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Perceptions and Adoption of Technological innovations in UK Public Safety Organisations: the Case of Introducing Location Services in the Police

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Innovation Meanings: Korteland and Bekkers (2008)

•Political Level

- Power relationships determined by the institutional context, collective frames of reference, accepted cultural norms; Legitimisation of innovation.

•Functional Level -Rogers (2003)

- Relative advantage, compatibility, complexity, trialability, observability, reinvention

•Institutional Level - Attewell (1992), Fichman (1992)

- Absorptive capacity: ability to identify, recognise, acquire, assimilate, and apply new information to productive ends.

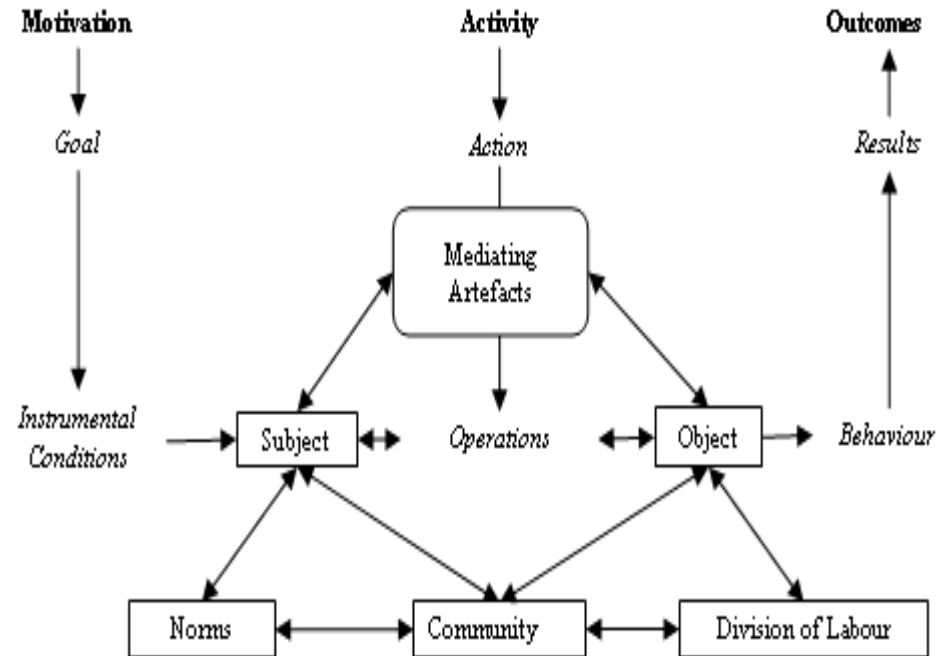


Activity Theory and Innovation Activity

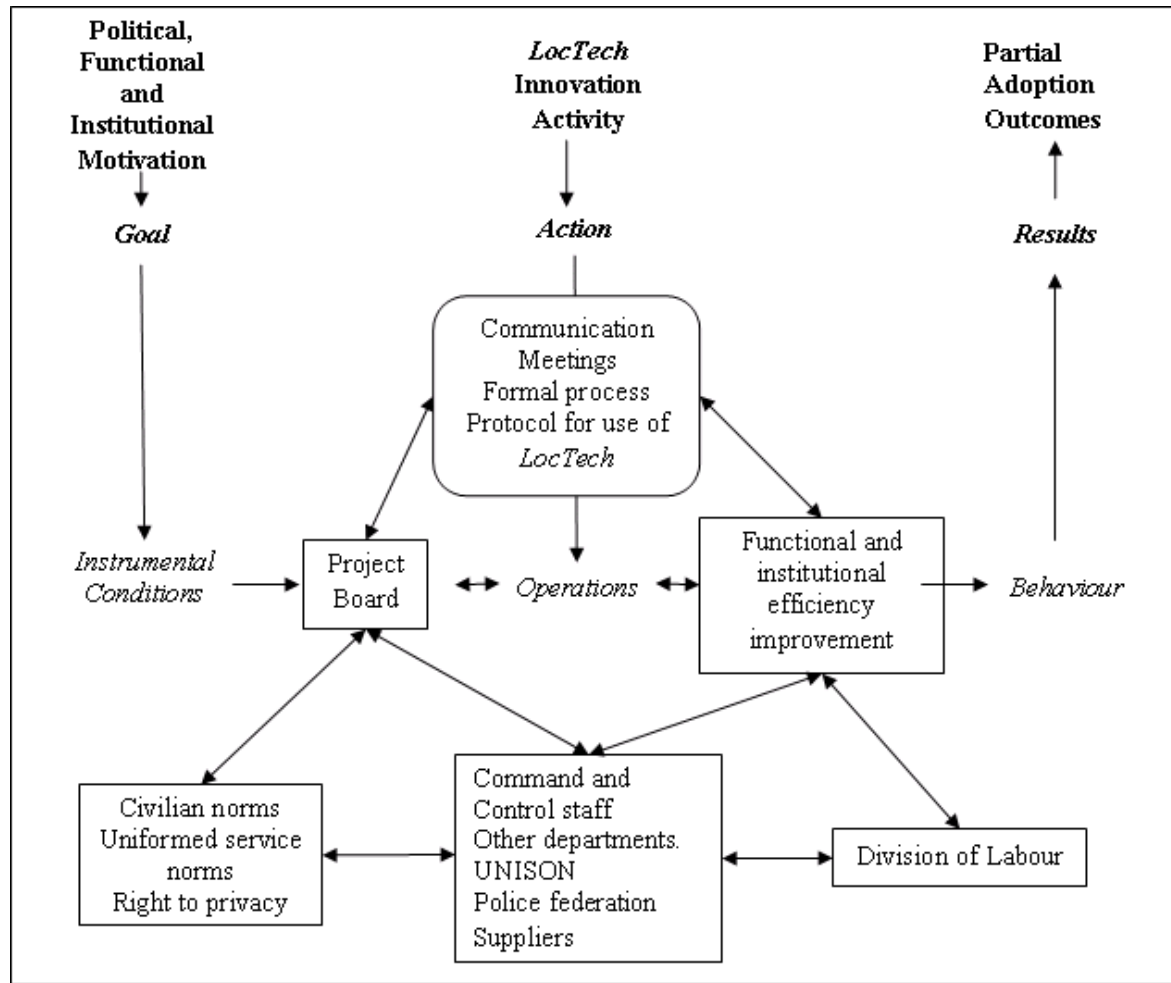
- Activity as unit of analysis
 - analysis of standardized, habitual work-related behaviour
 - enduring patterns of object-oriented activity
- Innovation activity: innovation activities regarding *LocTech*.
 - Situated within a network of activities involving national implementation of TETRA (TErrestrial Trunked Radio) standard.
 - *Force Alpha* acquired TETRA (radio communication services) and considered other technologies e.g. *LocTech*

Activity System

- Individual (subject) doer
- Social (community)
- Physical (object) environment
- Tools
- Norms and rules
- Division of labour
- Disturbances and Contradictions



Innovation Activity





Innovation Activity System

- Conformity with the national mandate (political motive)
- Optimisation of TETRA use in addition to two-way radio (functional motive)
- Improved deployment by CC and related supervisory processes (institutional motive)
- Improved functional and institutional efficiency (object)
- PB (subject): Deputy Chief Constable (head), management staff (Chief Superintendent, head of Finance Department, a civilian PM), two CC Chief Inspectors
- Community: suppliers of CC system, suppliers of *LocTech*, *IT department*, *other departments*



- Mediating artefacts

- communication suppliers, IT department and other departments
- formal innovation process (business case, pilot)
- PB authority and autonomy

- Rules and norms

- no government/PITO/NPIA legislation, nor guidelines
- civil rights and employees' right to privacy
- civilian organisation norms and norms in uniformed, hierarchical organisations

- Division of labour

- PB representatives of different departments who linked the innovation with competencies of respective departments
- IT department (unrepresented on PB)



Action 1: Initiation of the LocTech project

Goal 1: Specify 'user requirement'

Result 1: 'User requirement' written document

Innovation concept -- ideal technology complementing nationally accepted *TETRA* system and enhancing efficiency of policing operations.

- PB commissioned for introduction of location technology.
- Visiting other Forces and individuals there
- PM liaising with people within *Force Alpha*
- Producing 'user requirement' in the form of a written document.



Action 2: Procurement

Goal 2: Verifying the functionality of the technology

Result 2: Procurement of LocTech technology

- verify compatibility with other systems
 - CC system suppliers -- interface receiving *LocTech* geographical coordinates over *TETRA*, visualising to show location
 - compatibility of *LocTech* with mapping software (running at back-end of CC system) was NOT verified
- invited potential suppliers of *LocTech*; chose one
- purchase approved by the senior management
- in cooperation with the IT department, suppliers set up system, installed it in few cars.
- CC suppliers reproduce interface
- PB proceeded with small scale pilot. Demonstration of the system NOT a test regarding its introduction
- It was certain that the new technology would be fully implemented in *Force Alpha*. Agreed to by PB with members from senior management.



Extending institutional innovation motives

- Fleet management tool improving supervision

“Are they patrolling in the areas where crime is taking place? ... Are officers just aimlessly just driving around and around in circles? Is there any sort of pattern to the way they’re driving? Are they being intelligence-led?” (Controller Inspector)

- Tool recording compliance with existing (internal) policies, health and safety regulations
- Tool for public accountability

““Can you tell me how many times a Force Car has driven down my road in the last three months?”... we probably have no response to it but LocTech is a source of providing this kind of information” (Project Coordinator)

“It will be used... it will be a case of “yes, this vehicle travelled this particular route”. (Sergeant)



Action 3: Full Implementation of LocTech

Goal 3: Deployment of LocTech throughout the operations of Force Alpha.

*Result 3: Establishment of digital maps incompatibility.
Deployment of additional screens in CC rooms*

- full implementation of location technology
- installation of devices in all vehicles
- issues of integration of *LocTech* with CC system digital maps
- temporary resolution by fitting additional screens in CC
- Permanent resolution would have required considerable (unbudgeted) expenditure, decisions on IT strategy and policy



Action4: Roll-out towards CC staff

Goal 4: Improved location information at CC, extending use of TETRA

Result 4: Full LocTech implementation. Resistance. Protocol for LocTech use.

- PB communicated their actions regarding *LocTech* to employees (mass email)

“It just came... that was it; BOOM. No explanation to what it was, it just appeared.” (Controller Inspector)

- PB did not strictly adhere to the formal process
- Concerns among employees
- PB initiated discussions with the Police Federation and UNISON
- UNISON did not comment, noted in use protocol, CC staff not able to voice concerns
- CC staff professed that no guidance was given about the implementation
- Perception that non-involvement of users would become common practice



Action 5: Conflict resolution and introduction of LocTech in other departments

Goal 5: Conflict resolution with Command and Control room staff and introduction of LocTech in other departments.

Outcome 5: Partial use in Command and Control rooms and in other departments.

- *PB members requested (directly and indirectly) CC staff to operate LocTech*
- Seniority of PB members affected CC actions
- PB asked all interested departments to explore *LocTech* use in practical terms
- Installation of screens elsewhere than CC rooms (3 departments)



Discussion

- *Motivation and Meanings at the different stages of Innovation*

*Political (primary motive) → Functional, institutional (procurement) →
Political (implementation, roll-out) → Institutional (conflict resolution)*

- *Innovation Contradictions*

Tension between CC staff and PB

- *Innovation Outcome: equivocal, partial adoption*

Institutional: LocTech availability across departments

Functional: LocTech not fully integrated with CC systems

Political: compliance with TETRA, conflict resolved