

# Evaluating Information Systems according to Stakeholders: A Pragmatic Perspective and Method

Jenny Lagsten, Swedish Business School at Örebro University, Örebro, Sweden

[jenny.lagsten@oru.se](mailto:jenny.lagsten@oru.se)

**Abstract:** In the last decade several researchers have addressed the problem that there does not seem to be much evidence of extensive use of interpretive evaluation approaches in practice. Researchers have though recognized the interpretive evaluation approach as well founded academically and theoretically offering potential advantages such as stakeholder commitment and learning opportunities. One reason for this non-use could be that there are few, if any, interpretive evaluation methods ready at hand for evaluators in practice. An interpretive IS evaluation method means a method in support for doing evaluation as interpretation. This research presents a practical method for doing evaluation of information systems as a joint act of interpretation performed by the stakeholders of the information system in use. In our research we have expanded the interpretive philosophical base to embrace a pragmatic knowledge interest in order to underpin the overall strive for evaluation that is to contribute to change and betterment. The method presented is named VISU (Swedish acronym for IS evaluation for workpractice development). The process of evaluating accordingly to the VISU method has been extensively tested in practice and in theoretical grounding processes and is now considered ready for wider use. The research process for developing VISU has been conducted with canonical action research through parallel work with evaluation and method development in six episodes within two cases. VISU consists of prescribed actions that are anchored in a set of underlying principles stemming from the philosophy of American pragmatism. Evaluation according to VISU is performed in three phases; arrange, evaluate and develop. In the paper VISU is described according to phases, actions, main concepts and principles. The use of VISU is demonstrated through examples from a performed evaluation of an information system in support for social welfare services.

**Keywords:** IS evaluation, stakeholder model, interpretive IS evaluation method, pragmatism, action research

## 1. Introduction

Evaluation of Information Systems (IS) has come to be an important topic for study as well as practice (Irani et al. 2005). As ISs has become more pervasive, complex and interactive evaluation emphasis has, to a degree, shifted to concerns with how and to what extent ISs serve organisational change (Klecun and Cornford 2005). Alternative evaluation approaches to traditional 'scientific' methods has emerged in the field. An interpretative evaluation approach has been reported as a capable evaluation approach with important practical implications (Symons and Walsham 1988; Symons 1991; Avgerou 1995; Farbey et al. 1999; Walsham 1999; Serafeimidis and Smithson 2000; Jones and Hughes 2001). An interpretive IS evaluation model builds basically on Guba and Lincolns (1989) work on constructivist evaluation and could be summarised as: elicitation and articulation of stakeholder concerns, participative process, context dependent criteria, understanding and learning. In spite of a well founded academic and theoretic model, with potential advantages such as stakeholder commitment and learning opportunities, there does not seem to be much evidence of extensive use of interpretative evaluation approaches in practice (Hirschheim and Smithson 1999; Walsham 1999). One reason for the non-use, in the field of IS, could be the lack of practical methodology ready at hand for evaluators and assigners of evaluations which motivates the purpose of this paper that is to provide a comprehensive method in support for doing evaluation as interpretation.

As we see it, one major reason for doing evaluations of information systems is to take actions based on the results of the evaluation. Evaluations should be used; the results of the evaluation should be transformed into change and betterment in the organisation, in the IS and/or in the use of the IS. Evaluation is a process that develops personal and cooperative knowledge through investigating experiences in order to make improvements. Because of the strive towards change and betterment we found the philosophy of American pragmatism in best support for such world view. A pragmatist is interested in change and action. "From a moral standpoint he gives priority to what is conceived as positive changes. The research endeavour is towards knowledge, which makes a positive difference i.e. knowledge which contributes to improvement of IS practices" (Goldkuhl 2004). The interpretive and the pragmatic approach share the concern for understanding and meaning. For a pragmatic IS researcher an interpretive stance is unavoidable, but the pragmatist is, however, not content with making solely interpretive descriptions (Goldkuhl 2004). A pragmatic inquiry goes a step further when, on base of descriptions and understanding, having the interest for change and improvement.

The overall aim of this study has been to develop an interpretative, stakeholder based method for evaluating information systems aiming for change and betterment. The result of the study presented here is the evaluation method VISU. VISU is grounded in pragmatic knowledge theories, evaluation theories (especially the stakeholder model), theories concerning evaluation use and in the school of interpretive IS evaluation. VISU is designed to be used in practical organisational situations where there is a need for evaluation of an information system.

The following section gives an account of the research process. In section 3 the rationale of pragmatic evaluation is presented followed by the description of the VISU method according to the three phases; arrange, evaluate and develop. The VISU method is illustrated by examples from a performed evaluation of an IS supporting social welfare services. The paper concludes with a discussion on implications for practice and research.

## 2. Research process

The research process has been conducted with Canonical Action Research (CAR) (Susman and Evered 1978). Action Research has as goal to solve practical problems at the same time as the researcher study the process and develop scientific knowledge (Baskerville and Myers 2004). AR has been chosen in order to satisfy the research needs when doing method development. Rigorous method development requires grounding of the method both theoretically and empirically (Goldkuhl 1993; Fitzgerald et al. 2002).

VISU has been designed and tested during several cycles of use through parallel work with evaluation and method development (time period 2001 – 2009). The research has been conducted through six iterative CAR cycles (method development episodes) within two cases. In the first case a method hypothesis was developed parallel with a project evaluation. In the second case, at the social welfare services in a Swedish municipality, the method hypothesis was tested and refined parallel with evaluation of the information system Procapita. Procapita is an off-the-shelf system from a large Swedish ERP vendor and is in use by approximately 150 municipalities in Sweden. In this case Procapita was used by 350 social workers (case handlers) in the daily case handling practice. The method development episodes have investigated different themes due to "what seems to be going on here" (Strauss and Corbin 1998; Baskerville and Pries-Heje 1999). Table 1 and 2 gives an overview of episodes, themes, questions and results.

**Table 1:** Method development episode 1-3 at the Swedish Employment Agency.

Episode	Theme	Questions	Results
1. Model	Evaluation model	What evaluation model satisfies the evaluation needs?	Business needs for usable evaluation results The role of stakeholders in evaluation.
2. Process	Construction of evaluation process	How to design the evaluation process?	Dialogue-seminars Process use of evaluation VISU method draft VISU Principles
3. Method hypothesis	Theoretical grounding of method hypothesis	How to design a method hypothesis from the performed evaluation process that is grounded in theories on evaluation, IS evaluation and the American pragmatism?	Multiparadigm model for IS evaluation Grounding of VISU in evaluation theory, IS evaluation theory and American pragmatism VISU method hypothesis

VISU has been refined in several stages and built originally on Constructivist Evaluation (Guba and Lincoln 1989) and Change Analysis (Goldkuhl and Röstlinger 2005). Constructivist evaluation has contributed with principles on stakeholder perspective, dialectic process and stakeholder generated criteria. Change analysis has contributed with method components and modelling techniques for analysing problems, strengths, goals and with guiding principles on participation.

**Table 2:** Method development episode 4-6 at the Social Welfare Services.

Episode	Theme	Questions	Results
4. Method description	Method description	IS the description explicit and easy to use?	Partly validated method description Summary of change needs for VISU
5. Stakeholder model	The evaluation process based on the stakeholder model	Do phases and activities in VISU implement a stakeholder model for evaluation? How does inclusion of stakeholders work in practice? How do VISU questions (activities, problems, strengths, goals) work in dialogue -seminars? How to summarise change requirements and change measures from concerns and issues?	Rationality for pragmatic IS evaluation Adjustments of phases and activities in VISU Mechanism for summarising change requirements and change measures from multiple stakeholders claims and concerns
6. Evaluation use	Results and consequences of the evaluation process	How are results from the evaluation used and how do they contribute to development in the organisation?	Evaluation use model

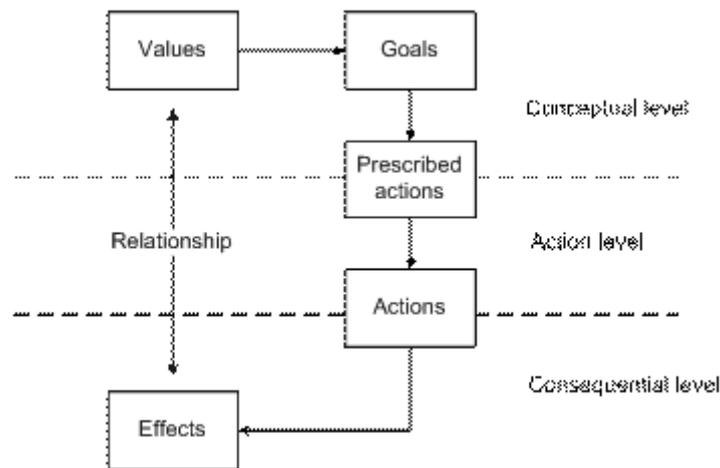
### 3. Philosophical and theoretical underpinnings for VISU

Different paradigms (Burell and Morgan 1979; Lewis and Grimes 1999) underpins research in the IS field (Hirschheim and Klein 1989; Orlikowski and Baroudi 1991; Fitzgerald and Howcroft 1998; Braa and Vidgen 1999; Goles and Hirschheim 2000). Research methods are related to evaluation methods as they concern techniques, and the rigor and relevance thereof, for knowledge development through data collection and analysis. IS evaluation approaches are, as well as research methods, anchored in different paradigms (Lagsten and Karlsson 2006). Methods undergo adaption's and changes in use and better understanding could be attained by examination of paradigmatic values of methods (Päivärinta et al. 2010). Explication of basic assumptions and rationale behind methods is helpful for both method users (practitioners) and method developers (researchers) when using and selecting methods in practice and analyzing methods for further precision and sophistication.

Researchers in the field of IS evaluation has begun to recognise the need for grounding evaluation approaches and studies in the ontology and epistemology of relevant paradigms. Different research perspectives has been proposed: political/social constructivist perspective (Wilson and Howcroft 2005), critical theory (Klecun and Cornford 2005), situated practice/interpretative approach (Jones and Hughes 2001), systems-based approach/biology (Jokela et al. 2008), critical realist perspective (Carlsson 2003).

Methods contain prescribed actions to be performed in order to achieve some task or state. Prescribed activities are anchored in values and goals, performance of the activities are believed to give some consequential effects. Figure 1 illustrates the relation between values, prescribed actions and effects. Values and goals exist on a conceptual level. On the action level prescribed actions are turned into action. Method description is interpreted by method users and adapted to the context at hand and actions are taken. On a consequential level action give rise to effects as consequences of the actions that were performed and the way they were performed.

A method establishes a relationship between the conceptual values that underpins the method and the way that those values appear as practical consequences of method use. This relationship could then be understood as the rationale of the method. The rationale of a method means a specific perspective on the evaluation process. The perspective should inform evaluation actions and the way the evaluator approach evaluation actions. To perform evaluation of information systems according to VISU means to work according to a pragmatic rationality.



**Figure 1:** Method rationale as the relationship between values in methods and effects of method use (Lagsten 2009) adapted from (Goldkuhl 1993).

A pragmatic evaluation model is founded on five principles drawn from the philosophy of American pragmatism (Peirce 1878/1990; James 1907; Dewey 1931; Rescher 2000). The rationality makes explicit the relation between goals and values that guide prescribed actions in VISU and the effects that are expected as consequences of the action taken. The rationality explains the reasons for why different actions should be carried out by clarifying the connection between values/goals and desired practical effects. This will help evaluators to perform activities in a conscious way and to configure activities according to the situation at hand.

**The Principle of Participation:** Actors who hold a stake in the information system participate in the evaluation process.

**Values and Goals:** Evaluation is a democratic process where everybody who hold a stake in the IS has the right to be heard. Different stakeholders have different knowledge of the object of evaluation. Different stakeholders have different standards for what is good/bad. Evaluation is an overt and practical process where all decisions are made explicit for all participants.

**Actions:** The evaluation is organised around stakeholders concerns about the IS by the way of dialogue-seminars. The evaluation starts with identifying all stakeholders. The evaluation process is open for inclusion of new stakeholders. Motives and choice of participating stakeholders should be made clear. Stakeholder views are reported separately and jointly. All participants have access to documents produced during the evaluation process.

**Effects:** Comprehensive investigation of the evaluation object. Legitimate evaluation results. The evaluation process establishes a joint view of the evaluation object. Better understanding of the evaluation object as a constellation of conflicting and cooperative interests. Better agenda for action. The evaluation process contributes to shared vocabulary for further dialogue concerning the IS. Understanding and respect between stakeholder groups.

**The Principle of Learning:** Evaluation is carried out as a process of interpretation embodied by dialogue.

**Values and Goals:** Evaluation is a social process carried out through dialogue between individuals. Evaluation is performed as cooperative interpretation where different dialogues are highlighted, between individuals, between stakeholder groups between the IS and the organisation. Genuine dialogue (understandable, truthful, legitimate and sincere assertions, as in Habermas' ideal speech situation) develops reasonable arguments and contributes to individual learning for participants.

**Actions:** Opinions about the IS is generated through dialogues within participating stakeholder groups. The dialogue-seminar starting point is participants' experiences of the IS. Dialogue-seminars are carried out in the condition of genuine dialogue. Dialogue-seminars stimulate learning both within a stakeholder group and between groups.

**Effects:** The evaluation process generates personal knowledge anchored in experiences concerning the IS. Evaluation results grow successively during the process. Evaluation results reflect relevant

aspects of the IS within the business context. The character of the evaluation results is customised to participants. Evaluation results are understandable and constitute a basis for individual action.

**The principle of Action:** Evaluation takes actions of individuals as starting point.

*Values and Goals:* Action is significant for everyday knowledge acquisition. Taking action as the starting point means to anchor concepts and abstractions in the practical world. Action should be knowledgeable, knowledge should be actionable.

*Actions:* The evaluation ground in what is being done. The dialogue-seminar is opened with the question of what the participants are doing when using the IS. Evaluation results are marked as measures for action.

*Effects:* Evaluation results are anchored in the practical work with the IS. Evaluation results are relevant. Evaluation results are actionable. Evaluation results guides change through action.

**The Principle of Instrument:** Criteria for the evaluation object are established through the evaluation process.

*Values and Goals:* Values are practical instruments, thinker tools, which help us to live rich and fulfilling lives. Humans strive for change that makes a positive difference. The world is in the making. Values and measures are constantly renegotiated.

*Actions:* Goals and criteria for the IS should be critically scrutinized in the dialogue-seminars. Current goals and criteria for the IS are decided by the stakeholders. Evaluation is a process for deciding upon goals for the IS and measures to reach those goals.

*Effects:* Criteria for the IS represents stakeholder views. The IS is evaluated against current goals and criteria. The IS is evaluated against legitimate goals and criteria. The evaluation results contain the motives for change.

**The Principle of Consequence:** In the evaluation participants take into account consequences of the evaluation.

*Values and Goals:* We as humans investigate our ideas by examining their consequences. The purpose of evaluation is to improve human conditions. Humans are constantly taking actions that change the world and themselves.

*Actions:* Evaluation is a process of intervention. The evaluator count on results produced in the process, from the beginning to the end. The evaluator initially plans the kind and character of results that the process can produce and include activities for transforming results into change and betterment.

*Effects:* The evaluation results in decided change requirements and change measures for different stakeholder groups. The evaluation results in (new) operative knowledge amongst participants. The evaluation results in a joint agenda for action. The evaluation creates arenas for participants to create change and betterment. Evaluation makes change.

By making the paradigmatic values of VISU explicit we hope to enhance learning and use of VISU as well as adaption and elaboration of method components.

#### **4. The VISU method**

The principal approach in VISU is to ensemble concerns of all stakeholders of the information system in systematic dialogue-seminars. A dialogue-seminar can be compared to a focus group were a special set of questions are addressed and examined by a stakeholder group. The evaluation process is performed in three phases; arrange, evaluate and develop, figure 2.

The process model of VISU put forward an overall view of the evaluation process and the purpose of evaluation to contribute to development and betterment. VISU supports evaluators and assigners to take responsibility of the whole process of evaluation. This is important because initiating activities in the arrange phase to a large extent influence on how the evaluation results later could be used for development. Using evaluation results for development and change consumes time and resources. VISU can be used by an evaluator in order to evaluate an IS in use. In the role as evaluator it is important to have knowledge of ISs, system development and system usage. The evaluator could be a project manager, a skilled system developer or a system manager.

ARRANGE	EVALUATE	DEVELOP
Initiate Form an arena Understand and describe the business/practice Identify stakeholders Identify evaluation use Agree on preconditions	Carry out dialogue-seminars Analyse activities, problems, strengths and goals Joint interpretation and valuation	Use evaluation results Report and inform

Figure 2: Process model of VISU.

#### 4.1 Arrange

In the following section the evaluation process according to VISU is explained by a method description (method-in-concept) and examples from the evaluation of Procapita (method-in-action).

The arrangement phase consists of four main activities:

- Initiate (Form an arena, Understand and describe the business/practice)
- Identify stakeholders
- Identify evaluation use
- Agree on preconditions

##### **Method-in-concept:**

*Initiate (Form an arena, Understand and describe the business/practice)*

The evaluator creates an arena where the evaluation takes place. Central actors are contacted and the evaluator explains the evaluation process and their role to make sure that the process is comprehensible. The evaluation relies on genuine dialogues and is based on ethics of: openness, participation, stakeholder experience and knowledge, learning, transparent process, critical reflection, comprehensive legitimisation, unconditioned analysis, constructive cooperation and use of evaluation results.

Central actors are those who can assure that knowledgeable stakeholders can participate, in the end of the evaluation they could be involved in implementing the evaluation results. An evaluation board should be set up with experts of the domain. The board assists the evaluator with domain knowledge as work content, documents, tools, laws, rules, routines and contacts. Board members should have knowledge, commitment and mandate to act on information from the evaluation. They also communicate and anchor the evaluation process within other agencies of the organisation. Doing entrée and getting established as evaluator in the organisation is also about building trust. Different actors could have reasons to conceal important information. Trust takes time to build and the evaluator has to openly deal with questions and issues that is raised.

The evaluator need to understand and describe the domain of the IS. The evaluator is not the domain expert – the stakeholders are. But the evaluator is responsible for depicting the IS-domain in a knowledgeable way. A description, as a rich picture, of the IS-domain is helpful when communicating the evaluation process, identifying relevant questions and issues and identifying participating stakeholders. Different techniques or models could be used for the initial description depending on the choice of the organisation or the evaluator.

##### *Identify stakeholders*

An IS has a multitude of stakeholders. A stakeholder is a person or group that hold a stake in the IS (or in the evaluation). In the evaluation problems, strengths, goals, change requirements and change measures concerning the IS, as seen by its stakeholders, will be reproduced and analysed. Choosing which stakeholders that should participate also means a choice of interests and perspectives that will influence future situation. As many stakeholders as possible should be included in the evaluation process; but the evaluation party has limited recourses. The inclusion of stakeholders is a balance between the need of a rich description and available recourses. Guba and Lincoln (1989) define 3 categories of stakeholders; agents, beneficiaries and victims. People involved with systems development or systems maintenance could be agents, system users could be beneficiaries but they could also be victims. Initially a catalogue of preliminary stakeholders is established, preferably by a brainstorming procedure in the evaluation board. This catalogue is exposed in different contexts

(presentations, interviews, dialogue-seminars) and is adjusted and approved during the process. The evaluation is a knowledge creating process; it should be possible to include more stakeholders during the process, reasons for inclusion should be communicated.

*Identify evaluation use*

The question of how to make use of the evaluation results should be addressed from the beginning. Evaluation is pointless if resulting knowledge is not transformed into practice, this transfer needs to be planned. Questions to ask are: Who could make use and maintain the knowledge created in the evaluation? Who will receive the evaluation results and be responsible for transforming them into effects as change and betterment? What ways of working and documenting are possible and available in order make enhance use? Making use of results takes time and consumes recourses, a strategy and plan for transformation of results into effects should be made.

*Agree on preconditions*

Necessary evaluation preconditions is summarised in a document that establishes a frame for the evaluation and a contract.

1) *Name of evaluation project.*

2) *Assigner.* The name of the person/group that sponsors the evaluation.

3) *Evaluator.* Name and contact information.

4) *Purpose of the evaluation.* VISU supports evaluating ISs from a multi-stakeholder perspective. The initial questions from assigners and an overall purpose are clarified. Assigners are regarded as one stakeholder. The evaluation is open for new questions throughout the process.

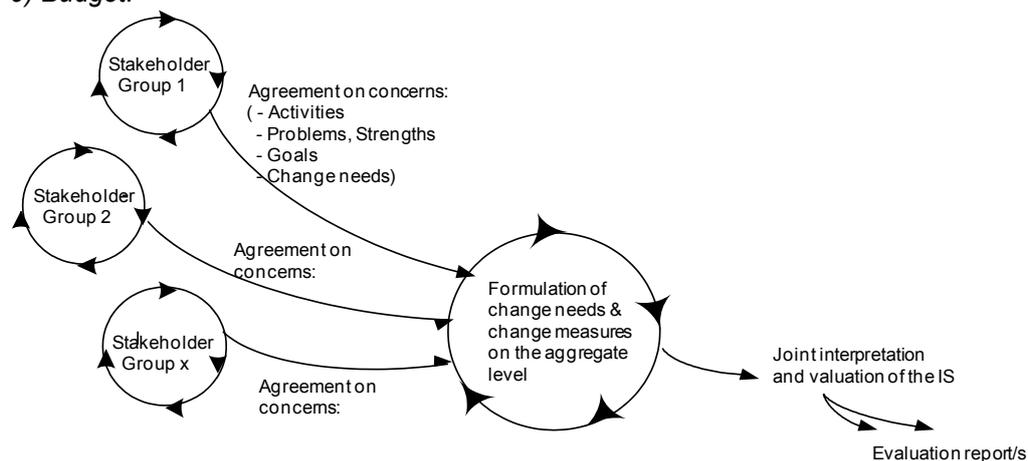
5) *Information system.* The definition of the IS embrace both a traditional notion (a software intense system which assembles, stores, processes and delivers information) and social notion (a human activity system relying on technology). The evaluation object should be tentatively defined; it is likely that the evaluation redefines the idea of the IS.

6) *Stakeholders.* Participating stakeholders are specified and the reasons for inclusion, further stakeholders could later be included.

7) *Method and process.* The evaluation method, process and basic values should be described, a timetable is made. The overall process i summarised in figure 3: i) Identify all stakeholders of the IS ii) Through dialogue make an inventory of activities, problems, strengths and goals as seen by stakeholders iii) Summarise change requirements and suggest change measures iv) Establish a joint interpretation and evaluation of the IS.

8) *Evaluation results.* Character and types of evaluation results. A brief plan for use of results.

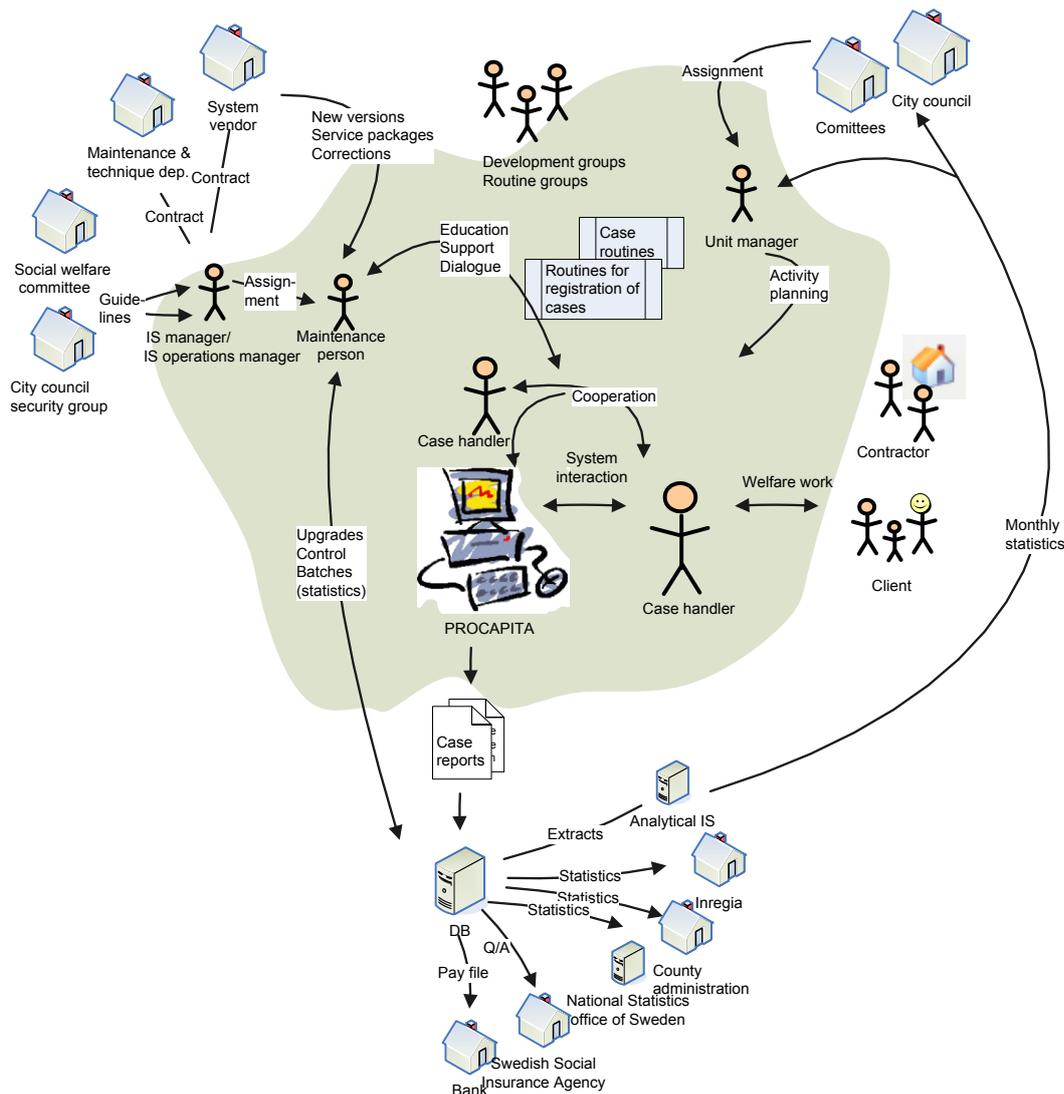
9) *Budget.*



**Figure 3:** Overall evaluation process in VISU

**Method-in-Action**

In the evaluation of Procapita the evaluator put an effort in understanding the IS-domain by meetings with maintenance personnel and the social welfare committee, participating in Procapita education, and studying central documents. A model of the case handling practice was created together with social workers and a rich picture of the IS-domain was depicted (figure 4).



**Figure 4:** The information system Procapita from a stakeholder perspective.

The evaluator informed managers and administrative personnel about the process and they were asked to organise stakeholder participation in the forthcoming dialogue-seminars. An evaluation board was established consisting of the IS manager, the IS operations manager and maintenance people. A stakeholder catalogue was made within a brainstorming procedure in the evaluation board and further refined in presentations and discussions throughout the evaluation (table 3).

Stakeholders were chosen on basis of on their crucial interests in Procapita and their ability to answer the evaluation questions. A contract was drawn stating preconditions of the evaluation. The evaluation object was defined as “the use of Procapita in the case handling practice” and the aim was “to evaluate Procapita as seen by (all) its stakeholders”.

The questions that the municipality wanted to resolve was defined as well as method, participating stakeholders, type of results and a timetable. The main question for the IS manager (assigner) was if it was time to terminate Procapita or if the system satisfied the organisational needs. A number of sub questions were also specified: How is the system perceived by its users? Do they have relevant education in system usage? How do unit managers perceive their responsibility for the use of Procapita and the resulting documentation? Why is not all cases handled in Procapita as decided by city council? Is the organisation prepared for eventually terminating Procapita?

**Table 3:** Stakeholders of Procapita

System users at financial support unit	IS operations manager	Assigners
System users at family homes unit	City council security group	Contact persons
System users at family law unit	Central maintenance and	Contact families
System users at treatment units	technique department	Family homes
System users at investigation unit	Development group	The Swedish Social Insurance Agency
System users at refuge introduction	Routine group	The bank
System users at emergency service unit	Care and Social services	Different Courts
Planning officers	committees	National Board of Health and Welfare
Unit managers	Clients	Inregia
Elected politicians	Families of clients	National Statistics office of Sweden
Social services committees (east, west)	System vendor	The union
Social welfare committee	Economists	Other information systems
Maintenance team	Measurement people	
IS manager	County administrative board	

## 4.2 Evaluate

The evaluation phase consists of three main activities:

- Carry out dialogue-seminars
- Analyse activities, problems, strengths and goals
- Joint interpretation and valuation

### **Method-in-concept:**

#### *Carry out dialogue-seminars*

In this phase the actual evaluation is carried out through dialogue-seminars. Central organisers of stakeholder concerns are four specific VISU-questions elaborated in the seminars: What do you do while using Procapita? What problems do you perceive? What good does the system do for you? What are the goals you try to achieve?

Participating stakeholders are invited to dialogue-seminars. A dialogue-seminar can be compared to a focus group. The group consists preferably of 5-8 persons that legitimately represent the wider stakeholder group. The seminar builds on the principles of genuine dialogue, participants are assumed to be understandable, truthful, legitimate and sincere. Participants in one seminar should be working with similar tasks and have the same organisational positions. It is not wise to mix persons with employer declarations and employees because of the risk that the employer is given expert power in the group (Wibeck 2000).

A seminar goes on for about 1,5 hour. Depending on the ambition and complexity two (or more) seminars could be held. The routine for each stakeholder group:

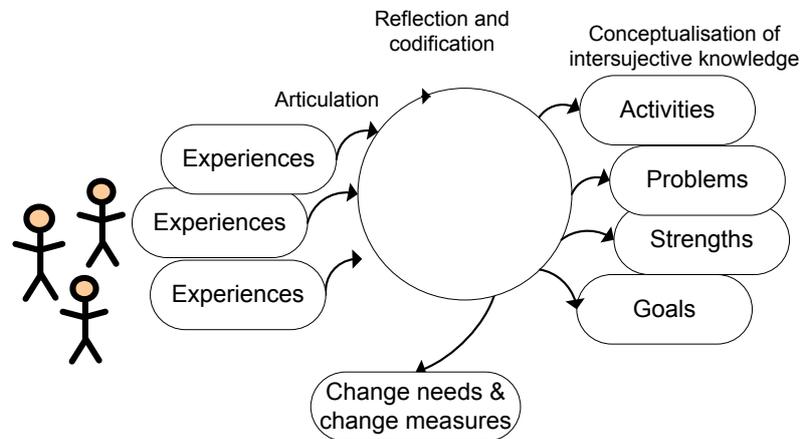
- Choose participants from the larger stakeholder group.
- Book a room.
- Send invitation and process description to participants.
- Conduct seminar 1.
- Analyse and summarise working report.
- Send working report to participants for feedback.
- Conduct seminar 2.
- Send working report to participants for validation.
- Publish working report available to all stakeholder groups.

The room should be equipped for drawing/writing together and showing slides; an oval table contribute to an intimate environment. All groups should have the same possibilities to present their concerns.

The routine in each seminar:

- Presentation of participants.
- Presentation of evaluation process/preconditions and task for the dialogue-seminar.
- Dialogue on basis of the VISU-questions.
- Prioritising of problems, strengths and goals.
- Instruction for next seminar.

It is important to start the session with the question on activities, what participants do while using the system, what tasks they perform through the system. Activities are the starting point for the dialogues. In the dialogue insights are given, understanding is raised, concepts are defined, situations are identified, misconceptions are clarified, agreements are held, purposes and objectives are negotiated, conclusions are drawn, actions are planned, language and grammar for the conversation is developed. The process in the seminar is a joint interpretive investigation into the participants concerns of the system based on their situated experience (figure 5).



**Figure 5:** The dialogue-seminar in VISU.

*Analyse activities, problems, strengths and goals*

Central organisers of concerns in seminars are four specific VISU-questions:

- What do you do while using Procapita? (Activities)
- What problems do you perceive? (Problems)
- What good does the system do for you? (Strengths)
- What are the goals you try to achieve? (Goals)

Those questions are elaborated in dialogue-seminars and later organise the analysis on an aggregate level. The VISU-questions are other than the evaluation questions and works as tools for gathering information to answer those. VISU-questions build on method components in the method change analysis (Goldkuhl and Röstlinger 2005). In activity analysis activities and their relations into processes are identified. A problem is something unsatisfactory (an itch), a strength is something that is positive/unproblematic and a goal is a desired state. Having described activities, problems, strengths and goals for each stakeholder group it is time to form change requirements and change measures. The overall process of the joint interpretation process is described in figure 6. A change requirement is a need for something to be changed; it is the difference between a problem situation and the corresponding goal situation. A change requirement comprises a step between problem and measure. Formulating change requirements give opportunity for alternative measures and a frame for creating different change proposals (Goldkuhl and Röstlinger 2003).

Identification of change requirements and measures has already begun in the dialogue-seminars. The last step in the evaluation is to identify change requirements for each stakeholder group and to form change measures aggregated for all participating stakeholders. This could be done either in a closing dialogue-seminar with representatives from all participating stakeholder groups or by the evaluator herself or in the evaluation board. A seminar is to prefer to establish a confirmed overall picture. The evaluator needs to prepare documentation that illuminate and structure stakeholder concerns.

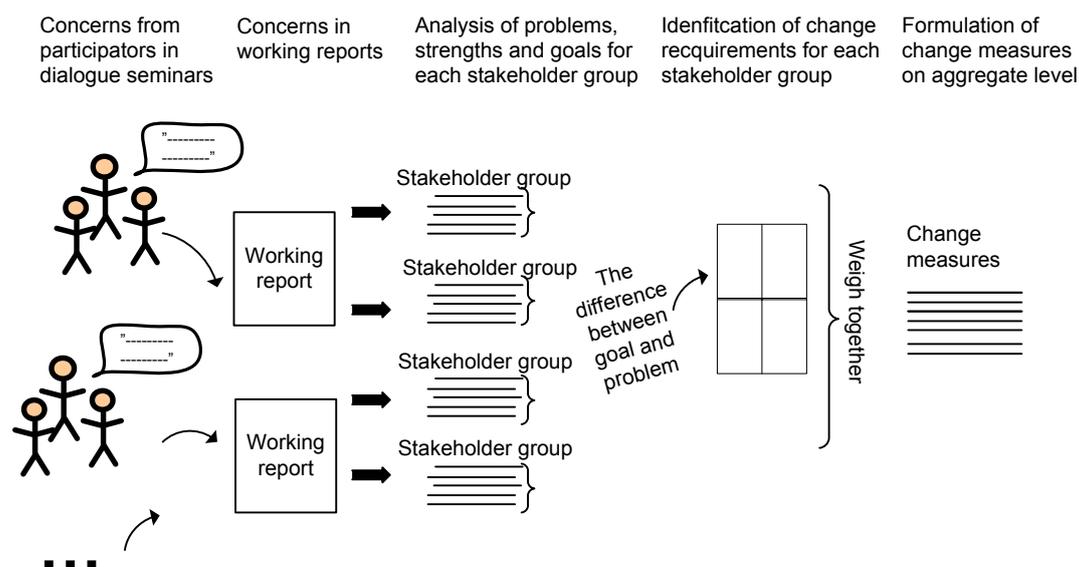


Figure 6: The joint interpretation process in VISU.

**Method-in-action:**

In the evaluation phase 16 dialogue-seminars were held. The stakeholders represented were users (five different groups), unit managers, maintenance, and IS management. Each group (3-7 individuals) had two seminars taking two hours in general. Each seminar was documented in a working report articulating stakeholder concerns arranged by activities, problems, strengths and goals. In between the first and second seminar participants got the report by e-mail. In the second seminar the group made refinements and validated the report. All reports were successively published on the Intranet. Parallel with the ongoing dialogue-seminars the evaluation board analysed the reports and some immediate changes were made.

After the dialogue-seminars were carried out the evaluator analysed the working reports according to statements on activities, problems (400 altogether), strengths (50) and goals (70). For each stakeholder an account was written. For example, users (case handlers) carried out 40%-80% of their working hours through Procapita, main activities were to: document errands, write journal notes, make investigations, take decisions, follow-up decisions and search for information. Main concerns (problems, strengths and goals) for users are shown in table 4. Change requirements for the four stakeholders were described as in table 5.

Table 4: Main problems, strengths and goals recognised by Users

Problems (main areas)	Strengths	Goals
Procapita (P) consumes time and energy	Good functionality for statistics	Correct help to clients
P takes time to learn	Provide legal security.	High legal security for client
The GUI brings a cognitive workload	Give overview of cases	Correct statistics
Functions have unclear consequences	Provide good coordination of cases	Effective routines for cases
Week models for standard cases in P	Good support organisation	Good coordination of cases
Functions are missing/poor	Necessary functionality	Correct data in P
Lack of support for document handling	Simple	Correct documentation of case
Data are saved on local discs	General positive judgements (i.e. works good for me)	Good knowledge of handling P for case handlers
Wrong information is saved in P		
Unclear rules for content in case documentation		
Sometimes P is not accessible		
Maintenance routines do not fully support user needs		
Information from P is not fully reliable		

**Table 5:** Change requirements of Users, Unit managers, Maintenance team and IS managers.

<p><b>Users</b>          Better GUI          Better support for handling documents in P          All templates should be implemented and be correct          Improvement of some of the functions in P          Deepened knowledge on case registration          More and adjusted education          Handle corrections in case documentation          Uniform case documentation          Clear case models          Access to handle templates in P          Test cases          Bettered computer skills          Practical information security skills          Information on status of Procapita maintenance activities</p>	<p><b>Unit managers</b>          Fine-tune statistical information to fit the units          Better knowledge on the statistical tool in P          Modified access to cases to enable cooperation</p>
<p><b>Maintenance team</b>          Bug-free versions and fixes from the vendor          Information on status of Procapita maintenance from vendor          Few wrongly registered cases /less correction work          More case handlers following the education          Adjust their P courses to fit different user groups          More straight client-contractor model          More effective work in the development group</p>	<p><b>IS managers</b>          Increased undertaking of P from the units          Explicit interface between maintenance team and unit managers          More rigor in inquiries before ordering of new functions from vendor          Accuracy in judgements concerning if P satisfies the needs in the organisation</p>

Having identified change requirements of the different stakeholders change measures aggregated for all stakeholders were formed. A range of change measures were identified and described under following labels:

- 1) Wash away usability problems from the interface
- 2) Develop adjusted education
- 3) Develop conceptual models for cases and registration
- 4) Demand bug-free versions and fixes from the vendor
- 5) Establish an arena for communication between units and maintenance
- 6) Explicate the interface between practice and maintenance
- 7) Assess and evaluate continuously.

### 4.3 Develop

The development phase consists of two main activities:

- Use evaluation results
- Report and inform

**Method-in-concept:**

*Use evaluation results*

One major reason for doing evaluations is to take actions based on the results and therefore the phase of development is emphasized in VISU. The results produced in the evaluation should be used in order to develop the IS and the practice. As shown in figure 7 the evaluation process is a temporary practice related to several continual practices. (Findings on evaluation results and uses have earlier been reported from the study in Lagsten and Goldkuhl 2008).

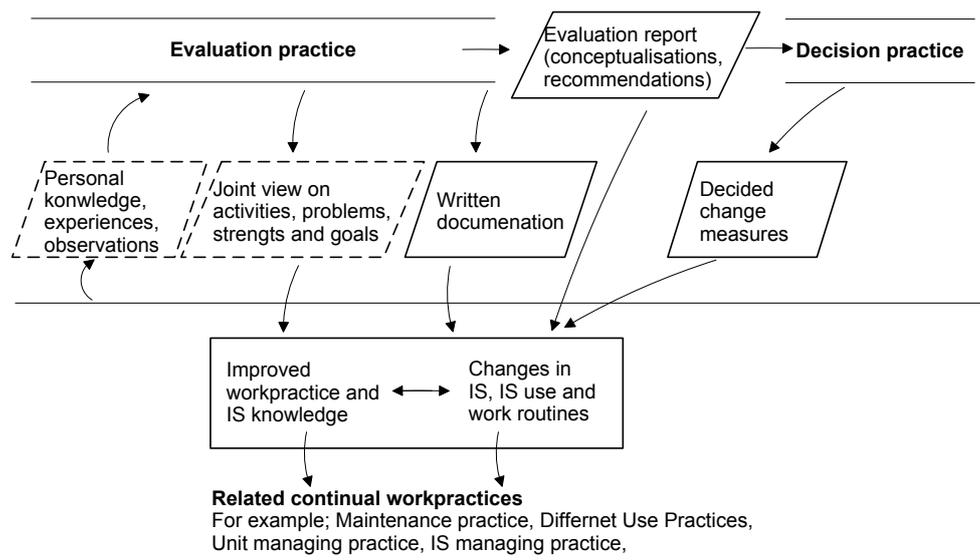


Figure 7: Evaluation use model (Lagsten and Goldkuhl 2008)

Continual practices could be system maintenance, different sub practices use of the IS, management and management of the IT function. The evaluation practice is concerned with these continual practices and is furnished with knowledge from them through the participating stakeholders. Stakeholders/participants go back and forth between the temporary evaluation and their respective ordinary workpractise. They bring experiences from their practices to the evaluation and they gain insights from the evaluation dialogue-seminars which they bring back to their workpractices. The evaluation produces gradually written documentation which participants also can bring back. Participation in the evaluation yields learning about their workpractise. These new insights may be turned into changed behaviour in workpractices and even in immediate changes in routines, IS uses or in the IS. There is a flow of knowledge from the evaluation practice to the ordinary workpractices during the conduct of evaluation. People may not wait until the evaluation process has come to an end and a formal report is written to start changing their workpractices. New insights are often imperative to action. What is described here is process use during the evaluation. One essential result from the evaluation is, of course, the written evaluation report which comprises documented learnings about the evaluation object and recommendations for future actions. Such report is often handled in some official decision context, a decision practice. Decision makers make deliberations based on the report and produce formal decisions, which often will be change measures to be implemented in the ordinary workpractices.

#### Report and inform

In the process, working reports from dialogue-seminars has been produced. An overall evaluation report describes the different stakeholders interpretations and concerns for the IS and the context from their point of view. The purpose is to offer understanding for different stakeholders concerns and change requirements. It is important that readers of a report can make their own sense and judgements of the situational context and suggestions. A traditional report might not always be recognized as the most useful way of communicating results for different audiences especially if the aim of the evaluation is formative. The way of reporting should be adapted for the audience to facilitate use. Results can be reported as working reports, requirement specifications, routine descriptions, use cases, term catalogues, risks, problem analysis, design proposals, glossaries, revised plans, goal analysis, information/decision meetings, PowerPoint presentations, specifications for education etc. Reports should have apparent receivers and evident purpose for use.

The way of communicating results should be discussed at the end of the evaluation phase. The use of evaluation results demands resources that should have been planned in the arrangement phase that may need some adjustments. Participating stakeholders should be informed about communication and use of results.

**Method-in-action:**

Each dialogue-seminar produced a working report that gave account of the stakeholder groups concerns, these reports were successively published on the Intranet available to all staff. The evaluation board had also analyzed all working reports and identified and documented change requirements for maintenance, some changes were made immediately. An evaluation report was written containing a comprehensive model of the system from a multiple-stakeholder perspective, accounts of problems, strengths and goals for the different stakeholders. The report concluded with identified measures and discussion on the initial evaluation questions. Seminars were held to discuss the findings. The evaluator finally gave a presentation of the evaluation report for the social welfare committee and the IS manager got the assignment from the committee to write a detailed plan on how to act upon findings and knowledge from the evaluation.

Changes and development steamed out from the evaluation process. In a follow-up of the dialogue-seminars participants stated that "it has contributed to reflective thinking about Procapita", "you get to learn new ways and shortcuts on how to handle Procapita", "gives the side-effect that we discuss case handling in the group" and "gets a joint and overall picture of the system". A person from maintenance expressed "it has been a long journey and I have struggled back and forth with my opinion but now I feel satisfied with the system. It's a good system". The IS manager meant that "the maintenance personnel have adopted a new approach – they have taken on a user perspective". Several projects were planned and some begun during the evaluation (concerning roles, templates, education, logging, text editing). The maintenance team delivered more precise demands on the vendor and performed more careful investigations in ongoing projects. Some fixes were also made in Procapita.

The IS manager decided not to terminate the system but to renegotiate the contract with the vendor. The evaluation process gave rise to diffusion in other areas than the focal matters of the evaluation. An information security education for 250 managers within the municipality were held, the IS-manager explained "the insights from the evaluation gave me the extra strength to negotiate the funding for the education that was not planned for in this budget". Another example was that a new element, evaluation, was incorporated in the business plan for the maintenance unit.

## **5. Implications for practice and research**

For a long time there has been a call for interpretive IS evaluation methods. This research contributes with a comprehensible method, VISU, for doing evaluation of an information system as a joint act of interpretation. VISU is one way to operationalise an interpretive evaluation approach. VISU has shown to be a useful method for conducting an evaluation that gives answers to relevant questions, VISU also supports use of evaluation results.

There is also an interesting philosophical issue raised in this paper. We have suggested that by enveloping the interpretive IS evaluation model in the philosophy of pragmatism the interpretive IS evaluation model acquire a foundation for change and betterment that makes the interpretive model more efficient and uncomplicated to operate into a method for practical use. Making paradigmatic values explicit enhances learning and use of evaluation methods as well as configuration and further elaboration of method components.

The process model of VISU can stimulate researchers in the IS field to better understand and study the *process* of evaluation. In the model the evaluation phase is enclosed by an arrangement phase and a phase of development supporting the use of the evaluation in the practical setting. VISU emphasizes that evaluation is to be understood as a process carried out by people and that evaluation is an intervention with its own set of activities. This is in line with the Evaluation Logic Model (Mark and Henry 2004) which describes evaluation according to inputs, activities, outputs and utilization.

The evaluation use model is useful when planning evaluation processes in order to provide understanding on what kind of results an evaluation can produce and how to make use of these results. The model gives a contribution to the research on IS evaluation as well by shedding light on how evaluation influences on people and practices.

Overall it seems like people, through participating in the evaluation process, elaborate on the importance of needs and changes and develop the final motives that make up their minds on which changes to go on and work with.

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