BUSINESS CONTINUITY AS AN ADAPTIVE SOCIAL PROCESS

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Abstract

We argue that "business continuity" is primarily a social rather than economic process. By examining the actual behavior of both managers and employees in work organizations during a crisis, we were able to better predict the organization's preparedness and ability to cope with disasters. This argument is based on evidence from a study completed during the 2006 Katyusha rocket bombardment of Northern Israel and included thirteen work organizations. The results point out that organizational response to a disaster includes a process of adaptation to new and changing conditions. On the one hand, the organization's managers react according to their values, culture and past experience. The day-to-day operations, however, are maintained as employees' adapt their own behavior to the changing demands of the situation. The analysis further showed that although plans, drills and emergency guidance are important to determine desirable performance behaviors during the emergency, it was employees' adaptive behaviors that contributed to maintaining business operations. These adaptive work behaviors depended on a series of social related predictors such as their past experience, family and community attitudes and social networks at the workplace. Overall, the evidence demonstrates that successful business continuity is best predicted by a series of social processes and is dependent primarily among employee's ability to adapt to dynamic emergency situations.

Introduction

Disasters have an enormous impact on social life; from individuals and groups (Rodriguez, et al, 2006; Kirschenbaum, 2004) to communities and nations (Rodriguez et al. 2006; Stallings, 2002). Many argue that the ability to overcome and mitigate the consequences of disaster is mainly rooted in the collective emergent behavior of those affected (Drabek & McEntire, 2003). Despite the immediate response by official disaster-management agencies in emergencies, there is strong empirical evidence that survival and recovery is predominantly accomplished through a social process (Kirschenbaum, 2004; Drabek & McEntire, 2003;

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Quarantelli, 1996). This can be seen, for example, in family and community's preparedness (Kirschenbaum, 2002), emergence of disaster subcultures (Granot, 1996) and the spontaneous appearance of helping "emergent groups" in disasters (Quarantelli, 1996).

While this social response process has been well documented in various types of social units such as families, small groups and communities, very little attention had been given to economic-based organizations. Most of the conceptual and empirical studies of economic-based organizations have been conducted in terms of crisis management and organizational resilience, mainly focusing on managerial decision making processes (Torrieri et al., 2001) and/or communication networks (Quarantelli, 1988; Sellnow et al., 2002; Seeger et al., 2001). Our aim here is to go beyond this restricted framework by empirically exploring how work-organizations and businesses achieve continuity of operation and recovery in surviving a disaster (or an emergency). We will do so by focusing on critical social processes inherent in work organizations, those primarily involving its employees.

To do so, we strongly argue that 'Business Continuity' (BC) is ***not*** the outcome of a work organization's coping with an emergency, but rather as a social process leading to survival. In this framework, BC is basically a social construct. As organizations are social units, we suggest that social factors and processes inherent in disaster situations found to affect, for example, communities, may also be appropriate as guidelines in understanding the continuation of operation in work organizations. From the scientific literature, these processes include preparedness (Kirschenbaum, 2002; 2005), risk perception (Kirschenbaum, 2006), emergent behavior (Dynes, 1994), pro-social behavior such as mutual help among social networks members (Rodriguez, et al, 2006) and information flow (Kirschenbaum, 2004). As organizations are complex systems, the "Business Continuity Process" (BCP) that we will be examining during crises, need of necessity, to include all its participants, namely the organizations' employees and managers.

From the employees' point of view, the social process is based on and consists of a number of factors. We already know that family, community and social networks have a strong influence on an individual's behavior, especially is emergencies and under circumstances of uncertainty. These include information diffusion, social norms and risk perception. Therefore, employees might experience role conflict as a result of two conflicting obligations: on one hand, employees are subject to the organizations' administrative decisions, and behave according to their job commitment, professional status and the organizational culture. On the other hand, as social networks members (e.g., family, community, team mates), they are influenced by social pressures calling upon them to avoid the danger and not to go to work, sometimes with feelings of fear and anxiety. The BCP that we will examine reflects this clash.

From an organizational – managerial point of view, the ability to implement quick changes and adjust to a new environment due to a crises will differ from organization to organization, according to its market position (Gittel et al, 2004; Peek & Mileti, 2002), centralization of decision making process and the ability to transfer information quickly (Horwich, 1993). This means that different work organizations, be they manufacturers, retail or service providers, may have social processes influenced more by administrative than informal work relationships, impacting the organization's ability to survive and recover.

Working Model
By investigating both employees' and managers' behavior in organizations, we hope to better understand the actual process that leads to or inhibits survival. To do so, we developed a working model to understand what factors generate business continuity. (Figure 1) It focuses on employees' actual behavior as well as the organizational-administrative components in this process. Both encompass a broad range of activities and operations during a disaster within an organizational setting. As for the employees, we examined behavioral variables such as emergent behavior, social networks, pro-social behavior and family and community behaviors. In addition, we examined variables related to a managerial administrative framework within which employees could act. As our model suggests, organizational survival will be achieved

through a combination of both managerial and employee actions. Past research has emphasized an organizational-administrative perspective as a response to a disaster and/or risk. We, however, suggest that it is the social process prior and during the disaster that enables the continuation of operation.
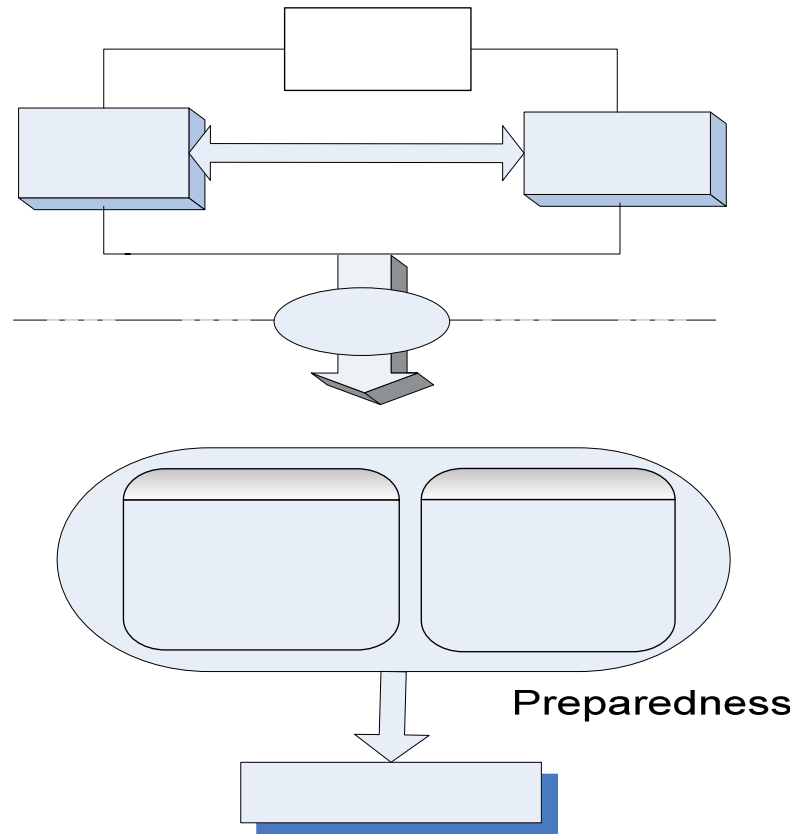

Figure 1. Working Model

Methodology

In this research we focus on conceptualizing business continuity as an internal organizational social process that increases business survival chances after a disaster. To understand this social process, we employed a field study to examine the actual behavior of employees and managers in different sector organizations who were in full operation during the Second Lebanon War that occurred in northern Israel during July-August 2006. During 33 Days of consistent war more than 3600 Katyusha missiles were fired on northern Israeli civilian targets, disrupting life in that area. In many cases, commuting to work as well as being on the job put employees in harms way. Despite this, people did go to work, with production and services maintained.

To develop the concept of business continuity as a social process we made use of three sources of data: (a) data from the *employees* about their actual behavior which was collected by detailed questionnaires; (b) data from *managers* at different levels in the organizational hierarchy about pre-war organizational preparedness, decision making and organizational communication during the war. This included organizational functioning before and after the war. These data was collected by personal interviews with managers of the participating organizations by use of self-filling questionnaires and (c) objective business

data about performance (sales, cash flow etc.) and employees' attendance and performance before, during and after the war. For the purpose of this paper, we will restrict ourselves to focusing primarily on employees as a major stakeholder in maintaining business continuity as the basis for organizational survival.

Data Sources

The core data was based on purposeful sampling of different types of organizations from manufacturing to retail service providers. Thirteen organizations were willing to allow us to question employees and managers. The companies and organizations participated in this research were all located in areas under bombardment. We sampled fifty percent of employees in each of the companies. The businesses surveyed included seven branches of a nation-wide retailer services firm, located in city centers and shopping malls. Also included were three factories manufacturing medical equipment, steel and paper. All these factories export their product and employed 70 to 110 workers. In addition, an academic educational center as well as a governmental institution for disabled and mental handicapped adults was included. Finally, we surveyed a large service garage located in the heart of an industrial zone.

Variables

Dependent Variable

- **Organizational Survival** – for the purpose of this paper we measured survival by the employees' evaluation of the extent to which the organization had managed to keep its routine. We employed a Likert type scale, from complete disruption of the work routine to practically no change at all.

Independent Variables:

Employees' Behavior-Based Variables:

- **Emergent Behavior** was measured by a series of questions regarding the disaster behavior that was carried out by employees during the bombardment. This variable is composed as a sum of answers to questions regarding taking extra responsibilities, working overtime by the employees own initiative, attending to work despite there was no specific instruction to come, coming to work with workmates.

- **Social Networks** – this variable focused on the social ties and network among the employees before and after the emergency situation. The variable measure is a sum of the respondents' agreement with the following statements: "social ties among team mates were strong before the war", "the social ties among the team mates are stronger after the war", "I feel involvement and closeness among team mates", "I consider team mates as my friends".

- **Prosocial Behavior**- prosocial behavior refers to the social response of the employees, in terms of helping behavior, leadership, revelation of empathy and mutual help. This variable is related to the social process being carried out by the employees during the disaster, and is not particularly related to the work itself. This is also a sum of answers to statements regarding: mental help given by employees to their mates, physical help in reaching to the shelter, taking care of mates in the shelter (mentally, food and drinks, security).

Management's view Variables:

- **Administrative Framework** –   as employees are subordinate to administrative rules, we asked employees about their expected work obligations. This included: "the management allowed working partial hours", "the management accepted absences", and "management provided a safe shelter", "management reacted with understanding to parents with children",

"management moved employees to other sites (if possible)" and "employees were part of decision making process".

   - Management's Functioning – this variable measures the behavior of management in response to the changing situation. It includes questions regarding: "the management made decisions quickly", "management changed goals according to the changing conditions", management worked as usual".

   - Information Flow – We asked four questions measuring the information flow during the disaster: "the organizations initiated informative talk to all employees", "I knew whom to get to for information regarding information at work"," I knew whom to get to for get information regarding behavior during the alarm", "I knew whom to get to for get information regarding the situation at work".

Preliminary Results

The sample, composed of 294 employees, has slightly more women then men (57% vs. 43%). The average age of the employees was 41.8 (S.D=11.49 years), 70 percent were married and 70 percent defining themselves as secular. About thirty percent (28%) stated their income as average or above average (26.5%) with twenty percent below average (19.7%). Most of the employees live near their workplace, close to eighty percent (78%) mentioned that commuting time ranged between a minute to half an hour. It is important to point here out that, we surveyed three factories in three different "Kibbutz's" (the Israeli cooperative settlements) and in these cases most of the employees live in the Kibbutz itself. Of the sample, over half are workers (55%), with the rest divided into team leaders (18%), "shift managers" (5%) and junior managers (19%).

"Organizational survival" as measured by maintenance of routine work operations showed that most of the sampled organizations continued to operate despite the daily bombardment. Nearly half (44%) the employees stated that continuity of work routine remained as it had been prior to the Katyusha attacks. A third (27%) reported the routine had been maintained to a very large extent, a fifth (20%) to some extent and only a small percentage (6%) a very small extent.

A clearer picture of BC process developing in "real-time" can be seen through employees' and managers' actual behaviors during a disaster. Table 1 reveals specific behaviors that are associated with "survival", based on responses to a question concerning routine operation of the organization.   All variables are significant (p= <0.05) with the dependent variable. The results show that close to half (46%) of employees largely filled in for others so as maintain operational routine. Furthermore, close to half (46%) independently said they improvised to a very large extent during the month long bombardment. Over half (56%) of the respondents, when having to enter the sealed room/shelter experienced a positive (and supportive) social atmosphere.

These preliminary results strongly suggest the importance of social-organization among employees without specific direction from the management. This reinforces the assumption that the behavior and knowledge of how to act during disasters is culturally inherent in both their work community. As almost half of the answers indicated that they improvised in order to keep up the regular performance, it seems that the key to organizational continuity was in the hands of employees. This is significant for the understanding of the social process being developed during that day of war. The employees coming to work had to run to the shelter dozens of time a day. The positive social atmosphere in the shelter helps people to process the difficult shared experience and also to strengthen the social ties and networks.

Variables		"The Routine Was Kept In The Organization"				
		To a very large extent	*To a large extent*	*To some extent*	*To a very small extent*	*Didn't answer*
I filled in for employees who didn't come	To a very large extent	22.5%	6.8%	1.7%	21.1%	0%
	To a large extent	16.3	19.7	18.6	15.8	0
	To some extent	30	45.5	39	15.8	50
	To a very small extent	26.3	25	39	36.8	50
	Didn't answer	5	3	1.7	10.5	0
	Total	100%	100%	100%	100%	100%
I improvised in order to work as usual	To a very large extent	46.3%	14.4%	11.9%	31.6%	0%
	To a large extent	12.5	32.6	33.9	21.1	0
	To some extent	17.5	31.1	25.4	21.1	25
	To a very small extent	18.8	15.9	23.7	26.3	75
	Didn't answer	5	6.1	5.1	5	0%
	Total	100%	100%	100%	100%	100%
The atmosphere in the shelter was positive	To a very large extent	57.5%	34.8%	25.4%	57.9%	25%
	To a large extent	30	50	52.5	5.3	75
	To some extent	7.5	6.1	8.5	21.1	0
	To a very small extent	1.3	2.3	3.4	15.8	0
	Didn't answer	3.8	6.8	10.2	0	0
	Total	100%	100%	100%	100%	100%

*Significant at the 0.05 level.

The three variables referring to the management's approach toward the employees during the disaster: (1) creating an administrative framework, (2) information flow and (3) management's functioning, were found to be significantly correlated to maintaining work routine in the organization (See Table 2). Furthermore, these factors were also found to be significantly correlated to the employee's behavioral variables: emergent behavior, social networks and prosocial behavior.

Table 2.
Correlations Between The Variables (N=294)

	Survival	Emergent Behavior	Social Networks	Prosocial Behavior	Administrative Framework	Information Flow	Management Functioning
Survival		0.114	0.05	0.20**	0.293**	0.277**	0.307**
		0.055	0.399	0.001	0.000	0.000	0.000
Emergent Behavior	0.114		0.374**	0.434**	0.304**	0.174**	0.257**
	0.055		0.000	0.000	0.000	0.003	0.000
Social Networks	0.05	0.374**		0.465**	0.281**	0.237**	0.241**
	0.399	0.000		0.000	0.000	0.000	0.000

Prosocial Behavior	0.20** 0.001	0.434** 0.000	0.465** 0.000		0.404** 0.000	0.447** 0.000	0.377** 0.000
Administrative Framework	0.293** 0.000	0.304** 0.000	0.281** 0.000	0.404** 0.000		0.535** 0.000	0.465** 0.000
Information Flow	0.277** 0.000	0.174** 0.003	0.237** 0.000	0.447** 0.000	0.535** 0.000		0.423** 0.000
Management Functioning	0.307** 0.000	0.257** 0.000	0.241** 0.000	0.377** 0.000	0.465** 0.000	0.423** 0.000	

To determine what effect managerial variables had on employee behaviors during the constant bombardment, we run linear regression models using emergent behavior as the dependent variable. The results reveal (See Table 3) that emergent behavior, that is, socially inherent adaptive behaviors, can be predicted by the administrative framework found in organizational settings. Emergent behavior, in the organizational context based on strengthening business continuity, appears when management are perceived by employees to meet the adaptive demands of the new emergency situation.

Table 3.
Linear Regression Model: Managerial Variables Impact on Employees Emergent Behavior

	B	Sig.
Administrative Framework	0.298	0.000**
Information Flow	-0.083	0.493
Management Functioning	0.322	0.022*

Discussion and Implications

Although the results are preliminary, it can be seen that business continuity is not a matter of only managements' decision making. As the results demonstrate, employees will perform as they are expected to so as to maintain business continuity in emergency situations when an appropriate administrative framework is provided that reflects the state-of-affairs at the work organization. The employees' decision whether to follow this given administrative framework is rooted in socially based knowledge and processes. Therefore, under difficult circumstances dictated by a disaster, employees will perform better if they find the workplace safe, that management takes care of them and their families' welfare, and that employees are given the opportunity to be included in the decision making process.

Organizational survival is the outcome of a social adaptive process that is interwoven into business continuity. It is carried out by employees and managers and based on socially inherent adaptive behavior. As the variable "emergent behavior" indicates, employees adapted their behavior to new situations at their workplace in order to maintain its operational continuity. This adaptation can be seen also in the significance of social ties and pro-social behavior. During the emergency, for example, an encouraging atmosphere was reported in the bomb shelter both reflects and supports the strengthening of social ties and networks.

From the analysis here, the common belief among managers that business continuity is an economically driven process may be partially misplaced. From our results, it became apparent the importance of creating and setting an appropriate administrative framework that will be assessed by employees as providing a social environment of "safety" in times of emergencies. Such a social environment is primarily dependent upon enriching human capital through intensifying social networks that foster employee cooperation provide the incentives to maintain the operational routine associated with business continuity.

The model proposed in this paper can be used by emergency managers as tool to examine current preparedness plans and evaluate the business ability to recruit its personnel for times of emergency. By encouraging and creating supportive social networks among employees, businesses can better rely on the human-factor in organizations to foster cooperation and common goals in an emergency or disasters. Our preliminary results certainly suggest focusing on the employees as one key factor enabling operation during emergencies and disasters.

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Authors' Biography

Carmit Rapaport is a PhD candidate at the Technion- Israel Institute of Technology. She received her M.A degree in Sociology from the University of Haifa. Her PhD dissertation is on the subject of business continuity and disaster management, particularly the social aspects of human behavior under conditions of emergency and disasters at organizations.

Alan (Avi) Kirschenbaum is a professor of Organizational Sociology and Disaster Management, Technion- Israel Institute of Technology, Israel. He received his MA in Demography from Brown University and PhD in Sociology from the Maxwell School at Syracuse University. Past director of research, consultant to the Population Behaviour Section, Israel's Homeland Command and Director of the Israel National Research Center for Disasters. He is author of dozens of scientific journal articles and book chapters including leading disaster journals (IJMED) and recently published book "*Chaos Organization and Disaster Management*" (Marcel Dekker, 2004). He is presently engaged in multiple research projects focusing on how perceptions of risk affect preparedness, the importance of adaptive behavioral changes in reducing the impact of terrorism and emergent disaster behavior among employees in maintaining business continuity. Professor Kirschenbaum is also currently doing international research on the urban community basis of societal resilience and minority preparedness. He is presently on the executive board of the International Research Committee on Disasters (IRCD-39) and the European Disaster & Social Crisis Research Network (DSCRN).