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ABSTRACT

In this paper we use activity theory to illuminate our understanding of the emergence of an innovation (mobile data) in one police constabulary. In particular, we focus our efforts on the salient developments of the innovation and relationships formed with IT suppliers and government bodies. The case study provides an instructive example of the innovation process and a presents a number of interesting findings. The analysis showed that the innovation process can be described as a shared activity and the innovation itself as modular. Along these lines, the innovation activity demonstrated the case of open innovation in a policing context and identified the importance and concerns surrounding central body intervention.

Keywords

Innovation, activity theory, public sector, mobile data

INTRODUCTION

This paper reports on a research project in progress undertaken by the AIMTech Research Group at Leeds University in the United Kingdom in collaboration with the National Police Improvement Agency (NPIA). The aim of this project is to review innovation in the UK police by examining the process of innovation within individual police forces and investigating how key partnerships are formed and their role in stimulating or restraining innovation. Drawing on these objectives, the project will attempt to develop proposals which allow central intervention to assist implementation of innovations in police forces where such assistance could be of benefit. In this paper we focus on one case study undertaken as part of this project and examine the process of innovation through the lens of activity theory.

Innovation diffusion theory has been widely applied to the study of technological innovations, and has provided insight into the adoption, implementation, and diffusion of ICT innovations, particularly amongst individuals (Davis, 1989; Rogers, 2003). These approaches are based on the perceived usefulness and characteristics of the technology, the nature of the communications channels, passage of time, and the organizations external environment. As underscored by Gallivan (2001), these founding frameworks of innovation have received widespread validation for technological innovations, where individual autonomy is required to adopt or reject an innovation. However, these frameworks do not account for the reality of innovation within organizations such as the police forces that have strict hierarchical structures, where innovation may be mandated rather than adopted voluntarily. Furthermore, they provide little insight into the emergence of technological innovation. Process theory innovation research provides a useful approach to investigate the nature of the innovation process, that is, the temporal trajectory of the innovation (Wolfe, 1994). Unlike other the diffusion of innovation approach, process theory does not focus on the attributes of the innovation and diffusion, rather it examines the nature of the how and why innovations emerge, develop, grow, and conclude (Wolfe, 1994). The school of thought surrounding social shaping and the

social construction of technology (SCOT) provides a useful perspective on the process of innovation (Pinch and Bijker, 1987). Social constructivist's reason human action sculpts technology rather than technology shaping human action, which is the position of the technology determinism doctrine. This is because of interpretive flexibility, that is, that a technological artifact can have radically diverse distinctions to different social groups (Pinch et al., 1987).

This article is organised in four parts. First a discussion of the theoretical approach we have adopted is presented. Following this the method used to undertake the study is described. Subsequently the data analysis and findings are explained and discourse on the practical and theoretical implications is presented. The paper concludes by outlining our direction for future research.

ACTIVITY THEORY

The AIMTech Research Group has been using activity theory as a research approach to study information behavior, IS and innovation for eight years. The basic concept of activity theory was formulated by Vygotsky, Luria and Leont'ev, the founders of the cultural-historical school of psychology, in the early 20th century. In recent years, the approach has been internationalized, developed and shaped by scholars in a wide spectrum of fields. Now, activity theory is considered an approach that provides a new perspective and novel conceptual tools for tackling many of the theoretical and methodological questions that underpin the social sciences today (Engeström, Miettinen and Punamäki-Gitai, 1999). Activity theory is not a 'theory' as commonly understood. Rather it seeks to provide an expansive framework with which to understand goal oriented socially and culturally influenced work practices. By doing so it provides a conceptual model for explaining levels of activity and the relationships that take place. Along these lines, Engeström (1993) argued that activity theory is not a research ready technique, but a conceptual tool that should be adapted to the context of the study.

Activity theory, based on the original concepts of Leont'ev, sets out the process by which activity progresses through the concepts of activity, action and operation, describing the difference between individual action and a collective activity. Engeström (1987) expanded the activity system to include other elements such as community, the division of labor and rules/norms (see Figure 1). It is this contemporary approach that is adopted in this study. By expanding the activity system Engeström sought to address the larger social context by adding in the community as a separate component, and argues that the relationship between various aspects of the model is mediated in different ways. For instance, the relationship between subject and object is mediated by tools, the relationship between subject and community is mediated by social rules or laws, and the relationship between the community and the object is mediated by the division of labor.

It is important to note that activity systems do not operate in a vacuum. Activity systems are part of a wider network. For instance, policing using mobile devices may have evolved from the prior activity of appropriating and using information systems. Furthermore, more broadly, policing may be seen as part of a greater political activity. Also important, is the fact that activity theory is a dynamic framework which recognizes that activities change within the network of activity systems across time. Activity theory provides a unified structure, a common conceptual vocabulary, and the ability to take the subject of the system at a group level or an individual level to explain complex and diverse situations. A limitation is that it is a clarifying descriptive tool rather than a strongly predictive theory.

Examining the tensions and contradictions that exist in the activity system 'as the source of disruption, innovation, change, and development of that system, including its individual participants' (Engeström, 1993 p.65) provides a lens to understanding the relationships between elements in the activity system. Our focus in this paper is the application of activity theory to explain the emergence and development of the innovation by examining the contradictions and tensions and examining the pertinent relationships that were formed in the innovation process. For this reason, we focus on the motivation/object and the interaction between the subject and the community.
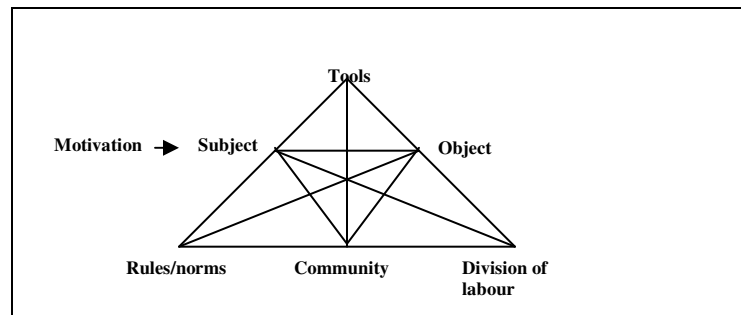
Figure 1: The activity system (Engeström, 1987)

RESEARCH METHOD

The emphasis of this research is on qualitative research. The use of case studies (Yin, 1994) as the main data collection approach to undertake our empirical enquiry allows us to better understand the innovation process. The philosophy and implications of the case-study method have received considerable attention. The strength of the case study theory is that the emergent theory can be assessed with constructs that can be readily measured and theories that can be proven false. In other words, the theory is verifiable (Eisenhardt, 1989a). The implications for this study are that the recommendations and findings can be applied generally, although we do not claim absolute generalisation of the results. A potential weakness of the case study approach is that relying on single cases only may result in narrow theory (Eisenhardt, 1989a). However, this weakness can be addressed by including a wide source of data (triangulation), as was the case in this study.

To achieve an overview of the situation in the UK, geographical dispersed cases were selected from South England, Midlands and Scotland allowing for different social and cultural contexts and controlling for regional factors that may affect the research. However, as underscored, this paper focuses on a single case.

To be eligible for selection the police forces needed to fulfil the following criteria:

- Partnerships between police forces and external companies, trade associations, government bodies etc should exist.

- Use of different methodologies and tools to drive innovation.

- Occurrence of exemplary outcomes had to be demonstrated prior to the initiation of the research.

- The process of interest was transparently observable.

- Encompassed a range of innovation types across the three cases representing different primary motivations: one technologically driven, one driven by changes to information management and one driven by changes to business process and activity.

- In addition to being geographically-dispersed (based in South England, Midlands and Scotland), cases should be similar in size and scope of operations.

Within the case study approach a number of forms of data collection were utilized, as summarized in Table 1. The use of multiple methods to corroborate data sources increases the reliability and validity of the research. The selection of case study sites was based on representing a wide geographical base and encompassing a range of innovation types. Potential interviewees were identified through initial contacts and then through the snowballing technique. Saturation point was reached when respondents recommended individuals which had already been interviewed.

An interpretive approach was the underlying perspective used to guide this research. Interviews were analysed using content analysis. This involved systematically working through each transcript and assigning codes to specific characters within the text (Dawson, 2002; Ezzy, 2002). The observations involved actual field research with police officers using the technology, and were included as a complementary rather than primary component of data collection. Comprehensive notes were taken during the observations, which in some cases lasted the duration of a shift of officers. Memos were also kept as a systematic attempt to facilitate the interpretive process (Ezzy, 2002). Memos and notes were also analysed using content analysis. The analysis of documentation involved examining material related to evaluation of the innovation, which helped to piece

together its emergence, who was involved and the issues that patterned its development. Significantly, a write up of the results was provided to the police force to confirm the data.

Interviews	Meeting observations	Ethnographic	Documentary: archival and other
Eight semi structured in-depth interviews ranging from 45 minutes to 2 hours. Including Deputy Chief Constable, Program Manager, Head of Tech Services, Project Manager, Project team members and IT supplier Multiple interviews with officers	National NPIA mobile data user group	Multiple observations of officers using mobile devices	Documentation relating reports and evaluation of technology

Table 1: Case study data collection

DATA ANALYSIS AND FINDINGS

The police constabulary that forms the focus of this case study services a wide geographical and demographic base, including urban and semi-rural areas and wealthy and socially disadvantaged areas. The sensitivity of the data gathered has meant that anonymity is a condition of publication.

The innovation examined is the introduction and implementation of mobile devices in one police constabulary. Mobile data is an area of significant growth in UK police forces. A large number of police forces are examining the potential of deploying mobile data solutions to enhance police mobility. Therefore, while we focus on a specific instance, this case study takes place against the backdrop of significant activity in the sphere of mobile data and policing. The government, through the National Police Improvement Agency (NPIA) (which developed from the Police IT Organisation – PITO), has been instrumental in the emergence of mobile data in the UK, distributing funding to 27 police forces in 2008 to fund 10,000 handheld devices across the UK. Prior to this, the NPIA/PITO was involved in the funding of small number mobile data pilots. The following section provides an activity theory examination of the innovation process in one police constabulary.

Motivation and object

The initial motivation for mobile data at the force can be traced back to as early as 1993-4 when the idea existed in an embryonic and abstract form and was examined briefly. However, due to organizational changes and a common perception that technology was not ready to achieve the desired results the idea was abandoned. The concept re-manifested itself at the beginning of the decade, with the initial idea to deploy Lotus and forms onto a PDA. From then, as the technological capacity grew and expectations increased, the innovation undertook piecemeal development. As this occurred, the established motivation became to increase police force visibility, maximize resources and boost public reassurance through the deployment of mobile data.

> The reason we started working in this area of the business was that when you actually look at the amount of time the police officers spend in a police station or is invisible to the public, its roundabout in excess of 50% of their time. Now if the public get reassurance from seeing a policeman out and about, therefore my job is to try and create the capacity where we increase that visibility to some 70% or 80%' (Interviewee A, 090708)

In 2006 the NPIA (then known as Police IT Organisation) provided funding[1] for a pilot phase of the technology, enabling the force to establish a formal project. More recently, in 2007, the UK government mandated mobile devices become a focus for implementation across police forces UK wide, making available capital to 27 forces.

It is useful, to examine the process of innovation in figure 2 because outlines the temporal sequence of the innovation (space prevents us from building on each of the points in the figure). The right hand side of the figure illustrates the technological

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[1] Details of funding and numbers of devices and so forth have been omitted to satisfy NPIA publication requirements

and institutional development related to the innovation. The left hand side shows the involvement of government in the innovation process.
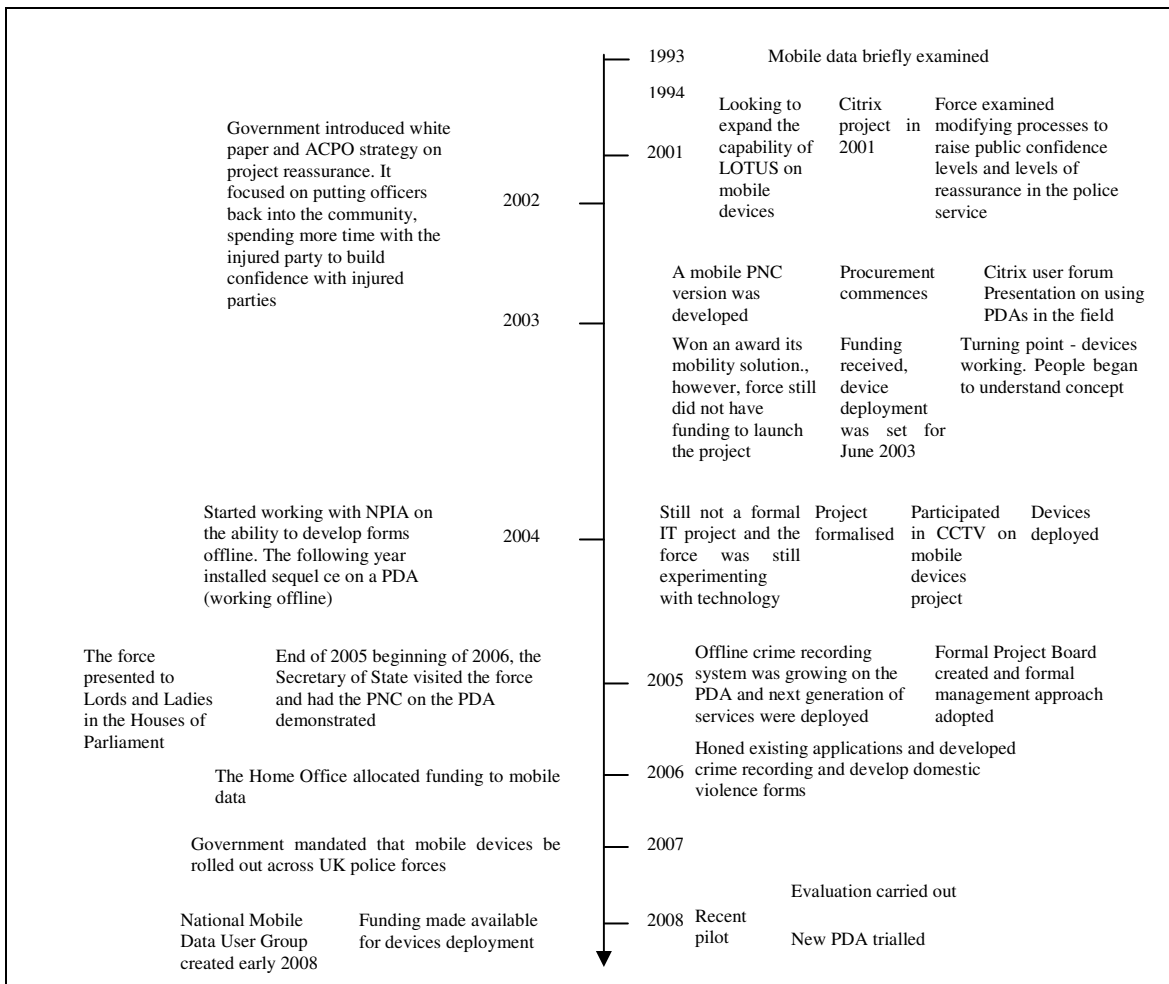
Government introduced white paper and ACPO strategy on project reassurance. It focused on putting officers back into the community, spending more time with the injured party to build confidence with injured parties

1993 — Mobile data briefly examined

1994

2001

| 2002 | Looking to expand the capability of LOTUS on mobile devices | Citrix project in 2001 | Force examined modifying processes to raise public confidence levels and levels of reassurance in the police service |

| 2003 | A mobile PNC version was developed | Procurement commences | Citrix user forum Presentation on using PDAs in the field |

Won an award its mobility solution., however, force still did not have funding to launch the project | Funding received, device deployment was set for June 2003 | Turning point - devices working. People began to understand concept

Started working with NPIA on the ability to develop forms offline. The following year installed sequel ce on a PDA (working offline)

2004 — Still not a formal IT project and the force was still experimenting with technology | Project formalised | Participated in CCTV on mobile devices project | Devices deployed

The force presented to Lords and Ladies in the Houses of Parliament | End of 2005 beginning of 2006, the Secretary of State visited the force and had the PNC on the PDA demonstrated

2005 — Offline crime recording system was growing on the PDA and next generation of services were deployed | Formal Project Board created and formal management approach adopted

The Home Office allocated funding to mobile data

2006 — Honed existing applications and developed crime recording and develop domestic violence forms

Government mandated that mobile devices be rolled out across UK police forces

2007

Evaluation carried out

National Mobile Data User Group created early 2008 | Funding made available for devices deployment

2008 — Recent pilot / New PDA trialled

Figure 2: The emergence of the innovation

Subject

The subject for this activity system is a collective phenomenon of individuals and groups within the police force. This includes the Project Team, the Project Board, Technical Services and front line officers.

The community

The subject worked very closely with a number of key partners (community) to achieve the object of the innovation activity. The community was a complex sub-network of IT suppliers and government institutions. Here we describe and examine the relationship between the force and the community.

IT Suppliers

The suppliers were directly and intricately involved in the innovation activity and acted as an innovation facilitator. Their place in the innovation activity was to provide technological expertise and services. This included PDA providers, network bearers, and separate firms that developed and managed the email, command and control and crimes reporting applications. The suppliers ranged in their involvement, for instance, an overseas manufacturer provided off-the-shelf electronic keyboards

for the PDA's, while another supplier developed customized crime reporting applications. There was also the use of free software sourced from the internet.

A key reason for the enthusiastic involvement of suppliers was that mobile data was viewed as an area of growth, especially against the backdrop of government funding. This placed the force in a position of leverage, as it offered suppliers a test bed to develop their technologies and the opportunity to develop their market position. Given the large number of suppliers and the relative mishmash of technology suppliers were also obliged to work with one another. This interplay of actors indicates that the community was a social-system of its own with multiple relationships and objectives and behaviors influenced by divergent objectives.

NPIA

The NPIA was also intricately involved in the development of the innovation. Within the force it was predominately the executive management that interacted with the NPIA. In 2006, the NPIA provided funding for a first pilot phase of the technology. More recently, the force received a share of the NPIA funding in May 2008 to facilitate the delivery of more mobile devices.

Police forces

Other police forces were a minor constituent of the community. Despite the recent interest and hyperbole surrounding mobile data in UK policing, the general view was that force was and remains the leader in this field and therefore the force had little need to engage with other forces in this area for the purpose of intellectual exchange. At the time of the study there was some constructive (yet limited) exchange of technical information, which was viewed as facilitating further development of the innovation.

Tools

Communication tools used to construct activity between the community and within the subject

The main interaction tools used to mediate interaction between the community and the force were traditional mediums such as email, telephone and meetings. These ranged in use depending on the context. Project team members used tools such as remote access systems to interact with suppliers for testing and technical development, but to a limited extent because of security restrictions. Few non-traditional interaction tools were utilized. Information management tools such as micro-sites were used to a small extent to interact between the force and the NPIA, and where used were described as important.

In early 2008, the NPIA created and facilitated the National Mobile Information User Group (NMIUG) and a NPIA Mobile Data programme board, which the Head of Tech Services of the force is a member. While introduced late in the game, these tools can be viewed as a strategic instrument to generate meaning of the innovation.

Rules and norms

There were a number of rules and norms surrounding the innovation activity and particularly the relationships formed. These are important in explaining the emergence of the partnerships. These were not formally articulated rules but rather habitual routines of behavior. For instance, for dealing with suppliers the basic principal was that procurement and relationships were formed were based on cost and benefit.

> What we try and do is, I mean I will be upfront with you – we try and do it as cheap as possible.
> That's the first thing; the second thing is that you want a partnership that is reliable, a partnership
> where you both benefit from it (Interviewee A, 090708)

The mandated need to provide efficiency savings and the difficult financial environment meant that financial rectitude and prudence seemed to be embedded in routines of behavior within the organization. What was, perhaps, more interesting was the emphasis placed on the creation of strong and flexible relationships with suppliers.

> If I can't negotiate with a supplier then I won't deal with them because what's the point, you know,
> if you are trying to develop something new that needs to be a flexible arrangement on both sides
> (Interviewee B, 090708)

Linked with the interaction with suppliers, an inhibiting rule in the innovation process was that the force was and continues to be bound to European Union procurement legislation. This procurement legislation mandates that all suppliers need to be

treated equally for procurement over £140,000. In the early stages of the innovation activity creativity was possible because the spending values were below these levels.

There were also a number of police force rules and norms that the innovation activity was required to follow during the trajectory of the development of the innovation such as officer health and safety regulations and technical guidelines and standards concerning data encryption, firewalls and security.

Division of labor

The innovation activity was largely undertaken by key individuals within the Mobile Data Project Team, Technology Services and the Project Board. The Project Board included high ranking representatives such as the current and previous Deputy Chief Constable, which ensured that executive support was available and champions existed to drive forward the innovation activity. This is especially important in a quasi-military hierarchy organization such as the police force. IT suppliers were largely responsible for the development of applications on for the mobile devices.

Innovation activity contradictions and tensions

Examining the tensions and contradictions in the innovation activity provides a lens to understanding the relationships between elements in the activity system. In this discussion we provide examples of how contradictions in the activity system fed iteratively into the innovation activity and the importance of key actors in the innovation process. The first contradiction surrounds the capabilities of the technology and ruptures between available technology, expectations and reality. Initially a key actor approached IBM with the idea to experiment with the capability of placing all forms on PDA, however IBM quoted a cost of approximately half a million pounds and with no delivery. As a result the project was terminated.

It is against and despite of these inconsistencies that the police force began discussing the idea of running applications on the PDA with the Network Engineer and progressively building the technology.

> I think the first time we ever did it (created a functioning device) we blue toothed a Nokia 60 something or other, we glued it to a PDA and actually carried out a PNC (police nation computer) check in my old office (Interviewee A, 090708)

From here the innovation took on an extremely rapid rate of technological development and shows that the evolution of the innovation was piecemeal and emerged against contradictions in the environment.

Functional contradictions concerning the technology and the implications for its use also led to the improvement of the innovation. For instance, the innovation improved based on the social actors that were involved in the innovation process:

> our first trial, one of the biggest complaints we had from the officers was that they were using mobile data and they were starting to accrue crime report and then half way through it they would lose the signal and then they would lose all the information they had started…so we sat down and had a look at that and sort of said we had to correct that problem, once they have that problem they aren't going to use it. So what we have got, we had to find some software whereby what it allows you to do is when it actually lost the signal it would then write all the information to the PDA but the continue to look for the signal but once it found the signal it would automatically update all the information off the hard drive and then wipe the hard drive (Interviewee A, 090708)

Another contradiction existed in the form of political power gradients, relationships and dependencies that influenced many elements of the activity system. Political attention and funding through the NPIA acted largely as an enabler of innovation in the form of funding. This however, influenced the dynamics of the innovation community. For instance, the force experienced difficulty negotiating with suppliers once funding was publicized as prices increased.

There were a number of areas were tension existed between the NPIA (the community) and the subject (the police force). This is a multidimensional contradiction that is a product of the historical and current behaviors and roles of the two constituent nodes of the activity system. This involved tensions surrounding the NPIA's initial stance that mobile data should be linked to the Airwave radio network, while the force was adamant that Airwave could not deliver the appropriate network service. While the NPIA provided rules concerning one aspect, it was suggested that rules on a range of other pertinent issues such as the national standard for encryption on Windows Mobile, shelf life on a PDA and so forth were absent. This forced the subject to develop the innovation in its own image rather the follow a set of prescribed guidelines, which can be argued to some extent enhanced the innovation.

Critically important here was the police force's perception of the NPIA, with many arguing that it had a limited understanding and widely discrepant views of the mobile market. For instance, a criticism was the NPIA only invited and engaged with large suppliers, in turn influencing the community in the activity system. These tensions and contradictions point to the belief that the NPIA was placing obstacles in the path of in the innovation activity. Paradoxically, while the force demonstrated that it wanted more autonomy in its development of technology in order to address local needs and the funding provided by NPIA was welcomed as a positive step by the force, interviewees lamented that an opportunity was missed to develop a central police strategy on mobile data. Along these lines of reasoning, it was suggested that the funding should have been used by the NPIA as an opportunity to develop enhanced value contracts for forces because the NPIA were and are best placed for economies of scale.

Innovation outcome

The innovation activity has resulted in mobile devices being rolled out to uniform police officers. The force has performed assessments revealing that the devices provide timely information to officers, allowing them to make informed operational decisions, and to react and respond to issues and incidents quicker and appropriately. Measures have also shown that officers return to police stations less often because the devices provide access to key applications, resulting in increased arrests because officers are carrying out more checks without having to contact the control room.

DISCUSSION, PRACTICAL AND THEORETICAL IMPLICATIONS

In this paper we used activity theory to augment our understanding of the process of innovation in one police constabulary. Activity theory provided a useful framework to understand the process of innovation and map the symbiotic as well as the tangible developments and relationships that existed and explain the emergence of the innovation. The case study presented provided a number of implications for innovation research, particularly in the field of mobile data and the public sector. Figure 2 graphically represents the foregoing discussion using activity theory. Following this, the following points discuss the foremost practical and theoretical findings from this study.
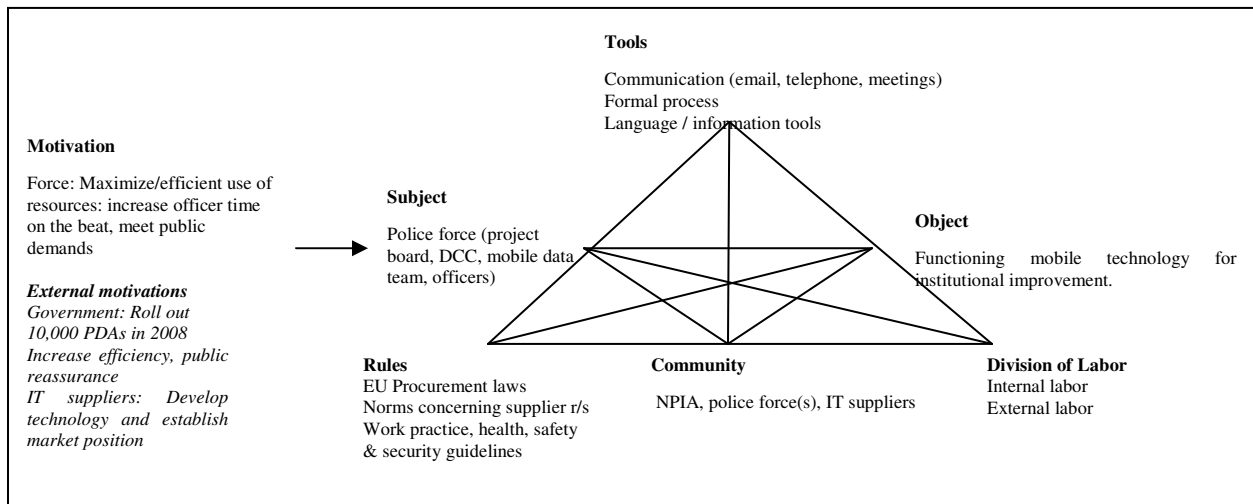

Figure 3: Innovation activity – activity system

1) The application of activity theory to the case study revealed that the innovation activity underwent constant transformations based on the systemic needs of the community and force. Contradictions and tensions that existed at various stages in the innovation activity were used to build the innovation and phase out obsolete and impractical developments and ideas. An instructive example of this was the functional limitations of the technology and the implications for its use, which fed iteratively into the development of the innovation.

2) Through the lens of activity theory we learnt that the activity system was a complex sub-network of IT suppliers and government institutions, and therefore the innovation activity can be described as a 'shared activity' and the innovation itself

as modular. As observed, suppliers ranged in their level of involvement, and can be classified as passive (supplying off-the shelf software/hardware) and those that are more intricately involved, such as suppliers who used the innovation activity to develop their products (while maintaining IP), this has been especially true in the case of small suppliers

> I think it enhances innovation because I think what certainly the smaller suppliers have found that
> we literally been an RND test bed for a lot of the products (Program Manager, Interview, 090708)

From this perspective it can be argued that the members of the community and the subject were agents of change, and each member of the community operated in their individual activity system driven by their own motivations. Therefore the activity system described in this paper is part of a collection of cascading activity systems (Ekeblad, 1998).

3) The above point raises the issue of open-innovation or distributed innovation. This lends support to the need for mutually beneficial partnerships in developing technological innovation and also the importance of open innovation. This approach was also instrumental in the choice of certain technologies. For instance, Blackberry's were rejected as a solution because of narrow scope for adaptation. This explains why some variants of the innovation were eliminated while others succeed (Pinch et al., 1987).

This open-innovation approach is not a phenomenon that is not recognized in the context of a 'closed' organization such as police forces. In fact, this is a new paradigm for police force innovation and provides an important lesson for other police forces. The reasoning behind this 'open' approach was to overcome fiscal restraints and build on a partnership of mutual benefits, based on convincing suppliers that they would have long term benefits. A key to the success of this process was an entrepreneurial IT staff with strong interpersonal and negotiation skills as well as technical knowledge. However, while this is an interesting relationship it does have its shortcomings. For instance, it was suggested by the force and by an IT supplier that a limitation of this open-innovation approach is that the solution cannot be easily replicated across other forces, which may have repercussions for future UK wide developments of mobile data and interoperability.

Furthermore, there are risks for the various partners involved. For instance, even though we allude to the establishment of mutual beneficial relationships it has been beyond the scope of this study to examine the actual benefits absorbed by the IT suppliers.

4) Our discussions with various constituent nodes of the activity system revealed that traditional means of communication remain the most important interaction tool in the innovation process. Collaborative tools such as information management and sharing technologies were not used to any significant extent.

5) Public sector innovation, particularly police innovation is different to that which occurs in the private sector. In this case, we understood that the motivation for the innovation stemmed from internal and external motivations. However, as indicated in Figure 2 it is unequivocal that the innovation only became a practical reality with intervention from the NPIA. When considered from a political lens, it can be argued that innovation is supported and valorized on the grounds it reduces or make efficacious use of labor or where there are political motivations (i.e. perceived as improving policing and alleviating public concerns) (MacKenzie and Wajcman, 1999).

There were issues surrounding the intervention concerning standards and central strategies for mobile data across the UK, leaving the force to build the innovation in its own image. This may have negative repercussions for a UK wide mobile data strategy in the future. Nevertheless, despite the politicized nature of the intervention, this case study suggests that central intervention is required to facilitate the development and introduction of radical innovation. Recently, the NPIA announced a national agreement with mobile solution suppliers that will make it faster and simpler for forces to project manage and deliver mobile data. Suggesting that some of these contradictions have re-conceptualized the relationship between the NPIA and police forces (Jarzabkowski, 2003) and enhanced the innovation process.

CONCLUSION, LIMITATIONS & FURTHER RESEARCH

The case study presented in this paper is part of an overarching examination of innovation in the UK police force. It provided insight into the innovation in one police constabulary, and a presented a number of interesting findings. This paper contributes to the cumulative body of innovative literature, particularly in the area of the emergence of innovation and process theory. The analysis showed that the innovation process can be described as a shared activity and the innovation itself as modular. Along these lines, the innovation activity demonstrated the case of open innovation in a policing context and identified the importance of and contradictions surrounding central body intervention. In the future, this work will be complemented by two further case studies of (non-technological) innovation. This will allow interesting comparisons to be made between the technological and non-technological centered innovation. In addition, we are undertaking a UK wide survey of police forces to examine the extent of innovation and develop an understanding of the salient issues faced by police

forces in the innovation process. To further contribute to our understanding we will also undertake interviews with key stakeholders of innovation projects developed and managed by the NPIA. This then provide an overarching perspective of police forces, suppliers and partners, and central bodies in the innovation process.

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