Communities of practice in innovation management: sensemaking challenges to mobile organisations

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Abstract: This research article explores the social issues of subjectivity in innovation management, by discussing the significance that communities’ symbolic interpretation has on their sensemaking and engagement in informal innovation communities. This article presents our research findings which suggest the positive contribution that cognitive mapping of communities’ sensemaking can have an aid to understand the relationships between the symbolic interpretation of organisational events, and innovative outcomes, and the functional community members’ engagement with an informal innovation community. The article concludes by discussing the implications for future innovation management in these mobile organisations.

Keywords: communities of practice; innovation management; mobile organisations; sensemaking; symbolic interpretation.

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1 Introduction

In the past, industry-specific research (Jones, 1998; Hattori and Lapidus, 2004) has attempted to propose critical external and internal factors that, directly or indirectly, influence innovation within organisations operating in uncertain and ambiguous marketplaces. These factors were too often identified within the research studies (Lee-Mortimer, 1995; Harris, 1996; Appelbaum, Shapiro and Elbaz, 1998) as being either barriers or 'must haves' for being excellent or achieving excellence, yet were often transitory as these same organisations often slipped from being excellent companies (Pascale, 1990). Why? Because the factors often being measured were only the symbols of success – they were not the reasons for it. The important question being asked by industry is not, what do they need to adopt in order to be successful (Appelbaum and Goransson, 1997), but how should they deal with the uncertainty and ambiguity that exist inside and outside their organisations. The uncertain and ambiguous economic marketplace has forced organisations to address rapidly changing New Product Development (NPD) requirements, but at the same time meet increasingly stringent financial requirements set by their more demanding stakeholders (Schein, 1992), shareholders and corporate owners, to reduce costs and increase efficiency (Conrad and Poole, 1998). Over the last 10–15 years, organisations have downsized to achieve this, but with mixed results (Conrad and Poole, 1998).

The issue for organisations in these uncertain and ambiguous environments (Craig and Hart, 1992), where downsizing is becoming the regular ‘medicine’, is how to embrace the need for innovation. Innovative initiatives are needed to change the product and service offerings to both, match the opportunities and threats of this dynamic environment, and more importantly engage those functional communities that the organisation depends upon, to engage in informal communities of practice (Wenger, 1999), that aid creativity and innovation. These new informal innovation communities present the organisation with the opportunity to create, develop, and deliver superior customer-valued products, but they also present bigger challenges to senior managers in how to manage them (Angle and Van de Ven, 2000; Roberts, 2006).

This research article discusses, very broadly, the research findings concerning functional communities engagement with innovation communities, and the importance of symbolic interpretations of their own, and others’, identities and practices associated with an underlying joint enterprise, namely a NPD.

2 Innovation management of these communities of practice

Product innovation management has attracted particular attention over the last 30 years because of three factors: the importance of new products to achieve superior customer
Communities of practice in innovation management

value (Tomkovick and Miller, 2000); the increasing failure rates of NPD (Cooper, 1982); and the increasing problems of product innovation management in uncertain and ambiguous environments (Ozomer, Calantone and Do Benedetto, 1997). This last factor has increasingly become a defining problem for Small to Medium-sized Enterprises (SMEs) in the last 10 years, especially as these organisations have little to fall back on, in the way of collateral, customer loyalty, or brand equity. Organisational members are being pressured by their senior managers, shareholders, and customers to be both profitable, and to deliver superior customer-valued products. In some SMEs, this has created an internal environment that is focused, on the one hand, on short-term goals of revenue enhancement and profitability, and on the other, on the longer-term need to create, develop, and deliver superior customer value, particularly, via new products capable of differentiating the organisation from its competitors in the marketplace (Soderquist, Chanaron and Motwani, 1997). This creates an internal environment that has three interrelated characteristics: complexity, uncertainty, and ambiguity. Within this environment, innovation is expected to flourish and to produce customer-valued products and services. Yet, functional communities work on both their own goals, and on cross-functional activities. These activities require innovation for learning.

In studying innovation management associated with working practices and surrounding innovation processes, research (Brown and Duguid, 1991) attests to the importance of social constructivism, of building an understanding of the participants view of the social world, and then helping in the construction and development of communities of practice. Wenger (1999) identified three dimensions associated with the coherence of community members: their roles, norms and values formed by their interactions with one another; the understanding surrounding their superordinate goals; and their shared experience of their social world, which results in artefacts and symbols conveying additional meaning associated with the joint enterprise. Wenger’s (1999) ‘communities of practice’ proposed that these organisational members could belong to both formal and informal communities focused on different joint enterprises. The joint enterprise could be an organisation-wide innovative initiative, one that requires formal and informal communities to share expertise and swap knowledge. Wenger (1999) suggested that the members’ participation in these formal and informal communities necessitates social participation, and from this learning results.

This social theory of learning framework (see Figure 1) integrates four components necessary to characterise social participation as both, a process of learning and of knowing:

**Meaning.** A way of talking about ability, individual, and collectively, to experience their life and the world as meaningful.

**Practice.** A way of talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action.

**Community.** A way of talking about the social configurations in which our enterprises are defined as worth pursuing and out participation is recognisable as competence.

**Identity.** A way of talking about learning changes who we are, and creates personal histories of becoming, in the context of our communities (Wenger, 1999).
The community learning process draws on the functional communities’ experiences, competencies and training. In turn, these are embedded within their interpretative systems (Fiol, 1995), and used by them to attribute meaning to others’ collective actions, organisational events and innovative outcomes, and also contribute towards the development of their thought worlds (Schein, 1992). These community thought worlds reflect the social world, as they perceive it, and are the implicit rules by which they attribute meaning to their position and task within the organisation (Rafiq and Saxon, 2000), and inevitably influences their engagement with any innovation community, formal and informal. This learning process is highly subjective, based as it is on their sensemaking of their own, and others’, collective actions, and the value orientations associated with this joint enterprise. This suggests a further element to their sensemaking process, that associated with the cultural dynamics (Hatch, 1993), that is, one where communities confer additional meaning to the observed, or expected outcomes, via the use of symbols. This is especially the case with joint enterprises that have organisational-wide significance and require cross-functional product innovation activities. These symbols are interpreted differently by the functional communities, as they attempt to equate them with their own thought worlds, and the perceived and desired value orientations they have. These symbolic interpretations associated with engagement of the functional communities members’ in the wider innovation community, especially with activities which span many years, become a powerful tool by which communities’ retrospectively sensemake (Weick, 1995) their own, and others’, collective actions, organisational events and observed outcomes.

An important part of the authors’ research study was the development of an innovation community learning process model, by which the authors’ could map the different functions’ constructs and the causal relationships associated with the main themes of identities, community, practices, and meaning, and their overall engagement.

3 An innovation community learning process model

Organisational learning researchers (Argyris and Schon, 1996; Sinkula, Baker and Noordewier, 1997; Halliday and Cawley, 2000) have studied the implicit and explicit
Communities of practice in innovation management

understanding that organisations create to explain how and why things work, and reflect on these ‘meanings’ in their ‘theories-in-use’, their practices. Organisational members reflect on these practices, on the assumptions they hold regarding their role and task within the different communities and impact this has on their values and expectations associated with any joint enterprise, thus reinforcing or modifying their interpretative systems.

Organisational researchers have reflected on these general relationships and created frameworks to explain the complexity of these links. Sinkula, Baker and Noordewier (1997) organisational learning framework provides a relatively simple link between an organisation’s actions, the interpretation of the outcomes, the market-information processing practices, and the subsequent reinforcement or modification of the organisational values (see Figure 2).

**Figure 2** Organisational learning framework – market information practices

![Organisational Learning Framework](image)

*Source:* Sinkula et al. (1997).

This market information focused organisational learning framework can be mapped against Wenger’s (1999) social theory of learning framework (see Figure 3). The authors have developed an initial community learning process model from combining these two frameworks, and initial research findings from early focus group sessions within the case organisation. The focus of the model is also away from an organisational context to one exploring instead the interrelationships between formal and informal communities. The initial literature themes: sub-cultural values, innovation goals, and organisational barriers; are early themes resulting from the focus group data analysis. Collective actions, outcomes, and interpretation themes are the results of additional reading and the author’s own analysis.

This model was reinforced and modified in successive generative cycles of research findings analysis and action workshop sessions, opportunity to present back the findings and seek additional participant understanding (see Figure 3).
**Figure 3** Initial community learning process model

3.1 Community identities

Dougherty (1992) suggested that a community of persons engaged in an activity, like product innovation, could develop shared understanding about that activity, and these insights would create distinct thought worlds. Collaboration within and between these communities is likely to be influenced by this shared understanding of their social reality (Schein, 1992). The communities’ thought worlds are the implicit rules by which they attribute meaning to their position and task within the organisation (Rafiq and Saxon, 2000), and the means by which they judge, appraise, and criticise their own, and others’, collective actions. These thought worlds are going to be different for the various communities, and are significantly influenced by the different schooling and training that these members originally had, and their experiences since working (Dougherty, 1992). These community thought worlds determine the way in which they organise their attitudes and feelings (Schein, 1992), and their subsequent collective actions concerning the innovative activities. It is because of the differences in the communities’ thought worlds that barriers are created, which in turn may inhibit collaboration between them (Dougherty, 1992).

The value orientations associated with the communities’ thought worlds can reflect an organisational-wide value orientation (Beatty, 1988) and/or be influenced by other factors or professional biases: financial, customer, competitor, employee, entrepreneurial, and product (Beatty, 1988; Martin, 1992; Alvesson, 2002). Organisations may influence these community value orientations by their declared strategies and superordinate goals, goals normally beyond the reach of individuals’ experience and efforts (Sherif, 1975; Siguaw and Brown, 1994; Kwantes and Boglarsky, 2004), or by the senior management in the form of specific objectives or goals (Flaherty, Dahlstrom and Skinner, 1999). But these community value orientations map also result from their own perception of role appropriateness, and this is likely linked to their thought worlds (Flaherty, Dahlstrom and Skinner, 1999). Research has identified two specific types of value orientations: perceived and desired. The perceived value orientations of a community are a combination of those values that they interpret from the organisational goals and their perceived role, and those from observing their collective actions (Flaherty, Dahlstrom and Skinner, 1999). The desired value orientations represent a community’s aspirations and are those values that they desire to have based on their interpretation of future needs, those of the organisation, the community’s and customers.

3.2 Community enablers and barriers

NPD research (Craig and Hart, 1992) supports the importance of NPD to ensure organisational survival, but that increasingly this is being balanced against stakeholder value creation (Ernst and Teichert, 1998). The interpretation of this shareholder value creation is often left to the different functional communities, and their perceptions of the relative values of delivering short-term revenue and profits, against the longer-term investment in resources and NPD. This uncertainty and ambiguity over stakeholder value creation, specifically that associated with the interpretation of customer value orientations (Adams, Day and Dougherty, 1998), has an overarching influence over the value-based interactions between the formal and informal communities, and the inevitable community members’ engagement with innovation communities. Crossan’s (1999) research suggested that ideas, product ideas and new innovative processes, depend upon an
integrating process between the different functions, and that it is this social process and the dynamics of these communities that both enable and create barriers to this (Crossan, 1999). The ‘state of trust’ between the communities and its influence on changing their levels of collaboration are critical to their engagement in the community, and their commitment to the underlying innovative initiative. Hattori and Lapidus (2004) research volunteered no reasons for the change in these ‘states of trust’, but (Lord and Brown, 2001) suggested a possible link between leaders’ behaviours and the ‘thoughtful process’ of their subordinates, and that this could explain these changes in the communities’ ‘states of trust’.

3.3 Community practices

When studying action–outcome relationships, researchers are in fact studying an organisation’s, communities’, or individual’s ability to learn by trial and error, the ability to change their actions to achieve certain desired outcomes (Van de Ven, Angle and Poole, 2000). The relationship between collective actions and outcomes, and the interpretation and sensemaking by those who observe it, are the foundations of ‘organisational learning’ (Van de Ven, Polley and Garud, 1999). Organisational learning research (Argyris and Schon, 1996; Appelbaum and Goransson, 1997; Montuori, 2000) has suggested that two types of learning are prevalent in ambiguous and uncertain times: adaptive and generative learning. There are other terms used to describe these types of learning: for adaptive learning, there is ‘double-loop’, ‘trial and error’, ‘testing’, and ‘rational’ learning; for generative learning there is ‘triple-loop’, ‘superstitious’, and ‘discovery’ learning. Van de Ven, Angle and Poole proposed that adaptive learning relates to the feedback between collective actions and outcomes, specifically:

“…that outcomes are a function of actions that are believed to lead to those outcomes and are not a result of spurious unknown factors” (Van de Ven, Angle and Poole, 2000, p.205).

This may be true of some action–outcome relationships (Montuori, 2000), but others cannot be so simply resolved or understood. Levitt and March (1996) alluded to an illogical or invisible relationship between behaviours and outcomes that could then be explained by an additional learning type:

“Superstitious learning occurs when the subjective experience of learning is compelling but the connections between actions and outcomes are loose or mis-specified” (Levitt and March, 1996, p.1).

Their research, along with other researchers studying generative learning (Appelbaum and Goransson, 1997), imply a causal relationship between actions and outcomes, but not one previously experienced by the observee. Unlike adaptive learning, where change is less perceptible, generative learning results in significant change, whereby change occurs through the process of social constructionism. The social constructionism of reality is built up by the definition, interaction, and response of communities to their environment, and the sensemaking that underpins this activity (Weick, 1995; Weber and Manning, 2001). This social construction of reality, by the communities, implies a ‘try it out and see’ philosophy, one that encourages action and the observation of the resultant outcomes to make sense of these experiences. This sensemaking of the important action–outcome relationship supports the process of social construction for communities’ interpretative systems (Weick, 1979).
3.4 Community meaning

The authors’ have described the relationship between communities’ practices, their identity, and the community itself, organisational enablers and barriers threatening their engagement with the innovation community. These links represent communities’ perceptions of the relationship between their own and other communities’ actions, and the resulting innovative outcomes. But, it does not reflect on the symbolic interpretation that either supported or challenged, the communities’ sensemaking of this relationship. Blumer (1969) suggested that all symbolic interactionist approaches have three basic premises:

“…the first is that human beings act towards things on the basis of the meanings that the things have for them… the second is that the meaning of such things is derived from, or arises out of social interaction that one has with one’s fellows… the third is that these meanings are handled in and modified through, an interpretive process used by the person in dealing with the things he encounters…” (Blumer, 1969, p.2).

Applying these approaches to the research analysis of the symbolisation and interpretation process associated with the innovative initiative (Blumer, 1969), and engagement with the innovation community, suggested three distinct stages in the analysis of the communities’ retrospective, and prospective, sensemaking of others’ collective actions, organisational events and resulting innovative outcomes. Firstly, the analysis of each community’s actions based on the imparted meaning of the innovative initiative. Secondly, the analysis of each community’s prospective and retrospective, sensemaking of the innovative initiative for influence by other communities’ actions. Finally, the analysis of the communities’ retrospective and prospective, sensemaking of the innovative initiative, with particular focus on the perceived link between the communities’ actions and the resulting innovative outcomes, and its influence over the reinforcement, or modification, of their interpretative systems.

4 Research methodology

The research study took place within the SME involved in manufacturing. An interpretative ethnographic approach (Ball and Ormerod, 2000) was utilised to explore the sub-cultural practices of four functional communities within this case organisation, and as a means towards the development of grounded theory associated with the relationship between communities’ symbolic interpretation of product innovation activities, and their subsequent collective innovation related actions. The first stage was the collection of ethnographic data on the communities’ management of product innovation activity. The second stage consisted of an interpretative analysis of this data, from which was derived each communities’ sensemaking system and their symbolic interpretation of both innovative outcomes and other communities’ behaviours. Participatory action research was an important aid whereby the authors, and the participants, could explore their own sensemaking and understanding (Eden and Huxham, 1996).
4.1 Participatory action research

Participatory action research is a variant of Action Research (AR) that involves the participants as both subjects and coresearchers in the research process (Rapoport, 1970). The coresearchers were volunteers. All were key innovation facilitators and resource controllers within their respective functional communities. One author was the participant observer, who, as an employee and a manager, had day-to-day access to all participants and all meetings. The focus was on four functional communities: senior management, sales, marketing, and R&D. Within each community, two principal coresearchers were recruited. They helped facilitate discussion and action workshops, and helped the authors’ analysis and feedback research data to the participants. The case organisation had approximately 190 employees, of which 120 were in the operations and accounting departments. The remaining 70 were employed in senior management, marketing, sales, and R&D. Over 80%, of this latter community were active participants in discussions and action workshops. Most of the data gathered was through participant observations of the organisation’s ongoing life, particularly; project, management and strategic meetings. The product innovation activities were focused on three innovation initiatives representing three specific types of innovation: radical, technological, and incremental. Theses projects were labelled X, Y, and Z: project X was a radical innovation representing a new product concept for the marketplace; project Z was a technological acquisition which would potentially make obsolete the organisation’s current products; and project Y involved incremental product enhancement for the existing product range. Discussions were driven by the needs of the organisation and not by those of the researchers. Additionally, a number of initial focus group sessions were organised to the innovation communities’ reactions to current academic research in respect of effective innovation management. The results from these were then used in action workshops to highlight ‘emergent’ issues with participants, and thus engage them in a process of generative learning (Argyris and Schon, 1978).

4.2 Data recording and analysis

Over a 4-year period, all group sessions and action workshops (57 in all) were taped and transcribed and then analysed using N*Vivo, a qualitative textual analyst programme. All strategic and project-related memorandums and e-mails were also collated into a day journal, and recorded by date, group and topic. Data from other project meetings involving inter-group communications were recorded by hand. These notes were subsequently discussed with the participants to ensure their authenticity.

5 Research findings

The community learning process model was utilised during the ethnographic longitudinal study to facilitate the process of discovering and developing constructs associated with the social processes underlying innovation management (see Figure 4). The research findings discussed in this section are only a part of the full research findings from this study, and which are presented in the author’s doctoral thesis (Brown, 2006).
5.1 Communities’ identities

Research suggests (Martin, 1992; Alvesson, 2002) that individuals can belong to multiple sub-cultures, and that they can transit from one set of values, goals, attitudes and behaviour to another, and that these sub-cultures carry with them multiple meanings of the social world they work in.

Table 1 Communities’ identities (values and goals)

<table>
<thead>
<tr>
<th>Value orientations and innovative goals</th>
<th>Beginning</th>
<th>Intermediate</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>Customer-orientation</td>
<td>Sales-orientation</td>
<td>Sales-orientation</td>
</tr>
<tr>
<td>New products</td>
<td>New products</td>
<td>New products</td>
<td>New products</td>
</tr>
<tr>
<td>Technologically advanced</td>
<td>Incremental developments</td>
<td>Incremental developments</td>
<td>Incremental developments</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
<td>Market-orientation</td>
<td>Market-orientation</td>
<td>Sales-orientation</td>
</tr>
<tr>
<td>New products and markets</td>
<td>New products and markets</td>
<td>New products and markets</td>
<td>New products and markets</td>
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<tr>
<td>Radical and technological innovation</td>
<td>Radical and technological innovations</td>
<td>Innovation community</td>
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<td>Innovation community</td>
<td>Innovation community</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Senior Management</strong></td>
<td>Market-orientation</td>
<td>Sales-orientation</td>
<td>Financial-orientation</td>
</tr>
<tr>
<td>New products and markets</td>
<td>Revenue and profits</td>
<td>Revenue and profits</td>
<td>Revenue and profits</td>
</tr>
<tr>
<td>Radical and technological innovation</td>
<td>Incremental developments</td>
<td>Acquisition of products and new markets</td>
<td></td>
</tr>
<tr>
<td>Innovation community</td>
<td>Shorter time-to-market</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research and Development</strong></td>
<td>Technological-orientation</td>
<td>Technological-orientation</td>
<td>Product-orientation</td>
</tr>
<tr>
<td>New products</td>
<td>New products</td>
<td>New products</td>
<td>New products</td>
</tr>
<tr>
<td>Technological developments</td>
<td>Technological and radical innovations</td>
<td>Incremental development</td>
<td></td>
</tr>
<tr>
<td>Acquisitions of core competencies</td>
<td>Acquisition of core competencies</td>
<td>Innovation community</td>
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<td>Innovation community</td>
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<tr>
<td><strong>Innovation community</strong></td>
<td>Product-orientation</td>
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<tr>
<td>New products</td>
<td>New products</td>
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<tr>
<td>Acquisition of technology and radical ideas</td>
<td>Acquisition of technology and radical ideas</td>
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<tr>
<td>Acquisitions of core competencies</td>
<td>Acquisitions of core competencies</td>
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</tbody>
</table>

Table 1 maps the changes in value orientations and goals of the four different functional communities, and the perceived values and goals of the informal innovation community, during the 4-year study.

These multiple meanings associated with the sub-cultures have suggested that ambiguity is a characteristic of organisational life (Alvesson, 2002). But only recent research (Flaherty, Dahlstrom and Skinner, 1999; Kwantes and Boglarsky, 2004) on occupational cultures has shown the dominance of these functional sub-cultural values, goals, and attitudes on individual members’ preferences and behaviour. The normative beliefs held by these occupational sub-cultures regarding their own expectations, and
those of other sub-cultures (Martin, 1992), are associated with their thought worlds (Dougherty, 1992), value orientations (Beatty, 1988; Flaherty, Dahlstrom and Skinner, 1999; Bates and Chen, 2004) and their interpretative systems. Kwantes and Boglarsky (2004) research suggested that occupational sub-cultures hold perceptions of what constitutes an ideal organisational culture, and that this explains the level of differentiation and integration between these sub-cultures, and the level of value consensus. The authors’ attest that this can be applied equally to these functional community members’ engagement and preferences towards an innovation community, like an organisational culture. Previously, the authors have suggested a strong relationship between perceived value orientations and role ambiguity, and value consensus and innovation community collective actions. But research (Beatty, 1988, Flaherty, Dahlstrom and Skinner, 1999) into functional communities value orientations and the link with role ambiguity, has inadequately explained these changes in expected and perceived roles. This study suggests that discrepancies in functional communities’ value orientations explain the increase in role ambiguity, and the research findings on symbolic interpretation attests that it is the functional communities normative beliefs concerning the expected innovative outcomes that drive these changes in value orientations. It is the functional communities’ symbolic interpretation of the innovative initiative, and their retrospective and prospective sensemaking of others’ collective actions towards it that forces a change in their thought worlds. These thought worlds change to modify their ‘customer-value orientations’, the value orientations associated with creating, developing, and delivering superior customer value, and as a consequence changes their perceived roles, and the expected roles of other functional communities. An example of this is sales and senior management’s perceived change in value orientation away from market- towards sales-orientation, the rationale for which was the increasing unlikelihood of new products originating from the innovation community in the short-term. The outcome of this change in ‘customer value orientation’, for sales and senior management, were new innovation goals towards the innovation community, increasing the value discrepancy between them and marketing and R&D. It also resulted in increased role ambiguity between those perceived roles interpreted from the various functional communities collective actions, and those expected roles assumed by the functional communities because of their value orientations, and their new understanding of the social world. The authors’ research findings generally supports Flaherty, Dahlstrom and Skinner (1999) inverse relationship between customer value orientation and role ambiguity, and the positive relationship to attitudes and behaviour, however, customer value orientation is more diverse than their findings suggest, and that value orientations are themselves positively related to expect innovative outcomes, and their symbolic interpretation.

5.2 Community enablers and barriers

Organisations encouraging innovation processes, changing of old to new behaviours, need to acknowledge the interrelationship of implicit leadership traits, conflict resolution and the different ‘states of trust’ of these innovation community members. The authors’ directly link innovation community cognitive and affective conflict with members ‘state of trust’ of each other, and with their perceived vs. senior managements’ espoused implicit leadership traits.
Table 2  Community enablers and barriers

<table>
<thead>
<tr>
<th>Community enablers and barriers</th>
<th>Collaboration osate of trustō</th>
<th>Conflict</th>
<th>Implicit leadership traits (perceived and espoused)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Authenticity: $ always reflected the perceived changing values and goals of the organisation. Fulfilment: $ with the change in values felt unable and unwilling to continue supplying marketing information. Commitment: $ no longer believed in the innovation community’s goals, or its ability to deliver.</td>
<td>Cognitive conflict: $ initially none concerning the activities of other Innovation Community (IM) members, increased when sales values increasingly differed from IM values and goals. Affective conflict: $ increased when innovative outcomes no longer met expectations.</td>
<td>Sensitivity: $ sales and senior management nearly always shared the same value orientations, and a strong bond existed between them. Dedication: $ later in the study, the senior management lacked commitment to either the innovation community or the efforts of sales. Strength: $ after the appointment of the new MD then actions were both strong and bold.</td>
</tr>
<tr>
<td>Marketing</td>
<td>Authenticity: $ deep vested interest in the innovation community, and the values, beliefs and goals. Fulfilment: $ change in strategy towards incremental developments and focus on tactical plans forced the withdrawal of resources. Commitment: $ their commitment to the innovation community never changed, believing in its long-term goals.</td>
<td>Cognitive conflict: $ increasingly harder to resolve when functional and innovation values and goals in conflict because of senior management. Affective conflict: $ increased relationship conflicts with senior management and sales over values and goals concerning innovation community.</td>
<td>Sensitivity: $ initially marketing and senior management worked closely together, but with the new MD this relationship broke down. Dedication: $ later in the study senior management showed no commitment to marketing or its activities. Strength: $ new MD later became hostile to market, and undertook all strategy planning.</td>
</tr>
<tr>
<td>Senior management</td>
<td>Authenticity: $ implicit changes in the organisations vision effectively changed their Oheories-in-use$. Fulfilment: $ continued to provide espoused support for the innovative initiative, whilst withdrawing resources. Commitment: $ after the change in MD, lost their commitment towards the innovation community.</td>
<td>Cognitive conflict: $ in the later stages task resolution was only possible with direct input from MD. Affective conflict: $ increasing relationship conflict within the senior management community.</td>
<td>Sensitivity: $ attested to be highly supportive of the innovation community and the value of each and every function. Dedication: $ lacked the authority to commit, relying to tally on the judgements of the MD. Strength: $ actions suggested a strong and bold strategic plan, but unable to communicate this.</td>
</tr>
</tbody>
</table>
The authors’ research findings (see Table 2) identify discrepancies in the leadership traits espoused by senior management, and those perceived by the other functional communities precipitated a decrease in the ‘state of trust’, deteriorating the level of collaboration, and directly increasing the level of affective conflict. This undermined the new behaviours expected of the innovation community members, both by senior management who had initially supported the initiative, and of the other functional communities. As a consequence of these leadership trait changes, functional communities ‘thought worlds’ changed, and this encouraged the return to their old behaviours, for sales in focusing on shorter-term incremental product opportunities. Eventually, both R&D and marketing reverted back to their short-term ‘fire-fighting’ activities, largely because of any support to engage with the innovation community. Additionally, this decrease in the ‘state of trust’ between functional communities increased the level of affective conflict, which further damaged the level of collaboration between them, and the innovation community, and decreased the level of cognitive conflict resolution.

The interrelationship between functional communities ‘state of trust’ of each other, and the discrepancy in perceived vs. espoused senior management leadership traits, directly impacted on the affective conflicts between members of the innovation community. The effect was to discourage engagement in the innovation community, the new behaviour expected by senior management, and instead encourage these members to ‘take up’ their old behaviours, and the related value orientations and goals. The innovative outcomes of the innovation community was directly affected by this, long before any direct actions, associated with senior managements withdrawal of resources and explicit support, could have any effect.
5.3 Community practices and engagement

Research (Thamhain, 2003) into managing innovation within organisations, with a particular focus on NPD, acknowledges the effectiveness of action-oriented, fully resourced and directed help in identifying and creating a sense of community across any joint enterprise. Previously, the authors’ have attested to the strong relationship between value consensus and communities’ collective actions, and the important link with expected innovative outcomes. Specific sub-cultural research (Lok, Westwood and Crawford, 2005) on the link between sub-cultures orientations and commitment suggested an interesting speculative link between supportive and innovative sub-cultures and commitment. Applying this comparison to the findings actually provides an interesting perspective on the practices of two principal functional groupings within this organisation, sales and senior management, and R&D and marketing. Both sales and senior management initially supported a customer value orientation focused on new products from radical and technological acquisitions, a generally supportive sub-culture providing an amiable environment for the innovation community. R&D and marketing supported a customer value orientation focused more on the innovative behaviour behind the acquisition and dissemination of technological and radical product ideas, supporting a highly creative, innovative, and longer-term innovation community. This subtle difference between the functional communities’ value orientations, and their longer-term engagement with the innovation community, would explain their changing behaviours and discrepancies in shared practices. The authors’ attest that customer value orientations purportedly supporting a joint enterprise, like the innovative initiative, may have different assumed levels of support for an innovation community, and that these indicate more closely the true nature of these sub-cultures’ engagement in any shared practices and innovative goals. The functional communities’ value orientations were driven by a strong sense of self, both their perceived role and that demanded of themselves, and this in turn fostered creative tension between their perceived and desired value orientations. Senior managers withdrawal of support, undermined their ‘legitimacy of contribution’ to the joint enterprise, in both their perceived role, represented by their perceived value orientations, and in their aspirational role, represented by their desired value orientations. In any joint enterprise depending upon innovative behaviour, and requiring total engagement, these managerial behaviours effectively undermined the value consensus between innovation community members’ and indirectly weaken their commitment to the innovation community goals. The findings’ illustrate the complex relationships between value orientations, expected outcomes and the members’ ‘legitimacy of contributions’, and their engagement with the innovation community, and its direct and indirect influence over the innovative outcomes.

5.4 Communities’ meaning

Communities’ retrospective and prospective sensemaking associated with the innovation community, and the innovative initiative it supports, is influenced by their value orientations and goals. When a disparity grows between innovative outcomes and expected outcomes of the different functional members and those shared by the innovation community, then some members will change their value orientations and goals, and decrease their level of engagement. This creates a social issue for the remaining members, how to maintain social participation of all functional members in the
process. Further, symbolic interpretation is undertaken by the innovation community as a whole, and changes in the innovation goals result. These stimulate new behaviours, and as a consequence an increasing divergence in sensemaking concerning members’ behaviour and innovative outcomes. The consequence of this social issue evolution, and its influence over engagement of functional community members in the innovation community, is a three-stage process. Firstly, these differences in their retrospective and prospective sensemaking result, for some, in the early recognition of an underlying social issue concerning continuing engagement in the innovation community. Secondly, that some functional communities utilise the dysfunctional interactions and contested meanings, associated with this social issue, to facilitate a change in the superordinate goals of the innovation community. Finally, one or more functional communities utilise the social issue to justify future organisational redesign.

The social issue evolution, the ability of functions’ to engage in and acquire new product ideas, is negatively linked to the disparity in their symbolic interpretation of the innovation goals of the innovation community (Table 3). The authors’ assert that retrospective and prospective sensemaking of the relationship between members’ behaviour and innovative outcomes are dependent upon the symbolic interpretation of the shared innovation goals of the innovation community.

**Table 3** Communities’ meanings (sensemaking and interpretative systems)

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Retrospective sensemaking</th>
<th>Prospective sensemaking</th>
<th>Symbolic interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Developing Customer-valued Products (Information support) – but no new product concepts</td>
<td>Customer value</td>
<td>Innovative initiative (Superior customer-valued products more margin, easier to sell, and market leading).</td>
</tr>
<tr>
<td></td>
<td>Decreasing commitment of senior management to the innovation community and its shared goals</td>
<td>New products (building competitive advantages)</td>
<td>Shorter-term product deliverables</td>
</tr>
<tr>
<td></td>
<td>(Innovation community failure)</td>
<td>Business value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Innovation community failure)</td>
<td>Revenue and Profit streams (meeting targets and community survival)</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>Meeting market and business objectives (supporting this with marketing information, leadership and resources) $ too little input of ideas from other community members</td>
<td>Market value</td>
<td>Innovative initiative (investing in an innovative culture, supporting the steady acquisition and delivery of product ideas)</td>
</tr>
<tr>
<td></td>
<td>Decreasing commitment from other functional members (resulting in too few projects and therefore higher risk of failure)</td>
<td>New products, new markets (engaging with the marketplace: competitors, community and customers)</td>
<td>Focus on lower-risk opportunities for product innovation</td>
</tr>
<tr>
<td></td>
<td>(resulting in too few projects and therefore higher risk of failure)</td>
<td>Business value</td>
<td>(acquisition of new product lines and part-developed products)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Revenue and profit streams (utilising the strengths of the innovation community to focus on incremental product developments and fast track these to completion)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3  Communities’ meanings (sensemaking and interpretative systems) (continued)

<table>
<thead>
<tr>
<th>Meanings</th>
<th>Retrospective sensemaking</th>
<th>Prospective sensemaking</th>
<th>Symbolic interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Senior management</strong></td>
<td>Innovation community (supporting this with innovative leadership $#$ providing clear vision and objectives) $#$ increasing too little in the way of product ideas and profitable marketing concepts</td>
<td>Business value</td>
<td>Long-term financial security (Innovation orientation $#$ acquiring new technologies and core competencies, increasing their value to the business and to themselves)</td>
</tr>
<tr>
<td></td>
<td>Change in New Product Development Strategy (Organic development too costly and risky $#$ acquisition of new product streams, addresses need for new markets and step up in revenue and profits)</td>
<td>New marketing strategy (moving out of the small markets, high development costs into larger markets, simpler technological products, and shorter development timescales, and low sales and market support costs)</td>
<td>Short-term financial security (meeting financial targets from corporate headquarters)</td>
</tr>
<tr>
<td><strong>Research and development</strong></td>
<td>Technological acquisitions (networking with external research organisations and customers) $#$ too little time and insufficient skills in identifying opportunities</td>
<td>Increased Core Competencies</td>
<td>Innovative Initiative (Innovation orientation $#$ acquiring new technologies and core competencies, increasing their value to the business and to themselves)</td>
</tr>
<tr>
<td></td>
<td>Lacking commitment from other functional members, and resources from senior management (resulting in a focus onto incremental product developments and away from the technological acquisition activities)</td>
<td>New technologies and market-leading products (to recapture market leadership by acquiring new technological competencies and then building on this with different product streams)</td>
<td>Incremental product developments (support to sales and marketing)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fire-fighting Maintaining existing revenue and profit streams (patching up existing profits, quick customer modifications to make shorter-term sales)</td>
<td></td>
</tr>
</tbody>
</table>

### 6 Innovation management: managing formal and informal communities

The community learning process model establishes constructs, sub-constructs and causal interrelationships associated with members social participation of formal and informal communities (see Figure 4).
The principal contribution of this research has been the community learning process model (see Figure 4) this model maps the identity, community, practice and meaning constructs, and sub-constructs, and through the process of its original construction and development has highlighted the situational uniqueness of innovation management, and particularly, the difficulties associated with formal and informal community engagement.

(Roberts, 2006) in her critique of ‘communities of practice’ suggested that communities do not operate in a vacuum, and that one of the important issues in understanding their success is to understand the interrelationship between these formal and informal communities. This model identifies areas of conflict and support associated with these relationships, and the analysis conducted during this research study links specific constructs to functional community members’ ability and willingness to engage with the innovation community. Roberts (2006) additionally noted the need to understand the interaction between the formal organisation and these extra-organisational ‘communities of practice’, to both understand the boundary issues and the community members’ ‘legitimacy of contribution’. This ‘legitimacy of contribution’ for community members rested on their perspectives of customer value orientation, and the important relationship with the innovation goals of the innovation community.

Halliday and Cawley’s (2000) refinement of Sinkula, Baker and Noordewier (1997) original organisational learning framework to include cultural dynamics associated with retrospective and prospective sensemaking, attempted to incorporate self-reflexivity into the analysis of organisational members’ sensemaking and their engage on joint enterprises. They suggested the need for further research on organisational cultural interdependence based around their retrospective and prospective interpretation of behaviour and outcomes. The authors have extended this remit, to study the sub-cultures (communities), and the sensemaking of theirs, and others’, social participation in an
innovation community. The community learning process model maps the interrelationship of the resulting interpretative systems and the influence they have on the other constructs shown in this model.

The model highlights the areas of conflict over the functional and informal community values, goals, community enablers and barriers, practices and meaning, and therefore helped the authors and participants understand changes in these. This model has both a value in identifying those constructs that actively contribute to the challenge of innovation management, and as a cognitive mapping tool in furthering sensemaking of the dynamic innovation management environment. Increasingly, this dynamic innovation management environment is becoming more uncertain and ambiguous, leading researchers to acknowledge the situational uniqueness of the innovation journeys, the organisations and industry. Again, one the strengths of the ‘communities of practice’ approach is the ability to apply it to a wide range of organisational settings and processes (Roberts, 2006).

7 Contributions to business practice and future research

Building the community learning process model (see Figure 4) resulted in direct benefits for the participants of the study, by feeding back the research finding and analysis, and stimulating discussions in the action workshops regarding their own interpretations, and future changes in their identities and practices. Mapping the relationships between the different themes, increased the functional communities understanding of the importance of value orientations and innovative goals in understanding theirs, and others’, collective actions and engagement with the innovation community. This directly increased the open discussion and identification of discrepancies in communities’ engagement with the innovation community, and as a consequence speeded up the decision processes surrounding project activities.

The original goals of the innovation community, and its underlying innovative initiative, of encouraging social participation and the future development of new products resulted in full engagement of all functional communities. But, increasingly as communities’ symbolic interpretation of others’ values, attitudes, and behaviours suggested a decreased level of engagement with the innovation community, then a social issue emerged. This social issue, over engagement with the innovation community and a ‘state of trust’ in its members to eventually deliver on its shared goals, undermined the collaboration between functional communities, and inevitably led to increased affective conflicts. This social issue evolution and management in innovation processes is a key area affecting innovation communities ability to manage members engagement, and their affective commitment to the necessary collective actions needed to achieve the expected outcomes.

The community learning process model, and more importantly the process of its emergence and development, proved beneficial for the different communities’ interpretation and sensemaking of the emerging discrepancy between expected, and those resulting, outcomes from the innovative outcome. Further research using this research model on other SME organisations, to explore the level of interpretation and sensemaking associated with innovative initiatives, could provide significant insights into the value of this model, and the degree of insight it affords the researcher and practitioner of the
issues of managing both formal and informal communities’ expectations regarding performance, attitudinal and behavioural outcomes.

References


Communities of practice in innovation management


