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This is not a Building: the Abductionist Journey of a Publicly Funded Regional (non-)Innovation Project

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Abstract

The article starts with the intention to report research findings related to the microprocesses involved in networked innovation processes. However, it ends up with a description and critique of how a publicly funded project becomes a tool for the production of little more than new projects. The article consciously shows the abduction process underlying the research and thus provides an opportunity to learn from practice. Insights into the relations between innovation policy and innovation are outlined.

KEY WORDS: Innovation theory, abduction, financing innovation, innovation networks, policy, actor-network theory, construction industry

0. Prologue: A reader's guide

Several authors concerned with industrial networks and innovation have argued for – and explored – abductionist approaches to research (e.g. Kjellberg, 2001; Dubois & Gadde, 2002; Dubois & Araujo, 2007). However, fewer have demonstrated abductive research in writing. We hope that writing this paper more in line with how the abductive research process actually evolved will reveal to a greater extent the potential (and challenges) of abductive studies of networks and innovation processes. A relevant parallel to our paper is the detective story where social science researchers investigated the rise and eventual killing of Aramis – a highly innovative public transport system project in France – which shows the power and also the vulnerability of the political, social and technical relationships of an emerging innovation network (Latour, 1996). In his account, Latour includes the investigators in the story, demonstrating how the sociology/technology/economy divide in academia leads to flawed explanations of technology development. In our account, the researchers' inclusion in the story has an even stronger rationale; some of the researchers were participants in parts of the story – sometimes as action researchers, sometimes as consultants, and sometimes in a traditional/less involved ethnographic mode. The article starts with the intention to report research findings related to the microprocesses involved in networked innovation processes. However, it ends up with a description and critique of how a publicly funded project becomes a tool for the production of little more than new projects. The article consciously shows the abduction process underlying the research and thus provides an opportunity to learn from practice. In line with Waluszewski (2011a), insights into the relations between innovation policy and innovation are outlined. Thus, the article has two aims: 1) to further our understanding of the challenges of publicly spon-

sored networked innovation projects; and 2) to give a real account of an abductionist research process.

1. Introduction

Innovation is absolutely necessary for nations, regions and companies to survive in today's world. It ensures economic growth and prosperity and attracts the best people. At least, this is the picture presented in business, in the media and in politics. Thus, innovation becomes very important to understand and foster. This was the basis for an innovation project in a Norwegian region, where regional actors searched for the best means to enhance innovation through interaction of the triple helix actors¹ in a regional innovation system.² This article scrutinises one of the subprojects in the innovation project. First, to create knowledge about the challenges of publicly sponsored innovation projects, but secondly, to also produce insight into why there are sometimes no innovations and what consequences this has.

Public money is put into processes where research institutions and industrial firms meet to transform research knowledge into commercial products. Boundary organisations³ are often involved in order to transfer knowledge to and from the different actors. Hopefully, this process will in turn strengthen both the research bodies and the industry in the region where the processes take place. For a regional administration overseeing such pro-

1. The triple helix denotes industry-government-university relationships and triple helix actors are thus actors representing policymaking, research and industrial production.

2. "Regional innovation systems" is a concept endorsed by both academic researchers and policymakers where the focus is on geographical proximity as a driver for innovation.

3. Boundary organisations are organisations that transgress boundaries (Schneider, 2009) and the term is a development from the seminal work on boundary objects by Star and Griesemer (1989).

cesses the outcome, i.e. the specific innovations and innovation networks, of such a process is also linked to problem solving in other areas. The administration is responsible for delivering a range of functions related to, for instance, schools and health services. There is a belief that regionally bottom-up-produced innovations will be better adjusted to local conditions, but still be exportable to a global market if they work locally.

How is innovation best managed and organised? This is the golden question for a range of actors and the underlying question for this article. However, we must warn the reader already that we will not present the success story and the final recipe. Rather, the article contains the story of what appears to be a widespread norm for projects attempting to create environments for innovation. Through an abduction approach in writing, the article shows how a publicly financed project on the energy-efficient rehabilitation of buildings gets disconnected from industrial reality and reinforces the disconnectedness in a seemingly conscious fashion. We are taken through three stages of empirical material, where: 1) the expectation for “real” innovations created through a network of triple helix actors is alive; 2) the absence of industrial actors becomes obvious and the work is done mostly on a non-material level; and 3) the researchers⁴ start to reflect upon and examine how the project becomes stabilised.

2. Method: Abduction in practice and in writing

The article is based on a chronological presentation of a project called “Regional Development (RD): ‘Energy-efficient’ rehabilitation of buildings” (hereafter denoted the ERB project) and on the researchers’ models used to gather and to make sense of the empirical data in and about the project. The format of the article and the methods employed thus go hand in hand. In order to keep the article at a reasonable length and readable for a wider audience, both the empirical parts and the theory parts are kept short.

Abduction, introduced by Peirce (1931), has been employed by several researchers linked to the IMP tradition (e.g. Kjellberg, 2001; Dubois & Gadde, 2002; Dubois & Araujo, 2007). It is a position to be understood neither as pure induction nor pure deduction. Instead, “the process of abduction involves a successive reinterpretation of both theory and empirical observation” (Kjellberg, 2001:p.62). An important point when conducting a case study with an abductionist approach is the systematic work involved in developing theory or analysing empirical material or both. The approach necessitates a conscious outline of the theoretical position from the beginning (Dubois & Gadde, 2002) with which the empirical material should be matched. If the theoretical position and the empirical material do not match, another conscious process of deciding whether to develop the theoretical position or to create a new one must be undertaken. Throughout the project, the researchers have been confronted with the mental models they have used when entering the empirical world.

The duration of the project work included in each empirical section is steered by the theoretical approach guiding the understanding of the process. Each section is numbered accordingly: from E0 and T0 in the pre-project phase, E1 and T1 in the first project phase and so on.

The paper consists of two layers, so to speak. The first layer

describes the processes the researchers were taking part in. Here, the research questions guiding the researchers at different points in time are presented. All the time, the research is focused on creating knowledge about innovation in networks, but the actual research questions change according to empirical findings or when the theoretical grounding is changed. The second layer is the abductionist retrospection of the research journey. This layer is almost a meta layer situated in the structure of the article and in small reflexive paragraphs. Here, the overarching research question is: How could research on innovation in networks be conducted? At the end, we aim to contribute to both these layers and want to present findings from both the actual research process and from the reconstruction of the abduction taking place.

Whereas one of the aims is to produce new knowledge about innovation in networks, it could have been useful to present how the authors define innovation. Researchers interested in the processes of innovation have often adopted a relatively pragmatic definition of innovation as the realization of something new to the involved actors (e.g. Van de Ven et al., 1999), rather than insisting on more objective definitions related to the economy (e.g. the Schumpeterian definition, such as in Fagerberg, 2005:6), to products and services that are “new to the world”, or other. In our case study, the concept of innovation is used in several somewhat different ways, whether by public administration, private actors, or academics. Thus, rather than deciding on the definition of what innovation is a priori, this has been part of what has been studied.

Information for the empirical sections is partly gathered through the researchers’ participation either as engaged members (Levin & Ravn, 2007; Van de Ven, 2007) or as observers in the organised network(s) (Van de Ven, 2007). Interviews have been conducted with key actors to complement information. We acknowledge that some of the material may be confusing to the reader because of the rather large number of actors, meetings and work groups involved. We have strived to make it as readable as possible. Nevertheless, the complexity of the project has, at times, also been confusing for the directly involved parties.

2.1 T_0 and E_0 : Networked innovation and bridge walkers in organised industrial networks facilitated by researchers

T_0 denotes both the point in time where the project starts and the initial theory, or preconception, guiding the researchers. This does not mean that T_0 is an accumulation of all the theories the researchers have ever become acquainted with. Rather, T_0 is the theory specifically picked for a specific project. Such a theory can be picked because it has been shown to be fruitful for explanations within the empirical domain the study refers to, or perhaps the programme plan of the sponsor requires it.

E_0 , in a similar fashion, is the empirical starting point. As for theories, this does not mean that E_0 is the accumulation of all empirical instances. Rather, each researcher has a pool of empirical accounts from their own experience or reading. Different parts of this pool can be activated in specific instances when needed, although there is always a danger that relevant parts are forgotten, dismissed or in other ways disregarded.

Both T_0 and E_0 will, for a specific research project, be anticipations of what will be encountered in the project. In the research project accounted for here, anticipations were quite clear. A group of researchers were about to write a research proposal for a second project period for a project previously undertaken. Naturally, the researchers were planning to draw upon experi-

4. The term “researchers” in this paper will – if nothing else is noted – refer to the authors of this paper, as well as their close colleagues. Other, typically technological, researchers are often involved in innovation, however not much so in this particular story.

ences from the first project period when writing the proposal. These experiences, both theoretical and empirical, are presented briefly in the following and can be seen as T_0 and E_0 for this article.

The earlier conducted project and the new proposal to be written were both situated within a research programme related to Regional Development and Innovation (RD) in the Research Council of Norway. The programme had a first project period between 2007 and 2010 in which 15 regions in Norway ran projects. Every project was required to consist of two subprojects: one “interaction project” where co-operation between industrial companies, R&D institutions and regional administrations should take place, and a “research project” where one or more research institutions should conduct academic innovation research on the activities running in the interaction project. The interaction project for the first RD period had been divided into several subprojects defined by company networks within a sector or a theme.

The programme plan for the first period stated a number of means to be tested in the interaction projects such as mobility between industrial companies and academic institutions, action research and employee-driven innovations. All these means were tested in the first project period and the researchers were planning to study their influence on innovation in more detail.

3. Empirical part 1 (E0): Getting ready for a project

This empirical section explores the phase leading up to the Research Council of Norway’s eventual decision to finance the project and tries to answer questions like: What is the project about; why and how was a proposal written; and who were the involved parties?

The researchers had rolled up their sleeves at the beginning of 2010, ready to write a research proposal underlying the establishment of RD 2, i.e. a second project period of the RD project. A programme plan had been issued by the Research Council and an application deadline set for the autumn of 2010. According to the content of the programme plan and experiences from the first RD project, the researchers maintained a focus on innovation in networks and research on different means to accompany such innovation processes. Different research groups were working on defining themes for networks of involved companies and developing an initial research proposal. In parallel to the research project, the application also needed to include an interaction project proposal consisting of descriptions of how the networks should be organised. The County Council, who would be the owner of the eventual project, took charge of the overall process and organised a team of process facilitators and editors who were responsible for putting the final application together. The network descriptions to be part of the final application were evaluated and ranked by an organ at the County Council called the Competence Initiative. This organ is set up to “help [the County] become the leading region in Norway in entrepreneurship and innovation” (County report, 2013) and consists of members from Innovation Norway, regional chapters of the Norwegian Confederation of Trade Unions and the Norwegian Confederation of Enterprises, the regional university college and political representatives. Five network descriptions were picked to take part in the final application and three out of these five had not been part of the RD 1 project. The project application had to include a description of: the interaction project (i.e. the network descriptions), the research project and an overriding part on how the two projects should be integrated. In order to study the inno-

vation project, researchers described a similar approach to that used in RD 1 based on action research and engaged researchers in the interaction project. Integration between the interaction project and the research project was, however, inadequately described and the Research Council rejected the application in the late autumn, 2010.

Nevertheless, the Research Council had money to support regional initiatives and invited all regions that had project applications rejected to resubmit revised applications before April 2011. Again, the County Council took charge of the application process but this time hired a person from Innovation Norway to edit the proposal. The interaction project was, in this second round, described by invited partners. A criterion made by the Research Council was that the focus areas in the application should be thematically connected to the central tasks for the County council as described in their own strategic plans. Three themes were selected for which networks would be organised: 1) energy technology; 2) health-care technology; and 3) energy-efficient rehabilitation of buildings (hereafter denoted ERB as this theme will be more in focus in the following). ERB aimed at “increasing the volume, and the rate of, development and introduction of new products and solutions for energy-efficient rehabilitation of buildings”. A non-regional actor, the BI Norwegian Business School, was invited to head the research project based on a recommendation from the Research Council. Researchers from BI set the research agenda and introduced new and more process-oriented approaches towards understanding innovation. The method for the research project shifted from an action research approach to a more ethnographically oriented approach. For each of the network themes in the interaction project, especially interesting research issues were defined.

Some of the researchers who had invested much time in the networks present in the first RD project were disappointed with the discontinuation of established networks. An important contribution of one of the PhDs produced in the first phase was related to the difficulty of getting networks up and running and even more the difficulty of getting useful contributions to flow between the network and the involved organisations (Rubach, 2011). Now, network activities had been terminated at the time when they were just up and running.

Disappointment was not the only negative emotion created in the application phase. The County Council’s handling of the application process where central researchers in the first RD project were denied responsibility and where research approaches became politically steered made some refuse to take part in the revised project. The initial theories and expectations of empirical material preceding the application writing had been wrecked and new ones established. The remaining researchers had to adjust their theories and approaches in the field accordingly.

4. Theoretical part 1 (T0): Networked knowledge acquisition and dual organisation-development in the construction industry

This theory part describes the theories that were presented in the (accepted) research proposal related to the ERB project.

The research project proposal within the overall RD proposal stated two main goals: 1) to strengthen the understanding of innovation processes in networks involving companies, public actors and users; and 2) to develop local research competence at an international level within the innovation field. The proposal further emphasised the private actors’ (i.e. companies’) role in interaction and innovation in the region. To reach the goals,

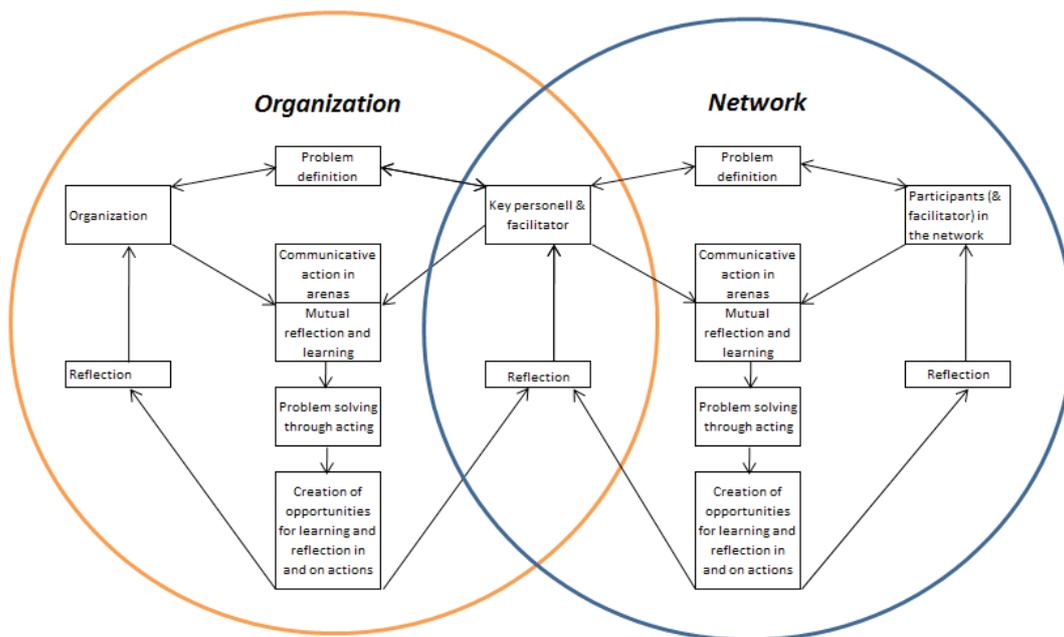


Figure 1 The dual OD model (from Rubach, 2011, printed with permission from the author)

ethnographic case studies of the activities going on in the interaction project were to be employed. The local competence building would be guaranteed via collaborative research seminars, as well as relating a postdoctoral researcher with her PhD experience from the previous RD project to the new research project. This had implications for the theoretical approach to make sense of the work in the interaction project. The postdoc candidate started to work on her initial analytical framework. Within ERB, she decided to further develop the model that was one of the contributions from her PhD (Rubach, 2011): the dual organisation-development model (as shown in Figure 1). The model focuses on the link between intra- and interorganisational learning processes and innovation.

The model shows that learning (or innovation) processes in networks mimic those going on within organisations. For learning to occur, there must be information that “travels” with people from the participating organisations to the network and vice versa. Rubach (2011) showed that the intermediating persons, the bridge walkers, are important for gaining learning from and utilisation of network participation. Thus, there are three important processes taking place: 1) the intraorganisational process; 2) the interorganisational process; and 3) the bridging process between the intraorganisational and interorganisational level.

The dual OD model was further developed by the researchers into a new, combined theoretical model with Håkansson and Ingemansson’s (2011) perspective on networked knowledge acquisition. Håkansson and Ingemansson (2011) explore connections between innovation and knowledge in the construction

industry. They propose a taxonomy for five different types of interaction and explain the knowledge involved for each type. The five types are: 1) pure exchange; 2) minor social exchange; 3) technical exchange; 4) co-operation and 5) networking. The degree of interaction increases from type one to type five, and so do the knowledge involved and the learning. Pure exchange is explained as interaction deriving from exchange of products and services for money. Resources remain unchanged by the interaction and there is no knowledge transferred except the one existing in the product. Minor social exchange is set to include some social sentiments developing through repetitive exchanges. This can result in minor changes in the orientation and/or knowledge of the involved actors but only regarding the counterpart’s existence and features. Technical exchange is explained as interaction that results in changes being made to the product and/or production facilities where specific technical knowledge can be transferred. Co-operation is defined as interaction that results in changes being made to multiple tangible and intangible resources, where both sides in the relationship are affected. The knowledge content is often extensive. Finally, networking is explained as interaction that results in changes being made to several tangible and intangible resources and where several parallel knowledge processes appear. Here more than two parties are affected.

Increases in the degree of interaction enhance the possibilities for innovation. However, Håkansson and Ingemansson (2011) claim that the construction industry is characterised by interaction of the three first types, involving little interaction where

Table 1 Combining interaction categories and the elements of the dual OD model

	Intraorganisational innovation processes	Interorganisational innovation processes	Bridging intraorg. and interorg.
Pure exchange	No	No	No
Minor social exchange	No	No	No
Technical exchange	Yes, minor	No	No
Co-operation	Yes	Yes	Yes
Networking	Yes	Yes	Yes

companies instead handle development and attempts at innovation internally.

The combined model, shown in Table 1, makes the connection between the five types of interaction from Håkansson and Ingemansson (2011) and the three processes of network learning from Rubach (2011). Rubach, Hoholm and Brekke (2012:p.7) stated that “if the building construction industry is going to develop and live up to the demand for a more environmentally sound development, the industry must be included and involved in initiatives where knowledge transfer and creation of joint knowledge are focused”.

For the building construction industry, as well as the individual firm, to develop and innovate, the purchasing of standardized products and services will not force this wanted development, instead ending in pure exchange or minor social exchange interactions (Håkansson & Ingemansson, 2011). Table 1 indicates that co-operation or networking, which promotes bridging the intraorganizational and interorganizational processes, should be cultivated in order for the total industry as well as the individual firm to develop and innovate. Thus, when Håkansson and Ingemansson’s (2011) taxonomy of innovation in the building construction industry was combined with the dual OD model from Rubach (2011), the researchers were equipped with a “tool” for what empirical instances to search for.

The ERB project seemed to be the perfect setting for scrutinising the proposition of the connection between networking and innovation and finding the right empirical instances. The researchers planned to follow how actors from the business construction industry were enrolled in the project, how all actors (hopefully) shared and developed new knowledge, and how they co-operated towards the goal: energy efficient rehabilitation of buildings. Would they really explore new solutions together? What would contribute to or restrain the possibilities for finding new and innovative solutions? Would the project reach the set goals, or would it end up demanding the well-known and/or the cheapest solutions? And finally; how would this affect the possibility of ERB to facilitate the enhancement of competence and innovation in the regional industry related to energy efficient rehabilitation of buildings?

Now, let us dive back into the empirical sea.

5. Empirical part 2 (E1): The project gets underway and mutates

The second empirical part started in a large meeting room in a hotel on 14th June, 2011. The appointed project leader for ERB opened a workshop organised by the RD project with the title: “Energy-efficient rehabilitation of buildings” (meeting I). An audience of about 30 people was present, representing the construction industry, entrepreneurs, consulting firms, political bodies, research institutions and others. They were there to be informed about the project and contribute in a session denoted a “mini-foresight” where groups were supposed to answer three questions: 1) What important drivers affect energy-efficient rehabilitation as a sustainable industry in a ten-year perspective (up to 2020)?; 2) What actors have – or should have – a role in energy-efficient rehabilitation of buildings in the region? How can the actors complement/strengthen each other?; and 3) What kind of network do we need? What strategic question(s) should the network address?

The workshop was clearly focused on how a network should be assembled. There was a more or less defined theme (energy-efficient rehabilitation of buildings) that relevant actors were

invited to discuss. It is noteworthy that the seminar was held a week before the project application was approved and the project was granted money from the Research Council.

The next common meeting place was a seminar on 14th October of the same year with 80 people attending (meeting II). Most of the people were from the political establishment, many were researchers or consultants and a few were industry representatives. Between these two seminars, a work group consisting of the project leader of ERB, an architect and representatives from two research institutions, two consulting firms and the regional administration had been formed. The work group had organised the seminar but was also responsible for a report on what ERB should be all about. Also, the County Council had offered to use one of their buildings as a test arena (the actual building had to be selected by the project). Participants at the seminar gave feedback expressing disappointment over the slow progress of the project and lack of written material available prior to the meeting. The final words of the résumé from the seminar say: “We experienced a great interest and many who want to be contacted, and we look forward to establishing the pilot project where the County Council will be in the driver’s seat” (meeting II).

The work group spent two months on preparing the report that was sent to the County Council. The report suggested that two more work groups should be formed: one work group for technical assessment, which should choose a building as a test arena and propose measures to be part of the rehabilitation. The group should include competence in the physics, architecture, energy distribution and technical installations of buildings. The other group should, according to the group’s memo, focus on the organisation of the building project and give advice as to how the actual project can be undertaken. The group was required, according to the report, to have good knowledge of public procurement and models for building processes.

The report was accepted by the County Council on 20th January 2012 and frames for the work were laid out. The work group responsible for the report was assigned the task of choosing the building to serve as the test arena. The actors in the work group were paid 65% of their normal hourly rates, as the County Council demanded that the participants contribute the rest as their own effort (“in kind” hours). This was done in order to recruit actors that were serious about building this up as a new development area for the region. The work group were also responsible for inviting interested parties from the construction sector. The work group accepted the terms a week later and a professor from the University of Life Sciences was handed the task of editing the work.

During the early spring of 2012, the work group conducted site visits to four candidate buildings. A high school in a city centre (next to the County Council) was chosen because of its inherent ability to create transferable knowledge to be applied on other buildings, its potential for energy efficiency, its placement and its shape (County meeting memo, 2012). The other candidates were either old buildings with special requirements related to keeping the facade intact or deemed to be atypical for the buildings the County Council is responsible for.

Soon after, a new workshop was held with invited actors to discuss the implementation of possible solutions to make the building into a reference rehabilitation project (meeting III). This time, there were no representatives from the construction industry, albeit several consultants and organisations did work with buildings in general and energy use in buildings in particular. Many issues of interest to consultants and researchers were brought to the table. The majority of them were related to

how buildings can be insulated and how systems for automated control of building energy can contribute to creating energy-efficient buildings to the passive house standard. Passive houses will have little need for heating in winter and subsequently little need for cooling in summer.

At the same meeting, it was decided to raise the sustainability ambitions for the rehabilitation project. It should not only aspire to energy class “A” (the best level in the Norwegian energy grading system, <http://www.energimerking.no/> 2013), but an aim was also set to rehabilitate it to a classification of “Excellent” in the BREEAM-NOR classification scheme. BREEAM-NOR is the Norwegian version of the Building Research Establishment Environmental Assessment Method (BREEAM) for buildings developed by BRE in the UK. The scheme contains ten different themes (e.g. energy, materials and waste) with several subthemes for which a score can be granted.

As a result of the workshop, the work group was split in three: one with responsibility for process and progress; one responsible for defining how the building could be used for R&D; and the third for specifying how the building could be used for educational purposes. All three groups developed reports that were put together and presented to the County Council in late summer 2012. The report also includes a so-called BREEAM-NOR pre-analysis in which measures to achieve the “Excellent” classification are described. None of the work groups’ reports include much reference to (product) innovation in the construction industry. With a dose of goodwill, there are traces. The report from the process and progress group includes mention of a supplier development programme: “The project has the ambition to create new opportunities for the business in [the County]. This requires time in the schedule for suppliers to develop the solutions asked for by the competence group before the delivery is due. The supplier development programme should be described early in the project but executed later”. In addition, the research and development group describes project ideas that can be used as platforms for product development and includes a paragraph on a new measurement chip to be tested in the project (Project workgroup memo, 2012). Actually, although it anticipates the course of events, the measurement chip is the only material evidence that smells of product innovation in the project.

The work groups’ preliminary reports were presented to the County Council at the end of May, 2012 (meeting IV). The project leader of the ERB project welcomed everyone and explained how the ERB project, and a second project on energy-efficient rehabilitation sponsored by the Norwegian State Housing Bank, could provide useful input to the upcoming rehabilitation of the high school. Present, in addition to people from the ERB project and from the Competence Initiative, were a handful of leaders from the building management section at the County Council. These leaders are responsible for the actual rehabilitation of the high school. They were presented with the findings from the report and a suggestion on how the actual building process should proceed. They did, however, make it clear that they had standard procedures related to both the process and to procurement. ERB could be one of the sources of information guiding the project, but the leaders made it absolutely clear that the responsibility for rehabilitation was the building section’s domain and not that of a project. Also present at the meeting were representatives from the high school, including the principal. He had an engaging speech about how and why the rehabilitation process had to involve the users and their needs. His vision was a “transparent” school where activities are visible and daylight is allowed throughout the building. This vision does not fit well with a su-

per-insulated passive house, as large window panes and requirements for insulation do not go well together.

The researchers left the meeting somewhat bewildered. After almost a year, company representatives had barely got their teeth into the project, creating few opportunities to investigate industrial renewal or product development processes. Now it turned out that even other members of the County Council and the building’s users had little interest in the ERB project. How and why had the boundaries around the ERB project, a second project on energy-efficient rehabilitation and the project of actually refurbishing the high school become so fuzzy? How could the ERB project be employed to teach anyone anything about innovations? How could the postdoc researcher employ the combined model of networked knowledge acquisition and dual organisation-development in the construction industry?

6. Theoretical part 2 (T1): Ideas or activities?

Well, she could not. The framework presented in the first theoretical part did not appear to be the right equipment out in the field. Of course, the dual OD model could still be employed for the network activities in order to investigate how the participants brought knowledge back and forth from network arenas and how that in turn created learning and innovation in the different organisations. However, the types of interaction proposed by Håkansson and Ingemansson (2011) are clearly linked to industrial activities and without any industrial actors the typology seems less relevant. Industrial actors were only indirectly involved as industry was going to be asked for specific deliveries. The industrial actors were clearly not to be involved in the processes of defining the new solutions, as this was to be done by other actors (for instance R&D institutions). This equals technical exchange in Håkansson and Ingemansson’s (2011) typology and may lead to some intraorganisational learning in involved companies (Rubach, 2011). There are, however, fewer opportunities for interorganisational learning processes and thus innovation (Rubach, 2011). One can claim that the activities observed in the project included the two “highest” forms of interaction, namely co-operation and networking, but without any forms of exchange (comprising the three “lowest” forms of interaction) there is little substance, and it is difficult to see how any resources get affected. How could the researchers proceed?

The researchers had to go back to the drawing board to find other models to capture the events in the empirical material. What was more natural than to start investigating the gap between the expected and the actual findings in the project?

A seminal book by Håkansson and Waluszewski (2002) called *Managing Technological Development: IKEA, the environment and technology* is both a landmark in the IMP tradition and an exploration of how technological development takes place. The book shows how environmentally friendly catalogue paper is developed through changes in resources, actors and activities. At the outset, there are similarities to the ERB project. Both relate to a demand for a new and “greener” product where the product specifications at the starting point are fuzzy. Håkansson and Waluszewski discuss how the idea of a “green” paper can be translated into an actual product and how the activated structure (i.e. the physical production processes) is transformed in the process. To create a better understanding of this not just being a straightforward process where an idea can immediately be turned into a product, Håkansson and Waluszewski introduce a distinction between the image level, where idea structures of how different resources relate are situated, and the activity level,

where actual processes happen. Ideas are cheap, while physical resources may refuse to change, or as Håkansson and Waluszewski (2002) write:

In the struggle for new ideas a large number of hypothetical solutions are brought forward and discussed. These may include ways of changing the production processes, development of existing products, the creation of new technical solutions, the establishment of new laws and the creation of voluntary agreements... [An] idea structure includes different kinds of alternatives to the solutions realized in the activated structure. Hence, the idea structure is characterized by a surplus of suggestions. (p.81)

This suggests that a struggle for the right representation of an idea structure can take place without connections to the activated structure, much as experienced within the ERB project. In the research project connected to ERB, we wanted to employ this idea to see whether there were indeed any connections between the idea structure in the ERB project and the real activated structure in the construction industry in the region.

Shih (2011) used a similar analytical vantage point to discuss what role public policy can play in the formation of business networks. With the Taiwanese semiconductor industry as a case study, he shows how policy acted on or towards different resources. He concludes that: 1) the development of the semiconductor industry in Taiwan cannot be seen as a linear development from R&D through production to use but rather as moving back and forth; 2) new resources are combined with existing resource structures (or in other words an existing activated structure); and 3) the industry development was clever in not competing with the multinational companies but instead offering complementary resources to their value chains. He praises Taiwanese policymakers for being good network actors through granting the industrial actors enough flexibility to pursue relevant national and global network partners, and he warns that the advantageous characteristics of policymakers are far away from controlling the network. Shih's (2011) paper creates a platform for understanding how triple helix actors can form relationships to enhance innovation and emphasises the same "heaviness" of existing activated structures as Håkansson and Waluszewski (2002).

Another interesting study is Waluszewski's (2011a) investigation of hindrances and opportunities for public policy to influence industrial renewal. She shows how innovation policy is influenced by at least three different theoretical ideas: 1) sources of innovation are outside the business landscape; 2) organised co-operation among universities, industry and government will create innovation; and 3) development and economic utilisation takes place in close spatial proximity. These ideas stem from different theoretical approaches, such as the "National Innovation System" approach (also identified as a precursor for "Regional Innovation Systems" (Cooke, Uranga & Etxebarria, 1997)), the "Triple Helix" approach and the "Cluster" approach. She further argues that these ideas and theoretical approaches lack a good understanding of innovation taking place in interaction between industrial firms and also of the different logics of academia and business. We have already encountered the approaches she describes in T0 and T1, but then mostly as unquestioned assumptions about how innovations take place. This reinforces Waluszewski's arguments about how innovation policy is played out in reality. At the same time, Waluszewski offers an explanation both for why the public financing of innovation projects is set up as it is and why innovation in such projects is unlikely. This is again consistent with a model where there is a mismatch between the idea structure and the activity structure. The idea

structure tells the policy practitioners to use public money to fund projects where researchers with research findings will cooperate with companies to make the findings into useful products. This rarely happens, however the regime still remains.

The researchers started to speculate whether these insights and analytical tools could be used to investigate if everything in the ERB project happened on the idea level and if reasons were related to a lack of interfaces with the activated structure. The second empirical part showed how production companies and entrepreneurs failed to take part in the project work for more than a few start-up meetings, either because of their own lack of interest or because the project didn't find their ideas interesting. In the third empirical part, we pay closer attention to the actors involved in the project and scrutinise their interests in and relations to activated structures to study whether the distinction between the idea level and the activity level is useful for understanding the project, or more generally to study the lack of material innovations from politically managed/governed network projects.

7. Empirical part 3 (E2): Activities in a world of ideas

Equipped with a model that discriminates between a level of ideas and a level of activities, the researchers waited for the interaction project to initiate the next activities. A report had been handed to the County Council at the end of August 2012. Based on its content, in late September the County Council decided to allocate resources to the establishment of a competence group and initiate activities to analyse the conditions of the school building.

On 16th November, the work group that had been involved in the writing of the report met at the high school potentially to be renovated, to discuss which feasibility studies and analyses were required to implement the Council's decision (meeting V). The principal welcomed everyone and gave a presentation about the building's present (poor) condition. Thereafter, the ERB project leader and a representative from the County Council talked about the Council's decision and about relations between the RD project, the County Council, the project at the high school and other research and development projects. They described the ERB project as successful based on the number of workshops held and new project proposals being worked on as a spin-off from the project. After these introductory presentations, the floor was opened for everyone to discuss how we could proceed with facilitating analyses to make the building a true example of energy-efficient rehabilitation. The only company present that delivered a product different from words or drawings was a start-up company offering a measurement sensor and transfer technology. They had prepared a presentation of what their technology could offer. Finally, after a short round of discussion, it was decided to create two new subgroups, one to work on the development of Building Information Modelling (BIM) and the second to work on the design of a measurement programme, data collection and analysis connected to energy and indoor climate parameters at the high school. Each group appointed a leader to convene group meetings.

During the period between the end of 2012 and the beginning of 2013, the two subgroups held several meetings and started to hammer out how the BIM and how the measurement programme should be designed. Different experts, almost exclusively from outside the region, became involved and interesting research questions were posed, for instance related to how the BIM could contain sustainability data or how measurements of indoor air

quality could be coupled to the building's function. However, these questions seemed a bit far from the realisation of commercial products, except for competence products to be sold by consultants and advisors.

During the winter of 2013, some of the researchers were sitting in one of the researchers' office. Once again the problem of the missing industrial companies had been discussed. The research project was meant to investigate how the means for regional innovation had affected the introduction of innovations or the possibility of innovating in the construction industry in the region. The research proposal had even emphasised that the research should focus on the private actors' (the companies') role in interaction and innovation in the region. How could they focus on the companies when there were none? Nevertheless, there were plenty of events taking place, meetings being organised, reports written and actors busy making themselves useful. So, what if these activities are described through focusing on the involved actors' *raison d'être* and their activity structures? Would that tell a story about why the project proceeded as it did?

Let us move back in time to the writing of the first (refused) project proposal. At least two main actor constellations were working on a research and an interaction project proposal, respectively. The RD programme plan had explicitly stated that the research project and the interaction project should be coordinated but still the communication between the two groups was limited. We have already speculated that this was due to conflicting interests between members in each group and different perceptions of what the RD 2 proposal should end up being.

One of the constellations consisted of researchers, most of whom had been working with, and even managing, the first RD project. There were good reasons for these researchers to continue to use the methods (action research) and even the empirical areas (the networks) from the first project period. Three years is not a lot of time for scientists to get material published, especially if they are organising the networks where empirical data are collected. They also showed concerns over the continuation of the (still fragile) networks if they were not funded through the new project. The researchers thus had an established research activity structure they wanted to continue.

The other constellation mainly consisted of people from the County Council. These had good reasons for wanting the control of the second period of the RD project. The project was supposed to foster the region's innovation capability, and the County Council had, over the last couple of years, been given a stronger role related to business development and innovation in the region. In the first project period, their influence on which network was to be organised had been small, as was the connection between the political ambitions of the County and the project's content.

From the outside, it became obvious that the first (refused) project process had to fail. But not so with the second process, where the County was given a second chance to submit an application. This time, two innovation incubator companies (boundary organisations) were invited to construct the network descriptions and a more prestigious national academic institution headed the research proposal. Previous research environments had to choose whether to join in or not. The needs of the project proposal fitted well with all the invited partners' activity structures. They all had experience in the requirements for getting public finance and the ability to mobilise the right words to trigger the interest of the decision makers in the other end. One can say that their writing activities fitted well with the decision makers' ideas of what a proposal should be.

When the project was accepted and money granted, the involved actors had to work from a rather abstract and overriding ambition in three different themes. This can help explain why the first event was a workshop where several actors had to help in explaining what the project should be. During the first and the second event, people from producing companies in the construction sector were present (meetings I and II). Then they never showed up again. When the organisers of the ERB project were confronted with the absence of industry, they said: "They didn't really want to be part of the project and they just wanted to push their insulation products; nothing new." Clearly, there were differences in the perception of what could be gained from such a project, and a fuzzy project probably did not fit well into the activity structures of the producing companies. Neither did the products of the companies fit well with the project organisers' ideas about innovation in the construction sector. The owners of the project, the county council, seemed to have forgotten the promise of industry involvement and never questioned the disappearance of industry representatives.

The ERB project group still needed to make the project more concrete to survive and progress. This could have been done through coupling the project to ongoing development in the industry. However, considering the vast number of people from adjacent organisations (e.g. consultants, advisors, politicians and architects), the search for the one building to investigate seemed like a sensible choice. This made it easier to make the project relevant for all the involved institutions' activity and idea structures, and the activity and idea structures would coincide.

Diving into the project activities and materials, one can find hours of meetings, hundreds of pages written and numerous academics and other experts. These have contributed 35% of the financing of the project through their own time use and there have been mutterings that the ERB project isn't exactly a lucrative project. Nevertheless, energy efficiency in the rehabilitation of buildings is a growing part of the idea structure related to the construction industry. The ERB project has in fact provided a platform for developing knowledge and relations with other actors within the field, and thereby access to proposal-writing activities. The researchers could use the project as an arena for conducting research on the connections between rehabilitation and energy efficiency, and they could use knowledge developed in the project in research proposals. Hence, the ERB project has fitted well with all the research partners' activity and idea structures.

The County Council and the ERB project could both gain from the linkages made between the Council's refurbishment activities, the ERB project and other projects within the same area. The metrics used for measuring the output from the projects are not related to commercial products; rather they consist of counting events, attendees, project proposals and similar. Through its good performance in such metrics, the ERB project thus appears to be a successful project. The County Council in turn becomes the sponsor of a successful project engaging with one of the central themes of the Council. Again, there seems to be a good match between the activity and idea structures.

T1, i.e. the theories underpinning the second empirical stage (E2), thus showed great power in explaining the empirical findings the researchers made in both the second and the first empirical stages. The use of a separation of activity and idea structures created a neat description of how actors mostly connected to idea structures became involved in the project and industry actors never did. There seemed to be a good match between the theories used, and the empirical material encountered. However,

employing the theories made the researchers ask why disentangled activities and idea structures could continue under one common umbrella.

In the spring of 2013, the County Council held a hearing about the high school and its future (meeting VI). Prior to the hearing, a consultancy firm had been engaged by the Council and had evaluated the school as being in too bad a shape for rehabilitation. Demolition of the old building and construction of a new one would be the better alternative. In the hearing, the Council explicitly asked the RD project (which is here denoted the ERB project) to respond to the conclusions from the consultancy firm. And the ERB project started working on the issue...

8. Theoretical part 3 (T₂): A heterogeneous actor network with common aims

Wait! How can the ERB project work on anything? Isn't the project an arena for doing work related to energy-efficient rehabilitation of a high school? How can it suddenly be granted actor status? Who would be legally responsible for the answers the project gives?

The third empirical part showed that the actors discussing the idea structure connected to "energy-efficient rehabilitation" of buildings do indeed have their own activity structures coupled to the themes, although not their own industrial activity structure. We saw that the study object changed character depending on which actor was scrutinized. We even found an innovation, the measurement equipment further developed within the frames of the project and coupled to models for "prototyping" buildings.

From the second theoretical part, the researchers had become equipped with an understanding of a possible separation between an idea structure and an activated structure. Returning to the empirical enquiries, they found that this model helped them understand why there was no industry present in the project and further that the ideas underlying the project (such as "triple helix" and "regional innovation systems") were disconnected from activated structures. Nevertheless, the project seemed successful to many of the involved actors and it became clear that to them, there were real connections between the idea structures and the activated structures related to the project. Even if the project could not produce industry renewal or product innovation, it could participate in fulfilling some of the involved actors' aims.

This finding could not be elaborated only with the theoretical foundations as laid out in the theoretical part 2. Waluszewski (2011a) can tell us what underlying ideas make publicly funded innovation projects rigged the way they are and also why they will never produce any innovations. However, she cannot give insight into why such projects keep getting financed. This insight might be enhanced by searching for other theories to provide more pieces for the puzzle. There is no clear-cut answer as to how to best search for theories or concepts to develop already existing theories or concepts in an abductionist research process. However, it is probable that the researcher(s) will gain from scanning their own reservoir of knowledge. All the researchers involved in the described project had earlier experience with Actor-Network Theory (ANT) and discussed whether this approach could contribute to the project.

ANT has a processual view of the world that can be claimed to coincide with the IMP approach in many important aspects (Brekke & Hoholm, 2005; Brekke, 2009). For instance, both are well suited to studying product development and innovation (Hoholm & Olsen, 2012), basing their analysis on interaction and the embedding of socio-material relationships. The basic

idea of ANT is that the stability (or truth) of anything – be it, for instance, a product, an organisation or an idea – is dependent on the number and quality of relations between heterogeneous actors. Both humans and non-humans are granted actor status within ANT, even on the same level, requiring the researcher to find a symmetrical position between the man-made (social) and the non-human (natural). In an ANT description, a building can act to change a human actor just as much as a human actor can act to change a building.

What does ANT state of relevance to publicly funded regional innovation projects that does not produce innovations? The argument of stability granted as a consequence of relations can be applied to the empirical material we have encountered (and also in further studies in the same field). The symbiotic relationship between boundary organisations and political bodies has been hinted at but not scrutinised properly. Similarly, the metrics for innovation projects seem to be well in concert with activities well suited for (or tightly related to) non-industrial actors developing or managing knowledge. In our specific project, the ERB project, relationships between the project and industrial actors were never actively developed and industrial actors only showed up in a paragraph in a report as someone who could get an order from "the competence group". Instead, close relations were induced between the project and a specific building, the high school. This building had a design and technical systems that acted upon the experts (researchers and consultants) to make them choose it as an example. The characteristics of the building became connected to the decision makers' realities in the process. Through this, a myriad of relationships were made possible through the selection of the example building from the project to, users, media, heat exchangers, caretakers, a principal, a sports hall, the building management section at the County Council and all similar buildings in Norway. Each of these actors could reinforce the project's status and ability to continue. All of these relationships may, however, turn out to be deceitful just as the building management section at the County Council who threatened not to care about the ERB project at all.

An empirical part number four would start out from here and investigate whether the actor network created by the ERB project could explain its journey towards stability as well as its potentially stabilising effect on future publicly financed innovation projects. ANT could provide a vocabulary and a way to sort and describe the empirical material from the journey – as hinted about in the previous paragraph – that could both increase the understanding of the actual case and develop IMP theories. Socio-material and socio-economic alignments, negotiation of interests, as well as the production of meaning would be brought to the fore. Instead of starting that journey, we end the tour here, and move to the concluding section.

9. Concluding section

We have followed two different tracks, one focusing on how an innovation project evolved and the other on the development of the theoretical approaches to guiding the research. The tracks converge as we reach the final stages of the project's financed time period and this article. Descriptions of the empirical data start to match with theoretical approaches to make sense of the empirical materials. Together they give insight into two issues: 1) what we can learn from a publicly sponsored innovation project, and 2) how the method of abduction can be employed as systematic shifting between theory and empirical material. These two areas of insight are presented separately in the following.

9.1 What can be learnt from a publicly sponsored innovation project?

What can be learnt from studying a project that seems to produce almost nothing? We started out with the belief that we should add to the knowledge of how innovation takes place in a network of triple helix actors. We were hoping to add understanding to how bridge walkers, i.e. those individuals taking information back and forth between a company and a network, can induce more effectively both intra- and interorganisational learning processes. We especially wanted to provide insights into how the construction industry can engage in better networking interaction processes to create innovations. None of these desires were fulfilled, for one simple reason. There was not a lot of innovation going on, and few participating companies.

Instead we had to shift our reference points and our desires. We could still follow the intention of being close to practice, but the practice was not linked to that of industrial actors striving to develop innovations, but rather “word-producing” actors: the professional project administrators, consulting firms, the regional administration, research institutions and educational institutions. And we could still provide descriptions that can be useful to all “triple helix” actors, regional or international. Examples have been shown in the empirical material of what can be claimed to be process innovations. The County Council has involved a multitude of actors in a new fashion in its decision processes. However, the institutionalisation of this process needed in order for it to be a true innovation cannot be judged yet. An innovation project with little useful material outcome is nothing new. Waluszewski (2011a; 2011b) made thorough accounts of how public policy attempts to foster innovation and the ideas such attempts are founded on. Her articles hint at these attempts being unfruitful for creating industry renewal and specific innovations. This article has provided empirical insights into one specific public policy-driven innovation project that supports her thesis. This again could mean that there is a danger that money flows in the wrong directions, if we really want innovation to take place.

In the specific case reported here, the regional administration wants to ride two horses at the same time, both to foster innovation activities in the region and to provide better services for the people in the region. This was emphasised already in the project proposal writing where networks were selected both for their political *and* industrial relevance. The refurbishment project thus became a platform for both. There is no reason to believe that similar ambitions to achieve synergies are unheard of in other places. Instead, there might be good reasons for looking for synergies in the work of a County Council, but mixing up the industry products to be produced in a region with the content of the services to be provided in the same region is probably not one of them.

The theoretical approaches described in the later stages of the article describe innovation both as non-linear (Hoholm, 2009) and as transnational industrial interaction projects (Waluszewski, 2011a; 2011b; Håkansson & Waluszewski, 2013). As these insights are based on thorough empirical studies, there might be good reasons to try to learn from them.

Most regions in the industrialised world probably have a policy document stating that they should be a leading region related to innovation. At the same time, the concentration of product innovation to a limited number of transnational industrial firms and networks is evident in many industrial sectors, hence companies anywhere in the world must relate to such transnational networks in order to take part in producing innovations

(Waluszewski, 2011b; Håkansson & Olsen, 2012; Fitjar & Rodríguez-Pose, 2011). County Councils probably do not possess the necessary tools to outperform professional industrial firms, not even as process facilitators. We would argue that instead they can be more proficient both as a service provider and as an enabler for regional industry by cultivating each separately and refraining from the enchanting of innovation. Using taxpayers’ money, public services should be as efficient as possible and therefore probably consist of the best material products. The likeliness of such products being innovated in the local region is small at best, and a County Council would get better value for money if it worked on the adjustment of the globally distributed best products. In other words, adaptation rather than innovation. In many cases, regional industry might be better off by adapting rather than innovating. The exception to this is in cases of highly specialised regional competences. However, in such cases, the involved network is likely to be highly embedded into transnational production networks already. Of course, adaptation may require innovation within the company itself, but the company does not have to beat the companies with a capital base larger than most of the world’s nations.

It is highly questionable whether innovation projects can be managed as a planned process with an expected outcome, as innovation projects by necessity will encounter unexpected events with an open outcome (Håkansson & Waluszewski, 2007; Hoholm, 2011). The latter is a central point in the aforementioned theoretical approaches. We encountered this when the renovation of the school was stopped, partly because of suggestions from the ERB project itself. A major challenge of innovation projects evolving in between “planned processes” and the “unexpected” is the important nurturing of actor relationships in the network. Bringing in and engaging both users and producers early in the innovation process, as well as keeping them engaged as the process evolves, will enhance the likelihood for success (see for instance Harrison and Waluszewski, 2008). The ERB project never managed to form relationships with producers, and users were only partly engaged throughout the process.

A shift from the belief that an innovation can both start and end in a single (local) company to a process with numerous actors on the global level requires a rethinking of the underlying models. In the empirical material, we encountered several instances where a linear and rather local approach to innovation was employed. One example was the instance where the ERB project group described the process and the timing of industry involvement, where it expressed the idea that any product can be made to specification and the innovative competence is situated in the formulation of the specification. If the County Council recognises that innovation can consist of local companies adapting to needs of transnational producer networks, the tools they employ for industrial development may change. This would also imply a shift in the model underlying how new products and services are introduced locally, where solutions are no longer thought to be produced locally but adaptations are made to globally produced solutions.

This anticipation of a future public policy domain with adaptation rather than innovation as the buzzword and thing to achieve may well serve as T_0 for the next project.

9.2 How can the method of abduction be used to develop case studies?

From the outset, an abductive approach may seem like laziness or irresoluteness. Something invented by researchers not willing

to take a stand on whether the empirical material or the theories should be given priority. We hope that the article has shown that this is not the case. Abduction rather forces the researcher to take a stand, although not once and for all. Both the theoretical and the empirical domain must be scrutinised one after the other and in the process both the understanding of the empirical material and the content of the theoretical approach are developed.

Most projects start out with either theoretical or empirical foundations that they later cannot escape. When there is a requirement to use a particular theoretical approach, the project's success depends on the empirical material's ability to provide instances in accordance with theory. When the project is linked to a certain theme or event, researchers are at the mercy of the involved actors to do something of research interest. With an abductive approach, the foundations of the project can be less of a straitjacket. Researchers are granted a way, although tedious and demanding, to create images of the world more in line with activated structures.

This abductionist account of a regional innovation project has shown how the ideas and suggestions described in the project proposal were never realised. If the researchers had been forced to stick with the initially selected theories, there would be no account from the project and nothing interesting to report. This would have been fine if the reason was non-activity. However, there were myriads of things happening, just not related to innovation in companies. To stick with the project, the researchers then had to search for different theories, which again asked for different takes on the empirical material. Abductionism thus provides a way for both theory development and for improved analysis of empirical materials. Hopefully, the way this is described or played out in the article can reveal some of the dynamics of abductionist research, and hence be of inspiration to future research projects among network and innovation researchers.

10. Epilogue: Where does a project end? (E₃)

Just before finishing the writing of the article, The education, culture and health committee at the County Council recommended building a new school instead of refurbishing the old one. The recommendation was partly built on advice given by project members in the ERB project. There is still a political process to be undertaken before the final destiny of the present high school building is decided. However, there is little reason to believe that the building will survive, as the recommendation explicitly states that a new building will provide better functionality with lower costs and better environmental performance.

Until the decision is made, the old building's energy performance and indoor climate will be measured and monitored. A complete BIM model has been produced and the proposed R&D activities seem to be completed. However, how can the outcome be used to accomplish the initial aim of energy-efficient rehabilitation of buildings when the building is gone and the RD 2 project has come to an end?

Well, the County Council has applied to the Research Council of Norway for a third RD project, probably starting from April 2014. A new building has already been launched as a potential R&D arena related to the construction industry in the region – an old administration building belonging to a private industrial company. A search conference (Klev & Levin, 2009) was held in January 2014 where invited actors were asked to identify specific research and development tasks that have to be performed to rehabilitate the building into attractive and sustainable premises for tomorrow's knowledge-based businesses. It remains to

be seen whether RD 3 is granted money and – in the eventual implementation of the project – if any industrial actors will be involved.

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