Journal of Systems and Information Technology

Action in action research: Elaborating the concepts of action, roles and dilemmas in a public e-service development project

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Received 8 October 2015
Revised 18 February 2016
Accepted 2 March 2016

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Elaborating the concepts of action, roles and dilemmas in a public e-service development project

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Abstract

Purpose – The purpose of this paper is to elaborate on the concept of action by addressing actions and roles in the practice of action research, illustrated by dilemmas in an action research project on information systems development in public sector. The main ambition with action research is being able to solve organisational problems through intervention and to contribute to scientific knowledge. The main emphasis has so far been on the "research part". Here the authors focus on the "action part" of action research to generate rigorous research, to solve local problems and to deal with evident dilemmas in action research.

Design/methodology/approach – This is a qualitative case study. The empirical illustrations of this paper originate from an action research project that focused the two e-service development initiatives analysed below. The analysis is structured using key aspects and phases proposed by Avison *et al.* (2001). As a result of the analysis, the concept of action is elaborated. The action elements action, actor, motive, space and time are analysed together with different roles. This goes beyond the existing action research literature.

Findings – The conclusions show that there is a need to understand actions and roles within action research projects – not separating action from research. Research is also seen as action. The practice of action research is also discussed as context-bounded interactive social action: action research as a recurrent, interactive and dynamic activity. It is also identified that the understanding of roles, actions and interaction can help handle dilemmas in action research.

Research Limitations/implications – The authors contribute to the body of knowledge concerning action research in the information systems research field and in general by exploring the need to study the concept of action (e.g. situations and elements), to be explicit concerning the different phases, roles and responsibilities and management of different dilemmas in action research. A limitation of this study is that the inter-organisational development character in this study adds an extra dimension into the practice of actions research only partially highlighted. Another limitation is focus on public agencies. However, this is not critical for the results on action elements and the action research dilemmas that are studied.

Practical Implications – The understanding of roles, actions and interaction can solve the dilemmas and challenges linked to the practice of action research in the information systems field, but such understanding can help discover and handle dilemmas in action research.

Originality/value – The originality in this research is an illustration of and a perspective of action research as a context-bounded interactive social action: action research as a recurrent, interactive and dynamic activity. The value is that this knowledge can help handle dilemmas in action research.

Keywords Research methodology, Information systems development, Engaged scholarship, Action research, e-government

Paper type Research paper

Journal of Systems and Information Technology
Vol. 18 No. 2, 2016
pp. 118-147

1328-7265
DOI 10.1108/JSIT-10-2015-0074

1. Introduction

Action research (AR) is an orientation to inquiry often used in the information system (IS) research discipline together with qualitative research ideals, for example, in case study research and ethnographic research methods (Baskerville and Myers, 2004; Baskerville and Wood-Harper, 1998; Mathiassen *et al.*, 2009; Myers, 2009)[1]. The main ambition with AR is often described as being able to solve organisational problems and issues through intervention *and* contributing to scientific knowledge. A well-cited definition of AR is that it "[…] aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science […]" (Rapoport, 1970, p. 499). In AR, researchers are intervening in social systems (Susman, 1983) using a scientific approach to solve organisational problems together with people who normally experience them (Elden and Chisholm, 1993). AR rests on a participatory worldview and democratic values (Reason and Bradbury, 2001) and is frequently used within the IS field (Baskerville, 1999; Baskerville and Wood-Harper, 1996; Mumford, 2001; Chiasson *et al.*, 2009; Conboy *et al.*, 2012). IS researchers have been encouraged to consider AR as a suitable research approach (McKay and Marshall, 2001) to develop knowledge, achieve organisational change and design IS. In general, AR is accepted as a valid research approach in fields with applied research such as management, organisational change and development as well as education (Baskerville and Myers, 2004). At its best, AR contains situations where researchers (theory) inform practitioners and practitioners (practice) inform researchers in an equal and synergistic way (Avison and Wood-Harper, 1991). One relevant question is, however, how we achieve this ideal situation when several dilemmas are present when we practice AR. This is relevant from a theoretical and practical point of view.

The main emphasis when discussing and analysing AR in existing literature has so far been on the "research part" of AR (Avison *et al.*, 2001). The *content* and *context* of AR are well-reported (McKay and Marshall, 2001) as well as parts of the *methodology*, e.g. the problem-solving methodology (Mathiassen *et al.*, 2009; illustrated by Henfridsson and Lindgren, 2005). This is also the case in classical IS approaches such as ETHICS[2] (Mumford, 2001) that rests on a participatory worldview and democratic values (cf. Reason and Bradbury, 2001). In the case of the *practice of AR*, there is more of an emergent set of literature (Chiasson *et al.*, 2009; Cronholm and Goldkuhl, 2004b; McKay and Marshall, 2001). As an example, Chiasson *et al.* (2009) review the IS literature and explore how IS researchers practice AR and how different approaches are mixed in use while managing risks related to research and practice. Our study also explores the practice of AR, but from a case study approach and with a distinct and theoretically informed analytical focus on actions.

A short quote from Avison *et al.* (2001, p. 28) reflects the core content of AR: "Action and research". However, the separation of action and research can be complicated and problematic both practically and analytically, as it represents a dilemma. The challenge with a separation is that research is not considered as action *per se* and that the action concept seems to be used exclusively for actions directed towards a part of a domain (the social system below) located outside the "original" research arena. Maybe it is more suitable to talk about the dual purpose and combination in terms of a: "dual agenda – with practical and scientific dimensions" (cf. Rapoport, 1970, p. 506). To realise the opportunity with AR to "bridge the gap between theory and practice" (Mathiassen *et al.*, 2009, p. 5) within the IS field, and using AR in social science in general, we need to

elaborate analytically more on the separation between action and research and investigate the action dimension of AR.

In recent years, the bridging between theory (research) and practice has been discussed in terms of "engaged scholarship" (Van de Ven, 2007), based on observations that many professionals in practice *fail to adopt relevant research output* within their research discipline and that much of published research findings (Van de Ven, 2007; Mathiassen and Nielsen, 2008; Weick, 2001) "[…] is not contributing in intended ways to either science or practice" (Van de Ven 2007, p. 2). The approach is considered to be demanding and challenging for researchers practicing it in general (Rapoport, 1970) in the IS area (Simonsen, 2009) and also in the public sector IS (e-government area; Berger and Rose, 2015). These aspects of AR in practice represent dilemmas that we need to handle to be successful action researchers. In this paper, we use these dilemmas from the recent discussion of engaged scholarship as a motive to be explicit concerning *action* within AR situations to improve the understanding of the practice of AR.

In this paper, we analyse actions performed by researchers and practitioners and their interaction within an AR setting using a case within the IS research field. We focus both joint and separated actions, for example, directed towards the research arena or an organisation. We like to bring forward a pragmatic conception of the notion of action in AR, elaborated in the following section. An important point of departure in this paper is that action as in researchers' action as such, and in relation to practitioners, is not highlighted enough in previous literature, as stated above. Action is often exclusively used for action in practice ("real life") and as a dichotomy compared to research, but research also contains actions and researchers perform actions, as discussed above. This implicates that we understand research *as* action. In this paper, therefore, we focus on *action* as an important aspect when practicing AR. The practice of AR and actions performed in an AR setting imply that a research and researcher point of view is in the foreground of the analysis in this paper. This is done to contribute to fill the gap in research identified above, concerning the lack of emphasis on the "and" in action *and* research.

The purpose of this research is to investigate and elaborate on the concept of action by addressing actions and roles in the practice of AR, illustrated by dilemmas in an AR project on IS development in public sector and informed by previous studies and literature.

The research questions we focus based on the purpose above are as follows:

RQ1. How is researchers' and practitioners' actions, interaction and roles formed in the practice of AR within the IS field?

RQ2. How are actions, interactions and roles linked to dilemmas within different situations in AR settings (in this case, an IS [public e-service] development project)?

One important contribution from this piece of research is an understanding of how action researchers can deal with the dilemmas to act as engaged scholars achieving relevant and rigorous research. The intention with the present research is to contribute to the existing body of knowledge concerning the practice of AR, focusing action and the dilemmas connected to those situations.

The empirical data that are analysed in this paper come from an AR project in the public sector focusing the development of two inter-organisational (IO) e-services. We

revisit the AR project to deal with the research question outlined above. Therefore, we put the results from the AR project as such in the background. The aim of the project is described in Section 4. The two IO e-service applications are examples of the Swedish Government's ambition to develop public e-services (Government Offices of Sweden, 2008, 2011).

After this introduction, the paper is organised as follows: In Section 2, AR is theoretically described and discussed. In Section 3, the research design is presented, followed by the introduction of the AR project setting in Section 4. The empirical findings and results from the studied AR project are presented in Section 5. The paper is concluded in Section 6. In Section 7, we make some statements about this study's limitations and the need for further research efforts.

2. Action research

In the literature review below, we focus on core characteristics of AR, dilemmas of AR, the process of AR and interactivity in social action within AR contexts.

When discussing AR both in IS research and general method literature, *action* often seems to be associated with or directed to a phenomena that takes place in practice (in terms of e.g. an organisation that through AR are supported in their problem solving). This can be illustrated by the following citation: "Authors must demonstrate a contribution or potential contribution to practice (the *action*). Second, the authors must demonstrate a clear contribution to research (the *theory*)." (Baskerville and Myers, 2004, p. 330). Action in organisations is also called *practical action* (Baskerville and Myers, 2004) following basic assumptions from Kurt Lewin (Baskerville and Myers, 2004; Myers, 2009). In the present paper, we elaborate on the concept of action as an important element of the practice of AR as well as a part of research and contribution to practice. Research is also action, but on another arena, a social context of action, using Mead's (1913) terms.

2.1 Core characteristics of action research

Solving practical problems, issues and concerns, using a scientific approach and at the same time developing scientific knowledge is the core of AR (Avison *et al.*, 2001; Elden and Chisholm, 1993). Because of the problem-solving part in AR, researcher intervention in social systems (e.g. client organisation) is obvious (Susman, 1983). Another core characteristic in AR is the intention to develop a comprehensive view of the social systems that are studied (Mumford, 2001). The intervention means that researchers observe and participate in the studied phenomena (Baskerville, 1999); i.e. "being-in-the" situation (Simonsen, 2009, p. 114). Because of this "inside perspective", AR provides crucial first-hand experiences valuable when developing models, methods and other normative constructions aiming to be relevant and operational when used in practice (Simonsen, 2009, p. 114). In other words, AR ideally develops theory-in-practice-based knowledge that is truly usable for practitioners, e.g. in the IS field. In AR projects, the engaged researcher undertakes a responsibility for managing some or all activities during the project (e.g. related to different stages in an AR cycle, discussed in Figure 1).

2.2 American pragmatism as an underlying philosophy

The key intentions within AR discussed in this paper often entail research methods such as (longitudinal) case studies, participation and observation. American pragmatism is considered to be an underlying philosophy (Baskerville and Myers, 2004). Several key

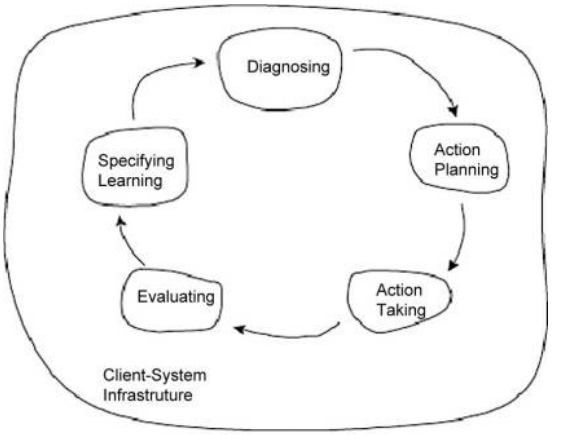


Figure 1.
Action research cycle

Source: Baskerville (1999, p. 14), based on Susman and Evered (1978)

AR premises arise from pragmatist philosophy (Baskerville and Myers, 2004) and link to fundamental issues formulated by Dewey (1938), James (1890), Mead (1913) and Peirce (1905), concerning, for example, consequences that define human concepts, practical outcome that embodies truth, the logic of controlled inquiry and the social context of action (Baskerville and Myers, 2004). Pragmatism, as an underlying philosophy, implies that it is important to ask the right questions and get empirical answers. In this paper, the pragmatic point of departure is important to analyse the practice of AR.

2.3 Dilemmas and challenges in action research

Several dilemmas and challenges are reported in research investigating AR. An overview summarising identified dilemmas and challenges from the literature are reported in Table I.

The general dilemmas of AR posed by Rapoport (1970) ethics, goals and initiatives are echoed also in the IS literature covering AR.

Ethical dilemmas are, for example, if a client is acceptable or not from the researchers' point of view. Of course, this is not only a one way relation – two parties must be able to work in the same value framework (Rapoport, 1970). Rapoport (1970) also discusses the issue of the researcher becoming a captive in one organisation and issues of exclusivity when, for example, dealing with trade secrets. Goal dilemmas can contain relations between the client system and the scientific community. On the other hand, we can have an extreme situation where the researcher uses an environment to generate empirical data "[…] for purposes unrelated to any concerns of the organization or those in similar situations […]" (Rapoport, 1970). In the latter extreme position, the "ivory tower" position, a researcher can be viewed as "parasitical" and "highbrow smash-and-grab types" (Rapoport, 1970). Rapoport

Challenge/dilemma	Description	Illustrative articles
Ethics	Client acceptable or not from a researcher point of view	Rapoport (1970)
	Work in the same value framework	Baskerville and Wood-Harper (1996)
	Lack of impartiality	Baskerville (1997)
	Ethics challenges related to consultation practices	
Goals	Goal dilemmas between the client system and the scientific community – unbalanced relation	Rapoport (1970)
Authority and power	Control structure of AR	Avison *et al.* (2001)
	Determination of action warrants, power concerning the structure of the project and processes (e.g. cancelling activities in projects or whole projects)	Rapoport (1970)
Management and formalisation	Degree of formalisation specifying e.g. commitments, researcher engagement and team composition	Avison *et al.* (2001) McKay and Marshall (2001) Chiasson *et al.* (2009)
Initiatives	Service oriented AR initiatives or (internal) researcher oriented - non anchored – initiatives	Rapoport (1970)
	Ambiguousness vs consultancy	Baskerville and Wood-Harper (1996)
	Problem-driven vs Researcher-driven	Kock (1997)
Quality	Lack of rigour	Rapoport (1970)
	A double challenge – relevance and rigour	Baskerville and Wood-Harper (1996)
	An iterative approach making AR more rigorous	Avison *et al.* (2001) Kock (1997)
Context-bound	"Consulting masquerading as research", context-bound and not context-free	Mumford (2001)
	Failing to extend beyond a local context	Brydon-Miller *et al.* (2003)
Resource demanding	Time consuming and risky approach that might be heavy to manage	Simonsen (2009)
Cycle/process	Enter, staying and exit	Susman and Evered (1978) Baskerville (1999) Mumford (2001) McKay and Marshall (2001) Chiasson *et al.* (2009) Davison *et al.* (2012)
Evaluation	The quality/learning of a process and a result	Susman (1983) Davison *et al.* (2012)

Table I.
Identified dilemmas and challenges in AR

(1970, p. 506) also elaborates on the "time zones" of research and practice and points at the dilemmas of trying to solve practical situations (e.g. decision-making) and careful research trying to avoid "quick and dirty research".

In service-oriented AR initiatives, clients state the initial problem that should be dealt with and the researcher provides methods and concepts to deal with the problem. This

can be contrasted with a situation where initiatives "[…] emerge purely from the internal logics of a discipline" (Rapoport, 1970, p. 508).

Several challenges reported by IS researchers follow the general description of dilemmas in AR above (Baskerville and Wood-Harper, 1996; Baskerville, 1997), for example, lack of rigour, lack of impartiality, ambiguousness vs consultancy ("consulting masquerading as research" [cf. also Baskerville, 1997; Mumford, 2001]) and AR as context-bound and not context-free are reported (Mumford, 2001, p. 241). Another challenge is reported by Simonsen (2009), who consider AR to be a time-consuming and risky approach that also might be heavy to manage. Brydon-Miller *et al.* (2003) point to the weakness of AR being so locally oriented, meaning that many AR projects create improvements at the case level but fail to extend beyond that. Mumford (2001) identifies several challenges related to different phases in the AR process such as: "getting in; staying in; and getting out of the research situation" (Mumford, 2001, p. 20). The AR process as such is discussed further as follows.

Davison *et al.* (2012) also discuss challenges of AR, diagnosing the current situation, planning interventions and organisational changes, evaluating the impact of an intervention and the nature and role of theory in AR. They show how theorising the relationship between focal and instrumental theories might be a way to overcome these challenges and suggest that we should go beyond the cyclical process model of Susman and Evered. We follow this line of thinking below by relating interactivity in social action to AR.

Using AR in an e-government setting has recently been explored by Berger and Rose (2015). They focus on canonical AR and elaborate on nine challenges for e-government action researchers. Some of the challenges echoes previous studies in the IS area, but they also pinpoint challenges that are more crucial in a public sector setting. These challenges include, for example, internal knowledge transfer and learning, a multiple interests situation, decision-making capability, change management, fast-moving (political) agendas and the addressing of end-users vs citizens as stakeholders.

The "double challenge", introduced above, combining action and research is a true challenge – and many failures are reported in AR project when not handling this challenge in a feasible way. Avison *et al.* (2001) elaborate on key alternatives and a control structure to overcome the challenges and dilemmas in combining action and research (cf. Rapoport, 1970) in the IS field. The key aspects of an AR situation according to Avison *et al.* (2001) are as follows:

- the initiation of the AR project (addressing a situation where problems exist);
- the determination of authority for action in the research project; and
- the degree of formalisation of the project.

When initiating an AR project there are two main approaches: the action researcher "discovers" the problems and issues – a research-driven initiation or the problems and the issues "discover" the action researcher – a problem-driven initiation. When we have a research- or researcher-driven initiation, Kock (1997) has shown different forms of failure. The first is the case of "iceberg subjects" (opportunities for improvement are not understood by practitioners). Second, we have the case of irrelevant subjects (there is no obvious practical problem-solving involved). Third, there is no client leading to the

following situation: "No problem setting can be found that matches the theoretical frames of the action researcher." (Avison *et al.*, 2001, p. 30).

The second key aspect, determining the authority for AR project, is also important. The mechanisms (e.g. determination of action warrants, power concerning the structure of the project and processes for e.g. cancelling activities in projects or whole projects) need to be defined early in an AR project. The characteristics of the action warrants have implications for the AR project (Avison *et al.*, 2001, p. 30; Mumford, 2001). Only on rare occasions, an organisation will renounce ultimate authority for action to an external researcher. This is highly reasonable because the researcher's motives are normally divided between research-oriented points of departure and goals, and organisational points of departure and (local) problem-solving-oriented goals (Avison *et al.*, 2001; Rapoport, 1970).

The last key aspect of an AR situation (Avison *et al.*, 2001) is the degree of formalisation. Agreements concerning the degree of formalisation of an AR project are recommended to specify, for example, commitments, researcher engagement and team composition (Avison *et al.*, 2001). Mechanisms (formal or informal) to formalise can concern the ability to renegotiate AR structures, for example, to permit changes in team memberships and AR project scope. According to Avison *et al.* (2001, p. 31):

> Most AR projects begin with a fairly concrete conceptualisation of the determination of their conclusion: a goal state in which an immediate organisational problem or set of problems has been alleviated.

Below we use the key aspects of an AR situation according to Avison *et al.* (2001) as a way of structuring and understanding the case that is focused.

Even though there is a body of literature covering different dimensions of AR, there are:

> […] comparatively few guidelines for would-be action researchers to follow. While much of the AR literature is replete with discussions and argumentation about origins, philosophical and conceptual underpinnings, there are relatively few AR exemplars available, and little direct guidance on "how-to-do" AR within the IS area (McKay and Marshall, 2001, p. 49).

Chiasson *et al.* (2009) investigate how IS researchers mix different approaches within AR. Through their analysis, they conclude and suggest that IS researchers should manage the dual goals of AR by the enactment of problem-solving and research activities. They found different ways of mixing these two activities; research, (practical) problem-solving and interactive approaches. Chiasson *et al.* (2009) also found that mixing methods in AR are based on dominant or sequential approaches. In dominant approaches, AR is used from the beginning – as a primary research method – combined with other research methods to investigate research questions. In a sequential approach, AR is used more as a complement that supports examination of a research phenomenon in a larger research programme.

We consider Mumford (2001) as another illustrative exception. In her paper from 2001, she discusses several "how-to" aspects using illustrations from empirical AR projects. Bridging this gap – illustrating dilemmas – and trying to identify strategies to handle them are important issues in this paper. Even if the discussion above – trying to avoid two opposite directions based on Rapoport (1970) – can help us to practice AR, there is a risk of separating action and research. This also calls for the elaboration of different types of actions in AR.

2.4 An action research process

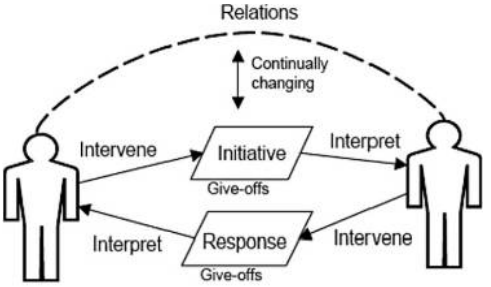
An AR process is typically iterative (cf. Kock, 1997) and makes use of learning from practitioners and researchers. It is a kind of a clinical approach, as it puts IS researchers in a helping role towards practitioners (Baskerville and Myers, 2004) within a dual agenda reported in general AR literature (Rapoport, 1970). The AR cycle is often described as follows (Baskerville, 1999, p. 14; based on Susman and Evered, 1978); diagnosing; action planning; action taking; evaluating; and specifying learning (Figure 1).

Diagnosing contains the identification of the problems that are the underlying causes of an organisation's change. A part of this is a self-interpretation of an organisational problem. In the next phase, action planning, researchers and practitioners work together. Organisational actions reducing the problems identified above are included, so are objectives for planned actions. A theoretical framework is used to guide the actions. Action taking is then the next phase, implementing the planned action above. Practitioners and research collaborate also in this phase. The researchers can have different forms of intervening here, direct or indirect. In the next phase, evaluation takes place as a collaborative effort. Theoretical effects as well as effects in changing an organisation can be in focus. Specifying learning is an activity formally described as undertaken last (Baskerville, 1999). It can be an on-going process containing knowledge gained of successful or unsuccessful actions. A more thorough description of the different phases can be found in, for example, Baskerville (1999, p. 14). Davison *et al.* (2012) identify two roles that theory might have in AR: focal and instrumental. Focal theories are, for example, adaptive structuration theory, whereas instrumental theories are used to explain a phenomenon. Instrumental theories include processes and tools that are used to create focal theories. Instrumental theories play a mediating role between researchers and practitioners in AR projects. They include tools, models and processes that theorise how work is conducted and what the outcome will be. Instrumental theories are vital in AR projects but very seldom mentioned in AR research. Davison *et al.* (2012) only found three papers published during 30 years which explicitly acknowledge the existence of instrumental theories in AR. Instrumental theories are important for supporting research actions and, thus, relate to this paper's focus. The fact that instrumental theories are very peripheral in the AR literature indicates the knowledge gap that we address here; the lack of emphasis on the "and" in action *and* research, and will be further explored in the analysis below.

2.5 Interactivity in social action – an action research context

If we take a further look at the concept of action from an AR perspective, Goldkuhl (2005) describes action, and social action in particular, together with interactivity (Figure 2). Keywords used in that discussion can be fruitful to understand AR as an example of social action where actors have relations, intervene, interpret, make initiatives and responses, etc.

Goldkuhl's (2005) model should be interpreted in the light of American pragmatism (cf. Dewey, 1938) as an underlying philosophy for social action (cf. Mead, 1934), and AR as discussed above, viewing human action as socially contextualised and human conceptualisation as social reflection (cf. Baskerville and Myers, 2004). The need for pragmatism in IS research is also emphasised by, for example, Goles and Hirschheim (2000) and Ågerfalk (2010). Using a pragmatic perspective has certain consequences for



Source: Goldkuhl (2005, p. 14)

Figure 2.
Interactivity in social action

IS research and the practice of AR. Goldkuhl (2004) suggests six aspects that characterise pragmatic research: an interest for actions; an interest for actions in a practice context; an acknowledgement of action permeation on knowledge; an interest for practical implications of knowledge; an interest in "what works" and "what does not work"; and an acknowledgement of the dialectics between knowledge and action, i.e. proper action is knowledgeable action and proper knowledge is actable knowledge (Goldkuhl, 2004). We interpret these aspects based on a pragmatic perspective as favourable also for AR and frame the analysis below using a pragmatic point of departure when discussing dilemmas, actions and roles.

3. Research design

From a research design and methodology point of view, we describe the empirical setting that we analyse (revisit) to elaborate on the concept of action, roles and dilemmas in AR. This section is followed by notes on the design and methodology of the retrospective study of actions within the AR setting and the use of literature.

3.1 Empirical illustrations from an action research project

The empirical illustrations of this paper originate from an AR project that focused the two e-service development initiatives analysed below. Myers (2009) distinguishes between positivist, interpretive and critical philosophical assumptions that are possible to apply to a qualitative study. The possibility to choose between several philosophical assumptions when designing a research study can be traced back to several sources. In the IS area, Orlikowski and Baroudi (1991) argue that IS research needs a plurality of research perspectives. This AR project was performed with an interpretive approach (Goldkuhl, 2012; Myers, 2009; Walsham, 1993), implying that the project is seen as an emergent process in which local circumstances and occurrences during the project influence the process and its outcome. Such an interpretive approach is based on the notion of the social construction of reality (Berger and Luckmann, 1967). Interpretive research methods focus on how to make sense of the world and how to understand this socially constructed reality (Walsham, 1993). Related to the notion of engaged scholarship, Van de Ven (2007, p. 27) characterises AR as a project aiming at designing or controlling a situation for a client with an attached, inside research perspective.

The AR project was conducted from 2005 to 2008. It was initiated by the researchers with the purpose to solve practical problems regarding IO e-service development and,

based on these practical experiences, develop a method for IO e-services development in the public sector and contribute to the theoretical knowledge on e-service development. The AR project was funded by The Swedish Governmental Agency for Innovation Systems (Vinnova), within a research programme on IO public e-services. All funded projects were organised as AR projects.

The AR project members were three IS researchers and more than 15 practitioners representing several of the 21 County Administrations in Sweden as well as the Swedish Road Administration (SRoA[3]). The practitioners had different roles in the project and positions in the organisations: project leaders in the two development initiatives (called "the licence handling application" and "the driving licence web portal"), system developers, information technology (IT) strategist, case handling officers, information managers, legal experts, etc. The first initiative involved Sweden's County Administrations (SCoA), which organises 21 county administrative boards (CoA), and was managed by the CoA of Stockholm. The second initiative involved the CoA's and was managed by SRoA. The IO character (several actors involved) of the development projects adds even more complexity to the AR settings studied in this paper. The AR project was led by one of the researchers, but the development initiatives were managed by application development project leaders from practice.

Tasks that have been performed in the AR project consist of project meetings, semi-structured interviews with persons in the projects as well as other persons in the involved organisations and external consultants involved in the development initiatives, business modelling seminars, document reviews and evaluations of prototypes and requirements specifications, formulation of design proposals and other kinds of both formal and informal interaction between researchers and practitioners. Interviews were performed in the beginning of the project, during the project and at the end of the project. These tasks are similar to the data collection techniques that are suggested by Myers (2009) as usual in interpretive AR. Empirical data were gathered during all phases of the AR project setting. It was documented in different ways depending on circumstances; interviews were recorded, modelling activities resulted in graphical models; reviews and evaluations were documented in reports, etc. All together, the three years of work within the AR project resulted in a wide range of empirical data. Results from the project have also been analysed and reported in scientific articles both during and after the project. More than 15 research articles have been published based on empirical data from the AR project, supporting, for example, Myers (2009) statement that AR should make a clear contribution to research (theory), besides making a contribution to practice.

3.2 A retrospective analysis of the action research project

In this section, we describe a retrospective analysis of the AR project investigating AR in a project setting and elaborating the concept of action *per se*. When revisiting empirical data project descriptions, previous publications from the project and empirical material (such as interview data and interpretations) were used. These empirical data in the AR project have been analysed in a qualitative, interpretive way (Walsham, 1995), searching for patterns within a content-focused analysis. Interpreting the empirical data from the project has resulted in, for example, three types of project activities[4]

conducted in the project. These activities (presented in the AR project setting section) are used to illustrate AR actions focused in this paper. This is done by discussing the actions related to what is done, who acts, why the action is taken, where it is done as well as when in the project. This means that we have used an explorative approach in this part of the research. We also use our rich empirical material to reflect upon the researcher role in the project and how it influenced the results. The analysis of the AR situations is structured based on the key aspects of an AR situation by Avison *et al.* (2001). In this part of the analysis, theories *guide* our analysis of the empirical material (Walsham, 1995). This implies that we analyse the empirical material by emphasising three distinct project activities, structuring the focused project activities according to a theoretical construct and reflecting upon performed actions by researchers and practitioners in these situations. The analysis of dilemmas (cf. Rapoport, 1970) is guided by theories in the same way (cf. Walsham, 1995) also using a pragmatic point of departure (cf. Dewey, 1938), as discussed above.

Revisiting data from a project where we as researchers have been involved is not unproblematic and can be criticised. Several challenges are present. Partially, we are studying situations where our own actions are present. There is also a time difference between the execution of the project and the time for revisiting the data. Our intention, however, is to be aware of the challenges and to provide a comprehensive and transparent analysis. The project as such can also be classified using Sein *et al.*'s (2011) label action design research (ADR). We do not claim that we have conducted ADR, but we acknowledge the underlying perspective in ADR regarding the explicit patterns of the reciprocal shaping of the artefact developed, the significance of the organisational context and the actions that we focus (Sein *et al.*'s, 2011; Orlikowski and Iacono, 2001) in our analysis.

4. The action research project setting

The AR project setting, introduced above, consists of the development of two e-services: a licence handling application and a driving licence web portal. The initiatives concerned IO e-service development in the public sector in Sweden. The aim of the initiatives was to develop public e-services for driving license matters as well as a web portal with e-services and information about the driving license process.

The overall process and background to the project was that everyone in Sweden who wants to get a driving license, first has to apply for a provisional driving license from the regional CoA he or she belongs to. The provisional driving license is approved if the applicant is judged by the regional CoA to be able to drive a vehicle in a safe way; thus, the permit is an important aspect of traffic security. The permit application was, until the e-service was implemented, a paper-based form that was filled in, signed and sent by mail to the regional agency. The application has to be complemented with a health declaration, a certificate of good eyesight and may also be an application that, for example, a parent will be allowed to serve as a private instructor. These documents were received and reviewed by a case officer at the agency. The case officer also checked whether the applicant had been convicted of any crimes. When the provisional driving license had been granted, the CoA reported this to SRoA through the IO IT system. When the applicant has completed the driving and the theoretical tests successfully, he or she receives the driving license from the SRoA. This mix of different responsibilities

and contacts in the whole driving licence life cycle was seen as a good reason for constructing an e-service.

The licence handling application project (called the "licence handling project", below) aimed at developing an e-service that should make an automated decision in "green cases" (cases that do not call for extensive handling processes) and support case officers handling such cases faster. By doing this, the agency should save and reallocate resources from handling "green cases" to more complex errands. An e-service like this also provides an opportunity to standardise the application handling processes across the nation and the 21 CoAs. The agencies also had high expectations concerning the quality of data provided by citizens. Using an e-service when filling in the driving licence application form would make it possible to automatically check the quality and the completeness of the data directly. Another advantage with an e-service is that the underlying IT system now directs the citizen to the appropriate CoA – instead of having citizens wondering which board that would be the right one for them. The handling of provisional driving licences and the development of e-services to support this is one outcome from the AR project analysed in this paper.

The driving licence web portal development (called the "portal project" below) is the other outcome within the AR project. The background of the web portal development is that driving license issues in Sweden are divided between several government agencies. It is difficult for citizens to locate information fast and easy and get in contact with the appropriate agency regarding this kind of errands. To make it easier for citizens to locate information and interact with the appropriate agency, a national web portal was developed. The portal covers the relevant citizen/user needs along the driving licence life cycle. The web portal (a one-stop e-government solution) provides the citizen with access to e-services and serves as a bridge between the involved government agencies and organisations.

In the forthcoming analysis and discussion when revisiting the AR project and the two development initiatives, we will use empirical examples from three different activities:

(1) The first activity is a *communication analysis* performed during the driving licence application e-service development. The health declaration is an important document when applying for a provisional driving licence. The communicative acts in such a document must be clear and easy to understand to fill in the form in a sincere way. This is an issue independent of the media chosen (paper-based or electronic form). The task in the development process was to add a communication channel, implementing an electronic form on internet as a part of an e-service.

(2) The second activity is the *development of a driving licence web portal maintenance model* that addresses questions of, for example, responsibility and roles for web portals, defining types of corrections, priority handling and governance models. The model was developed as a response to a direct assignment from the practitioners. The task was to formulate a maintenance model that handled the IO issues of the web portal.

(3) The third activity chosen is a *process modelling crash course* in the driving licence application e-service development process. One part of the basis when designing the e-service was to map existing and future processes. The agency

lacked experience of performing process modelling. As researchers, we identified this lack and conducted a crash course in principles and techniques for process modelling.

From a methodological point of view, the activities are chosen because they illustrate actions, interaction, roles and dilemmas connected to the practice of AR. Other important prerequisites for the AR project as such were formulated by the project sponsor Vinnova. These prerequisites had an influence on the AR situations (the following themes, e.g. the action elements) analysed below. The prerequisites are also important to understand the empirical setting and the activities in the AR project. The sponsor expected benefits from the AR projects that can be highlighted as follows: the projects should increase the cooperation between universities, enterprises and government agencies. The research should be motivated by explicit user needs. The funded projects should also generate measurable effects. The results from the projects should also put into practice results from different subject areas when developing public e-services as expressed by the project sponsor.

5. Analysis and results

The situations (important activities containing actions or series of actions bounded in a situation of time and/or space) analysed below are structured based on the key aspects of an AR situation introduced by Avison *et al.* (2001). The key aspects Avison *et al.* (2001) are as follows: the initiation of the AR project, the determination of authority for action in the research project and the degree of formalisation of the project. The AR situation when initiating action in the project is analysed as the first theme, below, labelled "Action Research Situation – theme 1 "Initiating Action in the Project"". Key aspects 2 and 3 (from Avison *et al.*, 2001) are integrated in the analysis below as a second theme labelled "Action Research Situation – theme 2 "Authority for Action and Degree of Formalisation"". We have chosen to integrate the two themes under the same section because of their integrated nature in the empirical material. A characterisation of the action elements, the focused aspects in this paper, is the third theme in the analysis below. This theme is included in the presentation of the two other themes. The elements – what, who, why, where and when – are classified based on empirical data from the AR project and indicated by using square brackets, e.g. "[who]". The empirical findings are also compared to AR literature. The themes illustrated below also express different researcher roles and dilemmas.

The analysis below uses a pragmatic point of departure as introduced in the literature section above. This follows Goldkuhl's (2005) line of thinking, viewing human action as socially contextualised and human conceptualisation as social reflection and interaction (cf. Baskerville and Myers, 2004). The focus is on these aspects below as an expression of the pragmatic focus.

5.1 Action Research Situation – theme 1 "Initiating Action in the Project"

The analysis of the AR situation will be illustrated by three different activities (communication analysis, driving licence web portal maintenance model and process modelling crash course) from the two IS development initiatives focused in this paper – the licence handling project and the portal project. This particular AR situation and the initiation of action is an example of an activity linked to the action planning phase in

Susman and Evered's (1978) cyclic model of AR (in Figure 1) taking place as actions and interaction in a social context (Goldkuhl, 2005; Baskerville and Myers, 2004).

5.1.1 Performing a communication analysis in the driving licence application e-service development process. In the case of initiating a communication analysis, this aspect was addressed by us as researchers (a research-driven initiation, cf. Avison *et al.*, 2001) [who]; or to be more precise, a researcher "discovered" a governmental problem. We argue that it is important to analytically separate the *actor* (the researcher) from the *activity* (the action and the interaction). Avison *et al.* (2001, p. 30), for example, seem to mix the terms of "research-driven" and "researcher-driven" initiation. Research can be interpreted as a more general theme, a subject, an area or even a broader research context. Researcher driven can be interpreted as the specific researcher or research team (a group of researchers) in a particular, contextually bounded project. In this context, we as researchers identified a considerable risk that the existing form for health declaration, among others, with its in-built communicative weaknesses should be implemented without changes in an e-service – not taking the potential in the new media (IT) into account [why]. We communicated this (the interaction) within the project and recommended further action to the project leader. Here we interpreted a situation, acted and intervened (Goldkuhl, 2005). A research-based communication analysis (Cronholm and Goldkuhl, 2004a) [what] was, therefore, performed by us as researchers [who], using research-based tools. This communication analysis generated both benefits for practice (better e-services) [why] and research (experiences from using communication analysis and contributions to a method for e-service development) [why]. The actions were taken as a part of the e-service design phase [when] and in interaction with several members of the e-service development team [who]. The communication analysis was performed at the university and reported to the SCoA [where] (and possible further interpretation and intervention from SCoA staff) and later at a research conference and afterwards in a journal [when, where] by the researchers [who].

This particular AR situation is an example of an activity mainly linked to the action-taking phase in Susman and Evered's (1978) cyclic model of AR (in Figure 1), but in the analysis of this situation, we reflect upon action planning, evaluation and the phase including diagnosis.

The researchers' roles when performing this activity has been as the *initiator*, as discussed above, as *reviewer* (performing the communication analysis), as direct supporting *consultant* (presenting alternative communicative acts and alternative terminology) and as an *action researcher* (analysing experiences from using communication analysis when developing e-services and reporting to the scientific community based on that). The overall *initiative* in this interactive social action (cf. Goldkuhl, 2005; a social context of action, using Mead's [1913] terms) was in the hands of the researchers – the practitioners merely made *responses*. Or using Chiasson *et al.*'s (2009) terminology, the initiative were initially research dominant, using theoretical ideas intended to inform one or more problem-solving situations, but emerged into an interactive approach during the project. The research conference and journal publication mentioned above are examples of researchers' interactive actions towards a research audience. The interaction in this AR setting did not strengthen the relation between researchers and practitioners, as the practitioners did not interpret the results as usable to a larger extent. However, the research output from this setting, and the general initiative were identified as successful, but the potential in the communication

analysis to work as an instrumental theory, playing a mediating role between researchers and practitioners (Davison *et al.*, 2012) was not realised, resulting in a weaker link and action outcome than one can expect in a more solid interactive approach (Chiasson *et al.*, 2009).

5.1.2 Developing a maintenance model in the driving licence web portal development initiative. The web portal for driving licence information and e-services is a joint venture between the SRoA and the SCoA. In this joint venture, the project leader (the driving licence web portal application development manager) at SRoA took the initial steps (a government problem-driven *initiation*, cf. Avison *et al.*, 2001) [who] approaching the researchers). Using Chiasson *et al.*'s (2009) categorisation, this was a research-dominant approach, supporting a real-life problem-solving using existing knowledge in the area. The initiation was based on the interpretation of a situation that there were several roles and responsibilities that needed to be addressed to operate and maintain this IO artefact. The agencies had no IS maintenance model [why] that took IO aspects into account and asked for suggestions from us as researchers. They needed drafts of different maintenance models that took the IO aspects (roles of ownership, editing, administration, etc.) into account [what]. As researchers [who] we took an initiative (Goldkuhl, 2005) and created three different drafts of a maintenance model [what] (Nordström and Welander, 2005), as a response to the needs interpreted and interactively communicated by the practitioners (cf. Goldkuhl, 2005). These drafts (based on the research intervention) served as a basis for an interpretation and practitioner action (a decision for the joint development group with members from both SRoA and SCoA [who] on how to maintain the web portal).

The development of a maintenance model (the researchers' intervention) generated benefits for practice (better maintained e-services) and research (contributions to an emergent method for e-service development). The action was taken as a part of the e-service maintenance design phase [when]. The development of the model was performed at the university and reported by the researchers [who] at a project group meeting organised by the SRoA [who, where].

The researchers' roles when performing this activity has been as a *designer* (developing alternative maintenance models based on theory), as a *reviewer* (examining the present intra-organisational maintenance models), as a direct supporting *consultant* (an adviser, systematic and theory-based, presenting alternative maintenance models – a theoretically and practically grounded normative direction to practitioners' future actions) and as an *action researcher* within an AR setting (constructing an emergent, general e-service method). This particular AR situation is an activity mainly linked to the action taking phase in Susman and Evered's (1978) cyclic model of AR (in Figure 1), but in the analysis of this situation, we reflect upon action planning, evaluation and the phase including diagnosis. This AR situation is also an example of an arrangement where the process is interactive and a situation where the relation (cf. Goldkuhl, 2005) improved and become stronger based on the usable results that were achieved. The potential of the maintenance model to work as an instrumental theory, playing a mediating role between researchers and practitioners (Davison *et al.*, 2012) was realised. The research output in this particular situation were not that obvious and did not result in any publication focusing application of maintenance models, and therefore, it cannot be compared to an interactive approach using Chiasson *et al.*'s (2009) categorisation.

5.1.3 Arranging a process modelling crash course in the driving licence application e-service development processes. Action taken that a situation needed to be addressed was performed by us as researchers (a research-driven *initiation*, cf. Avison *et al.*, 2001) [who]. Or to be more precise, similar to the communication analysis in the driving licence application e-service development process above, a researcher "discovered" governmental problems and issues. And, again, using Chiasson *et al.*'s (2009) terminology, the initiative were research-dominant; using theoretical ideas intended to inform one or more problem-solving situations. We identified a need of more knowledge among the practitioners concerning process modelling principles and techniques when designing the driving licence IT system and intervened (Goldkuhl, 2005). We identified a potential risk that the standardised system offered by the consultancy firm could overshadow the business logic in an unfeasible way and, thus, negatively influencing the way the SCoA would like to handle driving licence permits in the future [why]. A process modelling course for staff at the SCoA was arranged by researchers. This process modelling crash course generated primary benefits for practice in terms of improved competence to draw process models when designing e-services [why]. A secondary benefit, from a research perspective, was that we could gain some knowledge concerning the emergent method for e-service development (experiences from using process modelling principles and techniques in an e-service development setting) [why]. This benefit can be interpreted as a problem-solving situation generating knowledge discovery interactively (Chiasson *et al.*, 2009). The design and preparations of the course were performed at the university, and the course was then held by the researchers [who] at a seminar organised by the SCoA [who, where, when]. This particular AR situation is an example of an activity linked to the action-taking phase in Susman and Evered's (1978) cyclic model (Figure 1), but in the analysis of this situation, we reflect upon other phases.

The researchers' roles when performing this activity has been as an *instructor* (designing a process modelling crash course based on theory and previous field experience), as a *consultant* (presenting principles and techniques supporting practitioners' process modelling – an indirect supporting role) and secondary as an *action researcher* (learning from agencies using process modelling principles and techniques when constructing an emergent, general, e-service method) as a part of a more interactive approach (Chiasson *et al.*, 2009). Temporarily, this researcher intervention strengthens the relationship with the practitioners; however, on a long term basis, the relation did not improve. Even if some practitioners found the results usable, the overall response from the project management team was not obvious. The potential in the course as a tool to work as an instrumental theory, playing a mediating role between researchers and practitioners (Davison *et al.*, 2012), was not fully realised.

Below, the AR (development) situations are characterised and summarised using previous AR research on drivers, activity focus and role of theory Table II.

5.2 Action Research Situation – theme 2 "Authority for Action and Degree of Formalisation"

A breakdown in the licence handling project's e-service development process occurred 12 months after the start of the AR project. By *breakdown*, we do not mean a pure clash between the involved actors; it was rather a series of misunderstandings (cf. Heidegger's communication breakdowns, as described by Winograd and Flores, 1986) and

AR (development) situations	Driver (Avison *et al.*, 2001)	Activity focus (Chiasson *et al.*, 2009)	Role of theory (Davison *et al.*, 2012)
1) Performing a communication analysis	Researcher-driven	Research dominant (theory informing problem-solving) Interactive character present – but weak	Instrumental (but full potential not realised)
2) Developing a maintenance model	Problem-driven	Research dominant (theory informing problem-solving)	Instrumental–potential realised
3) Arranging a process modelling crash course	Researcher-driven	Research dominant (theory informing problem-solving) Interactive character present – but weak	Instrumental (but full potential not realised)

Table II.
AR situations - drivers, activity and role of theory

uncertainties between involved parties. Until then, the project had a number of situations where roles, initiatives, activities and meetings had been misinterpreted and/or misunderstood by the participants. There were also situations where we as researchers did not have access to several important project documents. The interpretations and interaction (Goldkuhl, 2005) between the parties did not create a positive and innovative climate.

Avison *et al.* (2001) and Mumford (2001) claim that once an AR project has been started, the mechanisms by which authority is defined are very important. There is also a need to determine action warrants, power over the structure of the project and processes for renegotiation and cancellation. The determination of these aspects is one way of regulating the relation between the actors in the interactive social action (cf. Goldkuhl, 2005). This was not done properly enough in the beginning of the present AR project to be successful. This is one part of the explanation of the breakdown that occurred, and that a generative interaction was absent.

Parts of the breakdown can also be explained by the division of labour, authority and responsibility for intervention and action within the present development project and between the practitioners and the researchers and maybe also by the research dominant (Chiasson *et al.*, 2009) focus in the project. Some activities (e.g. quality assurance of user dialogue logic and conceptual design in the licence handling application construction phase) were completely distributed to us as researchers in the development process because of time restrictions in the SCoA. This is one example of ultimate authority distributed from practitioners to researcher of a non-suitable character and also an example of an explicit dilemma concerning the "time zone" (cf. Rapoport, 1970). This can be related to Smith *et al.*'s (2010) discussion about who is in charge of an AR project. The question who is the leader of the project and who owns the process is also elaborated on. Researchers must be distinct in explaining their roles and responsibilities; otherwise, there might be misunderstandings and conflicts between practitioners and researchers in the project. According to Avison *et al.* (2001), it is rare that organisations cede ultimate authority for organisational action to an external researcher. In this case, the researchers clearly indicated that the researcher effort in this phase should not be the only activity

performed to assure quality in the construction. The practitioners need to take part of the quality assurance as a part of an interactive research process based on mutual trust and a mix of activities and focus (Chiasson *et al.*, 2009).

One of the results when discussing and handling the breakdown in the development process was a more clear and communicated division between research goals and organisational problem-solving goals. This can also be directly related to the arguments of Avison *et al.* (2001) concerning the importance when determining motives and commitments in AR projects. After the discussion and handling of the breakdown, the researchers also got full access to project documents on a project groupware.

One lesson from this phase in the e-service development initiative is that the need for current evaluation (Susman, 1983) should be taken more into account. An evaluation of roles, initiatives, activities and authority should have been performed earlier in the process, reducing some of the components in the breakdown. This approach is one step towards a more formal AR project than the present development initiative was at its start in 2005. The project in 2005 had, to a large extent, an informal character. In line with Davison *et al.* (2004), a degree of formalisation, such as a simple contract or letter of agreement defining dimensions of practitioner and researcher engagement, and mutual expectations had been helpful. Probably not, to a large extent, the document in itself, but certainly, the process of discussing and designing the content of an explicit agreement covering the different roles, initiatives and authority in detail. We as researchers and the practitioners should collaboratively have determined control structures early (Davison *et al.*, 2004) in the development initiative.

The driving licence web portal development initiative did not suffer from any of the challenges in the licence handling e-service development process. No breakdowns occurred. The "supply and demand" of problems and issues as well as the specific competencies held by practitioners and researchers have been very well utilised in interplay with proactive interventions and interpretations as initiatives and responses (cf. Goldkuhl, 2005). There have not been formal in-depth agreements, but oral informal agreements and give-offs (Goldkuhl, 2005) based on a mutual understanding and a communicated agenda. This fact regulates the relation between the actors in the interactive social action (Goldkuhl, 2005). The reciprocal motives and commitments (Davison *et al.*, 2004) have been explicit, and these have similarities with elements in a current evaluation (Susman, 1983).

Table III summarises the illustration of elements in the AR situations.

5.3 Challenges and dilemmas in action research

One challenge when acting as action researchers in the licence handling e-service development process was the responsible application development leader's degree of sensitivity (low) when handling alarming signals from the project, as well as advices and insights from collaborators (practitioners and researchers) within the project. There was a lot of time and resource pressure in that development project. Milestones had been postponed, manning problems had occurred, strategies and communication had been more of an *ad hoc* than planned character. The project leader was "chasing" project deadlines. This process can be characterised as putting daily action in the foreground and reflection in the background. The ideal of AR as expressed by Avison and Wood-Harper (1991) focusing on researchers, theory and informed practitioners did usually not occur in the present project. Neither did instrumental theories play the

Action (What?)	Actor (Who?)	Motive (Why?)	Space (Where?)	Time (When?)
Development initiative	Roles (practitioners, researchers)	Organisational benefits and results – to solve problems Research results (theories and models)–scientific papers and articles R&D results: a method for developing e-services	In the organisation or at the university	In real-time or delayed
1) Performing a communication analysis	Practitioners: mainly responded to researchers' actions Researchers: initiators, reviewers, supporting consultants and overall action researchers	Organisational benefits: making better use of the new IT – not just copy the old solution; a better e-service Research results: experiences from using communication analysis and contributions to a method for e-service development	In the organisation, at the university, at a conference and in a journal. A short report also in written form	Part of the design phase, mainly delayed and the AR process, comments in real-time sessions
2) Developing a maintenance model	Practitioners: initiators and explicit receivers of the results. Researchers: designers, reviewers, direct supporting consultants and practice oriented researchers within an AR setting	Organisational benefits: received three different drafts of a maintenance model; better maintained e-services Research results: contributions to an emergent model for e-service development focusing systems maintenance issues	At the university and reported at a project group meeting organised by the SRoA together with a short report	Part of the e- service maintenance design phase, mainly delayed and the AR process
3) Arranging a process modelling crash course	Practitioners: course participants Researchers: initiators, instructors, consultants and practice oriented researchers	Organisational benefits: better process modelling knowledge and skills Research results: Some benefits regarding knowledge concerning the emergent model method for e-service development, but mainly practice oriented. Gaining access is an indirect benefit	Course delivered at the organisation's premises; preparation at the university	Organised (delayed) in conjunction with a project seminar

Table III.
Illustrations of different action elements identified in the IS development initiative

mediating role between researchers and practitioners in this AR project as they can (Davison *et al.*, 2012). The opportunity to "bridge the gap between theory and practice" (Mathiassen *et al.*, 2009, p. 5; Berger and Rose, 2015), as a part of AR or engaged scholarship (Van de Ven, 2007) and to achieve an interactive approach with knowledge application and discovery (Chiasson *et al.*, 2009), did thus not occur. The time pressure also made it hard to perform good AR (Rapoport, 1970) in the first project. Even direct problem-solving intervention and benefits from researchers in the application development initiative have been put in the background – focusing more on (re)active activities directed by a rough development timeline. This challenge can be a kind of failure with its roots in the researcher-driven initiation shown by Kock (1997). When practitioners do not understand the real opportunities for improvement, defined by Kock (1997) as "iceberg subjects", they missed the "big picture" in, for example, organisational and IT development. We, as action researchers, did also take sensitivity and the response from the application development leader, in some sense, for granted. As action researchers, we could have put more effort in trying to communicate, convince and highlight the need for current evaluation (Susman, 1983) as a part of an interactive research approach. We could also have put more effort into the changing relation (cf. Goldkuhl, 2005) and mutually taken a responsibility for reciprocal interpretations and interventions (Goldkuhl, 2005). One can also emphasise the need identified by Baskerville and Wood-Harper (1996) that it is important to have a clear understanding of the differences between AR and consulting – "action without research is consulting" – to avoid or at least reduce misunderstanding concerning the tasks and roles between researchers and practitioners (cf. also Baskerville, 1997; Mumford, 2001). Our findings, based on the breakdown above, is also in line with, for example, Simonsen (2009) arguing that AR is a risky approach and a truly time consuming approach that is heavy to manage. This is also accentuated in classical AR studies (Rapoport, 1970). However, after the breakdown described above, the project entered a more successful mode and managed to deliver interesting and usable results both in terms of artefacts and processes for the organisation and theoretical outcomes.

In the driving licence web portal development process, the interaction, prerequisites and results have been totally different. The development process in itself is characterised by proactivity, a clear organisation and a watchful application development leader. In the portal application development, the "ideals" of AR, where researchers inform practitioners (and theory informs practice) and practitioners inform researchers (and practice informs theory) in an equal and synergistic way (Avison and Wood-Harper, 1991) is close and a situation where instrumental theories played a mediating role the parties (Davison *et al.*, 2012).

The differences in the two IS development initiatives may also be explained by using Checkland's (1991) particular problem-solving vs problem situation solving. In the licence handling project, there has been expectations that we as researchers should solve particular problems (using theory to inform problem-solving as a part of a research-dominant approach [Chiasson *et al.*, 2009]) that, for example, practitioners have not been able to solve themselves, because of time and resource pressure. In the portal project, the problems were more tied to situations with the use of comparative advantages (e.g. in competence) between practitioners and researchers. An example of a problematic situation, that needed competence from the researchers to be solved, was the driving licence web portal maintenance model described above. Based on the actions

of the practitioners involved, one can also elaborate on the question when a project can be classified as an AR project or not – when is, for example, the lowest level of interest from practitioners' in a client-system infrastructure achieved? In the AR situations studied above, we claim that the research can be classified as AR – but one of the two initiatives was not ideal AR in terms of the development situations and activities (Chiasson *et al.*, 2009).

6. Conclusions and discussion

6.1 Conclusions

The conclusions from the study are presented and discussed below. The purpose of this paper was to elaborate on the concept of action by addressing actions and roles in the practice of AR, and to illustrate these by dilemmas in an AR project on IS development in public sector. The questions focused was how we can understand researchers' and practitioners' actions, interaction and roles linked to dilemmas within different situations in AR settings and how action researchers can deal with the dilemmas to act as engaged scholars.

Our first conclusion is that there is *a need to understand actions and roles within AR projects – not separating action from research*. Research is also action, but action partially performed within another domain based on a certain logic. Action in AR projects can also be linked to, or exclusively, performed within a client organisation.

The second conclusion is that there is *a need to understand AR practice as context-bounded interactive social action based on a pragmatic standpoint*: AR as a recurrent, interactive and dynamic activity. This is illustrated by, for example, the discovery of research problems and initiation of AR project above and discussed below.

Based on the two conclusions above, we have identified that the understanding of roles, actions and interaction can help us to *discover and handle dilemmas in AR* to achieve relevant research and research with quality. One important contribution in this paper is also the *illustrations of AR settings* and the learning that can take place based on a *breakdown* in an AR project. These illustrations can serve as illustrations for other researchers and practitioners working with AR both in general and in the IS field.

Below we will discuss the conclusions summarised above.

7. Discussion

7.1 Actions and roles within action research projects – research is also action

The above-mentioned analysis and the illustrations provided in the case study show the importance of understanding action, actors and roles within AR projects. We have been addressing action elements, different roles and dilemmas (e.g. a breakdown, division of labour, roles and formalisation; summarised results in Table I) in AR illustrated by situations in a project on public e-service development. We have also been using previous research on AR to guide our analysis and to relate our results' context to the present body of knowledge, but we have also used an explorative approach to generate, for example, action elements. The focus on AR situations and the embedded elements of action are contributions of this research to the existing body of knowledge in AR and a way of focusing research as action from a pragmatic standpoint, further elaborated below.

The need to address issues related to actors, roles and activities within AR project can be illustrated when linking activities to different AR phases (Susman and Evered,

1978). If we illustrate this with the critical discovery of research problems, we found that there is a need to thoroughly understand the initial and critical situation when the problem "discovers" the researcher. Understanding and structuring that situation can be elucidated by focusing the *actor* that "discovers" the problem – the practitioner, the researcher or other, single or multiple, actors and their incentives, goals, pre-understanding and overall agenda. Avison *et al.* (2001, p. 30) seem to mix the terms of "research-driven" and "researcher-driven" initiation or at least be implicit, concerning the two concepts and their relation. Kock (1997), also used in Avison *et al.*, 2001, uses the term "researcher-driven". We argue that it is important to analytically separate the *actor* (the researcher) from the *activity* (the research) *per se*.

Based on the use of the concept of action in AR it is important to make a distinction between *practical action* (cf. Baskerville and Myers, 2004 based on Lewin) and *theoretical action*. The former type of action describes action that is a part of an organisation's problem-solving (and their social context of action) – an action that can be performed by researchers or practitioners. The latter type of action describes action that is a part of a research process solving theoretical and more general problems and a part of a research community as a social context of action. The practical and theoretical actions in combination is a part of the growing interest in engaged scholarship (Van de Ven, 2007) in which Scandinavian IS research has a strong tradition (Mathiassen and Nielsen, 2008; Simonsen, 2009). The trend within the Scandinavian research funding bodies is to push researchers towards "committed involvement with public agencies, private companies, and society at large" (Simonsen, 2009, p. 13). The AR project reported in this paper is no exception regarding that aspect, rather an illustration of collaborative practice with practitioners from public organisations, as in our case (Mathiassen, 2002; Simonsen, 2009). By being precise of what we mean with action within AR, we argue that we, as researchers, can uphold a situation where science (in building theories) and practice (as in organisations, when solving problems) are distinct forms of knowledge (cf. Van de Ven, 2007).

7.2 Action research practice as context-bounded interactive social action

Besides the need to be explicit about action elements, showed above, to control and understand AR projects, this paper shows that the key aspects when addressing situations and problems of the AR situation presented by Avison *et al.* (2001, p. 29 f.) can be refined. We argue that it is important to understand research initiation as a *recurrent and non-linear activity* that is a part of the *dynamic character* of an AR project – in a broader sense than, for example, presented by (Avison *et al.*, 2001, p. 29 f.). When analysing our AR project, we have identified a need for a broader definition of initiation than Avison *et al.* (Avison *et al.*, 2001, p. 29 f). Our experiences, also based on other AR projects, show that initiation can be viewed from a process perspective.

To pose questions, define and redefine problems and issues during a knowledge-creation process is a part of the dynamic and interactive character of a project. This implies that we suggest problem and situation addressing to be an iterative and interactive process in an AR project. The interactive dimension in AR projects is also manifested by the actions performed by researchers and practitioners (cf. Goldkuhl's model in Figure 2). As social actions (Avison *et al.*, 2001), they are interactive and performed in a particular setting – not performed in parallel or isolated. This is in line with a pragmatic perspective with an interest for actions, an interest for actions in

contexts; i.e. an acknowledgement of human action (Dewey, 1938; Goldkuhl, 2004). However, the quality of the outcome of an interactive process can be very different, as shown in the settings in the section above. The existing models of AR often assume or take phases for granted, not highlighting the non-linear character elaborated above. This is an important contribution from our study. A good exception in this case is Mumford (2001, p. 23) discussing AR as a dynamic process and the "[…] unexpected events together with an increased knowledge of the problem situation may cause these to be revised".

The two IS development initiatives reported in this paper also show that AR projects are highly situational (Avison *et al.*, 2001) and context-bounded. The artefacts and the organisations are situational; people's actions, motives, incentives and goals certainly are. It is reported that public organisations face several challenges when developing e-government, IS or e-services for public use, for example, regarding IT-infrastructure, security and privacy, IT skills and organisation and operational cost (Ebrahim and Irani, 2005). Challenges regarding IT skills can, for example, be unqualified project managers, shortage of salaries and benefits. Organisational issues can be, for example, lack of coordination and cooperation between departments, complex processes, politics and political impact (Ebrahim and Irani, 2005). Some of these challenges are also present in the private sector, but may be even more challenging in the public sector.

7.3 To handle dilemmas in action research

Several scholars have discussed dilemmas in and challenges linked to AR (Rapoport, 1970; Avison *et al.*, 2001; Baskerville and Wood-Harper, 1996; Mumford, 2001; Simonsen, 2009; Brydon-Miller *et al.*, 2003; Davison *et al.*, 2012). Our study confirms the reported dilemmas as described in the analysis above. We can, for example, highlight the need for *determining the authority* for action and the *degree of formalisation* of an AR project (Avison *et al.*, 2001; Mumford, 2001). This is evident in our study and labelled as a breakdown (in the licence handling project's e-service development). The breakdown was a series of misunderstandings (cf. Heidegger's communication breakdowns, as described by Winograd and Flores, 1986) exemplified in a number of situations where roles, initiatives, activities and meetings had been misinterpreted and/or misunderstood by the participants.

When discussing authority and formalisation, the IS development initiatives illustrated in this paper have also shown two different sides of this coin. This is also evident for the practitioners' expectations of what kind of support they will get from interacting with action researchers. If the practitioners' expectations are only focused on getting "cheap consultants" (or "quick and dirty research", using Rapoport's [1970] terminology), this certainly would not promote successful, or ideal, AR (Lindgren *et al.*, 2004). One can also put this argument vice versa. If a researcher only expects the practitioners' organisation to be a "quick and cheap case study" (cf. Rapoport's [1970, p. 506] "parasitical" and "highbrow smash-and-grab types"), this would probably not promote successful AR either. Our research also supports that the role of instrumental theories as mediators between researchers and practitioners (Davison *et al.*, 2012) effects the relation between the parties. To reduce or avoid the risk for problematic situations and dilemmas (Mumford, 2001; Rapoport, 1970), there is a need for recurrent evaluation (Susman, 1983) evident in AR projects. One of the results when discussing and handling the breakdown in the licence handling e-service development process was that a more

clear and communicated division between research goals and organisational problem-solving goals was needed. This can also be directly related to Avison *et al.*'s (2001) arguments of the importance when determining motives and commitments in AR projects. The illustrated breakdown and the results from this show the importance of being able to divide research goals and organisational problem-solving goals within AR.

Another aspect is that there is a challenge and a dilemma in combining and controlling AR (cf. Avison *et al.*, 2001; Mumford, 2001). It is possible to combine practical and theoretical ambitions, but there is a need for, for example, creativity, timing, systematic approaches, regarding history and so on. The interest in and focus on theory development separates the two arenas. But theories (as instrumental theories; Davison *et al.*, 2012) can certainly be used to guide, focus and develop (Lindgren *et al.*, 2004) knowledge even if our empirical examples show that it can be differences in action logic, timing and intensity in the two arenas.

Some of the aspects highlighted in this section are extra important and critical in AR practiced within the IS field and relevant as practical implications. We believe that the fact that IT artefacts are included stresses; for example, the need to take the recurrent and dynamic character of initiation into account. We deal with IT artefacts that are emerging in development projects and have to be able to handle versions of prototypes, process redesign, changing demands, etc.; and the overall interplay between humans, technology and information in contexts (cf. McKay and Marshall, 2001). The division of labour between people in heterogeneous project groups (concerning competency, position in the present organisation and background) may also highlight the need for *focusing roles* and the *degree of formalisation* reported above when practicing AR. Other aspects of AR, such as focusing AR situations and action elements, are more general and not that dependent upon the field of study or the discipline – in this case IS. Our research uses key aspects and phases proposed by Avison *et al.* (2001), follows McKay's and Marchall's (2001) call for a clear conception of the nature of the AR process, focuses and elaborates more on roles and degree of formalisation and illustrates this using case study data.

We do not claim that the understanding of roles, actions and interaction can solve the dilemmas and challenges linked to the practice of AR, but such understanding can help us – in some sense – to discover and handle dilemmas in AR.

The results in this paper have several theoretical and practical implications as described above. The empirical illustrations can serve as examples for both theory and practice. We contribute to the body of knowledge concerning AR in IS and, in general, as discussed above, by exploring the need to study the concept of action (e.g. situations and elements), to be explicit concerning the different phases, different roles and responsibilities and management of different dilemmas in AR.

8. Limitations and further research

The IO character of the development initiatives illustrated above adds an extra dimension into AR that is only partially highlighted in this paper. This can be a separate theme to analyse. The fact that the context also is dominated by public agencies is another feature that can be studied further. However, it is our opinion that this fact is not critical for the results on action elements and the AR dilemmas that are studied in this paper. Another theme, and reported dilemma, is the ethical dimensions of AR (Myers, 2009; Rapoport, 1970). This is not highlighted as such in the present study, but is an

interesting theme to investigate within a general IS arena, and also in an e-government and public sector context. So is the question of funding; in the present project, there was an external source of funding; the AR was not funded by the client system. That situation created a certain action space, but may also have created a situation where research was not prioritised enough from different actors within the client system (cf. Rapoport, 1970). The aspect of funding can, thus, be studied more thoroughly as a part of an AR dilemma.

The empirical findings in this paper can be related more thoroughly to canonical AR (Avison *et al.*, 2001; Lindgren *et al.*, 2004; Susman and Evered, 1978) and to design science in IS research (cf. Hevner *et al.*, 2004; Ågerfalk, 2010) as well as comparisons between those two (Järvinen, 2007; Lee, 2007; Sein *et al.*, 2011). Another example is found in Goldkuhl (2012) who proposes practice research as a way to both contribute to general practice through abstract and useful knowledge and to study empirical fields as interconnected practices. Practice research is broader defined than merely AR, encompassing also design research and evaluation research. Important concepts in practice research are local practice contribution vs general practice contribution, theorising vs situational inquiry and abstract vs situational knowledge. However, these themes of AR are not in the scope of this paper. They can nevertheless increase the understanding of the presented AR project, such as the link between the present research and ADR (Goldkuhl, 2012) made above. To relate to action, science research (Argyris *et al.*, 1985; McKay and Marshall, 2001; Papas *et al.*, 2012) can also throw a different light on the reported AR, but this is another issue for further research.

Notes

1. This article is a rewritten and significantly expanded version of a former conference paper: Melin and Axelsson (2007): Action in Action Research – Illustrations of What, Who, Why, Where, and When from an E-Government Project, In: Wimmer, M.A., Scholl, H.J., and Grönlund, Å. (Eds., 2007): EGOV 2007, LNCS 4656, Springer-Verlag, Berlin Heidelberg, pp. 44-55.
2. Ethics (Effective Technical and Human Implementation of Computer-based Systems) is a classical approach to socio-technical design of information systems widely recognised within the IS area (Mumford, 2000).
3. Since 2009 merged into the Swedish Transport Agency. The descriptions of the license handling processes and actors in the following text are described as it was organised before 2009. The overall processes are the same after 2009, but the organisational actors, division of labour and organisational boundaries have changed.
4. We use the term "activity" to define a set or type of actions linked to each other within a particular situation addressed in the analysis of the AR project setting below.

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