (George and McKeown 1985: 35ff; Stern 1999; Stern and Sundelius 2002) appropriate for examining complexity in detail (George and Bennett 2004). Moreover, and keeping in line with the aim of the study, 'process-tracing can be particularly effective at examining the kinds of detailed sequences in learning and diffusion processes' (George and Bennett 2004: 33). The process tracing was conducted by first pinpointing the stimuli that the actors acted upon. The organizational crisis management and learning processes were reconstructed into crisis narratives. Narratives were then dissected into occasions for critical decision making, each of which were closely examined (cf. Stern 1999). This approach helps the researcher to pinpoint periods in time when organizational experience alters behavior or knowledge.

Case reconstructions were based on reviews of original sources, incident investigations, media sources and twenty-seven in-depth interviews with twenty key crisis management players from the CCCU and Birka Energi. Rescue managers, district directors from the most affected districts (Kista and Rinkeby), the Fire Chief, the City Manager, the Negotiations Manager, and the Commissioner of Finance were among the interviewees representing the former, while representatives of Birka's crisis group (such

as the Vice President, Regional Director and the Manager of Operations) as well as first responders (such as the Duty Engineer and the Operations Engineer) were among those interviewed from the latter.¹ Interviews were semi-structured and based on broad open-ended and chronological questions aimed at reconstructing the events. Interviews were conducted between September 2001 and December 2002, apart from a follow up interview in May 2006 (with Birka's MO). Interviews took between one and two hours and were tape recorded and transcribed.

Once detailed understanding of the critical occasions for decisions was gathered, the case was reconstructed according to three chronological cuts into the events: crisis lead up; crisis management proper; and crisis aftermath. The article's analysis section focuses on the within-case cases of Birka Energi and the CCCU during the 2001 and 2002 Stockholm blackouts.

The study is structured as follows: after the presentation of the case and case context, the analytical framework of threat rigidity versus crisis flexibility is outlined. The case is then discussed in accordance to the chronological cuts. Here, the 2001 events are used as a benchmark for the 2002 events. Both events are then analyzed through the theoretical lenses of rigidity and flexibility in order to assess and explain crisis management and crisis-induced learning in organizations.

CASE CONTEXT AND INTERORGANIZATIONAL RELATIONS

The affected districts in north-western Stockholm are characterized by business and residential areas. The business areas are prosperous and known as the hub of Sweden's high-tech industry. The residential areas are multi-cultural and socio-economically deprived with a relatively high rate of unemployment (Axelsson 2001).

Lack of redundancy was the underlying vulnerability of the local power distribution system. Backup cables lay alongside main cables in the only tunnel feeding the area. The second event was a failure of quality control and maintenance. Temporary repairs during the first crisis were not monitored and deficient repairs were overlooked (Göransson 2002: 4). This tightly coupled event led to two long lasting blackouts.

DEREGULATION AND PRIVATIZATION

The events took place in the midst of privatization reform. Until the mid-1990s Swedish energy companies were municipal companies accountable to the citizens. The 1996 electricity reform deregulated the national electricity market and made production and retail of electricity competitive, while transfer of power by grids remained government controlled (Government Report 2001a). Mergers and acquisitions over the years decreased the number of power companies (Government Report 2002). In the local context, the 1998–2002 center-right coalition in City Hall

was relatively fierce in carrying out large scale privatization, with profound effects on the city's management (Tottmar 2000). There are no systematic national overviews of how deregulation has affected the power system, but official concerns have been raised on deteriorating power system maintenance, power supply security, and high number of blackouts following deregulation (Government Report 2001b: 5).

The public utility Birka Energi was established in 1998 when the old local public power company Stockholm Energi merged with another local power company owned by the Finnish energy company Fortum. In 2001 Birka was owned in part by the city and in part by Fortum. The company consisted of seven subsidiaries and employed some 3,200 people. It was Sweden's largest energy company in terms of the number of customers.

The 1999 financial plan stated that the city would sell off its interests in Birka. The privatization bill passed the County Council on 17 December 2001 (Tottmar 2001) and the EU Commission approved Fortum's acquisition in January 2002. Hence, at the time of the 2001 blackout Birka was still very much a public company, while during the 2002 blackout Fortum owned 70.7 percent (Braconier 2002). However, the acquisition was not carried out fully and the heating division, which also owned the cable tunnels, remained partly owned by the city. As an official sign of the complete merger, the company name Birka Energi was discontinued as of 2 September 2002 (Birka Energi Press release 2002).

CITY CRISIS PLANNING

In the event of a crisis in Stockholm, the city's command and control unit is managed by Stockholm Fire Department (FD) and the City Executive Office (CEO). The CEO is led by a politically appointed city manager. It is the city's central administrating body operating under the Municipal Board. The city's organizational responsibility in a crisis was outlined in the relatively new plan 'Management and Coordination during Severe Societal Strain', which was established in the run up to the millennium shift (Y2K). The FD, the CEO and Birka played important roles in Y2K planning. The CEO overhauled city planning and initiated the 'Y2K project' in order to coordinate the city's preparations and exchange of information. Meanwhile City Hall commissioned the FD to set up a plan for the city's crisis management (Jidling 2003). The Fire and Rescue Board approved the mandate in March 1999 (City Executive Board Protocol 1999). The protocol assigned the FD and the CEO as the coordinating body for the city's crisis management efforts mandated to assemble the necessary actors to coordination meetings (Stockholms Fire Brigade 2001, hereafter referred to as SFB 2001). The Y2K was the only time that the city coordination group had gathered prior to the blackouts.

Contingency planning in the late 1990s created a platform for crisis cooperation between the CEO, the FD, Birka and other city agencies. Relations were hierarchical. The CEO and the City Manager were in charge as strategic managers who authorized

and legitimized the crisis command. The FD and the Fire Chief carried out the operational coordination (personal interview with G. Andersson, the Principal Fire Engineer at Stockholm FD on 27 September 2001; personal interview with J. Kleist, the City Manager at the CEO on 9 October 2001; personal interview with L. Hallander, the duty Fire Chief at Stockholm FD on 24 January 2002). Inter-organizational relations changed somewhat between the blackouts as Birka was becoming a private internationally owned company, and thus no longer subject to political scrutiny. According to the City Manager, the city could act tougher as a public representative in 2002, as it had less financial interests in Birka (personal interview with J. Kleist, the City Manager at the CEO on 7 March 2003). Public influence on Birka after the sale was confined to the city owning half of the heating distribution company and control of the city's planning monopoly. The latter function approves plans of physical planning of the company's facilities (personal interview with C. Cederschiöld, Stockholm's Commissioner of Finance on 20 October 2003).

ANALYTICAL FRAMEWORK

Previous research tells us that managers tend to act in two basic ways in response to crises. They either rely upon familiar norms and templates and try to fit ambiguous events into pre-existing and familiar cognitive frames, or they draw from previously unknown resources and design ad hoc strategies to manage the events at hand (Staw *et al.* 1981; Weick 1993; Roux-Dufort and Vidaillet 2003: 87). That managers respond rigidly or with creative and flexible improvisation has implications for crisis management in public organizations, not least since the public sector traditionally is described as resistant to change (Common 2004). Public organizations are also characterized by elements understood as contrary to flexibility. For instance their commissioned work is limited by incremental budgeting, and bureaucracy has a key role in implementing organizational output (Osborne 2006: 378). It would thus be likely to expect from public organizations difficulties in providing flexible crisis responses. However, public organizations increasingly deal with rapidly changing environments, and this has enhanced demands on effective organizational learning (Common 2004: 35). Public service organizations are dependent on external resources, government policies, and multiple stakeholders. They deal with vague public goals and different stakeholders' interests (Joldersma and Winter 2002: 88). The environment that public organizations work in is complex and ambiguous. Organizational learning, including flexibility, then becomes a necessary capacity for thriving and for surviving (Nutt 1993). Given the inherent ambiguity in the public management context, managers need to practice managing styles with a considerable level of flexibility. Prior research, however, shows that managers are least flexible in high competitive threat and low slack (Sharfman and Dean 1997: 191). Crisis contexts are thus understood as detrimental to managerial flexibility.

Below I delve deeper into the concepts of rigidity and flexibility in organizational crisis response and set the stage for the analysis by constructing a framework for analyzing crisis management and learning processes by operationalizing the article's key concepts.

THE THREAT RIGIDITY HYPOTHESIS

The threat rigidity hypothesis (TRH), formulated by Staw *et al.* (1981), is based on experimental research on corporate responses to threats in the environment. The TRH shows a restriction in information processing and constriction of control under threat conditions, leading to rigidity in response. Information processing is restricted as attention fields are narrowed, information codes simplified and the number of information channels reduced (Staw *et al.* 1981: 501–2). For individual decision makers, 'restriction in information processes takes the form of reliance upon internal hypotheses and prior expectations and attention to dominant or central cues' (Staw *et al.* 1981: 506). Thus managerial abilities to process information and make reasoned choices are reduced during crises due to analogical reasoning (cf. Khong 1992). According to the hypothesis, stressful situations lead decision makers to cut themselves off when information is most critical (Seeger *et al.* 2003: 9). Further, there is a constriction in control as power and influence become centralized. These two features lead to reliance on dominant modes of thought, learned routines and reflexes, which leads to a rigid response (Staw *et al.* 1981: 502–3). This does not necessarily mean that the pattern is dysfunctional. The dominant response may reduce threats, if the task or environment has not changed drastically. In an unstable and radically changing environment, however, a rigid response will most likely be inadequate (Staw *et al.* 1981: 502–3; Stern and Sundelius 1997: 35). As long as decision makers refrain from reflecting on their lessons and their environment, lessons will not be appropriate as 'prior, well-learned responses are inappropriate under new conditions' (Staw *et al.* 1981: 502). The cognitive, reflecting dimensions of learning need to be part of the response if it is to be functional.

The TRH has implications for the connection between crisis and learning. According to Stern and Sundelius (1997: 34) the TRH proposes that innovative and vigilant decision making and learning are inhibited during crises. Boin *et al.* (2005: 118) even go so far as to claim that the TRH 'predicts that the conditions of crisis make it hard if not impossible to learn'. This rather pessimistic view on the organizational learning capacities in response to crises can be summed up as follows: when organizations are subjected to crises they respond rigidly, detached and inflexibly with an inability to alter and change directions as a result of decision makers': (R1) restrictions in information processing and reduction of information channels; (R2) reliance on analogical reasoning and learned routines; and (R3) reliance on centralization by concentrating influence.

FLEXIBILITY IN CRISIS MANAGEMENT

The TRH has been critiqued for overlooking the flexible response to organizational crises. In an effort to complement the TRH, Barnett and Pratt (2000) used case studies of corporate crises to show how managers may use threat to generate flexibility and learning in response to risk and crisis. Flexibility is generally recognized as a necessary capacity for organizations to adapt to a changing environment (e.g. Senge 1990; Sharfman and Dean 1997; Reason 1997). It is also seen as a crucial ingredient for crisis management, learning and resilience (Boin and Lagadec 2000; Roux-Dufort 2008). Borodzics (2004: 419) for instance argues that ‘flexibility . . . may be key to facilitating crisis management’. Moreover, he links flexibility to creativity when he, based on research on crisis management executive trainings, concludes that: ‘in every single case of a successfully managed crisis event, the positive outcome could be directly linked to creative or flexible rule breaking by key decision makers in the response’ (Borodzics 2004: 418). Strategic management researchers have also linked flexibility to improvisation and creativity (Ford and Gioia 2000: 725). Flexible processes are usually understood as a requirement for new ideas, assumptions and choices that organizations need for adaptation and change. Flexible choices are unusual, innovative or at least different from the norm (Sharfman and Dean 1997; Nutt 1993).

Although crisis management research promotes flexibility as critical for successful response, studies rarely go into detail about what flexibility actually entails. Despite noted objections against studying flexibility as a coherent or systematic phenomenon made up of a number of specific criteria (Martinez Lucio *et al.* 2000: 295), I find a disaggregation necessary to operationalize the concept. I draw on Sharfman and Dean (1997: 194) who disaggregate the concept into openness and recursiveness. By the former they refer to openness to new ideas, information sources and roles and considering wide varieties of alternatives. By the latter they mean self-reflecting. This study understands openness and recursiveness as two sides of the same coin. Accordingly, the first criterion of a flexible response to a crisis is to produce an open, non-defensive and critical reflection on the pros and cons of organizational performance. In the crisis aftermath these reflections often take the form of post-mortem investigations (Dodgson 1993: 389; Roth and Kleiner 1998: 47; Jones 2001: 93; ‘t Hart forthcoming). Second, flexible responses rely on openness to new and varying sources of information, rather than learned routines and analogical reasoning. Third, flexibility is linked to creativity and improvisation as it presupposes that the outcome of the act in question is judged as novel and valuable (Ford and Gioia 2000: 714). Flexible responses are thus understood as resultants of urgent needs for creative improvisation, and thus going beyond standard operating procedures and policies to address short-term emergencies (cf. Weick 1993; Roux-Dufort and Vidaillet 2003).

In sum this rather optimistic view on organizational learning capacities in response to crises states that an organization may adopt a flexible approach to crisis if it: (F1) supports open, critical and reflective inquiry and investigation; (F2) is open to new and

varied sources of information; (F3) has the ability to improvise and produce novel approaches and reasoning.

CRISIS FLEXIBILITY AND THREAT RIGIDITY IN PRACTICE

Findings from the crisis lead-up

Both organizations studied in the present analysis initially displayed a relatively detached response to the first crisis. In the early hours of 11 March 2001 initial indications of a technical failure reached Birka's control room. Coupled with an out of order fire alarm, operators interpreted the failure as minor and responded by making routine reconnections (Hornyak 2001). In Birka's case the response possibly derived from the power company's perception that a major system failure was improbable. The illusions of infallibility were possibly a product of the lack of experience of large scale cable fires and urban blackouts among Birka staff. Illusions were embodied in an overly optimistic public statement, based on routine estimations rather than an analysis of the situation at hand, which declared that the system would be restored by that evening (personal interview with I. Karlsson, the Manager of Operations at Birka Energi's Network Division on 17 October 2001). This, in turn, led local stakeholders, including the CCCU, to underestimate the severity of the situation. When Birka's control room operator ultimately made the crucial decision to call the fire brigade, the case data show an organization taking its first steps to investigation and response.

Lack of prior crisis management experience within the city's crisis coordinating and managing organizations led to a time-consuming gap between the phases of operational rescue service and strategic coordinating (SFB 2001; personal interview with L. Hallander, the duty Fire Chief at Stockholm FD on 24 January 2002). The FD's response at this stage was rigid. Though information about the threat and the problem was evident, they responded detached from the events, discussing the problems like they would not affect the organization (personal interview with G. Svensson, the Rescue Commander at Stockholm FD on 5 October 2001; personal interview with L. Hallander, the duty Fire Chief at Stockholm FD on 24 January 2002). With parts of the north-western suburbs without power, senior managers at the FD realized that it was a situation out of the ordinary. Nonetheless, protocol and routine led the organization to dismantle its increased organizational emergency preparedness as soon as the fire was out because the blackout was not considered a bona fide rescue service operation. The FD acted according to existing regulations when it pulled back. Had the FD kept more of a strategic outlook on the events by careful monitoring, less time might have been lost in the initial phase of the city's crisis response.

Birka's initial flawed prognosis was the main reason for the tardy response. The diagnosis made it difficult for operators to understand the state of the operation. The process that ended in the first prognosis was an example of deliberations characterized

by reliance on simplified information codes and narrowed attention fields. As the Manager of Operations (MO) acknowledged, the stressful circumstances compelled the utility managers to release the public statement despite uncertainties. Since damage to high power cables was unusual, Birka's staff relied on prior expectations and internal hypotheses stating that high power cables would not be damaged. The crucial decision regarding the prognosis was centralized to a few operational key functions, which in effect restricted the information channels.

In 2002, when indications were that the tunnel was again the scene of a fire, a similar response was initially generated. Despite the experiences of 2001, Birka operators responded according to routine and reliance upon the internal hypothesis that the system was reliable. Again operators interpreted events as minor and mundane. Attention to the analogy of the fire fourteen months earlier was lingering. The Duty Engineer even admitted after receiving the first error reports they had the prior fire in mind, but 'did n't really want to acknowledge it at the time'. Operators informed the MO and waited for more information, although the Duty Engineer had formally unlimited authority to deal with network failures. Initially then the same routines that Birka used in 2001 were followed and operational actors needed more information to understand the nature of the problem. Some suspicion that the problem could be serious was admittedly on operators' minds as they upscaled decision making within the organizational hierarchy at an early stage before there was confirmed information about the events. Eventually, as incoming signals were interpreted as crisis analogies from 2001, responses based on learned routines were appropriate strategies since the situation was virtually identical to the one in 2001.

Birka operators called the FD seven minutes after the initial alarm. When called upon the CCCU acted with more vigilance compared to 2001. The CCCU based most of its perceptions in 2002 on analogies from 2001. While the operational rescue service mission was being executed, the City Manager and Fire Chief initiated staff work for managing the social consequences of the blackout and they again made plans for the city's coordinated response. The command basically repeated its response based on the Y2K structure. The main difference was that the response came earlier in 2002.

Findings from the crisis management proper

The real dimension of the 2001 accident came to Birka managers' attention after a visual inspection in the afternoon, eight hours into the blackout. They promptly released a new prognosis stating that power would be restored at 22:00 on 13 March. Now Birka launched its emergency preparedness plan and established a crisis management group. In addition, their command center contacted media and various public players within minutes. However, the potentially most crucial player responsible for coordinating the public response – the FD – was not contacted, which delayed societal crisis management proper.

The city's alarm chain was formed ad hoc as the FD's Information Manager haphazardly acknowledged the contingency and informed higher management (SFB 2001: 19). Regulations limited the choice of actions that the FD could take, although the crisis was indeed an extraordinary event. In accordance to the plan 'Management and Coordination during Severe Societal Strain', the Fire Chief consulted the City Manager about establishing a coordination group. Without formal checklists or instructions for the mission, the Fire Chief in an act of creativity turned to the minutes of the 1999 City Executive Board meeting protocol that formed the basis for the Fire and Rescue Board's decision to give the mission to the FD (personal interview with L. Hallander, the duty Fire Chief at Stockholm FD on 24 January 2002). The decision to establish the group bordered on improvisation as there were no clear guidelines on how or when the group should be established.

Most of the participants of the city's coordination had positive impressions of the meetings (SFB 2001: 18), although gaps in opinion between center and field on issues regarding the framing of events and the amount of resources required did lead to open, critical discussions and even to minor conflicts (as mentioned by the District Director of Kista and the City Manager).

During the second blackout things were a bit easier. In the words of the City Manager, 'The second time we had the answers so we did exactly as the last time. I can't say we changed anything either. On the contrary, it ran more smoothly the second time. I think everyone felt more at ease.' Faced with crisis reoccurrence, city officials responded according to the TRH. The basic structure of the crisis management response was repeated. The city gathered public decision makers for coordination meetings according to the same procedure as in 2001. As the City Manager puts it, 'We gathered the whole crew just like last time. We had the routines all set. We had done this before. Repetition is the mother of learning so we just did it the same way.' However, adjustments to improve responses were actually made on some accounts. For example new functions and organizations were invited to join the group. Thus there was not a blind adaptation, but rather a reflective inquiry into how the prior response could be improved.

In terms of Birka's response in 2001 the strategic information management responded rigidly to the threats. The company had a limited outlook on the crisis communication aspects by only providing technical operational information and neglecting the symbolic aspects of crisis management. On the operational side of crisis mitigation, however, Birka engineers and contracted expertise used reflective and innovative investigation to find a temporary way to speed up crisis termination. On the one hand, the temporary fix decision can be understood as crisis flexibility. The improvised way of repairing shows an organization with an ability to alter and test creative ideas. However, it also shows an organization with narrowed attention fields and restrictions in information gathering, as operators working in the tunnel were not instructed to take necessary precautions and thus were subjected to health risks (ÖCB Newsletter 2001). Moreover, Birka deviated from system safety procedures by

installing a cable that did not meet standard criteria. The temporary repairs were critical for crisis de-escalation, but the improvised solution, combined with lapsed quality control, would prove costly a year later.

For those who experienced the blackout fourteen months earlier, the 2001 crisis event became a leading analogy influencing the behavior in 2002. As Birka's Duty Engineer put it, 'I understood that it was of the same scope as the last time. I understood that it was serious since the course of events happened so fast. Within an hour everything went black.' Operational actors did their best to restore power. They suggested an overhead line between Birka's power station and the national grid. The idea was triggered by the first blackout when the MO caught up in worst case deliberations asked what would have happened if the blackout had lasted even longer. The creative solution kept the blackout from spilling over into a third day. The power was successfully restored after fifty-four hours as a result of the provisional power line. The decision to prioritize the landline project had a distinct flexibility aspect. The important crisis mitigation effort was initiated by an inquiry into organizational risks and vulnerabilities. It entailed improvisation and going beyond organizational routines. This example of learning deliberations led to one of the most important crisis mitigating decisions during the 2002 crisis.

Lessons from 2001 also led to more systematic information and credibility defending approaches at Birka. The Vice President (VP) described the situation as 'a disaster, not only because it happened, but it was a disaster for our credibility too'. Birka's strategic decision makers understood that the greatest challenge would not be to restore power, but rather to manage mass media pressure and to restore credibility. In 2002 information management was based on managerial inquiries into organizational shortcomings in the event of a crisis and optional ways to overcome these shortcomings by open reflections on organizational culture. Furthermore, urgent improvisation took place. Rather than increasing control and centralizing information management, Birka expanded the sphere of influence by contracting external expertise in information management as well as in investigation issues. On the morning of the blackout's second day, the Regional Director (RD) and the VP called in a private PR company to be present in the central crisis decision-making unit in an effort to strengthen the crisis communication group with media communication experts.

Key managers were also aware of organizational shortcomings characterized by the potential cover-up of operational mistakes. Promoting an external investigation to examine the causes of the accident was a way to achieve candidness on organizational performance. The hasty repairs and absent quality control was a result of organizational deficiencies and, as such, they were regarded as causes of the 2002 crisis. Moreover, strategic managers in this case indicated that in-house investigations were not optimal for identifying the real causes. The decision to commission an external inquiry can also be seen as a way to take decisive action to prevent crisis reoccurrence. The VP stressed that it was grounded in the quest to in earnest find out what had happened. The external investigation was an important part of Birka's quest to redeem public faith and

return to normalcy. The idea to commission an external investigation into the causes of the fire also led to general lessons on safety and implementations of guidelines for cable repair supervision.

Findings from the crisis aftermath

The makeshift repairs in 2001 laid the groundwork for crisis reoccurrence in 2002. The tunnel was not sufficiently decontaminated after the fire, which resulted in 'serious flaws in a number of cable joints' (Göransson 2002: 4). In addition, there was no subsequent quality control of the repairs (personal interview with G. Branger, the Duty Engineer at Birka Energi on 24 June 2002; personal interview with I. Karlsson, the Manager of Operations at Birka Energi's Network Division on 5 February 2002). As Birka's Operations Engineer, explained, 'They only were provisional, and they had to be overhauled. We planned to do it, but it was not carried out and sufficient resources were not allocated.' In the words of the MO, 'We probably thought that this would not happen again. Therefore everything that one, in hindsight, might think should have happened, probably did not happen.' Temporary repairs thus became permanent, which increased system vulnerability and the risk of further failures.

Issues of compensation and investigation dominated both aftermaths. Regarding the former issue, Birka declared that it would follow regulations and compensate citizens but not businesses for financial losses incurred due to power loss. The issue of compensation fuelled conflicts between Birka and local clients that lasted long after the blackouts. Efficient and legitimate management of compensation claims was an important part of crisis termination. Birka's response in 2001 can be seen as rigidly sticking to regulations. Rather than actively finding alternative solutions to the problem, the company relied on existing strategies and guidelines, thus losing local credibility and delaying crisis termination.

With the discussions on compensation from the 2001 crisis in mind, it was obvious for Birka's management in 2002 that the issue would need to be addressed again to ensure that more credibility was not lost. Nonetheless, the organization did not produce a novel strategy to deal with the issue. Birka followed the same guidelines and compensated citizens but not companies. Media pressure and local discontent of increasingly organized critics mounted on the company (Engström 2002; Eriksson 2002). When the issue did not disappear from the agendas of the victims or the media, Birka's managers found themselves in a reactive spiral forcing them to adapt. To save credibility, the management group stepped back from the first decision and compensated businesses for damages caused by the blackout. During this episode, Birka responded rigidly to the threat that the compensation demands entailed. The company responded according to its existing strategies as it launched the strategy to follow regulations. Had Birka changed its position regarding compensation earlier, the conflict

might not have been as infected or protracted. Reactive adaptation did not effectively calm down the complaints.

The crisis aftermath analysis also points to the culture of investigation at Birka and a relatively outspoken reflection on organizational culture and performance. The fact that the technical in-house investigation available only to the Operations Division in 2001 was followed up by a more comprehensive external investigation in 2002 indicates a need to go beyond existing policies. The intention this time to really find out what went wrong can be interpreted as a decisive action to prevent crisis reoccurrence. Regarding lessons of the operational crisis management, decision makers at Birka did focus on some system shortcomings when they inquired into the lessons of the 2001 blackout. However, they seemed to have been affected by an opportunistic attitude that led to simple improvements of technical flaws. The actual threat that a fire posed to the vulnerable system was not sufficiently considered (Göransson 2002: 8). In essence, non-decision regarding quality control of the temporary fix was instrumental in incubating crisis reoccurrence. In the 2001 crisis aftermath, the organization failed in the process of addressing underlying problems and in monitoring and maintaining crisis-induced lessons. The crisis event crowded out other significant events, processes and projects. Similarly, the potential for crisis-induced learning seems to have been held back by the demands, tasks and strains that commonly overload an agenda and distract organizational everyday life.

The second time around Birka made more of an effort to implement changes in the crisis aftermath. Cables in the tunnel were separated and joints were protected by fire protecting equipment and increased surveillance. The VP commented on the single-loop lessons as such: 'In a very short term they did all of this that they should have done directly after the first blackout'. Although, suggestions presented after the blackouts were mostly single-loop learning, statements from Birka's managers indicated that a more sophisticated learning process was initiated. As the RD puts it, 'We will have to make an overview of our risk perception and network design, that is strategic, long term reflections of how we should operate. . . . But also we have to look more strategically over our entire network philosophy.' To make learning take root in the organization, preparedness plans were updated with organizational lessons. In addition, more exercises were pledged for. In other words, there are signs of a double-loop learning process (cf. Argyris and Schön 1978, 1996). According to the VP, Birka 'completely changed its attitudes to cable fires' as a result of the events. Risk perceptions regarding cable fires were intensified. Previously the company regarded cable fires as low in risk and consequence. After the events, however, the work became guided by a different philosophy. The attitude to cable fires and cables in tunnels changed and awareness increased, according to the VP:

Now we've raised the level. We've said that every cable fire is a presumptive disaster. Then you get a completely new perspective. First of all we simply cannot allow a cable fire to occur, and if it does

occur, we have to have much more sophisticated indicating and detecting techniques because a fire spreads fast. ... And now we're seeing ... on the one hand a rather radical change ... where we can change the design we are. We're building a completely new feeding route. Then they're going through the entire cable network and they're increasing the level of preparedness. ... All of this learning goes into the organization in a very distinct way. They're taking this seriously. You know what they say: One time is nothing, two times is a habit. But what about a third time? It cannot happen!

Understanding that the company's reputation would be deeply tarnished by another cable fire set the stage for questioning existing assumptions, routines and procedures.

The city initiated purposeful learning processes already in the 2001 crisis aftermath. The City Manager instructed the FD to evaluate the events and especially the city's command and information efforts. The CCCU was satisfied with the public crisis coordination, but it also, rather self-critically, acknowledged that the outcome rested on plain luck rather than planning or routines (SFB 2001: 18). The candid investigation, which included a reference group of several risk and crisis experts, was of special importance as the city's rescue service plan was being redrafted. After the report, public organizations involved in the management of the blackout were invited to a 'day of learning' conference pertaining to the events. The Commissioner of Finance was keynote speaker and he explicitly commissioned the FD and City Hall to review the city's crisis command and coordination capacities. In a follow-up statutory meeting a formal project team was institutionalized at the FD as the Review Project. Hence, commissioned investigations, seminars and learning programs turned the spotlight on municipal crisis management mandates and roles.

The second time, the city managed the crisis aftermath in much the same way as the year before. The CCCU leaned strongly on analogies from 2001 and relied on strategies launched in the 2001 blackout aftermath. For example, the investigation after the 2002 crisis was, at least in terms of methodology and strategy, a virtual replica of the 2001 investigation, with little effort put into improving the models used. As the blackouts took place in the midst of privatization reforms, the city also had some credibility on the line. After the second event the city made more of an effort to show accountability. In the 2002 blackout aftermath, Birka and the city launched a joint learning process. City Hall demanded a program declaration from Birka on how the power company would organize its network to prevent a similar event (personal interview with T. Gustafsson, the Birka Energi VP on 2 December 2002; personal interview with J. Kleist, the City Manager at the CEO on 7 March 2003). Birka's RD presented the company's plans in a series of meeting with the City Manager. The Review Project continued its work throughout the second crisis. The project was concluded in February 2004 and after several discussions it was accepted by City Hall. Planning the implementation of the program followed suit and in the spring of 2008 training programs were launched.

CONCLUSIONS

The flexibility/rigidity analysis of the Stockholm blackouts is summarized in Table 1.

The aggregated results of the analysis indicate that organizations, especially when they are not experienced crisis responders, tend to act rigidly in response to threats, warnings and signals in the crisis lead-up phase. In addition, the organizational responses analyzed in this study show rigid reactions also the second time around, despite that crisis management knowledge was increased by prior experiences. The second blackout came as an unwelcome surprise and again learning was difficult for the organizational actors because of the belief that the initial problem had been solved. This has implications for crisis and learning theory because it shows that organizations even after recently experiencing a crisis also have difficulties in making sense of warning signals in the crisis lead-up phase. This leads us to the first hypothesis:

Public organizations, experienced crisis copers or not, are likely to act rigidly in response to early warnings, signals and threats.

When signals turned to noise and the onset of the second crisis was evident, the organizations again responded rigidly. Now, however, that response was not dysfunctional. On the contrary, because there were no radical differences between the two events, a response based on analogies from 2001 reduced the threat and mitigated the crisis in 2002. The analysis also suggests that a great deal of crisis-induced creativity and improvisation is produced in the crisis management proper phase. Operational crisis responses based on organizational inquiry, improvisation and creativity were evident at both organizations during both crises. The organizations in essence lacked prior experience of societal crisis management, apart from the Y2K when nothing out of the ordinary happened. Thus creative and new ideas took on the form of improvisation during the 2001 crisis management proper, while similar activities in 2002 were based on prior crisis experience and consequently became crisis-induced learning. The case then shows that creative improvisation and organizational learning processes are not necessarily less likely to occur in the operational crisis management phase illustrated by time pressure and clashing values at stake than in the aftermath phase characterized by relative tranquility and time for reflection. This leads us to the second hypothesis:

Public organizations with recent crisis management experience are as likely to produce creativity and learning in the acute phase crisis response as in the crisis aftermath.

Results from the analysis of the crisis aftermath are more ambiguous. Indications suggest rigidity in the learning patterns in the crisis aftermath. To a large extent these were based on Birka's responses to operational maintenance and the compensation issue, which the second time around can be described as reactive at best. Nonetheless, the case also demonstrates distinct patterns of organizational learning in at least four

Table 1: Crisis rigidity and flexibility in different phases of the crisis response

	<i>Crisis lead-up</i>	<i>CM proper</i>	<i>Crisis aftermath</i>
Rigid response	<p><i>Birka 2001</i></p> <ul style="list-style-type: none"> • Failures interpreted as minor (R1) • Routine reconnection response (R2) • Routine estimation behind flawed prognosis (R2; R3) • Reliance on internal hypotheses (no damaged high power cables) (R2) • Decisions centralized to few operational functions (R3) <p><i>Birka 2002</i></p> <ul style="list-style-type: none"> • Routine response relied on system reliability (R2) • Failures interpreted as minor (R1) • Shut out 2001 analogies (R1) • Stalled sense making due to lack of information (R1) • Upscaled decision making (R3) • Crisis analogies and routine learned response (R2) <p><i>City 2001</i></p> <ul style="list-style-type: none"> • Severity not recognized (R1) • Detached from the event discussions (R2) • Dismantled staff readiness (R2) • Operational/strategic response gap (R2) 	<p><i>Birka 2001</i></p> <ul style="list-style-type: none"> • Visual inspection required to understand (R2) • Forgot to inform city (R1) • Second flawed prognosis (R1) • No symbolic/empathic communication/ leadership (R2) • Risk averse regarding system and worker safety (R1) <p><i>City 2002</i></p> <ul style="list-style-type: none"> • Repeated (but early) response (R2) 	<p><i>Birka 2001</i></p> <ul style="list-style-type: none"> • Flawed repairs (R1) • No quality control or supervision (R2) • Only simple improvement of flaws (R1) • Protracted compensation conflicts by leaning on guidelines (R2) <p><i>Birka 2002</i></p> <ul style="list-style-type: none"> • Repeat compensation policy (R1; R2; R3) • Forced to adapt and compensate businesses (R2; R3) <p><i>City 2002</i></p> <ul style="list-style-type: none"> • Learned on analogies from 2001 (R2) • Repeat of investigation (R2)

(continued)

Table 1: (continued)

	<i>Crisis lead-up</i>	<i>CM proper</i>	<i>Crisis aftermath</i>
Flexible response	<i>City 2002</i>		
	<ul style="list-style-type: none"> • Repeated structure of 2001 (R2) 		
	<i>City 2002</i>		
	<ul style="list-style-type: none"> • Did not dismantle staff readiness (F2) • Initiated strategic staff work early (F1) 	<p><i>Birka 2001</i></p> <ul style="list-style-type: none"> • Problem framed – rapid response (F3) • Improvised quick fix (F3) <p><i>Birka 2002</i></p> <ul style="list-style-type: none"> • Creative learning approach: overhead line project (F1; F3) • Inquiries into org shortcomings: called private PR company and external investigator (F1; F2; F3) <p><i>City 2001</i></p> <ul style="list-style-type: none"> • Ad hoc start by information manager (F2) • Ad hoc response and improvised group gathering (F3) • Open and critical discussions (F1) <p><i>City 2002</i></p> <ul style="list-style-type: none"> • Reflective adjustments – new functions and organizations invited (F1) 	<p><i>Birka 2002</i></p> <ul style="list-style-type: none"> • Rules of thumb from investigation (F1) • Decisive action to prevent reoccurrence (F1) • New risk perception on cable fires (F1; F3) <p><i>City 2001</i></p> <ul style="list-style-type: none"> • Self-critical novel investigation (F1) • Launched learning programs and conference (F1; F3) • Learning fed into Review Project (F1) <p><i>City 2002</i></p> <ul style="list-style-type: none"> • More supervision and accountability (F3)

critical episodes: first from the city when launching an unusual public seminar debate on the first blackout; second, when the city subsequently merged the crisis management evaluation into comprehensive programs dealing with the city's preparedness and crisis management capacities; third, the inter-organizational discussions, triggered by the City Hall, on Birka's strategies for dealing with the two incidents; and lastly the double-loop learning by Birka in the form of unbiased investigations into the causes, and reassessments of system design and risk assessments. These episodes indicate that strategic public officials and politicians may play important parts in exploiting the crisis aftermath (cf. Boin *et al.* 2009). The findings support prior research on the nexus between politicization and crisis-induced learning which, unlike conventional theories that conceive political involvement as a constraint on organizational learning (Argyris 1986; Senge 1990; Bierly and Hämäläinen 1995; Boin and 't Hart 2000; Brändström and Kuipers 2003; Common 2004: 46), stress that political involvement in the crisis aftermath may assist learning if it encourages institutionalization of organizational lessons (Dekker and Hansén 2004). This, in turn, leads us to the third and final hypothesis:

Public organizations that are subjected to crises are likely to act rigidly in the crisis aftermath, but politicization of public organizational learning processes in the crisis aftermath may increase organizational learning and creativity.

This article has presented an analysis of public organizational responses to crisis events viewed through the theoretical lenses of rigidity and flexibility in crisis management and learning. Three hypotheses for further research have been outlined as a modest contribution in building new knowledge on the issues of crisis and learning. Although the analysis stresses the importance of experience as a driving force for crisis-induced learning, it is also a reminder that experience per se is not a sufficient variable for organizational learning from crises. In order to enable a learning response to a crisis, the crisis needs to be distinctly understood as a frame breaking event, which provokes flexible cognitive processes aimed at post hoc change, rather than being rigidly interpreted as a 'business as usual' isolated event (cf. Kingdon 1995).

NOTE

- 1 In addition representatives of local businesses such as Ericsson, national newspaper printers and the local business association were interviewed in order to gain the business perspective.

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