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The balance between bricolage and innovation: management dilemmas in sustainable public innovation

Lars Fuglsang* and Flemming Sørensen

Department of Communication, Business and Information Technologies, Roskilde University, Box 260, Building 44.3, Roskilde 4000, Denmark

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Innovation is usually understood as a conscious development and implementation of new products or services. This article takes its starting point in a case study that shows how 'innovation' in reality happens as small step 'bricolage' – as a 'do-it-yourself' problem-solving activity taking place in daily work situations. Consequently, an experiment was carried out with the purpose of testing if, how and with what results the 'bricolage' can be better integrated with the organisation's more formal innovation procedures.

Keywords: innovation; bricolage; public service; service-encounter; experiment

Introduction

Research has shown that innovation is a frequent phenomenon in service firms as well as in public sector services. However, in services, including public sector services, due to the specificity of the service-relation, innovations can be concealed in the interaction with the client (Toivonen & Tuominen, 2009). Research has also demonstrated that innovation in services sometimes take place *ad hoc* in relation to the needs of a particular client (Gallouj & Weinstein, 1997). Furthermore, in services, innovations are not always planned or intended but are sometimes recognised only in the back mirror (Toivonen, Touminen, & Brax, 2007).

This article argues that existing definitions of innovation must be reconsidered in order to better understand how development and innovation take place in public service institutions. The concepts of '*ad hoc* innovation' (Gallouj & Weinstein, 1997), '*a posteriori* recognition of innovation' (Toivonen et al., 2007) and 'bricolage' (see, e.g. Styhre, 2009; Weick, 1993) become relevant in order to capture the dynamics and potentials of innovation in public services and the link between the micro- and the systems level of innovation. At the same time, these concepts point to a more practice-based interpretation of development and innovation.

The specific contribution of the article is to examine how an organisational recognition of these types of innovation processes can be incorporated into public service organisations' more formal innovation procedures. Through a case study combined with experimental research, the article explores how bricolage can be approached in a more systematic way. The setting of the article is a public service of home help for the elderly. The case study investigates how bricolage occurs in the organisation and a field experiment in the same organisation tests a method to improve the integration of bricolage with the more formal innovation processes of the organisation. The study is part of a larger

*Corresponding author. Email: fuglsang@ruc.dk

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research project, called Innovation–Customers–Employees, which involves researchers from Roskilde and Aalborg Universities in Denmark. In this research project, experimental research is carried out to see how innovation processes in services can be improved. The aim is to develop and test systemic tools that can guide the innovation process from idea to innovation.

Theory

Innovation is usually defined as development of a new product or service so as to gain acceptance in an organisation, in the market or in society (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Kanter, 1996; Mulgan & Albury, 2003; OECD, 2005; Sundbo, 1998). Several criteria have been used to distinguish innovation from other change processes (see Drejer, 2004; Koch, Cunningham, Schwabsky, & Hauknes, 2005; OECD, 2005; Toivonen et al., 2007): (1) It must have an impact on (economic) development, (2) it must be repeated, (3) it must represent significant or radical changes and (4) it must be intentional.

This means that small daily adjustments in a product or service do not count as innovation. Innovation takes place only if the daily changes in the product are raised to a higher level of abstraction so that they can be repeated and implemented within an organisation or penetrate the market. These definitions of innovation are partly locked, because they lie behind important statistical studies of innovation in the OECD and Eurostat (CFA, 2006; OECD, 2005). It is understandable that sharp definitions of innovation are needed in order to investigate this phenomenon quantitatively. The problem is, first, that it is debatable how sharp the definitions really are – and thus whether they are well enough suited for quantitative surveys. Second, these definitions may underpin a discourse of innovation which overlooks important aspects of the way development and innovation really happen in practice. Innovation is not always a planned or conscious activity with a specific purpose in mind – but is sometimes recognised only in retrospect. Furthermore, development and innovation in services and public services may take place over a period of time as a series of minor product adjustments, which over time sum up to innovation.

This article does not question that innovation must be repeated to count as innovation (criterion 2) or that the impact on development is a relevant criterion (criterion 1). It questions the relevance of criteria 3 and 4, i.e. that innovation must represent significant or radical change and must be intentional. These criteria are misleading at least in services and public services because they ignore the explorative, ongoing and practice- and process-bound character of innovation.

In the literature that deals with innovation in services, a more practice- and process-oriented view on innovation is sometimes allowed. Gallouj and Weinstein (1997) have argued that *ad hoc* innovation understood as 'a solution to a particular problem posed by a given client' is important in consultancy services. Solutions to specific problems become innovations to the extent that they change the profile and practice of a service and thereby are repeated and reproduced in an indirect way through employees. Furthermore, Toivonen et al. (2007) find that innovation in services can be '*a posteriori* recognition of innovation'. Knowledge developed in a specific area may only later be 'discovered' as knowledge which can be applied and repeated in other areas as well and thereby only in the second stage seen as an innovation that can be reproduced.

These definitions and understandings of innovation come close to many of the descriptions of change and development that can be found in practice-based theory in organisational theory. Practice-based theory is an area within social science and organisational

theory that has received a great deal of interest during later years, and which could be an important sociological complement to the innovation theory (see, e.g. Gherardi, 2005; Nicolini, Gherardi, & Yanow, 2003; Schatzki, Knorr-Cetina, & Savigny, 2001). Often practice-based theory emphasises practice as regularities constituted as common routines, shared norms and values in an organisation.

Practice-based theory also underline that a practice must continuously be maintained and unfolded (Gherardi, 2009; Styhre, 2009). It can be seen as an ongoing process (Hernes, 2008; Weick, 1995). The practice-based approach may, following these views, help to clarify some of the more sociological aspects of innovation. Thus, a practice is not only understood as consisting of regularities and routines. It also consists of the ability to handle unexpected events (Weick & Sutcliffe, 2001). A practice is not a complete and controlled action. It is better understood as an ongoing, fragile process that must be continuously repaired, maintained and innovated in heterogeneous interactions among different actors, such as employees and customers.

This phenomenon is in the literature given different names, including 'tinkering' (Timmermans & Berg, 1997) and 'bricolage' (Lévi-Strauss, 1966; see also Styhre, 2009). In the following, we focus mainly on the term 'bricolage'. This concept was used by Lévi-Strauss (1966) to designate practical aspects of mythical thought. To explain what a 'bricoleur' is, Lévi-Strauss makes a distinction between the scientist and the bricoleur: 'The scientist creating events (changing the world) by means of structures and the 'bricoleur' creating structures by means of events' (Lévi-Strauss, 1966, p. 22). Bricolage is a 'do-it-yourself' problem-solving activity that creates structures from resources at hand. Alternatively, quoting Timmermans and Berg (1997), Styhre (2009) defines the related term tinkering as a 'leeway to adjust the protocol to unforeseen events'. This definition can also be included in bricolage. The protocol is the prescribed and broadly acknowledged ways of doing things. Tinkering (or bricolage) means doing things differently using resources at hand. It is intertwined with concepts like experience, intuition and improvisation but also with the adjustment of reproducible structures.

Bricolage or tinkering as a way to expand practice is a fundamental activity. But it may be more or less restricted depending on the situation. In the public sector where emphasis is often on universalistic principles and rules, and in large-integrated companies emphasising planning and division of labour, this side of a practice has been less accentuated. Instead, focus has been on the protocol and the regularities, i.e. the more formal and schematic sides of a practice. But bricolage is an aspect of practice which is arguably of growing importance in service organisations and in public services. These become characterised by encounters between employees and users (citizens) which are productive and dynamic meetings. In these meetings, many unforeseen events can occur which must be understood and responded to and which require continuous reformulation and adjustment of the protocol. In this way, tinkering and bricolage may overlap with *ad hoc* innovations and *a posteriori* recognitions of innovation. Nevertheless, a small distinction can perhaps be drawn between, on the one hand, *ad hoc* innovation and *a posteriori* recognition of innovation and, on the other hand, bricolage and tinkering. While the former concepts tend to stress improvisation in the situation, the latter also pay attention to the maintenance of structures (from resources at hand) through the adjustment of protocol. The characteristics of the different types of innovations as well as a generic definition of innovation are found in Table 1.

Thus, it becomes of central relevance to explore how innovation and development, understood as conscious replicable actions, interact with innovation understood as bricolage. Furthermore, it is of interest how and with what results bricolage can be purposefully

Table 1. Characteristics of different types of innovations.

Innovation (generic definition)	Intentional innovation	*A posteriori* recognition of innovation	*Ad hoc* innovation	Innovation as bricolage and tinkering
An invention which is developed to become accepted and reproduced in an organisation, on the market and/or in society and thereby achieves an impact on development	An innovation which is planned in advance	An innovation which is discovered in retrospect and then further developed	An adjustment of a product or service in relation to a client which is reproducible in relation to other clients due to extended competence	A change of structure and adjustment of protocol which is created from resources at hand. The definition overlaps with *ad hoc* innovation and *a posteriori* recognition of innovation

Source: Adopted from Drejer (2004), Toivonen et al. (2007), Gallouj and Weinstein (1997) and Styhre (2009).

better integrated with an organisation's more formalised innovation procedures. In the following, some basic insights are reported from a case study of bricolage in a public service organisation providing elderly care. Based on the case study, an experiment was carried out in the organisation with the purpose of testing the possibility of further integrating bricolage with the innovation procedures of the organisation.

Methodology

In a case study of public home help to the elderly, 13 semi-structured interviews were undertaken with home carers, a home nurse, officers in charge of approving elderly for home care, a physiotherapist, clerical employees and top-managers. They were interviewed about how development and innovation take place in elderly care. The case study revealed that innovation occurred in three different ways, briefly reported in the fourth section.

Based on the case study, a field experiment was then designed which examined how and with which results bricolage may become a more integrated function of the case's innovation processes. The experimental approach has been an overseen and rarely applied method in innovation research. However, innovation experiments have the potential to create new scientific as well as practically applicable knowledge about innovation while also solving practical problems and testing otherwise non-existent innovation procedures in a laboratory or in a real life context (Sørensen, Mattsson, & Sundbo, 2010).

Experiments in social sciences are typically thought of as actions undertaken to test hypotheses in a laboratory setting detached from the rest of society (Gross & Krohn, 2005). Effects upon a dependent variable caused by an investigator-controlled change of an independent variable within a controlled context are investigated and measured quantitatively (Willer & Harry, 2007). From the positivist outlook, such laboratory experiments are the only 'true' experiments and the ones coming closest to the methods applied by natural science (Lee, 1989). However, a broader array of experimental methods include also qualitative approaches as well as approaches where little or no control can be exercised on independent variables. Still, common for these approaches are that they focus on *consequences (the change of a dependent variable) due to a planned/deliberate*

action upon an independent variable (Sørensen et al., 2010). One such approach is the *field experiment*, i.e. experiments carried out in their natural setting rather than in a laboratory. Whereas some research control of the experiment is lost compared with the laboratory experiment, benefits are that '*Natural settings ensure that the results will tell us something useful about the real world, not just some contrived laboratory setting*' (Green & Gerber, 2003, p. 94). Especially qualitative field experiments bear connotations to certain types of interactive research, i.e. research that is carried out in a kind of interaction with practice. This includes action research, action learning, reflexive practice, etc. (Baskerville & Wood-Harper, 1996). This is research that aims at changing practice. The interpretations of research results are made in the interaction between the researcher and representatives of those who will use the results (McNiff & Whitehead, 2000).

It is such a qualitative type of field experiment that was applied here. The experiment was designed after the case study had been carried out and a pilot report had been delivered to the case. The design was based on the suggestions of the researchers but it was discussed and planned in detail with the managers of the home helpers who were going to participate in the experiment. These were two evening teams. The experiment was in itself of a very simple character and relatively costless to carry through. This was a deliberate choice because the experiment was meant to test a tool that the case and other similar cases could themselves easily apply in the future if it proved useful. The experiment introduced different events and new procedures in the part of the organisation in charge of the home help evening shifts. First, introductory meetings with the employees were held in which they where introduced to the experiment. Second, ideas from the employees arising in their daily work in the users' homes were collected during 1 month. For this, the employees were asked to send SMS messages about the ideas immediately after the ideas occurred to them. In this way, the purpose was to 'capture' the bricolage of the employees. Third, an assessment meeting was held in which the participated two home helpers selected by the management, the two managers in charge of the home help service as well as the two researchers. At this meeting, the received ideas were assessed by the employees and managers together and they were divided into three categories: (1) ideas that were easy to use immediately, (2) ideas that had usability but could not be implemented immediately and (3) ideas that had low usability. The researchers participated as process facilitators in the meeting though their role in this was very limited. The meeting was taped. Fourth, follow-up meetings were held with the employees to communicate the results of the experiment and to encourage them to carry on with the experiment.

The success criteria of the experiment was whether the new events and procedures (the independent variables of the experiment) would make bricolage more visible for and be better integrated in the organisation's more formal innovation procedures (the dependent variable of the experiment).

The case

Innovation in the case was observed to occur in at least three distinct ways: As (1) bricolage, (2) as management-initiated innovation and (3) as management-mediated innovation.

Bricolage was reported in the form of many small practical ideas which were implemented directly by employees in the encounter with the users (the elderly):

> I had a client who was completely deaf. She was sitting in her own thoughts. She had a lamp which gave out light when one pushed the alarm bottom. Often she sat knitting. You could give her a fright, if you entered the door. Then I stamped my foot on the floor. Then she felt the vibration. Then she was not scared when somebody suddenly stood there – if she

> had not paid attention to the light from the lamp. This is something you can also use in relation to other deaf persons. I have explained this to other home helpers. These are small things, but they matter for the single person.
>
> If the citizens are unsatisfied I try to please them as best as I can. Usually you can uncover the problem by yourself together with the citizen. We also talk about how we can deal with them in the group. And inspire each other about how you can deal with it in a smart way. There is a lot of talk about this.

In addition to this, the employees say they 'edit' their time and 'fiddle' with time plans in order to get these things done. In this way, the employees make their own rules within the rules, systems within the system in order to do the job in an appropriate way:

> I am not so strict on my time when I am with a citizen. If she needs me to stay a quarter of an hour more, then I do it. Then I just catch up in another place, with somebody else, where I know I will not fully use my time. You have to be flexible in order to be employed in home care.

The above examples demonstrate in a nutshell how the service is partly pieced together during delivery following a do-it-yourself-principle: 'Often we try to solve the problem before we call upon someone'. Employees sometimes have to sidestep rules in order to work in a proper way. In this way, there are many instances of bricolage where structures are created from events: 'You cannot make one standard package and say that this can be used in every home. This you cannot do! You have to fiddle a little here and there'.

Home helpers mutually discuss these innovations at lunch meetings. In this way there is a frequent exchange of experiences among employees. Nevertheless, they seldom completely transfer a new idea from one user to another, but only 'part of the idea'. When employees discuss these solutions in a lunch break, this corresponds to '*a posteriori* recognition of innovation' and 'building structure from events'. One realises that a new solution has been found, and this is retained and further structured through discussions.

There is not much exchange of experience beyond the single work group of home helpers: 'We do not talk with other groups in Copenhagen. We do not exchange experiences with other city districts'. Over time, therefore, individual groups that work in a specific district – and who do not have contact with other groups – independently develop specific working styles which fit the needs of users in the local area.

Thus, these small instances of bricolage constitute on the whole process and product innovations which over time incrementally lead to development and innovation. Even if the single improvement is not directly reproduced in relation to other users, it is nevertheless possible to speak of development and innovation in the long term. The decisive point is that the structure of the service is changed in a reproducible way.

Management-initiated innovation also occurred in the case. These innovations began as relatively abstract ideas and concepts, driven by management. Abstract here means that the development concept presupposes an abstraction from everyday routine; it does not correspond to a concretely experienced problem in everyday routine, but constitutes a response to external expectations and demands, and an interpretation of how these demands can be met:

> We have some external requirements and expectations which can put focus on a need for development. It can be something that happens in society at the political level and the citizen level. Management is therefore a force that drives this development. Furthermore, the management sees development as a special management task. Thereby, the management can help the organisation to find its appropriate place in society.
>
> If one is going to find out how we pay attention to development, it is by coming to terms with all the inputs we get from our surroundings. It may be from our own organisation, the people we take care of and what happens in society, in educational institutions, research and so on. It

> is part of the management task both to ensure that there is support for daily operations but also focus on development. Otherwise, at a certain point in time, one is left with an organisation which is not well integrated in the reality in which it lives.

One example of such an innovation process is a new idea for a healthcare centre in connection with home care. The idea comes from the Health Administration and is introduced by the top management who has to convince the rest of the organisation about the justification and value of this idea.

This approach to innovation comes close to the standard definition of innovation as a conscious activity of which the purpose is to generate value and thereby altogether improve the service.

Finally, the management-mediated innovation was observed. In this approach, the innovation starts from problems which are seen as very real by employees. Problem-driven innovation is mostly observed among back office employees in charge of ordering services for the elderly – to be distinguished from the home helpers.

In this type of development, problems are defined and solutions constructed in collective meetings and project groups. A structure exists which enables managers and employees to meet and share experiences about problems. In these meetings, perceived problems and ideas for their solutions are discussed.

Solutions which are thought appropriate are sometimes swiftly tried out through experimental pilot project. Management plays a role as an entrepreneur supporting and promoting these ideas. Management is also important for formalising relations and lifting ideas to the experimental stage by allocating time and money. One of several examples of this type of innovation process is the invention of a new waiting-list system for people who have been promised a place in a residential home. In short, in this approach to innovation there is emphasis on the project culture and pilot projects as a way to experiment with solutions to perceived problems.

Thus, innovation in the case takes the shape of *management-initiated innovation*, *management-mediated innovation* and finally *employee-based bricolage* (Figure 1).

The home helpers normally do not have a strong focus on innovation as a distinct activity in its own right. Home caring is seen as an operations task, not a development task. Furthermore, with few exceptions, time is not allocated to development and

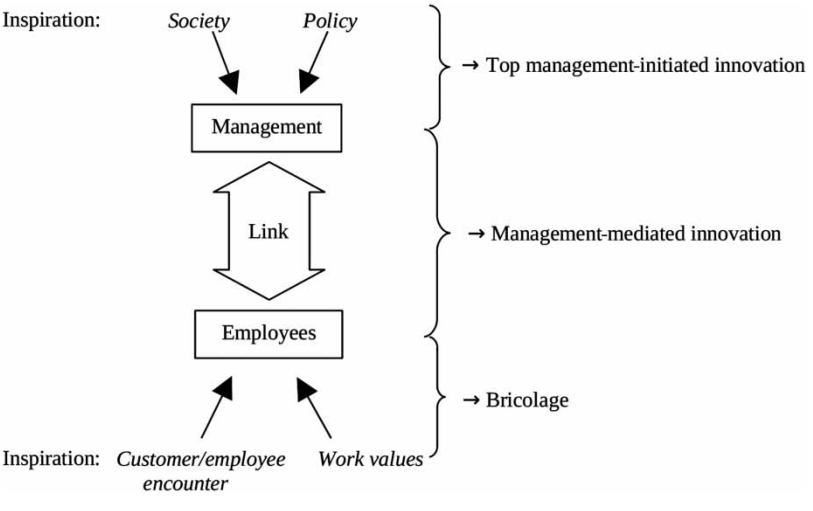

Figure 1. Types of innovation processes in the case.

innovation for front workers. Employee-based innovation, where it exists, is integrated with daily work and is hardly noticed at the management level of the organisation.

However, this unnoticed development and innovation which corresponds to bricolage is, as described, important as it creates significant development in the long term. But, especially for the home helpers, the link between bricolage and the management innovation is very weak. Consequently, while bricolage is a widespread phenomenon in the case, it does not result in noticed innovation at a higher level in the organisation. Bricolage does not interact with the more institutionalised and formalised innovation processes, but is partly a secret and a hidden activity.

A characteristic of bricolage in the case is that home helpers exchange experiences within their single group. From entrepreneurship and innovation research, it is a known phenomenon that innovators often stick to small groups when they evaluate opportunities for development and innovation. This reduces the feeling of risk, contributes to maintaining self-esteem (Simon, Houghton, & Aquino, 2000) and the process is seen as less complex and time-consuming. This implies that such working groups must operate under some degree of autonomy in order to be able to develop and innovate. At the same time, there will be a wish on the part of the management to supervise and formalise what goes on in the groups. Thus, there is an important balance here between small groups' autonomy and management supervision, and formalisation of innovation. It appears that different forms of innovation mediated both by management and employees exist side by side in the case. They all seek to ensure a socially sustainable development from different points of view. It becomes a management task to make these different forms of innovation co-exist in a mutually balanced way.

Consequently, the analysis suggests that, in the specific case, a further integration of bricolage with the more formal management-initiated and mediated innovation processes may be beneficial. However, this needs to be done in a careful balance between employee autonomy and management supervision, and formalisation. The experiment described in the following presents an attempt to apply this in practice.

The experiment

The experiment was presented to the employees at two meetings, one for each group of home helpers. At each meeting there were 12 employees plus the manager of the teams present. The employees generally received the initiative well and some expressed explicitly their interest in the experiment because this was a new way for them to make their ideas visible to the management. A few employees even came up with ideas at the meetings. Others seemed more reluctant though they did not express this reluctance explicitly.

In the period during which ideas were collected a total of 17 ideas were received. As a few ideas were submitted twice (by the same employee), the number of ideas added up to a total of 14. 5 additional ideas were presented by the employees at the assessment meeting described below. All ideas are listed in Table 2.

Some of the ideas can be related to the concept of bricolage, but others may be said to be derived from another level of abstraction. Thus, the ideas can be grouped in four categories depending on their character: as (A) true bricolage; (B) unsolved problems; (C) ideas of a higher level of abstraction; and (D) ideas concerning internal procedures (Table 3).

Though the number of ideas may not be overwhelming this should be seen in a broader perspective. The making of new innovations are normally not an everyday phenomenon, and the more radical the innovations are, the less habitual they are. In

Table 2. The ideas collected in the experiment and the result of their evaluations.

No.	Received: date; time; employee no.	Idea (as received on SMS)	Idea (explained)	Evaluation at assessment meeting	Category (c.f. Methodology section)
1	15/05; 19:34; 1	Only private communication during the breaks. Switch off private mobile phones	Private communication on mobile phones should be restricted to work breaks	This is an important issue. Rules must be specified about the use of mobile phones for private purposes during work. However, this may cause some dissatisfaction among the employees	2
2	12/05; 22:59; 2	Use clothes-pin when changing nappies to keep up dress	Nappy change is easier if the dress is out the way. A clothes-pin can solve this problem by holding up the dress	This is a good idea. It makes the nappy change easier and it also gives the employees a better working position	1
3	12/05; 19:44; 1	Why does not the municipality take the lead and use electrical cars	The organisation should change from using traditional fuel- driven cars to electrical ones	This is at the moment problematic for several reasons because there are still some technological problems concerning recharging the electrical cars. But it may be a possibility in the future	2
4	12/05; 19:39; 1	Use the mobile phones' note system when a user needs to be phoned at a particular moment	The mobile phones' alert system could be used to remind the employees when different users need a call – for example, to remind them to take their pills	This is already done by some employees. It should be used by the employees more generally. This is a good and practical idea	1
5	07/05; 20:43; 3	Citizen journal should include more information such as health situation, goals and plans to achieve these goals. These should be evaluated currently	The users' journals should contain more and detailed information about the users and their specific needs	Some information is already accessible in the journals. This requires a more detailed discussion about what types of information that should shared among the employees	2

(*Continued*)

Table 2. Continued.

No.	Received: date; time; employee no.	Idea (as received on SMS)	Idea (explained)	Evaluation at assessment meeting	Category (c.f. Methodology section)
6	07/05; 20:37; 3	There should be comprehensive action plans in the blue communication folder, so that substitutes also know that the medicine is in the top kitchen cupboard and so on	More information should be written in and be accessible through the folders lying in the users' homes containing information about the users	This should already be so, but it must be checked out. Perhaps it is a question of lacking communication about the purpose and content of the blue folders	2
7	02/05; 15:59; 1	Use film instead of environmentally damaging tin foil	Suggests the use of plastic film for wrapping up food	This is both good and a bad idea. Plastic film can be used only in some occasions. There also exists the possibility of using tupperware	2
8	02/05; 15:52; 1	Flexible bicycle/car solution	It should be possible to switch between cars and bicycles as media of transport while 'on the route'	It should be possible to choose for the employees whether to use bicycle or car. It is not clear what is exactly meant. This issue must be discussed	2
9	02/05; 15:50; 1	Use the mobile to determine wounds	The mobile phones can be used to take photos of the citizens wounds if their type and the needed treatment cannot be determined on the spot by the home helpers	This is not such a good idea because the quality of the photos is not good enough. Perhaps there is also a juridical problem about taking such photos	3
10	02/05; 15:48; 1	Window fastener is turned and something is fastened	This suggests a way to keep windows slightly open and preventing them from closing	This idea is fine. It can be done where and when it is needed	1
11	30/04; 15:48; 1	Flexible bicycle/car solution	As idea #8	As idea #8	
12	30/04; 15:44; 1	Window fastener is turned and something is fastened	As idea #10	As idea #10	
13	29/04; 22:26; 1	Use the mobile to determine wounds	As idea #9	As idea #9	
14	29/04; 19:36; 3	Mobile lift and or inflatable pillows to be used after falls in the home	This would be an aid for the home helpers to lift up users after falls	This is being implemented at the moment	1
15	28/04; 15:22; 1	Users must be moved further up in the bed: sliding-piece under upper body, feet are lifted, user pushes himself up	This suggests the use of a tool to assist users in pushing themselves higher up in their beds	This is already being done. The suggestion may come from a new employee. Everybody must know about the procedure	1

16	27/04; 15:39; 4	Visitations of all services instead of time	Suggests a more realistic way of estimating the work load	This is a relevant issue that must be discussed. It is an internal problem. Changes can be difficult to implement due to legislations	2
17	28/05; 15:24; 1	Only in the evening are overalls used that are changed daily. We do not work in a hospital. Environmental concerns?!	Suggests that the employees should not use a clean overall every time they start work	This was rated a bad idea due to hygienic concerns	3
18	At the meeting; 5	A thing to hang on the toilet chair to put things in	Suggests the need for a bag or cart or the like to hang on the toilet chair in which things can be put	This is a good idea. I can make the work easier for the employee. However, there may be a hygienic problem. This idea should be communicated to the depot and investigated. The employee suggesting this is suggested to make a drawing of a prototype	2
19	At meeting; 5	Something to hang on the bed and put things in	Similar to the above	Similar to the above	2
20	At meeting; 5	Support socking remover/sliding piece	This idea suggests a tool to assist employees in removing support sockings which are often hard to take of the users legs	Such a tool may already exists. It will make work easier and would also be better for the user. The employees should teach each other how removal of support sockings it is done the easiest way	2
21	At meeting; 5	Lift for leg/something to put under leg	Suggest the development of something to assist the employee in lifting up the legs of heavy users	Perhaps such a tool can be developed. It must be discussed with the depot	2
22	At meeting; 5	Take photos of the home. For example of where the medicine cupboard is	This could make it easier for new employees or substitutes to find the things they need in the homes	This idea could be useful. However, there may be certain legislation problems about taking photos of the users homes. It must be found out what the possibilities are	2

Table 3. Types of collected ideas.

Group	Type of ideas	Idea numbers (c.f. Table 2)
A	*True bricolage*: Ideas that arise out of an encountered problem in the specific work situation and which are solved in a 'do-it-yourself' manner by the employee on the spot	2, 4, 7, 10(12) and 15
B	*Unsolved problems*: Ideas arisen from problems encountered in the specific work situation. The employees can see the solution to the problems but (as a contrast to group A) they cannot immediately solve the problem themselves, e.g. because they do not have the necessary means at hand	5, 6, 9(13), 14, and 18 to 22
C	*Idea of a higher level of abstraction*: Ideas related to the home help service at a more general level. They result partly from an abstraction from daily routines, and need changes of organisational routines to be implemented	3, 8(11), 16
D	*Ideas concerning internal procedures*: suggestions that are not directly related to the problems encountered in the daily work with the users, but are instead more related to other internal procedures	1 and 17

that perspective, the flow of ideas is not disappointing and they correspond to a large degree to something else and more frequent than traditional innovation, i.e. the daily problem solving and competence building of the employees in their everyday work and their encounters with the users.

Only a few employees (four plus one at the assessment meeting) sent ideas. Thus, it was only a minority of the employees who participated actively in the experiment by sending ideas. It is not clear whether this was because the employees resisted to the experiment for different reasons or because they were not motivated, or simply because they did not have any ideas. However, the dates of the SMSs reveal that they were mostly sent shortly after the weekly employee meetings in which the management encouraged the employees to send ideas. Thus, perhaps daily work diverted the employees' attention from the experiment.

In the assessment meeting following the collection of ideas, the ideas were evaluated and sorted in the three categories described in the Methodology section in a discussion between the employees and the managers participating in the meeting.

The result was that six ideas were put in the first category (easy to use), 11 were put in the second (usability but not immediately) and only two in the third category (low usability).

Of the five ideas from group A in Table 3 (the 'true bricolage'), four ideas were put in the first category and one in the second. Of the nine ideas in group B (unsolved problems), one was put in the first category, seven in the second and one in the third. All three ideas in group C (ideas of a higher level of abstraction) were put in the second category. Finally, of the two ideas in the group D (concerning internal procedures), one was put in the first and one in the third category.

Thus, the ideas concerning true bricolage were (with the exception of one) agreed to be easy to implement among all the employees. A few of the ideas were already well known to, and implemented by, the employees at the meeting, but it was agreed that the knowledge should be distributed to all employees.

At the meeting there were no disagreements about the categorising of the ideas which indicates that there is a mutual understanding (between employees and management) of the problems encountered in the work and how they may be solved.

Furthermore, the meeting resulted in that the ideas put in category one and two are now being worked with in the organisation. Thus, a link has been created between the bricolage, other ideas and the management-guided innovation procedures.

In the final step of the experiment, the follow-up meetings, the 14 ideas and the assessments made by the assessment group were presented one by one for the employees. It was also discussed whether the experiment should be prolonged with 1 month by the organisation to see if more ideas could be collected.

In both groups, there were only minor disagreements with the assessment groups' evaluation of the ideas. It was agreed to continue with the experiment and the researchers agreed to monitor this process.

Discussion and conclusion

The three different processes of innovation observed in the case (bricolage, management-initiated innovation and management-mediated innovation) appear to be weakly connected. Bricolage, as a special case, seems to be hidden in the daily activities, even though it is recognised by everybody as a critical aspect of work. Nevertheless, a wish was expressed to integrate these activities more with the more formal innovation processes of the organisation.

The implications of these observations are of both practical, theoretical and methodological nature. If, in fact, much development in service companies and organisations occurs as bricolage, as in the case of this study, this means that conventional definitions of innovation grasps only the more formalised aspects of innovation and pushes innovation caused by bricolage out in the darkness. Thus, there is a need to reconsider the theoretical concepts of 'innovation' so that they include also the more informal and disorganised processes. Methodologically, this also raises new questions about how we measure innovation, for example, in surveys. Formalised innovation may be easier to measure in such surveys than innovation based on work-related daily problem solving. However, this article indicates that studying also the latter may be important and, thus, that methods to measure innovation must be reconsidered. Finally, at the practical level, the observations from the case study indicate that much innovation occurs without the knowledge of managers. The question is then if, how and with what results bricolage may be integrated with the more formal innovation processes for which management is normally responsible. This last question has been dealt with in the experiment reported in the article.

The experiment shows how it is possible through a simple mechanism to collect ideas and in this way integrate bricolage with the more formal innovation processes of the case. This means that the daily bricolage of the employees is made visible to the managers as well as to other employees. In this way, the solutions to specific problems in the shape of bricolage can be used more efficiently. Some types of bricolage can be integrated directly in the daily working routines – and thus be replicated so as to take the shape of innovation as traditionally defined. Other types of bricolage can give inputs to further problem solving in management-mediated innovation processes.

However, a special concern is how these processes are coupled in the case and in the experiment. Weick (1976, 1979) has made a distinction between different forms of couplings between separate processes in a system. These can be tightly, loosely and not coupled (decoupled). Tight coupling means that what happens in one process will affect the other process. Conversely, not coupled or decoupling means that the two processes do not affect each other at all. Loose coupling means that the two processes are part of the same framework. They are aware of what happens with each other, but they do not stress or disturb

each other too much when something happens to one of the processes. 'What loose coupling means practically is that if one of the variables is disturbed, the disturbance will tend to be limited rather than ramify' (Weick, 1979, p. 111).

This seems an adequate description of the three innovation processes in the case study. They are coupled to each other, but only loosely coupled. Furthermore it can be argued that bricolage, due to administrative reforms in Danish elderly care (leading to such phenomena as written procedures, allocation of specific time for each task) has tended to become less appreciated and more decoupled and pushed into the dark as something which could not be directly accepted. In this way, bricolage is pushed in the direction of *ad hoc* innovations and improvisation in the situation rather than creation of structure from events. In this perspective, the tools experimented with in this case can be interpreted to restore a loose coupling between bricolage and management, leading to greater mutual awareness, but not disturbance.

Thus, bricolage is something that often can best happen at least partly in the hidden. Too much management control over bricolage would make this work more inflexible and home carers less resilient in their work. If a manager every time something new happens in the encounter between an employee and a client has to approve this as bricolage or recognise it in retrospect, emphasis will tend to be on the formal codified aspects of bricolage (how it can be presented to the manager), and the more tacit sides will be more difficult to acknowledge. This will also tend to make bricolage more time-consuming and complex.

Consequently, the three observed innovation processes have never been and should probably not be tightly coupled. This would imply that the management through formalised innovation processes became directly involved with all kinds of small and large innovation activities and that employees started to emphasise time-consuming and complex codification of all new action. This would have the above negative consequences. But neither is bricolage completely decoupled from management activities and formalised innovations – at least not in the experiment. Some degree of formalisation of bricolage makes it possible to communicate experiences across the organisation.

Furthermore, of the ideas collected in the experiment, those arising more or less directly from the employees' daily encounters with the users (i.e. groups A, B and C in Table 3), illustrate that the encounters do not only lead to ideas understood as bricolage in a strict sense. Ideas arising out of the encounters include also such that to be solved need to become more formalised innovation processes in which the management takes part (groups B and C). Such ideas typically require procedural or organisational changes or new physical tools to solve the encountered problems. This indicates that bricolage and innovation (understood in the conventional way) are not simply dichotomies, but can instead be considered a continuum of more or less formalised innovation processes that require different degrees of management intervention and mediation. Thus, the management has the difficult task of adjusting the protocol, and of integrating formalised innovation processes with everyday employee-based bricolage in a delicate and always flexible way to optimise the effects of bricolage.

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