INTER-ORGANISATIONAL LESSONS LEARNED: PERSPECTIVES AND CHALLENGES

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ABSTRACT:

Emergency and crisis management organisations are routinely faced with uncertain and hazardous situations. In these situations, a single decision may be the difference between life and death. In unfamiliar such scenarios, controllers have been found to rely on improvisation and gut feeling; whereas in scenarios where they can relate to prior experience, decisions are made based on known procedures and experiential knowledge. Lessons learned processes are commonly employed to spread experiential knowledge and increase the robustness of an organisation, however this intra-organisational lessons learned processes seldom reach their full potential. It appears even rarer to share knowledge over organisational boundaries in other forms than through personnel takeover. Implementing the vision of overcoming this knowledge sharing barrier has been identified as a key in the struggle to build more resilient societies towards disasters and emergencies. Guided by interview data from several European organisations with an identified responsibility in within their respective national crisis management systems, this study sets out to identify common challenges for intra-organisational lessons learned and extrapolate on them to identify recommendations for inter-organisational knowledge sharing. The results of this study serve as a first step to define a pan-European vicarious learning framework for emergency and crisis management organisations.
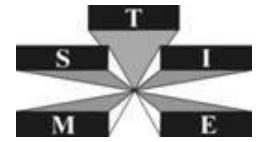
KEYWORDS:

Lessons learned, emergency management, knowledge management, organisational memory

1. INTRODUCTION

It is an often heard cliché that we need to learn from experience. It is uncontroversial to state that experiences have an important role in knowledge creation (Argyris & Schön, 1996, pp. 20–21; Levitt & March, 1988, p. 325ff.) and naturalistic decision-making (Klein & Klinger, 1991; Weick, 1993). Still, a significant body of literature outlines the challenges and pitfalls of knowledge-building based on experience (Schultz, 2002; Levinthal & March, 1993; Levitt & March, 1988).

There is good reason to believe that civilian crisis management has a complicated relationship to the use of experience. An interview study of 40 organizations, in eight European member states and Israel, shows a significant discrepancy regarding how they manage experiences and implement learning, and the extent to which they employ such processes (Eriksson et al., in press). In an attempt to increase compatibility between diverse European crisis management organisations lessons learned systems (LLS), this paper sets out to motivate the need of a harmonised lessons learned framework (LLF) aimed at designing interoperable processes and systems for lesson management in European crisis management organisations. Further it constitutes the first steps towards such an interoperability framework by describing key challenges as identified from related literature. Most literature on the topic is based around single organisation knowledge management systems, consequently the

presented review analyses them through an interoperability lens in order to extract not only the known lessons learned challenges, but also with the added complexity of interoperability and vicarious learning.

1.1. The dynamic environment

Crisis management organisations routinely operate in dynamic and uncertain environments. In this context decision is known to rely much on prior experience (Klein, 2008; Weick, 1993), and less on analytical expertise. Experiential learning is therefore crucial to such organisations. With the rarity of specific and extraordinary crises, experiential learning in this type of organisations is not just about repetition, but also situation assessment, recognition, and sensemaking (Endsley, 1997; Weick, 1988). Such training is typically simulation-based, scenario-based or field-based, aimed specifically at increasing the learners' experience pool, e.g. through apprenticeship and observation of stereotypical events (Andersson, 2014). The environmental uncertainty in dynamic situations leads to increased adaptability aimed at survival. It is not only mistakes, but also the foresight of adaptation to avoid costly errors, that lead to learning and strong management commitment (Popper & Lipshitz, 2008, p45ff).

1.2. The lesson spectrum

While most lessons discussed are those that relate to crisis management in the response phase, it is important to remember that perhaps the most important lessons are those that lead to better preparation and resilience, e.g. to precautionary actions. These lessons can be generic and applicable to the general public or specific and applicable only to a portion of the population, they may cover local issues, but also regional, national and even multinational ditto. To manage this broad spectrum of lessons, the proposed LLF must be generic and focus on methodology and approaches rather than technical challenges.

Lessons are typically specific, i.e. they are observed in a specific context such as geography, business sector, and management phase. It is not uncommon to assume that a lesson is valid only in the specific context from which it adheres. However, who is to say that there is not valuable knowledge to be gained from transferring the lesson to another context, i.e. cross-border, cross-sector, and cross-phase (X-BSP)? Considering the many challenges of transferring lessons within a context or even an organization, X-BSP sharing is indeed a grand challenge.

1.3. Organisational knowledge

A stereotypical breakdown of wisdom is as the knowledge of how to apply knowledge, whereas knowledge is making sense of information, and information is composed of data. The beauty of such typologies is the simplicity, but in reality they yield little value to understanding organisational knowledge. An alternative approach is to approach organisational knowledge from the evolution of its' accumulated knowledge (memory), i.e. to study learning and retention of valuable experience, rather than to dive too deep into explanations of what knowledge is and is not.

The memory of an organisation is stored in internal documents, policies, social and physical structures, best practices, organisational stories and a common view on how things are done (Argyris & Schön, 1996, pp. 12–13; Levitt & March, 1988, p. 327). This can be summarized as "the theory in use", meaning that when expected and achieved results no longer match, a learning process leading to a *new* theory in use may begin (Argyris & Schön, 1996, pp. 18–19).

In the ground-breaking work presented by March (1991), *exploration* is the search for and generation of new knowledge, while *exploitation* means making use of pre-existing knowledge. Although exploration can yield high returns, the associated costs are generally high, as are the risks. Each successful explorative project is bound to be preceded by a number of failed ones. Exploitation on the other hand, has a higher probability of success but yields lower returns in each successful project (Schulz, 2002; Levinthal & March, 1993; March, 1991). The ability to explore depends on the availability of processes such as experimentation and on investment in search activities.
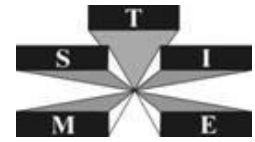
Learning from others on the other hand depends on availability of processes for accessing or exposing yourself to experiences of others (Schulz, 2002).

Exploitation is closely related to lessons learned, although some types of lessons learned, e.g. trend analysis through aggregation of multiple lessons, can be regarded as explorative actions. Some authors view learning from experience as a method of reinforcement learning, reducing the production cost (Levinthal & March, 1993, p. 96), and, closely related, that Lessons learned may accelerate this learning curve (Milton, 2010, p. 9).

2. LESSONS LEARNED DEFINITIONS

Lessons learned (LL) are instances of organisational memory, which represent significant, valid, and applicable experiences, positive or negative (Weber, Aha, & Becerra-Fernandez, 2001). Lessons are valid only if they can be used to guide the solution of similar recurring problems, and deal with incremental changes, i.e. improvement on procedures and processes (Binney, 2001). A more relaxed view on lessons is to regard it as "any form of valuable knowledge, learned from direct experiences in relation to specific situations in business operations that exist in an organisational boundary" (Jongwoo, 2009). The latter definition reveals a context-dependent dimension to experience that has bearing on the implementation of an inter-organisational lesson repository (Andersson, 2014). That is, for a lesson to be transferable between different contexts there has to be a boundary that is at least cognitively separable from the intellectual asset of a lesson.

Among the plethora of definitions of lessons learned, one of the more commonly quoted is the comprehensive definition used by several space agencies:

> "A lesson learned is a knowledge or understanding gained by experience. The experience may be positive, as in a successful test or mission, or negative, as in a mishap or failure. Successes are also *considered* sources of lessons learned. A lesson must be significant in that it has a real or assumed impact on operations; valid in that is factually and technically correct; and applicable in that it identifies a specific design, process or decisions that reduces or eliminates the potential for failures and mishaps, or reinforces a positive result" *(Secchi, Ciaschi, & Spence, 1999; Weber et al., 2001).*

The above definition includes three conditions for lessons learned: significance, validity and applicability. Other authors have pointed out similar sets of conditions, e.g. that lessons should be based on valid data, refer to the original objectives of the task, not express opinions, and generate tangible knowledge (Milton, 2010, pp. 35–36). Further it is sometimes stated that the lessons should be extrapolated from multiple sources and independently triangulated (Patton 2001, p. 334).

In the proposed framework, the definitions are derived from the EU and NATO counterparts with the addition of an extra step to underline that learning and implementing are two different things:

- **Observation** – an observed effect of an action (or inaction) in a specific situation. The observation could be both positive (a successful action) or negative (the action fails to achieve the intended objective). A preliminary observation may need to be developed further, e.g. through the collection of more contextual information.

- **Lesson identified** – one or several *Observation(s)* that has/have been analysed and validated, i.e. the character, scope and importance of the observation has been determined together with suggestions for future actions regarding doctrine, organisation, training, materiel, leadership, personnel and/or facilities.

- **Lesson learned** – a *Lesson identified* that has been approved by the appropriate decision-makers together with a decision on desirable actions regarding doctrine, organisation, training, materiel, leadership, personnel and/or facilities.

- **Lesson implemented** – a *Lesson learned* where decided action has been implemented and the results of this implementation are verified.
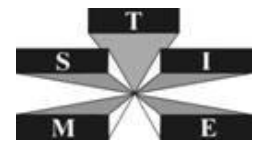
- **Best practice** – is the preferred actions in a specific type of situation to achieve a certain objective. *Best practice* is often formalized in internal policy documents such as doctrines and standard operation procedures and could be based on one or several *Lesson identified/Lessons learned* approved by decision-makers.

3. THE LESSONS LEARNED PROCESS

A LLP is what transforms observations to lessons identified, and ultimately to lessons learned and implemented. It is thus a systematic process for the collection, analysis and implementation of operational experiences. In its most general form, the LLP is no different from an intelligence cycle, see Figure 1. In the planning and direction phase, the need for experiences is defined and the prioritization of collection resources decided. In the collection phase, different methods are used to gather the sought observations/lessons. These are then processed, analysed and validated. Finally the lessons should be implemented and the implementation followed up.
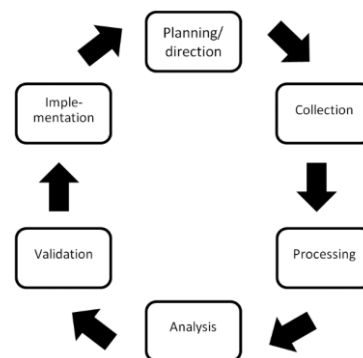

Figure 1 The Intelligence Cycle.

Systematic collection and management of experiences is popularly coordinated through a LL system, commonly with the aim of supporting resource management, increasing safety, and inducing organisational learning (Weber & Aha, 2002). Whatever the purpose, most realisations of LL systems target the collection and storage of LL through formal or informal mechanisms, with the purpose of collecting or connecting experiences (Milton, 2010; Rhodes & Dawson, 2013).

LL systems can also be classified with respect to how experiences interact with the system, e.g. the system can be active vs. passive, and collecting vs. distributing (Borghoff & Pareschi, 1997). Ideally, the LL system is complemented by a process and dedicated organisation that administers the system and keeps it effective (Lackey, 2003). Top-down, or strategic, learning means that some management level has identified a particular knowledge area as promising and takes deliberate actions to acquire that knowledge (van Heijst, van der Spek, & Kruizinga, 1997). Bottom-up, as a contrast, refers to lessons learned by individuals who recognise the potential benefit of spreading this knowledge within the organisation (van Heijst et al., 1997). Many current LL systems are based on bottom-up insights triggered by mismatch between expectations and observations, either positive or negative (van Heijst et al., 1997; Voit & Drury, 2006). Further, it has been reported that 70% of all lessons learned systems fail to implement lessons (Weber et al., 2001), popularly attributed to lack of a pushing approach to disseminate lessons (Liebowitz, 2008, p. 49). Thus, an effective LL process should target not only collection of lessons, but also analysis, dissemination and implementation.

The JALLC LLP consists of gathering, staffing, acting, and communicating lessons to ensure that learning from experience leads to improvement (Nato, 2011). This breakdown is practical as it guides the implementation
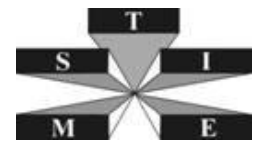
of LL in an organisation, e.g. like in Figure 2. Observations, lessons identified, lesson learned, and lessons shared represent four distinct products in this framework that can be realised through a procedure of appointing responsibility for each reported observation (staffing), followed by analysis and implementation of the lesson to learn and evolve. Dissemination of the lesson learned is the fourth step of the model, enabling sharing and vicarious learning through communication.
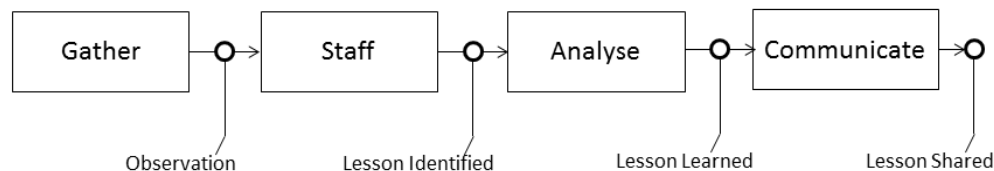

Figure 2. Nato JALLC's collection-based Lessons Learned Process.

Each step in the LL process comes with a batch of separate challenges, and involves a decent amount of craftsmanship, e.g. (1) capturing and managing observations, (2) grouping, codifying and assessing observations, (3) implementing lessons, (4) documenting and disseminating experiences, and (5) adapting lessons to new contextual constraints. In collection systems the first, gathering, is closely related to the problem of knowledge representation and retention (Althoff & Weber, 2006), i.e. to convert a tacit experience into an explicit knowledge artefact. In connection systems, this challenge is somewhat different, as the learning, then, to a larger extent is based on socialisation.

3.1. Capture and analysis of an observation

The beauty of the JALLC LLP description lies in its simplicity. The process is collection-based in the sense that it treats lessons as knowledge artefacts that be analysed in their own right. This viewpoint poises a grand challenge since knowledge is often a mix of components with a varying degree of tacitness (Polanyi, 1966). Capturing the most tangible pieces of knowledge is usually fairly simple as there is little more to it than writing it down on a piece of paper. However, with increasing level of tacitness, more refined methods and knowledge representations are needed (Weber et al., 2001). Qualitative methods, with varying degree of formalization, aim at resolving this challenge by digging deeper into the source of the desired knowledge. They do so by extracting potentially useful pieces of information, connecting the dots, and systemising a way of articulate the knowledge. One such example is a methodology based on causal mapping (Weick & Bougon, 1986), self-Q interviews (Bougon, 1983) and storytelling (Schön, 1993) that has been proposed as a powerful method of eliciting tacit skills (Ambrosini & Bowman, 2001). In short the idea is based on interviews and reflection to create causal flows of events and actions that relate to a particular skill, and reveal details of the tacit tricks-of-the-trade.

Another challenge related to capturing observations is that of identifying what is relevant. Elements of attention and information usefulness affect how information is processed and reviewed, and therefore when an observation is triggered (Voit & Drury, 2006). A case study from NASA showed that the LL process needs to be incentivised to get employees to engage in observation and codification, e.g. by integrating LL into the regular work procedure (Goh & McMahon, 2009).

For lessons from missions, the mission history approach can be used to construct a media-rich story of causal relationships can be produced for post-hoc analysis that is factual and non-biased in the sense that it does not suffer from limitations of the humans' reflective capability, at least in theory (Andersson, 2014). Such story-reviewing solutions open up for qualitative methods based on other techniques than interviews and focus groups, e.g. retrospective ethnographic studies, event coding, abstraction, and content analysis.

Analysed lessons are often tagged or categorised according to task areas which they affect. The purpose of such categorisation is to enable simple filtering and retrieval of a group of lessons for a specific use case. At time
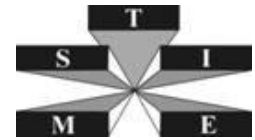
of analysis it can be very difficult to foresee which use cases one lesson might affect. Therefore it has been suggested that common task interdependencies should be identified at the organisational level, to guide the categorisation of lessons as they are analysed (Burley & Pandit, 2008, p. 482). Improper analysis can lead to *superstitious learning*, i.e. success or failure is attributed to a behaviour to which it in reality has little or no causal connection. This can result in inferior routines being kept or introduced due to coincidental causality. Likewise it can result in a superior routine being discarded without having ever been given time to prove its worth (Levitt & March, 1988, p. 325). Such inaccurate learning can in fact lead to degraded performance and have a negative effect on organisational development (Tsang, 1997, p. 78).

Another problem of event-driven analysis is that of *fantasy documents*. These are reports created in the aftermath of major events to show that the responsible organisations have acted as a consequence of the event (Birkland, 2009). The primary purpose of fantasy documents is to be persuasive to the mass and thus they are less concerned with accuracy. Consequently, there is a risk that the lessons that fantasy documents teach are based on vague or fake causal relationships.

According to Bukszar & Connoly (1988), there is also a risk of hindsight bias when retrospectively assessing performance with known outcome as is often the case when reporting lessons e.g. at debriefing sessions. That is, failed performance will typically be more critically examined than successful ditto, leading to potential exaggeration of cause and effects relationships.

3.2. Implementation of a lesson

For transformation to have a positive effect, the affected staff should acknowledge and embrace the change, regardless of which impact factor the lesson concerns. Burley & Pandit suggests the strategy to achieve employee commitment is through transparency, i.e. to strengthen and communicate the relationship between the problem and the solution, and how it fits into organisation's mission (2008, p. 485).

The actual learning in itself may also meet a number of complications. For instance, inferior routines that deliver positive results may hinder the introduction of new superior routines, resulting in a *competence trap* (Levitt & March, 1988, pp. 322–323). Similarly, development of competence and abilities in the short time perspective may result in immediate results in performance, but also hamper learning in the long time perspective. Knowledge and development of abilities that lead to immediate results in performance may reduce the will to try new technologies etc. (Levinthal & March, 1993, p. 97). A related problem, *codification trap*, occurs when new problems are pursued with familiar, but irrelevant in this context, methods (Schulz, 2002).

In an organisation learning is often motivated by specific objectives that the strategic management wants to achieve, although these objectives are often not as crisp when broken down to the performance level (Levinthal & March, 1993, p. 95). Because of this lack of traceability it becomes difficult to assess whether implemented learning completes the objectives. Further, the objectives themselves are not constant, at managers tend to adjust them as development is progressing, e.g. by lowering the bar or by redefining the goals to fit the results (Levitt & March, 1988, p. 325). This concurrency between development and goal adjustment risks creating unpredictability and rendering development assessment meaningless (Schulz, 2002). Multiple individuals drawing conclusions from one learning scenario may create even more ambiguities, since interpretation, background knowledge, personal experience and understanding of history come into play (Levitt & March, 1988, p. 327).

Further, is has been recognised that even when objectives are constant and improved effectiveness is observed by applying implemented lessons, it is not necessarily true that this performance increase can be attributed to learning. In dynamic environments the learning setting may be complex enough to conceal hidden disturbances that sometimes affect the outcome in positive ways, i.e. sheer luck (Tsang, 1997, p. 78).

To draw valid conclusions from a learning scenario, it is imperative that the identified cause and effect relationships are correct. Even with the sharpest analytical ability it can be nearly impossible to do so when the flow of events contains reciprocity, feedback loops and feedforward loops (Tsang, 1997, pp. 78–79). This, in combination with the number of samples often being very low and sometimes contradicting, adds to the
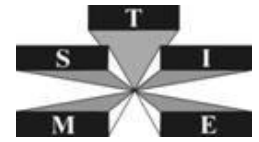
complexity of learning from experience (Tsang 1997, pp. 78-79; Levinthal & March 1993, p. 96; Levitt & March, 1988, pp. 323- 333).

It is not uncommon that analysis of lessons result in the need to implement organisational change. Such changes often cause employee resistance because of perceived uncertainty and threat to power and control (Burley & Pandit, 2008). It is therefore wise to implement changes sequentially, step by step and quickly identify role models and influential team members (opinion leaders) who can initiate the transformation (Burley & Pandit, 2008, pp. 481–483).

3.3. Communicating lessons

Dissemination of lessons is an area that has many well covered cousins in academia, e.g. knowledge transfer, vicarious learning, and socialisation. Without the knowledge transfer sub-process, the lessons learned process becomes more of a feedback process where the affected system component is the same as the one the original observation concerns. A functional knowledge transfer process on the other hand, can spread the knowledge and share it to other portions of the system, or even to other systems. Such knowledge transfer requires strategy and planning, essentially management issues. On a system level, the transfer requires a definition of what the knowledge artefact is, how to represent it, and the process of how to actually transfer it from one part of the system to another (Goh & McMahon, 2009).

Many operational lessons learned systems and processes are good at collecting lessons but still struggle with dissemination, i.e. they are effectively used as black hole into which observations are put and never seen again (Weber et al., 2001). Acknowledging this *lesson distribution gap* is the first step to its' remedy, for which at least three different approaches are commonly employed: (1) the doctrinal approach, (2) the pushing approach, and (3) expert system approach (Aha, Weber, Muñoz-Avila, Breslow, & Gupta, 2001). The first refers to lessons being implemented in standard operating procedures and doctrines to be practiced throughout the organisation. The second can be either active or passive, directed or broadcasted, reactive or proactive (Weber et al., 2001) and implemented e.g. by massive information spreading through seminars, education initiatives, word-of-mouth, etc. The third refers to just-in-time solutions where lessons are being pushed, or requested and delivered in support of a decision-making scenario, e.g. through monitored distribution processes (Aha et al., 2001).

The positive effects of pushing information seem obvious, but Burley & Pandit (2008, p. 486) warns that too many lessons being communicated (pushed) may cause information overload among the recipients, and therefore recommends directed targeting and a balance between push and pull strategies for sharing knowledge.

An increasingly popular method for sharing and disseminating lessons is to establish self-regulating Communities of Practice (CoP) that encourage collaboration and information sharing through social interaction (Williams, 2008, p. 256). Popularly these CoPs organize workshops to share lessons and sometimes also engage in information sharing using IT, e.g. through social media.

4. STRATEGIC LL CHALLENGES: THE BIGGER PICTURE

Every step in the described LLPs is coupled with major challenges, for example collection of observations has to deal with bias and accuracy issues, analysis and validation needs to deal with concealed cause and effect relationships, transferral and sharing of lessons is dependent on the ability to articulate and distribute the knowledge, storing lessons is dependent on the externalisability, and successful implementation can be difficult to verify. There are also challenges on the strategic level, e.g. regarding whether the organisations should invest in lessons learned processes or stay focused on utilising their current resources and knowledge.

The following section presents a review of strategic concerns for organisations in the process of implementing, upgrading, or simply auditing, a lessons learned process.
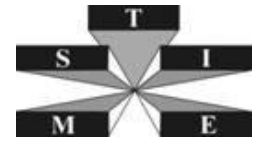
4.1. Lessons learned and decision making

A motivating purpose for any LL system is to improve decision making, a purpose which has created two alternative views on LL systems at large. On the one hand are the just-in-time (JIT) lesson providers, which act as a decision support or expert systems. Proposed such JIT systems (Weber & Aha, 2002) often target slower decision making processes such as planning, where analytical reasoning (Tversky & Kahneman, 1981) is commonplace. Another example of JIT lessons dates back to World War II where the German army actively pushed refined tactical procedures in handouts to the soldiers. Although the lessons in these *merkblätter* were rarely novel, they did serve a purpose to proactively distribute and maintain doctrinal skills. Further, the merkblätter can be argued to have contributed to a heightened morale through a perceived tactical superiority (Mains & Ariely, 2011).

On the other end of the spectrum are the systems designed to increase the knowledge base. The rationale behind such systems is that recognition of familiar structures - pattern matching - is a critical ability in naturalistic decision making theory (Klein, 1993); therefore the applicability of a lesson corresponds to how it affects the recipients' perception of the future and, ultimately, its' decision making ability. Thus, these naturalistic lessons learned (NLL) systems work by adding lessons, i.e. instances of knowledge and experience, into the recipients' pool of experience. Naturalistic lessons can, consciously or subconsciously, be interrogated in a time-pressed decision making situation, in the search for a viable option. Although both JIT LL and NLL systems target the LL process they have different applications from a decision making perspective and conversely need to be treated in their own right.

### 4.2. Adopting a lessons learned strategy

There is a need to score balance between the exploration of new knowledge and the exploitation of existing knowledge (March, 1991, p. 71). When not enough time is given for new techniques and approaches to reach their potential, exploration may turn into a frenzy where new approaches are continuously sought, applied and rejected, commonly referred to as a *failure trap*. In this situation exploration will dominate exploitation (Levinthal & March, 1993, pp. 105–106). On the other hand, exploiting existing knowledge may seem successful in the short run, and remove the incentives for the exploration needed for success in the long run, resulting in a potentially equally detrimental *success trap* (Levinthal & March, 1993, pp. 105–106). Maintaining the balance between exploration and exploitation is a debated issue referred to as *organisational ambidexterity*, with March (1991) claiming that organisations need to balance the two, others propose that focusing on one or the other is important to gain edge (Raisch & Birkinshaw, 2008, p. 392).

4.3. Organisational learning culture

Culture affects organizations lessons learned efforts on several levels. First of all, culture is a lens through which an organization interprets the world. A strong culture could be something positive, giving the organization a strong understanding of its role and functionality. However, this cohesion may also hinder new thinking (Pfeffer & Sutton, 2000, p. 77). Relatively weaker organizations may by necessity have developed a culture and ability that is more open to continuous change than those organizations that effectively control their environment. In times of paradigm shifts, these weaker but more adaptable organizations may come out ahead (Levinthal & March, 1993, p. 101). A learning culture has been identified as a prime reason for this seemingly contradictory relationship (Levitt & March, 1988, p. 332).

Organisational learning culture is associated with the tendency to identify relevant observations and lessons and the willingness to work with these (Tsang, 1997, p. 78; Williams, 2008, p. 254). The willingness to report LL depends on the transparency of the process, simplicity of reporting, ease of contacting the information giver, timing of decisions, the ability of filtering and categorising similar lessons, etc. This will to engage in LL activities can be severely damaged if the process is associated with negative issues and control, therefore it is utterly
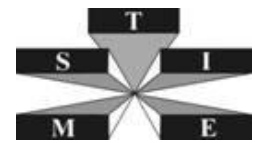
important to encourage learning from positive examples and not only failures (Milton, 2010, p. 21) and to identify and cultivate incentives to engage employees in the LLP (Burley & Pandit, 2008, p. 483).

On the individual level there is always a risk of bias in self-reporting, and likewise lessons can become distorted by the reporting mechanisms themselves, either through sloth, human errors or inadequate granularity (Riege, 2005; Williams, 2008, p. 254). It is also well-known that individuals tend to manipulate and filter information if there are incentives for them to do so, e.g. to avoid blame, to gain attribution, and to avoid criticising others (Tsang, 1997, p. 78). Furthermore, at the individual level the lack of time as well as lack of incentives and awareness will affect negatively the willingness to work with lessons learned (Riege, 2005; Williams, 2008, p. 254).

Riege (2005) points also at the management levels, with the importance of including knowledge sharing in the organisation's long-term strategic approach, and using leadership to encourage learning. Commitment and high level of expectations from the management have been noted as important keys to enable learning (Milton, 2010, pp. 23-24; Popper & Lipshitz, 2008, p. 45ff.). Related, Weber et al. (2001, p. 71) regards lacking integration of lessons into decision-making processes as a factor hampering lessons learned systems. Further, management consistency and social identity reinforces a learning culture in organisations (Pfeffer & Sutton, 2000, pp. 87–88).

The average ability of an organisation's performance increases with learning, while the need for improvisation is reduced. Such streamlining is good for predictability in production when success is coupled to the quality of combined performances. However, when survival depends on a few events, where winning is the only option, relying on learning is a less appealing alternative. Instead new and innovative thinking may be required, increasing the variance (Levinthal & March, 1993, p. 106; March, 1991, pp. 81–82). Therefore, stimulating improvisation and creative thinking may be equally important as implementation of organisational learning to the organisations' success. This is not just a matter of motivation and capability, it is also a matter of time and will – if employees are not given the time to reflect and engage in creative thinking or fail to understand its' value, the lessons learned process is not likely to produce any value for the organisation (Burley & Pandit, 2008, p. 484). Publicising employee involvement has been suggested as one method of increasing overall engagement (Burley & Pandit, 2008, p. 487).
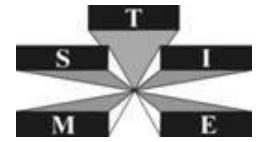
Learning focuses on short perspective survival: The map is based on a simplified version of the history, and eventually the reality will deviate too much but also that inferior, but reasonably successful behaviours will prevail over the will to try new, possibly even more successful at the same time as success in one environment may lead to less motivation to learn in others.

5. SUMMARY AND CONCLUSIONS

The primary purpose of interoperable lessons learned management is to enable the transfer of valuable experience from one organisation to another. To fulfil this objective the process and system must support basic LL functions such as collection, analysis and dissemination of lessons. These tasks are complex and filled with challenges such as getting employees engaged in reporting observations, resolving cause and effect relationships, and implementing lessons in the organisation to generate the desired effect.

While these tasks are complex enough themselves, the added complexity of organisational interoperability (X-BSP) brings new challenges to the table, such as role translation, context transformation etc. That is, a lesson taken from a specific crisis management system may not be immediately applicable to another system because of different organisation structures, standard procedures and legislation frameworks. However, after some careful analysis and translation, there may, just may, be hidden gems to be found.

An interoperable lessons learned framework should encourage organisations to look beyond rank, procedure, and nationality when identifying lessons. A preferred method for sharing identified lessons is through communities of practice using well-practiced methods for knowledge sharing e.g. with the support of social media,

custom software and through face-to-face interaction at recurring conferences. A challenge that must not be forgotten, and a large one at that, is that of attaining interest in such communities and reaching out to the relevant organisations. While this article sets a common ground for interoperable lessons learned through the identified challenges and opportunities, it thus remains unclear how to operationalise the framework and move from theory to practice. It is in light of this that the international emergency management society (TIEMS) is called upon to participate in DRIVER workshops to help establish a platform for pan-European sharing of emergency and crisis management lessons.
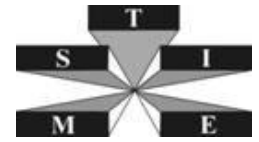
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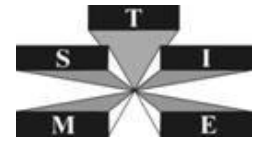
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