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Situated Learning and Change in Organisational Practices: Learning the Ropes of the Commercialization of Academic Research

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Abstract

This paper takes a practice-based perspective on organisational change and sheds light on the social processes that underlie effective changes in organisational practices. Situated learning has been conceptualised as a driver of emergent changes while strategising has been seen as a main driver of planned changes. This paper argues that situated learning not only drives emergent changes but also enables the enacting of deliberate change, planned by organisational strategists. We propose a conceptual framework which synthesises insights from studies of situated change, studies of situated learning and studies of strategizing in order to specify how situated learning relates to emergent and planned organisational changes. The empirical evidence from case studies of four Knowledge Transfer Offices in UK universities illustrates how situated learning shaped changes in commercialisation practices. Our findings suggest four mechanisms through which strategising instigates situated learning in communities of practice and transformation in practice.

**Situated Learning and Change in Organisational Practices: Learning the Ropes of the
Commercialization of Academic Research**

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1 Introduction

Organisations, such as university Knowledge Transfer Offices, attempt to adjust their practices to cope with internal challenges and opportunities and also to respond to ever-changing external environments. Organisational change is a part of organisational life. It is thus important to gain greater understanding of the micro-dynamics, and in particular of the social processes that underlie effective changes in organisational practices. Situated learning has been conceptualised as a driver of emergent (bottom-up) changes while strategizing has been seen as a main driver of planned (top-down) changes. This paper argues that in fact situated learning not only drives emergent changes but also enables the enacting of deliberate change, planned by organisational strategists. Case studies of four Knowledge Transfer Offices (KTOs) in UK universities provide empirical evidence that illustrates the relationships between (1) strategizing of KTO senior managers, (2) situated learning of KTO commercialisation staff and (3) change in the commercialisation practices. Our findings suggest three mechanisms through which the strategizing instigates situated learning in communities of practice and transformation in practice.

2 Literature review

The objective of this literature review was to examine previous studies that shed light on the relationship between situated learning and change in organisational practices.

The concept of *situated learning* implies that people learn in a specific cultural and historical context and in a web of social relations in which they are embedded. Learning is therefore seen as “an integral and inseparable aspect of social practice” (Lave and Wenger, 1991, p. 31) and people are thought to learn in practice by doing and by interacting with others. The literature on situated learning emphasised in particular learning through interactions within communities of practice and within networks of practice (Brown and Duguid, 2001, Wenger, 1998). Situated learning is an action-oriented social perspective on learning.

The situated learning studies are underpinned by the assumption that “practice is not an object but rather an emergent structure which persists by being both perturbable and resilient” (Wenger, 1998, p.93). However, studies of the relationship between situated learning and evolving practice remain scarce. Fox pointed out that “community of practice theory tell us nothing about how, in practice, members of a community change their practices and innovate” (Fox, 2000, p. 860), while Fenwick lamented the “weak analysis of innovation offered by community of practice conception” (Fenwick, 2008, p.235). We have identified two shortcomings of the few existing studies that have addressed the transformative nature of situated learning. Firstly, scholars have tended to focus on the transformative nature of learning within boundaries of a community. Brown and Duguid (1991)

highlighted that organisational practices are always evolving through improvisational learning in communities of practice whereas Wenger (1998) argued that new members of a community can bring experiences that trigger learning and transform current work practices of a community. Although it is widely accepted that practitioners can also learn through interactions with members of their networks of practice (Brown and Duguid, 2001) and from interactions with other communities (Bechky, 2003, Scarbrough and Swan, 2008), it is not well understood how these interactions modify work practices. Secondly, the above mentioned authors tend to link situated learning in communities of practice to emergent organisational change and largely ignore the fact that learning in communities can be instigated by planned managerial actions such as change in organisational strategies. We argue that situated learning may be part of planned strategic change and thus this study aims to address both changes that emerge through the process of situated learning and planned changes that are instigated by managerial strategies.

In summary, the relationship between situated learning and change in organisational practices is not fully explained in the existing literature. Our literature review suggests that that the current knowledge could be extended by examining how experiences gained through interactions outside communities shape change in practices and by examining how organisational strategists initiate learning in communities and change in their practices. This paper focuses on the latter.

3 Conceptual framework

We propose a conceptual framework that synthesises insights from studies of situated change, studies of situated learning and studies of strategizing in order to define each of the three concepts.

In order to define the concept of situated learning, we have built on Wenger's (1998) conceptualisation of learning at the community level. He suggested that learning in practice (or in communities of practice) consists of three processes: evolving mutual engagement, negotiations of practice and evolving repertoire of practice. That is, people engage with one another in their everyday work activities, negotiate their practice and evolve understanding of how things should be done and subsequently modify the resources (repertoire) available to them to guide their work activities by creating/adjusting tools, rules of thumb, procedures, concepts, or stories. The original concept of mutual engagement aimed to capture interactions within communities of practices – that is, interaction amongst incumbent members of a community and interactions between incumbent and new members of the community (Brown and Duguid, 1991, Lave and Wenger, 1991, Wenger, 1998). While these forms of mutual engagement undeniably create opportunities for making new experiences that can challenge current practice, there are also other forms of mutual engagement that provide new insights and new experiences to the members of a community of practice. For

instance, members of a community that are brokers engage with people in other organisations doing similar jobs, that is, they engage with members of their networks of practice (Brown and Duiguid, (2001) Delemaire and Laredo (2008). Moreover, members of a community (brokers) may engage with people who undertake other practices, that is, with members of other communities of practice (Scarborough and Swan, 2008). We propose that in order to capture all situated learning in a community of practice that could be relevant for change in practice, it is necessary to broaden the concept of mutual engagement and include both interactions within and outside a community of practice. All forms of mutual engagement can provide experiences that lead to the evolution of organisational practices.

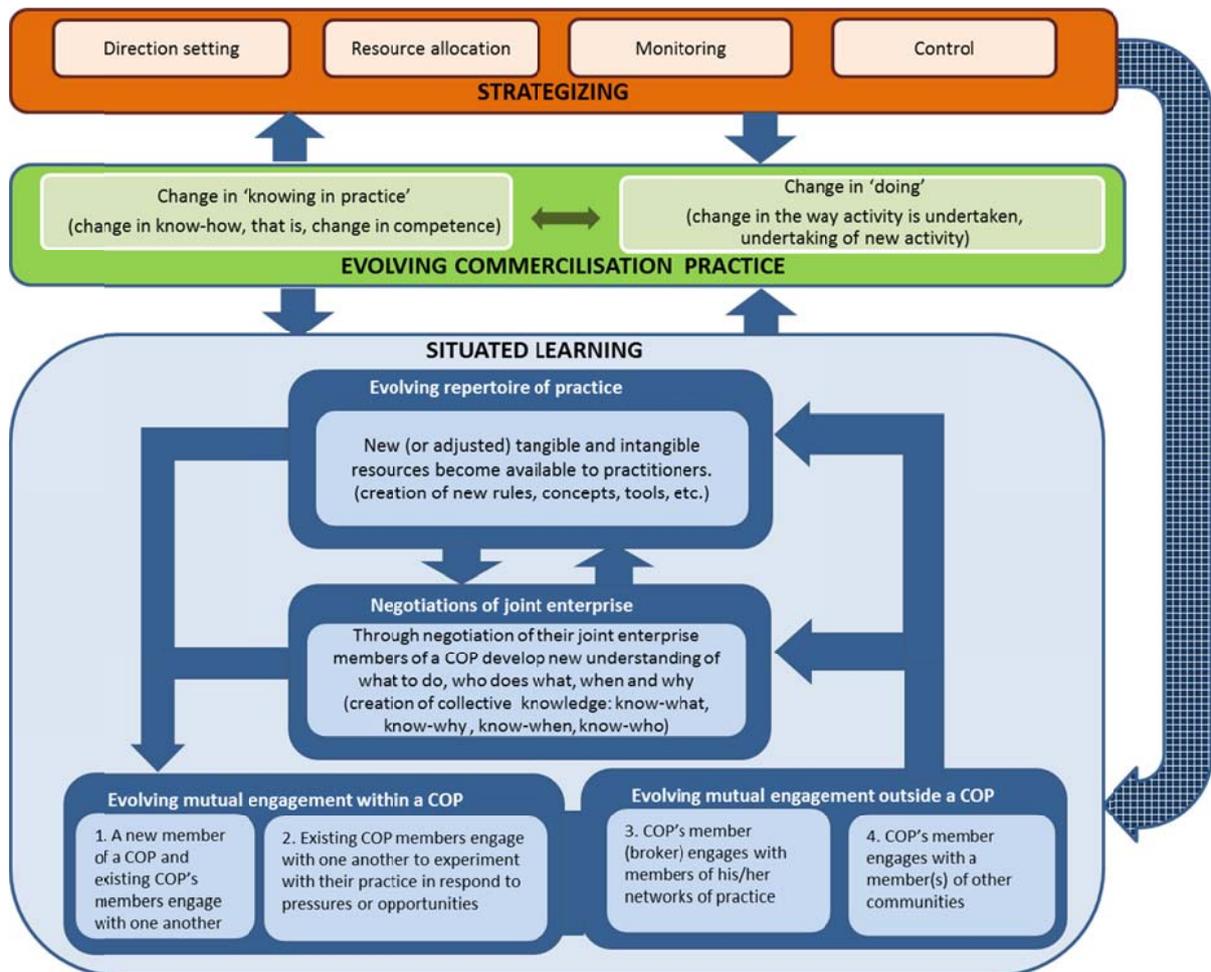
The second concept in the theoretical framework is 'evolving practice'. Our definition of evolving practice is based on the studies of situated organisational change, which are based on the assumption that change is a continuous process and therefore every performance of an activity in a particular work context is an occasion for change (Feldman, 2000, Orlikowski, 1996 &, 2002). Like Gherardi (2000) and Carlile (2002) , we define practice as a system of observable activities that are related to a particular organisational function, and in which knowing and doing are inseparable. This study focuses on commercialisation practice which is comprised of the following activities: scoping for commercialisable intellectual property coming out of academic research, assessment of intellectual property in terms of patentability and commercial viability, marketing of university's intellectual property, negotiation of license contracts, post-license administration, and formation of spin-out companies. Change in practice may entail change in the way some activities are performed, undertaking of new activities or discontinuation of existing activities.

The third concept - strategizing – emerged from studies taking a practice-based view on organisational strategies (Johnson et al., 2003, Pye and Pettigrew, 2006 and other articles in the respective special issues). This view blurs the boundaries between strategizing and organising by putting the emphasis on the everyday practices involved in strategic reorganisation. Strategizing and organising is thought to be carried out through these strategic practices. Examples of strategic practices include: controlling practices, communicating practices (Whittington et al., 2006), direction-setting practices, monitoring practices and resource allocation practices (Jarzabkowski, 2003). We propose that these strategic practices are effective when they initiate situated learning in communities of practices.

The figure 1 below illustrates relations between situated learning and evolving practice. It illustrates that changes in practice emerge from situated learning in communities of practice (a bottom-up process). The framework also illustrates our proposition that will be investigated empirically,

namely, that situated learning can also be set in motion by organisational strategizing (checked blue arrow) and thus is part of planned organisational change. The mechanisms through which organisational strategists instigate learning in communities of practice are at the centre of the analysis.

Figure 1. Conceptual framework



Source: Author's own compilation.

4 Method

The above theoretical framework was applied to analyse change in commercialisation practice between 2005 and 2010 in four Knowledge Transfer Offices in UK universities. Four case studies were conducted. It would have been ideal to select a number of cases where change in commercialisation practices occurred. However, the information about KTO practices was not available prior to the fieldwork. We assumed that evolving commercialisation practices should be related to changes in commercialisation performance (number of internal disclosures, licensing deals) and therefore the changes in commercialisation performance were used as an imperfect

approximation of changes in commercialisation practice. Data from “Higher Education – Business and Community Interaction” survey was used to calculate the average annual growth rates in the number of disclosures and licenses in the period 2002-2009. We then selected 2 KTOs (cases A and B) that have improved on both measures in the given period and 2 KTOs (cases C and D) that have worsened on both measures. We expected to observe changes in commercialisation practice in all cases, but the role of learning could be different. The information about (1) strategizing of senior KTO managers, (2) situated learning of commercialisation staff, (3) existence of communities of practice, and (4) change in commercialisation practice was collected in interviews with key organisational actors in each KTO. The interviews were transcribed and coded in relation to the theoretical framework.

5 Results

This section presents finding from four case studies. As expected, we have found many examples of changes in commercialisation practice in Cases A and B and only a few in Cases C and D. We find that in cases A and B, learning in communities of practice drives emergent changes but also enables the introduction of planned strategic changes in practices. In cases C and D, learning in communities of practice was predominantly related to emergent changes. However, it is not the purpose of this study to compare the intensity of transformations in practice or to compare emergent and planned changes. Instead we focus on identifying mechanisms through which organisational strategists instigate learning in communities of practice and changes in practice.

5.1 Case A

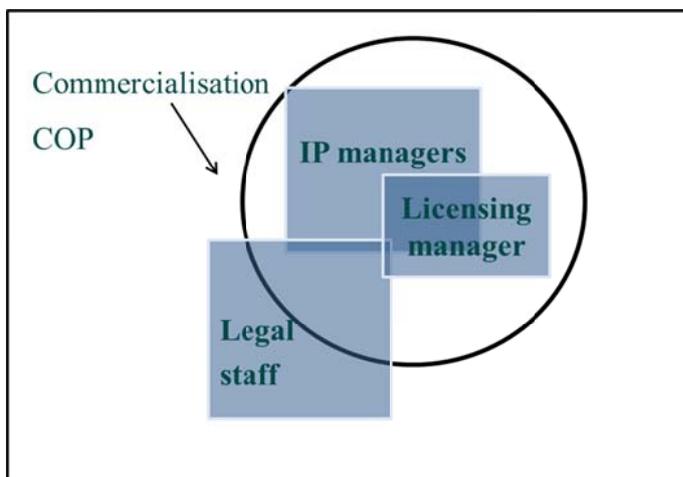
The KTO A is an internal unit within the university structure which was established in the late 1990s. The university is located in the south-east of England and belongs to the 1994 Group.

Commercialisation practice. The commercialisation of academic research is currently carried out by three staff members (2 FTE) who are part of the Academic Legal Services. Three staff members – IP manager, junior IP manager and licensing manager – work closely together. They have not been proactively seeking invention disclosures since the number of staff in the KTO was reduced in 2009. The three staff members work together to assess the value of intellectual property resulting from academic research. The IP managers then focus on management of intellectual property rights and preparation of legal contracts such as non-disclosure agreements, license agreement or equity agreements. The licensing manager is responsible for identifying funds for development of inventions, identifying licensees and negotiations with potential licensees. Their marketing activities are limited to preparation of non-confidential materials for potential licensees. They also rarely

engage in company formation activities as this commercialisation route is often not the most suitable for the kind of inventions coming out of the university.

Situated learning. The commercialisation staff learns through interactions within the community of practice. The analysis of work activities and knowledge sharing patterns among commercialisation staff indicated that the three of them and the head of legal services form a community of practice. As a group they display four main characteristics of a community of practice identified by Wenger (1998): mutual engagement in practice, negotiation of joint work activities, shared repertoire of practice and shared history of learning. Figure 1 illustrates this community of practice.

Figure 1. Community of practice in KTO A



Direct impact of strategizing on commercialisation practice. The KTO director and the top university managers have undertaken some strategic actions aiming to change commercialisation practice. They cut patenting budgets which resulted in greater number of withdrawals of patent applications. They also reduced the human resources from 6 to 2 FTE which forced the staff to stop proactively scoping for commercialisable research outcomes. Thus change in resource allocation had impact on scoping for IP and management of intellectual property rights.

Indirect impact of strategizing on commercialisation practice. The KTO director and the top university manager also engaged in formulation of “new vision” which aimed to set new directions for the KTO. The “new vision” was underpinned by the assumption that “universities are about creating knowledge and companies are about exploiting knowledge” and therefore collaboration between academics and industry is the most appropriate approach to the exploitation/commercialisation of academic research. The KTO director engaged with the commercialisation staff, that is with the members of the community of practice. He argued that licensing is not about sales of IP but about building long term collaborative partnership. In this way

he aimed to alter the meaning of licensing which was present in the repertoire of commercialisation practice. The interactions of the KTO director triggered learning in the community of practice. The members of the communities discussed what the “new vision” means for their work activities (negotiation of joint enterprise) and responded to the pressure put on their repertoire of practice by adopting the new meaning of licensing. Subsequently their marketing and licensing practices changed. They stopped relying on recommendation of academics with regard to who could be a suitable licensee and started to be more proactive in market research. They started identifying and approaching a number of potential licensees, rather than just one, in order to find “a partner not a buyer” (licensing manager). Also their approach to license negotiations has changed. They focused less on maximising financial gains from licensing for the university and put emphasis on building a partnership with the licensee. In summary, the strategic direction setting triggered learning in the community of practice and changed the existing marketing and licensing practices. This example shows a process of how strategizing can initiate learning in communities of practice and transformation in practice. Namely, organisational strategists engage directly with the members of the community of practice and put pressure on their existing repertoire of practice. The COP members respond to this pressure and adjust some of their practices.

5.2 Case B

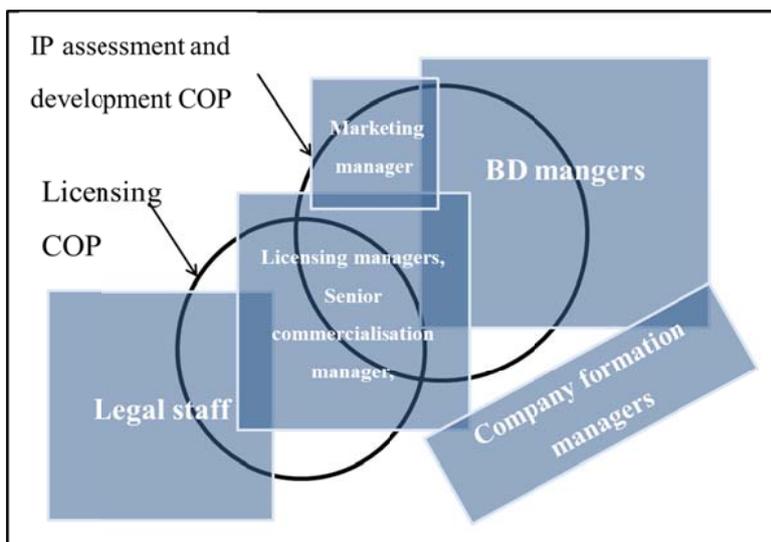
This case study is about a KTO in another research intensive university. The KTO is a wholly-owned subsidiary company of the University and provides support for research and enterprise activities. The university is a member of the Russell Group and is located in Scotland. . An internal unit supporting liaison with the industry was established in 1969 and then transformed into a wholly-owned university subsidiary company in 1983.

Commercialisation practice. Commercialisation of academic research is undertaken by more than 20 individuals scattered across 4 different teams. The business development team (10 FTEs) is responsible for proactive scoping for commercialisable IP. They liaise with different schools and have close relationship with the academics. They also do filing of IPR applications (with help of external patent agents) and identification of funds for further development of inventions. They do the due diligence and build the justification for filing a patent. The decision on IPR filing is taken by a committee, comprising senior KTO’s and university’s managers and external experts. Identification of licensees could be done either by the business development staff or by licensing staff (3 FTEs). There is no fixed point when the business development staff passes projects over to licensing staff, who are part of commercial development team. It is rather an iterative dynamic process and the managers work together to complete a project. Proactive and targeted marketing is undertaken by

BD and licensing managers whereas other marketing activities, such as online marketing or editing of marketing materials, are done by a marketing manager. License terms are negotiated by the licensing staff. The support for spin-out formation is provided by staff in the company formation and incubation team (4FTEs). The legal team (6FTEs) supports business development staff (e.g. support with preparation of non-disclosure agreements) and licensing staff (e.g. support with preparation of licensing agreements or shareholder agreements).

Situated learning. The analysis of work activities and knowledge sharing patterns among commercialisation staff indicated that there are two overlapping communities of practice. Some business development managers, marketing manager, licensing managers, and senior commercialisation manager form a community of practice. This COP emerged around IP assessment and development practices (IPAD COP). Licensing managers and senior commercialisation manager participate in two communities – the one around IP assessment and IP marketing practices and the COP around licensing practice (LIC COP) of which some legal staff are also the members. This means that the licensing managers learn not only from business managers, marketing manager and senior commercialisation manager but also from their legal colleagues. The available data does not allow concluding whether there is third community around company formation practice but clearly the company formation managers were not part of the other two communities. Figure 2 illustrates these communities of practice.

Figure 2. Communities of practice in KTO B



Indirect impact of strategizing on commercialisation practice. The strategic goal of the KTO B was to generate more income from industry and other sources. The KTO director and the team leaders were trying to increase “strategic engagement with industry” and “to push more outward-facing,

proactive marketing and business development activity". Unlike in the KTO A, here strategizing was carried out mainly by the senior managers within the KTO, which is unsurprising given the KTO's size and the fact that it is a subsidiary company. We have identified one example of how strategy influenced situated learning, which subsequently led to changes in commercialisation practice.

The senior managers were engaged both in strategizing and in everyday commercialisation practice and thus could act as translators. For example, the strategic direction set up by the KTO senior management were translated by the senior commercialisation manager who argued that in order to achieve the strategic goal the marketing activities needed to become more focused on demonstrating commercial value of IP. This stimulated learning within the IPAD community of practice. The COP members discussed how marketing should be approached. There were two conflicting views. The business development managers argued that marketing material can be scientific and technical because if the reader cannot understand technical language then he is not a customer anyway. On the contrary, the senior commercialisation manager and marketing manager argued that marketing materials must demonstrate value in a way which is understandable for everyone because one cannot be presumptuous about who the customer may be. Through such negotiation of how to undertake marketing they developed new understanding of what information should be included in marketing leaflets and how it should be presented. Since then marketing leaflets – an element of the repertoire of practice - became value statements and technical information were provided in follow-up packs, when appropriate. The practice of preparing marketing leaflets has been transformed. This is an example of how strategizing shapes situated learning and transformation in practice. In this case organisational strategists were at the same time members of the community of practice and translated strategic goals into practice and initiated learning process within the community that eventually transformed the practice. This process will be referred to as translation.

5.3 Case C

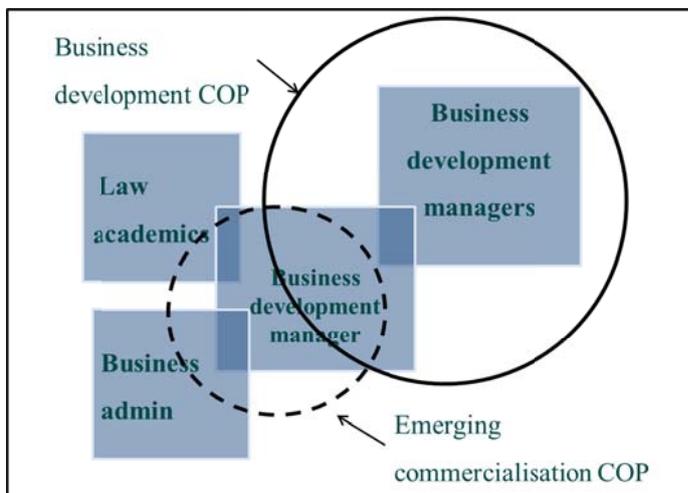
This case is about a KTO in a teaching-orientated university, which is an internal unit within the university structure. A unit responsible for the exploitation of the University's research outputs was formed in the late 1990s and focused on working with local authorities and businesses for the employability of the University's graduates. Since 2002 there has been increasing focus on entrepreneurial activities that generate income for the university.

Commercialisation practice. The commercialisation activities are carried out by the business development manager, the senior administrator and two law academics that have been temporarily seconded to the KTO to support development of the legal framework for commercialisation

activities. The business development manager proactively scopes for commercialisable research outcomes, assesses IP with the help of the KTO director and liaises with external patent agents to secure protection of the intellectual property. The business development manager, the senior administrator and the law secondees work together on formation of spin-outs and start-up companies. They developed a process of “mock board meetings” which allows the academics to develop their business plan. So far the licensing and IP marketing practice has not been developed in this KTO.

Situated learning. Two internal commercialisation staff - the business development manager and the senior administrator – learn from one another and learn together how to improve their practices and develop new practices. Since two law secondees joined the KTO a community has been emerging around commercialisation practice. The joint engagement in company formation is the main source of coherence for the emerging community. The analysis of work activities and knowledge sharing patterns among commercialisation staff indicated that there is an established community around business engagement practice which was the dominant activity of the KTO to date. Figure 3 illustrates the emerging community of practice and the established one.

Figure 3. Community of practice in KTO C



Direct impact of strategizing on commercialisation practice. Since 2006 the KTO director has developed a calculated approach to commercialisation activities as part of the HEIF² 4 strategy. The KTO director aimed to develop internal capability to commercialise academic research as until then commercialisation was handled through the Marcia Spinner programme funded by the regional development agency. Since 2007 KTO director has employed the above mentioned business

²Higher Education Innovation Fund (HEIF) is allocated by the Higher Education Funding Council for England. All universities submit their HEIF strategies before allocations are made.

development manager and the senior administrator who dedicate part of their time to commercialisation activities. Moreover, the KTO director created an internal fund to which academics could apply for support for their commercialisation projects. This strategic allocation of resources enabled development of internal commercialisation practice.

Indirect impact of strategizing on commercialisation practice. The KTO director also wanted to create legal framework for commercialisation activities. The low volume of commercialisation projects did not justify creation of a new post for a legal expert and thus the KTO director arranged secondments of two law academics. They became a great source of learning for the business development manager and others. The law secondees and the business development manager have been working together on developing IP policy for the university. They engaged in numerous discussion of the content of the IP policy document in order to ensure that the policy is suitable for that particular university. They have also jointly developed a suite of templates, such as a non-disclosure agreement, a license agreement or a shareholding agreement, which will become part of the repertoire of commercialisation practice. This example shows another way in which strategizing can stimulate situated learning and development of practice. In this case the organisational strategist acted as a broker and connected internal staff with the external expertise. Engagement of the internal staff with the external experts triggered the process of situated learning.

5.4 Case D

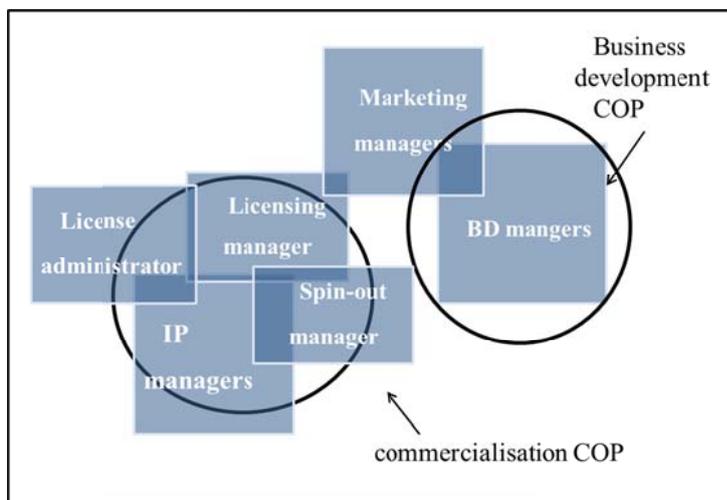
This case study is about a KTO in a research oriented university that is a member of the Russell Group and is located in West Midlands. The internal department dedicated to liaison with industry was set up in 1985 whereas the first subsidiary company, responsible for commercialisation, was established in 1987. The KTO has currently a hybrid model, where an internal department and a wholly-owned subsidiary company coexist.

Commercialisation. There are about 7 KTO staff who regularly engage in commercialisation of academics research. The identification of IP is performed by Knowledge Transfer managers who in fact are based in academic schools and are not part of the KTO. Two IP managers receive disclosures of inventions and together with the licensing manager are responsible for assessment of invention. The IP managers also manage the IPR applications and renewals. The IP managers together with the licensing manager assess the commercial viability of inventions. Proactive and targeted marketing is performed by the licensing manager whereas other marketing activities, such as online marketing or preparation of marketing materials, are done by two marketing managers. The support for company formation and management of spin-out portfolio is carried out by the spin-out manager. The licensing manager is responsible for negotiation of license deals whereas IP managers prepare the

legal contracts. The post license administration of royalties is carried out by the license administrator.

Situated learning. The analysis of work activities and knowledge sharing patterns among commercialisation staff in the beginning of 2011 indicated that two IP managers, licensing manager, spin-out manager and the licensing administrator form a community of practice. There is also another community around business development practice. Interestingly the marketing managers are not part of the COPs. Instead they learn from colleagues in University's communication department. Figure 4 illustrates the communities in the KTO.

Figure 4. Communities of practice in KTO D



Indirect impact of strategizing on commercialisation practice. One of the goals of the KTO senior management team was to improve the performance of the spin-out portfolio. A new post was created for the spin-out manager in May 2010. The new spin-out manager brought in expertise in creating and managing high quality spin-outs which he developed while working in some of the best performing KTOs in UK. The new spin-out manager engaged with the licensing manager and IP manager who have been previously responsible for company formation. They have worked together on a few spin-out projects which have started before his arrival. The new spin-out manager learned from the IP managers and the licensing manager about commercialisation practice in this KTO. At the same time the KTO director charged the spin-out manager with improving spin-out formation practice. This explicit change agenda legitimised the new employee to introduce changes. The discussions of company formation practice took place as the new spin-out manager started developing a procedure for spin-out formation (a new element of the repertoire). He has also changed the approach to recruiting commercial management team for spin-outs and has been working on developing a fund for technology maturation and company formation. The new

procedure became and the new fund will become part of the repertoire of practice. Thus arrival of the spin-out manager triggered the process of situated learning in the community of practice. This example shows another way in which strategists can stimulate situated learning and development of practice. In this case the organisational strategists allocated resources to bring a new person into the KTO. The job design of incumbent staff changed as they were stripped off company formation duties and the new person was legitimised by the strategists to introduce changes in company formation practice.

6 Discussion

Our findings confirm our hypothesis that the situated learning not only drives emergent changes (Brown and Duguid, 2001, Wenger, 1998) but also enables the enacting of deliberate change, planned by organisational strategists. We have identified four mechanisms through which organisational strategists can initiate learning in communities of practice and transformation in practice.

First, in the case A the strategizing senior managers created pressures on the repertoire of practice. The strategists engaged with the COP members to undermine their understanding of best practice and appropriateness of some elements in the repertoire of practice. The members of the community responded to this pressure and learned how to adjust their practices. This way of influencing learning requires that the strategists have a very in-depth understanding of the practice of their staff. Second, organisational strategists were at the same time members of the community of practice and translated strategic goals into practice and initiated learning process within the community that eventually transformed the practice. Third, in case C the organisational strategist acted as a broker and connected internal staff with the external expertise. Engagement of the internal staff with the external experts triggered the process of situated learning. Forth, in case D senior managers hire new employees with a specific skill-set that will help the organisation to achieve its strategic goals. The new employee engages with incumbent members of a community to understand current ways of working, and she or he becomes a new member. The fact that the new member is empowered by the top managers to introduce changes helps them to drive transformations of the community's practice.

As noted by Gherardi (2000) and Carlile (2002) practice is a system of observable in which knowing and doing are inseparable. Thus development of practice entails changes in doing and knowing. The four mechanisms identified above illustrate different ways in which members of the community of practice are exposed to knowing that is not part of their practice. The first two mechanisms – direct interaction and use of translators - involved knowledge sharing within organisational boundaries

between the strategists and the members of the community of practice. The other two mechanisms – external brokerage and hiring new staff – involve exposing members of the community to knowledge that lies outside organisational boundaries.

The findings indicate that the development of practice of organisational communities of practice can be influenced by managers and aligned with organisational strategy. The organisational strategists can influence the process of situated learning in communities of practice which transforms practices. They can try to influence developing understanding of practice by exposing members of the community to knowing that is not part of their practice by using one of the four identified mechanisms.

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