Constraining complexity? The impact of external actors on the internal enactment of surprise.

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Abstract

Complexity offers a way to reconcile the multiple behaviours and actions that take place within an organization. It acknowledges the 'unknown' and 'unexpected' as inherent in organizations, which demands an adjustment to mainstream ideas about the desirability and controllability of surprise. This is an attractive proposition for scholarship seeking to move beyond conceptualisations of organizations as linear and rational entities, towards a more dynamic and fluid realisation of organizational life. The role that 'social processes' play in complex systems is less clear and merits attention. This paper connects ideas from complexity theory with two stories which tell of the enactment of two surprising events which took place in a large, private sector organization. It critically evaluates the impact of actors external to an organization on the internal enactment of surprise. It argues that social processes of enactment may frustrate the modelling of organizations as complex systems by elevating potential conditions external to the organization which ultimately constrain the dynamics of complexity.

Introduction

> "In a world of complexity, the proneness to be taken by surprise, instead of the effort to predict every single surprise and to control the world around, implies a significant change in managerial mindsets." (Cunha, Clegg, and Kamoche., 2005: 326)

Surprise impacts many dimensions of organizational life, yet it does not always get the critical scrutiny it deserves. Indeed, Cunha, et al. (2005: 318) lament how scholars "render the mundane world as, on the whole, fairly unsurprising" in spite of the fact that "surprise remains immanent to open-ended business systems". Complexity (Waldrop, 1992; Bar Yam, 1997, 2005) suggests a perspective on surprise that allows scholars to recognise the transience and imperfection of organizational life, rather than reinforcing the rules and rationality implicit in managerial mindsets and mainstream organizational discourse

(Lanzara, 1999). Nonetheless, complexity has its limitations, and internal and external actors retain strong vested interests in how organizations enact surprise. This paper considers the extent to which the internal enactment of surprise is constrained by external actors; and, in the two surprising stories which account for the genesis of this paper, it deals with the tragic death of a woman and the grave injury of a young boy. My interest does not lie in the gruesome, but in the extent to which complexity is useful in reframing large organizations operating in complex fields. Through the individualised narrations of two stories, this paper considers specific behaviours and actions at Board level which characterise the enactment of surprise and shape different responses to complex situations.

The embeddedness of the preference not to be surprised is observed in contemporary perspectives on organizations (Tsoukas, 1994; Cunha, et al., 2006). Surprise triggers "a need for explanation […] a process through which interpretations of discrepancies are developed" (Louis, 1980: 241). It challenges managerial mindsets and, accordingly, attracts a range of responses (Tsoukas, 2005). Despite a predominately negative appraisal of surprise, it is a 'basic' emotion (Schlosberg, 1954; Ekman and Friesen, 1971) which is identified by cognitive-psychologists as neutrally-valanced (Watson and Tellegen, 1985; Tiegen and Keren, 2002). The tendency to view surprise as a negative occurrence acknowledges that surprise generates distress, in one part from the discrepancy and in another part from the human need to be able predict, prepare, and understand outcomes (Abelson, 1974; Miceli and Castelfranchi, 2014). Acknowledging a rich history of surprise in scholarship from across disciplinary boundaries, this paper contextualises an understanding of surprise in terms of complexity – as is used to study the interactions between the different components of a system (Cilliers, 1998) and to reconcile multiple interactions that characterise organizations and their environments (Anderson, 1999). Complexity posits that characteristics at one level of a system cannot be understood from knowledge of characteristics at other levels (Holland 1998; Newman, 1996) and directs attention towards the multiple interactions which challenge human expectation of routine and order (Capra, 1996). In doing this, surprise is cast as 'uncertainty', whereby that "significant change in managerial mindsets" alluded to by Cunha, et al., (2005: 326) represents a divergence from the dominant approach to surprise which conceptualises organizing as a linear, rational, and certain pursuit, and surprise as a threat which, through skilled forecasting and planning, could and should be avoided.

This paper explores the experiences of Annie[1], a company director who plays a central part in the enactment of two surprises. Annie's stories of surprise are selected from interviews conducted over the course of an eighteen-month qualitative study undertaken in and around an online community of practice (Wenger, 1998). Narrative analysis centres on a single telling of these stories (Gabriel, 2015), exploring the behaviours and actions which take place at Board level as a group of professionals seek to interpret and enact surprising events. In so doing, the paper documents the organization's "proneness to be taken by surprise" and its Board's inclination to try "to predict every single surprise and to control the world around". It evaluates Annie's stories in the light of claims that a "significant change in managerial mindsets" may be needed (Cunha, et al., 2005: 326) to interpret and enact surprise differently. Specifically, this paper evaluates the impact of external actors on an organization's ability to enact surprising events internally in ways of their choosing. Notwithstanding the dominant and persistent drive towards surprise reduction, this paper takes as its starting point that surprising events do happen and are responded to. By remaining attentive to how surprise is enacted, it considers the status, implications, and reach of complexity in our understanding of organizations as complex systems. The paper presents a review of literature beginning with discussion of the dominant response to surprise in management and organization scholarship. It then considers the importance such research attaches to certainty about uncertainty, preparing a pathway to a complexity perspective, subsequently identifying the principles, practices, and appropriations of complexity in management and organization scholarship. This section concludes by identifying the social nature of organization and, correspondingly, the social process(es) of enactment. The paper then outlines its research aims and context, detailing the research design and principles and practices of data analysis. Findings are presented thematically, drawing on previously established principles of complexity in management and organization scholarship. These principles are: firstly, multiplicity of actors; secondly, the free flow of information; and, thirdly, self-organization. Additionally, and emphasising the social nature of organizations, it reports on findings related to the social process(es) of enactment. Discussion and conclusions focus around these themes, drawing together learning from research and extant literature, before considering the extent to which complexity has been constrained within these stories.

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[1] Annie is the sole teller of both stories; all italicised text in this paper is Annie's own words, as spoken to the researcher in the context of interview.

Review of literature

> "it should be no surprise at all that surprise exists; after all, individuals tend to seek confirmatory information for what they think is true, and to avoid searching for alternative or disconfirmatory evidence" (Bazerman & Moore, 2009: 41)

The dominant approach to surprise which is found in management and organization scholarship takes a broadly negatively-inflected position (Stacey, 1992; Cunha et al., 2006, Child, 2015), and seeks to understand how organizations attempt to exert rational and linear control over unexpected events. This approach relies on a long-standing belief in predictability (Taylor, 1914), control (Weber, 1905), and routine (Dewey, 1922). Cuhna, et al. (2006) highlight the extent to which instrumental belief is highly-prized within this body of research, which supports Tsoukas' (1994: 3) claim that, put simply, "we don't like to be taken by surprise". Surprise, in this respect, is well-served by a reality implicit in the mainstream discourse which emphasises rules and rationality at the expense of the transient and imperfect nature of organizations (Lanzara, 1999); a reality wherein the underlying epistemological belief is itself surprised by 'being taken unawares', or 'being seized unexpectedly'. Surprises are seen as "discrepant events", which "trigger a need for explanation" (Louis, 1980: 241), and the instrumental approach to explaining these discrepant events is framed by little more than an underlying "fear of uncertainty" (Tsoukas, 2005: 293). Uncertainty remains closely associated with 'being surprised' and persists as the opposite state to that which is most frequently recommended for good management (Clegg, et al., 2005). To demonstrate certainty about uncertainty, research has sought to reconcile predictability and unpredictability (Thompson, 1967; Lawrence & Lorsch, 1967; Beer & Huse, 1972; Ansoff, 1975; Salancik & Pfeffer, 1978; Pondy & Mitroff, 1979). The legacy of this sits awkwardly in the context of a social world of irreconcilable difference between the immutable forces and prevalent conditions internal and external to the organization (Meyer, 1982; March, 1988; Shenhav, 2003; Ritzer, 2004). Instead, uncertainty might be better considered in a positive light, as an opportunity rather than a threat. Dutton & Jackson (1987) draw on categorization theory (Rosch, 1973) to problematise two assumptions implicit in the dominant approach to surprise. Firstly, that short-term effectiveness and long-term survival of organizations is determined by the actions they take in response to their external environments (Argyris & Schon, 1978; Chandler, 1962; Lawrence & Dyer, 1983); and, secondly, that organizational actions are determined by the intentional behaviours of individuals in the organizations, especially top-level decision makers (Child, 1972;

Thompson, 1967). Their challenge connects with an interpretive view of meaning and action. It moves us towards a position in which any assumption of tension between internal rationality and external irrationality is at once reduced because of a nuanced understanding which connects individual cognitions to organizational actions (Chaffee, 1985; Schwenk, 1984, 1985), particularly within a complex organizational environment.

Analysis from other disciplines foregrounds how 'surprise' is enacted within complex systems and provides implications worthy of consideration within the complex organizational environment. Prior to the work of King (1995), management and organization scholarship had largely ignored lessons from the natural environment and ecological sustainability (Gladwin, 1993; Shrivastava, 1994; Throop, et al., 1993). King argues that, "if society is to avoid ecological surprise, it may have to undo modern institutions that encourage individual action by protecting the individual from the community" (King, 1995: 979). In this, King establishes an important connection between individual/collective behaviour/action, and he further claims that surprise is poorly served by any theoretical or structural understanding that contributes to its avoidance. Gross (2010: 1) takes up the call to develop managerial and organizational knowledge out of ecological surprise and argues that surprise "cannot be fully understood independently of a person's or a group's ignorance". He identifies that, "a surprising event […] is seen as a prerequisite to becoming knowledgeable about one's own ignorance as a basis for acting in the face of limited rationality and incomplete risk assessments" (Gross, 2010: 5). These arguments connect with those previously made by McDaniel, Jordan, and Fleeman (2003: 269), who adopt a complexity-driven perspective: they write that surprise "is not a function of ignorance, or at least not only a function of ignorance, and acceptance of this fact leads to a focus on understanding phenomenon rather than being able to precisely predict what will go on". The complexity perspective (Nicolis & Prigogine, 1977; Cilliers, 1998; Anderson, 1999; Gell-Mann, 2000) has significant implications for our understanding of surprise. McDaniel & Driebe (2005: 7) argue that, when organizations are viewed as Complex Adaptive Systems, "surprise is not necessarily the result of bounded rationality, limited information or system design, but often is the result of the fundamental nature of the system in question". Therefore, complexity – rather than surprise – results from the interactions between the different components of a system (Cilliers, 1998); and complexity science helps understand those "systems that are characterized by nonlinear dynamics and emergent properties" (McDaniel & Driebe, 2005: 4). Its central contribution, then, is to enable the development of knowledge of systems in

which a perfect understanding of the individual parts does not automatically convey a perfect understanding of the whole system's behaviour (Miller & Page, 2007). Complexity – in its full theoretical entanglement, rather than in its metaphorical (mis)appropriation – is understood in terms of a multiplicity of individual actors, who make individual choices about their individual actions (Waldrop, 1992; Bar Yam, 1997). It directs attention towards three principles: 'self-organization', which emerges from 'a multiplicity of actors', and is enabled by 'the free flow of information' (Gell-Mann, 2002; Holland, 2014). Dealing with each of these principles in turn, and fundamental to complexity, is the idea that all things tend to self-organize into systems (Nicolis & Prigogine, 1977). Complex Adaptive Systems are such systems, characterised by diverse agents interacting with each other, which can undergo processes of spontaneous self-organization (Cilliers, 1998) such as flocking birds or schooling fish. Secondly, complexity exists wherever multiple actors interact, are subject to feedback dynamics, and are influenced by temporal delays in cause and effect (Grösser, 2017). The spontaneous self-organization of multiple actors is central to complex systems, which suggests that complexity is orderly, rather than chaotic (Bar Yam, 1997; Hayles, 1991). Thirdly, complexity places emphasis on the free flow of information between individual actors, rather than focussing on the actors themselves (Bar Yam, 1997). Whilst complex systems lack any sense of instrumental, linear clarity, resilience forms (and reforms) out of changing patterns and relationships far from any equilibrial state (Capra, 1996). Fontana & Ballati (1999) describe how complexity science thus transcends traditional disciplines of natural science and social science and can be used to illustrate and understand that the "development of political, social or cultural order is not only the sum of single intentions, but the collective result of nonlinear interactions" (Mainzer, 2004: 349). Organizations must adapt to their environments to survive (following Lawrence & Lorsch, 1967) but Child & Rodrigues (2011) highlight some persistent shortcomings in analyses of organizational adaptations to complex environments, specifically assumptions of environmental determinism. Additionally, 'surprisingness' is often deliberately reduced after the event – even denied – in the hope of returning to that point in time when a given situation is remembered and understood as stable (Goiten, 1984; Perrow, 1984; Shrivastava & Schneider, 1984). Furthermore, "observers often attempt to enact surprise away so that they can know what to do and so that they are not confused by new information" (McDaniel, et al., 2003: 267). Complexity science challenges the preoccupation with order and routine at the point of stability, thereby attempting to demonstrate that the natural state of things is not equilibrious.

Complex adaptive systems are emergent and cannot be defined as a sum of their parts; they are both unpredictable and unknowable (McDaniel & Driebe, 2001; Waldrop, 1992; Cilliers, 1998). Nonetheless, certain external factors of environment will predispose internal actors towards a particular trajectory or set of responses (Nicolis & Prigogine, 1977; Lorenz, 1963); this signals a constraint on the complexity dynamic, which impacts on the enactment of surprise. Weick (1988: 306) employs the term enactment to "preserve the central point that when people act, they bring events and structures into existence and set them in motion". Identifying enactment as an inherently social process (Smircich and Stubbart, 1985) – which is driven by commitment (Salancik, 1977), capacity (Perrow, 1984), and expectation (Weick, 1988) on the part of multiple actors, who tend to enact events in ways which confirm their preconceptions (Powers, 1973) – highlights the extent to which norms of socialisation, habitualisation, and institutionalisation will impact organizations attempting to reconcile those basal differences between the forces and conditions, internal and external to the organization. Haeckel's (2004: 181) identification of the embeddedness of "unpredictable and discontinuous change" within "the logic of the information age" cautions that enactment risks being shaped by increasingly unstable human preconceptions if surprise continues to be conceptualised as a fault within bounded rationality, limited information, or system design, rather than as the result of the fundamental nature of the system in question. And so, this paper uses empirical data to appraise the relationship between internal and external actors within a large, private sector organization. It grounds its claims in the interpretation and analysis of the stories told by Annie, and it theorises about how a complexity-driven perspective of organizations may be frustrated by social processes inherent in the enactment of surprise; and it demonstrates how social these processes have the potential to delimit ambitions of modelling self-organization.

Method

The aim of this paper is to shed light on the relationship between external actors and the (internal) enactment of surprise by exploring two stories selected from interviews conducted over the course of a longitudinal qualitative digital study. The first story relates to a tragic death of a woman, and the second story to the grave injury of a young boy. The two stories are separated in time by the passing into law in the United Kingdom of the Corporate Manslaughter and Corporate Homicide Act (2007). The paper adopts a dual focus to achieve its stated aim. Firstly, it conducts a detailed analysis of two stories using three principles of

complexity to explore the relationship between external actors and internal enactment of surprise. It undertakes this using two stories of surprise, told by the same person, in the context of the same organization. Secondly, prompted by Cuhna, et al. (2005) it reflects on the proneness of the organization to be taken by surprise, its preference for predicting and controlling surprise, and the implications of managerial mindset. It does this by critically evaluating the two stories which contain personal reflections on organizational behaviours and actions enacted by social process(es) at an individual and collective level.

The argument developed throughout the research is neither framed by a deductive logic, nor by classical grounded theory (Glaser and Strauss, 1965). Theoretical ideas have guided its development, but the intent has always been to identify the organizational world as socially-constructed (Berger and Luckmann, 1966; Schutz, 1967; Weick, 1969, 1979), to acknowledge people in organizations as 'knowledgeable agents' (Mead & Miller, 1982; Giddens, 1979), and to foreground the experiences and interpretations of people-as-informants (Spradley, 2016). Stories are drawn from empirical work which started in the autumn of 2016 and was completed in the spring of 2018. During this period, archival work, participant-observation, and semi-structured interviews were carried out by the researcher. The digital nature of the study meant that archival work, and participant-observation was carried out online, and some interviews were facilitated by communicative technology (Kozinets, 2015). Where it was possible to meet face-to-face with participants, this was considered preferable (Rogers, 2013). In all, 42 interviews were conducted with members of the community of practice. Interviews were semi-structured and followed a similar format but how much was said, and in what order, varied. All interviews were audio recorded and transcribed. The interviews were carried out in English, and their average length was about one hour. In addition, informal discussions were carried out with participants and other 'knowledgeable agents'. The wider group of participants represented range of professional experiences drawn from different cultures, contexts, and industries; their experiences are drawn on by the author in developing the theoretical and analytical frame. Annie was selected as a participant because of their expertise within the community of practice being studied; but during a 90-minute, face-to-face interview, the participant reflected on their motivations for having left a mainstream organizational setting. Annie is a degree-level educated, professional, working at Director level in a FTSE 100 company in the UK. Their stories explored the actions and interactions which took place at board level as a group of professionals sought to enact their own interpretation of two surprising events. (After

identifying the significance of the stories, the researcher returned to Annie to explore their experiences in greater depth. This was done via email, telephone conversation, and a second and unstructured interview.) Analysis revolves around Annie's telling of these two stories (Gabriel, 2015). The combination of data quality/quantity and researcher preference led to data analysis being conducted manually. In powerful, individualised narrations of tragic events, it is recognised that it can be difficult to isolate the 'what' is said from the 'how' it is said, and the what is 'told' from its 'telling' (Reissman, 2005). Attentive to this, this paper presents a thematic analysis that focuses on the content of each story (Gabriel, 2015), exploring those elements which foreground the unknown, thus acting as agents of surprise. Reflections on the 'telling' of the stories is presented separately. Informed by the rigour of Gioia, et al. (2013), 1st order analysis was carried out, using the language of the informant, and concepts were identified which subsequently, in 2nd order analysis, were mapped onto themes from the theoretical realm which had emerged from a review of relevant literatures. Thus, the research may be viewed as 'grounded theorising' (Holton, 2018) as it derives its findings from the empirical material collected in the course of this study and focuses on an existing professional interest rather than an emergent concern. In this presentation, quotations from data are used as illustrative vignettes to re-tell and interpret, rather than being exhibited as 'fact' with the express intent of delivering evidential proof.

Findings

In both stories (see Figure 1, below), a mobile telephone call signals the delivery of information, catalysing the surprise event and subsequent processes of enactment.

Story 1: skeleton outline	Story 2: skeleton outline
We got a call on my mobile	*... and, so I got the call for that*
It was the site manager	*From the operations manager*
He'd just found [her] dead ... crushed to death by faulty machinery	*The boy had dropped all the way down and was in intensive care, severely severely damaged*
The H&S Exec will investigate	*The police were investigating the company for negligence*
The police work with them	*The new legislative framework meant it was a very different picture*
In that instance immediately, umm, at board level, umm, there was just no blame at all pointed anywhere and there was no real consequence, serious consequence, in terms of personal, umm, personal liability	*The shit hit the fan, basically*
It was talked about a lot at Board level	*There was no support*
There was almost a sense of real supportive no no blame culture, let's get the bottom of it	*... it was very much everyone for themselves*

... as much money as we need to throw at it to make sure that everything is okay	*You know, like, almost we're going to distance ourselves from you because we don't want to be damaged by this surprise*
Tell the land owners ... make sure this never happens again	*... blame culture, finger pointing ... identify who, who's at fault here*

Figure 1. Table showing the skeleton outline of stories 1 and 2

In the first story, a call comes in from *the site manager* to inform Annie that an employee has been found dead. The employee has been killed tragically by a malfunctioning piece of machinery. The circumstances are subsequently explored and the consequences become clear: *the police will investigate*, so too *the Health and Safety Executive*. As Annie and multiple colleagues (actors) within the organization enact this surprise, we are told of an *absence of blame*, *a supportive culture*, and a determination to *get to the bottom of it*. Financial resources are made available *to make sure that everything is okay*. In this context, *everything* seems to refer to all people (internal and external to the organization) who have been caught up in this situation. There is shared resolution to act (by *informing* and *educating* others) so that such a situation *never happens again*.

In the second story, a call comes in from *the operating manager* to inform Annie that a young boy has been hospitalised after being severely injured on site. The injury has come about through high jinks, schoolboys *riding the escalators*, and this going seriously wrong. Again, the circumstances are explored and the consequences become clear: *the police will investigate*, so too *the Health and Safety Executive*. This time, however, the *legislative framework* has changed, and Annie describes how this shapes the subsequent enactment of surprise. The new *legislative framework* presents a constraint which means *it was a very different picture*; company directors could now be held *personally responsible* for company action or inaction. So, the fact that *on-site security guards* failed to act became a huge concern. The mood changed. *There was no support* and *it was very much everyone for themselves*. All focus turned to keeping a *clear distance*, to ensure they *weren't damaged by this surprise*. Instead of a collective resolution to act, story 2 became an individualised quest *to find fault* and, in so doing, *to avoid blame*, notably, at an individual level.

Multiplicity of actors

As the stories unfold, we quickly become aware of multiple actors, who might be identified as the story's information processors (Waldrop, 1992; Holland, 1998). Alongside Annie, at

Director level, sit *the Board*. They share an *executive* responsibility for *the employees*, who include *the people in the office*, *our own employee*, and both [*the deceased employee*] and [*the injured boy*]. Beyond the defined and internal organizational boundary, significant *professional relationships* exist with external actors: *land owners*, *the site manager*, *one big estate*; and also, *institutionalised relationships* with *the Health and Safety Executive*, and *the Police*. Annie describes a degree of *moral responsibility assumed by the Board* (for *the family*, *everyone*, and *anyone associated with* [*the deceased*]) which is clearly expressed and enacted in the first story. The second story, however, seems to lack this sense of *moral responsibility*, which appears contested by other *members of the executive*. In the role of information processors, these actors clearly exhibit the agency to process information individually and react to changes in that information (Casti, 1997), and to exchange information among themselves and with their environment and to adjust their own behaviour as a function of information they process (Holland, 1998). Implicit in Annie's telling of the stories is that this is a diverse body of multiple actors. Annie expresses this in the way they talk about *the Director* and *the employee*, *the family* and *the Police*. This is consistent with the modelling of organizations as complex systems, where diversity is a critical characteristic of novelty and adaptability (Bar Yam, 1994). And, for example in the case of *the Police*, *the Health and Safety Executive*, and *the family*, that whilst external actors are elements in their own right, they are often systems themselves, functioning as building blocks for agents at a higher level (Waldrop, 1992). As Annie's experience demonstrates, different actors take different roles as the dynamic of the system unfolds and that future patterns of behaviour and action are not predictable from knowledge of previous patterns. Waldrop (1992: 146) argues that systems "are constantly revising and rearranging their building blocks as they gain experience". So, although diverse and multiple actors are necessary for a modelling of organizations as complex systems, that is not sufficient of itself; they must, for instance, have access to a free-flow of information.

Free-flow of information

The free-flow of information, rather than the information itself, is a conceptual indicator of organization as complex system. So too the relationships between actors, rather than the actors themselves. Information flows freely, along formal and informal pathways, and Annie identifies a series of these flows. This is clearly shown when the habitual free-flow of information becomes halted in the aftermath of the second surprise.

Both stories start with a mobile telephone call in which 'surprise' information is freely exchanged.

> [story 1] *... we got a call on my mobile and it was the site manager, who said that he'd just found [her] dead. And she, she had been crushed [...]. And it was serious, which is why he called me.*

> [story 2] *... he dropped all the way down and was in intensive care, severely severely damaged. And, so I got the call for that, because the police were investigating the company for negligence*

This establishes a series of flows of information: in story 1, between Annie and *the site manager*, and, in story 2, between Annie and *the operating manager* (in both instances, 'surprise' information exchanged between internal and external actors). Further flows of information emanate from this point, when Annie conveys the news to other members of *the Board*.

The enactment which followed saw *the Board* adjust their own behaviour as a function of information they process (Holland, 1995). In story 1, Annie reports:

> [story 1] *... it was talked about a lot at Board level and, affected people in the office because there was a concern for the family and for the well-being of our own employee who found her, and we also had some employees living on that estate, because it was quite a large estate. And there was almost a sense of real supportive no no blame culture, let's get the bottom of it, what a shame that she used, err, a tractor that was faulty. And, and that was sort of, that was it, really. And it was quite supportive, and everyone you know you know as much money as we need to throw at it to make sure that everything is okay*

Whereas, in story 2:

> [story 2] *... There was no support, it was very much everyone for themselves, the the the managing director of that fir ... that company ... and myself. It was not supportive. It was, it was really quite awful. You know, like, almost we're going to distance ourselves from you because we don't want to be damaged by this surprise, or this situation that shouldn't have happened. And, heads will roll ... who ... blame culture, finger pointing ... identify who, who's at fault here*

Other information flows are described in the story (whilst others are implied). For example, post-facto action is taken by the Board in story 1:

> [story 1] *... make sure that every other estate that has a [machine] that has been properly [...] tested and tell [them] that this awful thing happened [...]and then they'll spend the money.*

Also, in story 2, Annie describes the content of multiple exchanges between *the Health and Safety Executive*, *the Police*, and *the Board*:

> [story 2] *... you have a responsibility for [...] anyone on your property [...] And so, because the, the corporate manslaughter act had come into play, [...] it was as very different picture when when when this happened [...] you should have security guards and things that stop kids doing this sort of stuff, and they didn't do it. This became a major focus in interviews between the Health and Safety Executive, the Police, and different members of the Board.*

This paper does not seek to argue that the company identifies as a complex system, with any consequent expectation of self-organizing, but the habitual behaviours and actions led Annie to develop a set of expectations pertaining to social process(es) of enactment of surprise. When these habitualised behaviours and actions between Annie and other members of *the Board* became disrupted then informal social processes were the first to be impacted.

Self-organization

Self-organization is "the spontaneous emergence of new structures and new forms of behaviour" (Capra, 1996: 85). For a large, private sector company, engaging in processes of self-organization might exist at a local level, rather than characterising the whole operational and governance system. So, formal processes that are in place as a result of policies and practices underpinned by institutional logic exist alongside those informal processes that emerge as a direct result of the particular combination of people, circumstances, and resources. Annie describes how this played out in story 1, where they recount:

> [story 1] *... it was a really supportive environment. We spent a lot of time thinking and talking together [...] about what would be the most appropriate outcomes from this awful awful situation.*

This high-level discussion was met with financial support:

> [story 1] *... as much money as we need to throw at it to make sure that everything is okay.*

These were not formal processes, externally imposed from some hierarchical controller, but in the process of the enactment of surprise took the place of structure and form, creating new patterns of relationships among actors, and prompting new interactions of these actors with their environment (Cilliers, 1998; Mainzer, 1996). This stands in some considerable contrast to story 2 when, in Annie's own words:

> [story 2] *… the shit hit the fan.*

The circumstances in story 2 were not dissimilar. An accident on property managed by the company has resulted in serious injury to a teenage boy; furthermore, the implication was that the company employees who were employed to mitigate against this sort of incident had not been doing their job effectively.

> [story 2] *There was no support, it was very much everyone for themselves […] the managing director … it was really quite awful*

Annie recounted how previously *good working relationships* at executive level *closed down overnight*, and Annie's role in the company was left particularly exposed. The cessation of the free flow of information meant that informal processes of self-organization were impossible.

> [story 2] *I was told I could not just pick up the phone to anyone. It was like communication lines were were cut. I could not say anything to anybody that hadn't been through a lawyer. I remember being told that under no circumstances could I publicly or privately express concern.*

As *information dried up*, and individuals *retreated to the safety of their own positions*, a set of formal processes took the place of what had previously been filled with a sense *of moral responsibility*. All activity became dictated by policy and procedure, which Annie explains *really jarred* with their previous expectations. It also instituted *a formality in working relationships* which was unhelpful because *we had never worked like this before*.

Two stories of enacting surprise

The goal in the face of potential surprise is to create more reliable and predictable systems through quality control, planning, and standardisation and/or to manage the unexpected in ways that reduce potential damage (Weick and Sutcliffe, 2015). For example:

> [story 1] *… make sure that every other estate that has a [machine] that has been properly […] tested and tell [them] that this awful thing happened […] and then they'll spend the money.*

This paper does not claim that those behaviours and actions are not present in story 2; but that they may have been recast and are unmistakably different. Indeed, this narrative analysis focusses on the 'what is told' (Reissman, 2005) and so attention is drawn, inevitably, to those points at which divergence or discrepancy occurs. Annie describes how *the new legislative framework impacted* on the enactment of surprise; how the Board employed a completely different set of behaviours and actions which, to their mind, *elevated executive responsibility to such a level that moral responsibility was totally obliterated*. This sense of outrage is heightened by Annie's own emotionally-charged responses; this was experienced by the researcher during the interviews, and can be seen reflected in the transcription of texts. This 'how it is told' (Reissman, 2005) is powerful; and these stories emphasise the jarring of relational links between Annie, their colleagues, shared and conflicted expectations, and the processes of enactment.

Pfeffer and Salancik (1977) develop a perspective which seeks to recognise the social nature of organizations. They contend that information can be used to validate decisions already made, and we see the extent to which, in the stories presented, attempts to "make sense out of things that have already happened" are simultaneously "responses to contests among interests for control", linked to the social environment, and are (at least, in part) ceremonial (Weick, 2005: 54). If we go further, and explicitly acknowledge enactment (at least, in part) as ceremonial, then it can be helpful to draw some distinction between organizations as being characterised as 'complexity reducing' or 'complexity absorbing' (Boisot and Child, 1999; Ashmos, Duchon, and McDaniel, 2000). Complexity reducing organizations seek order and certainty, whilst complexity absorbing organizations acknowledge uncertainty, and seek to overcome it by sharing information and permitting multiple interpretations. Whether seeking reduction or absorption, the enactment of surprise is shaped by multiple actors, the free flow of information, and self-organization. Annie's interpretation of these stories leads us to

recognise some of the social and organizational constraints which accompany any enactment. Organizations as complex systems might be thought of as socially fragile. Reichl (2005: 75) argues that they "require a continual flow of energy to maintain their existence, and they often require a continual flow of information, the analog of entropy". Furthermore, as key parameters change (for Annie, that is a change to the legislative framework and the behaviours and actions associated with that change) so the social systems that represent the organization "can suddenly change their structure and change into something completely new and unpredicted" (Riechl, 2005: 75).

Discussion & conclusions

This paper has drawn on three themes from the complexity literature and identified them as implicit in the stories: multiplicity of actors, free flow of information, and self-organization. In selecting these themes, the paper provides a closer inspection of the social nature of organizations (Pfeffer and Salancik, 1977) and the relationship between external actors and the internal enactment of surprise. In doing this, it emphasises the extent to which surprise is experienced at an individual level and, yet, is a product of collective experience; which "provides a window on presupposition" (Bruner, 1986: 46) that is derived from a reality that is socially constructed and (re)produced in daily interactions among different social actors (Berger & Luckmann, 1966) rather than emanating from expectations grounded in incontrovertible truth. The paper might alternatively have explored complexity from the perspective of emergence (e.g. changing responsibilities of managing agent and land owner), nonlinearity (e.g. the bypassing of security practices), semi-independent agents (e.g. the Police, the Health and Safety Executive), dynamic unfolding (e.g. public use of private land), and turbulence (e.g. resulting unwelcome media attention). These would have delivered different insights. It might also have used multiple accounts of the surprises (e.g. from other actors named within the stories) or incorporated documents in the public domain (e.g. records of court proceedings, or journalistic sources). These would have supplemented and confirmed or contradicted interpretations and provided opportunity to develop this research further. However, by analysing these stories from a complexity perspective through the experience of one participant allows a focus which emphasises the individual role in any collective enactment.

Annie experiences the heightened tension between the individual and collective response to surprise events in story 2 when colleagues at Board level adopt a set of formal behaviours and actions to shape the enactment of surprise, demonstrating that managerial mindset that seeks to predict and control surprise. Child (2015: 7) claims that organizing needs "a degree of control" and recognises that, whilst "the conscious, rational pre-planning of formal organizational arrangements" still exist, they are slowly being usurped by "greater emphasis on a more adaptive emergent process of organizing to suit ever changing circumstances". This organizational 'turn' responds to earlier arguments made by Shenhav (2003), who challenges the objectivity, detachment, and control of organizing by identifying the extent to which traditional organizational wisdom has been dominated by an engineering-based and rationality-oriented frame, and Ritzer (2004), who describes organizing as having been reduced to a basic act of prediction, and to a function of management lacking any surprising or non-routine qualities. From their telling of two stories, Annie, we might assume, would argue that this 'turn' has been a long time coming (and still has some way to go). Their stories raise questions about Annie's own managerial mindset, and that of many of their colleagues, and the interpersonal relationships they share. Annie and their colleagues experience surprise as an event when an employee is killed, and a boy is injured. We recognise both external events as significant, but surprise (as an event) need not confused with the valence of its outcome; Noordewier, et al., (2016: 139) state that surprise is "the response to the unexpectedness, which is independent of the valence of the outcome". Annie and their colleagues also experience surprise as a process, when they enact responses to each event. This is shaped by external events, and external actors. Weick and Sutcliffe (2001) describe the process of enactment as sensemaking, in which interpretations are developed through social action (Boden, 1994). Discourses of rationality and control inflect significantly upon individual perceptions of the proneness to being taken by surprise, and impact upon subsequent collective expectations of its enactment. Bazerman & Moore (2009: 41) claim that, "it should be no surprise at all that surprise exists; after all, individuals tend to seek confirmatory information for what they think is true, and to avoid searching for alternative or disconfirmatory evidence". Indeed, in story 2 – and when a surprise event is followed by social action – Annie is disorientated when they seek to confirm their individual expectations. In this collective social process of enactment, we see the impact of the external on the internal. We might understand this in terms of individualised interpretations of surprise, a misalignment of collective managerial mindsets, or a specific external constraint within a complex system.

McDaniel and Driebe (2005: 9) claim, "all surprises are threats if you enact them as threats". Complexity might appear to unlock the kind of paradoxes suggested by surprise events and processes that the dominant critical discourse recognises but is unable to address. However, capacity to tackle complex problems (which are distributed throughout systems) makes particular demands on social process(es) of enactment. Annie's experience of this formal organizational setting (into which they had been socialised for almost ten years) suggests that the organization's established policies and practices might not recognise the fluid nature of human behaviour, nor had multiple internal actors reached consensus about how to modify behaviours and actions in response to different situations. It follows then that, to adopt a complexity perspective, "we must attempt to anticipate to some degree the different kinds of outcome that we might provoke" (Allen, Strathern, and Baldwin, 2005: 31). Annie describes their experience of operating at Director level as overwhelmingly positive - *stimulating*, *full of energy*, and *full of challenge*. Taking their place alongside multiple actors, they revelled in the responsibility of their position, engaging in a string of self-reported behaviours and actions which speak of collegiality, ambition, and empathy. Still, in part because of the external contributing factors, complex problems remain difficult to predict and require full attention to interpret and enact. It is not within the ambition of this paper to sit in judgement over the event or process of either surprise, but it does note Riechl's (2005: 75) description of complex social systems: "if the energy flow stops, they disappear". Annie's experience describes how they felt *a quality* of the organization disappeared. When the free flow of information between multiple actors is interrupted, Annie's stories identify how (the potential for) self-organization is disrupted. Despite the formal organizational setting, there is a sense that a degree of structure and form emerged freely as a function of social patterns of relationships among agents and interactions of these agents with their environment. For example, Annie is shocked when structure and form is externally-imposed from some hierarchical controller (Cilliers, 1998; Mainzer, 1996) (e.g. in story 2 by the Police, the Health and Safety Executive, and the new UK legislative framework).

Complexity constrained?

Complexity theory suggests that much surprise is inevitable because it is part of the natural order of things and cannot be avoided, eliminated, or controlled (Daniel and McDriebe, 2005). And yet, it may appear necessary to constrain complexity, particularly in times of

crisis (Ansoff, 1975; Mitroff, 1988; Pearson and Clair, 1988), when a surprising combination of probability, impact, and ambiguity, coupled with the presumption of a need for speed, reinforces the ongoing instability of rationality as an appropriate cognitive frame. However, complexity also reinforces the central relevance of 'surprise' to management and organization scholarship today, and may add broader context to why authors such as Tsoukas (2005: 298) caution we should acknowledge and accept the open-endedness of the world, and why "we must find a symbiotic relationship with uncertainty".

The impact of complexity on decision-makers cannot be overstated; 'surprise' must take on a new meaning when it is acknowledged as both inevitable and unpredictable, which results in different kinds of behaviours and actions in its enactment. New meaning demands new knowledge, and Arena and Uhl-Bien (2016: 24) propose adaptive space as a conceptual interface between the operational system (formal) and the entrepreneurial system (informal), "embracing, rather than stifling, the dynamic tension". This space, they argue, is critical in ensuring organizations become and remain adaptive and resilient. Furthermore, organizational practice "challenges us to reframe our human capital centric approach and embrace new practices that recognize and enable the value of social capital" (2016: 27). Maitlis and Sonenshein (2010: 551-552) make explicit the link between a surprise event and the practice of its enactment. They argue surprise is an act of "social construction that occurs when discrepant cues interrupt individuals' ongoing activity, and involves the retrospective development of plausible meanings that rationalize what people are doing". Complex problems reveal conflicting goals, and whilst there may be many divergent but equally plausible interpretations of a surprise, individuals will approach it from different starting points or assumptions. Annie's experience seems to suggest that implementation benefits from negotiated interpretation, shared understanding, and a synthesis of perspective achieved through communicative processes. In complexity, organizations have pathway to realise this, but not without due consideration of the social process(es) of enactment which challenge and constrain practice.

In conclusion, I draw on Begun and Kaissi (2005) to reflect on the social construction of surprise, and emphasise its need for relative, subjective, and individualised definitions: 'who owns the definition of surprise?', 'should any one person attempt to manage the reduction of surprise, and on what (or whose) authority?', 'what are their interests?', and, 'how were they trained and socialized?'. Surprise, in Annie's stories, was owned differently: Annie, other

'individual' Directors, the 'collective' Board, employees, people in the office, land owners, the Health and Safety Executive, and the Police. These individuals and collectives connect their responses to an interpretation of surprise which exists at an individual, interactional, and organizational level. This contributes to a sprawling, entangled web of definitions, authorities, interests, training, and socialisation, which at a societal level is dominated by a functionalist-framing of work and life, and which consciously and unconsciously merges the internal and external factors of surprise. We might reasonably expect that, under certain conditions, the impact of external actors to be more potent than that of its internal actors. Still, wanting to emphasise the social nature of organizations, and to recognise the fluidity of human behaviours and action, we must explore better ways of approaching complex systems when principles (multiple actors, free-flow information, and subsequent self-organizing) are in danger of being disputed, disrupted, or interrupted.

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