Measuring e-government performance: Searching for key performance indicators.

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Abstract

Investments in government innovation with IT, or e-government, have been quite substantial over the past decade or so. Early investments can be said to have been motivated by private sector successes. However, considerable spending of public funds over time needs to be justified – not only up-front but in the form of documented, realized value. Unfortunately, documenting realized value from e-government investments has proved to be challenging. This position paper argues that a lack of agreed upon key performance indicators for e-government is necessary to document e-government value. At least there is a need for guidelines for applying performance indicators to ensure uniform and comparable performance data. Further, a research design is proposed to address these current shortcoming and some expected results and implications are discussed.

Keywords: e-government, key performance indicators, benefits realization

1 Introduction

Governments around the world invest an unknown amount into e-government initiatives, yet we have little knowledge on the effects of these investments. In 1996 the Norwegian Ministry of Finance issued new regulations regarding the subordinate agencies assignment of budgets (*tildelingsbrev*) and duties for reporting the efficient and effective use of the budget (Ministry of Finance 2003). The explicit emphasis on the agencies' commitment to efficient and effective use of public funding was a major change from the prior version of the regulation from 1970 (Statskonsult 2006).

This economic regulation for public organizations (Ministry of Finance 2003) has a direct impact on public ICT operations and investments. Expanded requirement of accountability, not only for the use of the funds, but also for the documented efficient and effective use of the funds has resulted in a need for new methods for evaluating the use of public funds and performance indicators that reflect this requirement change. This change marks transition from a focus on ex-ante justification to also include ex-post documentation of realized benefits.

2 Performance indicator sets

Public funding for ICT innovation through e-government initiatives have relied on different methods and guidelines for benefits realization that include performance indicator sets to a

varying degree (Audit Commission 2000a, 2000b; eGEP 2006; Flak and Dertz 2007; Lanestedt and Mogen 2005; Ministry of Finance 2005; Semicolon 2010; SSØ, 2006, 2010a, 2010b; Ward and Daniel 2006; ØRU 2008). Practitioners in public organizations are searching for methods and performance indicators that fit the public economic model and values. To this end some of the major agencies have joined researchers in the participatory innovation project Semicolon funded by The Research Council of Norway. One goal of this project is to address the participant organizations need for methods and performance indicators suitable for managing and documenting the effects of e-government initiatives.

These initiatives can illustrate the problem facing policy makers and practitioners in public organizations and their need for solutions regarding methods and performance indicators for the management and evaluation of the effects of e-government initiatives. These initiatives often encompass organizational change efforts including changes in the way services are provided to the community. Managing the realization of benefits from these separate initiatives and evaluating the effects can become a natural part of the organization's strategic management. e-Government initiatives can also span organizational boundaries, and also include other stakeholders outside the defined organization creating interoperability effects. Estimating and later documenting the possible costs and effects of such initiatives can create the need for adapted methods and performance indicators.

3 Research approach

This research project will be based on the Action Design Research method (Sein et al. 2011). It will employ an ensemble view of design artifacts incorporating material and organizational features (Orlikowski and Iacono 2001; Sein et al. 2011). The specific artifact at the core of the research will not be have a technology-based design, but is more directed by organizational intervention as the source of innovation where performance indicators for the effects of information systems and their influence on organizations, policies and work practices is viewed as an ensemble design artifact (Boland 2002 (cited in Hevner et al. 2004), 2004; Hevner et al. 2004; Sein et al. 2011).

The research strategy will be based on the ingraining of descriptive and prescriptive theoretical elements into an ensemble design artifact in an empirical cycle of continuous building, intervention and evaluation. The ensemble design artifact is a performance indicator set for the measurement of effects from e-government initiatives, and includes the organizational characteristics existing during development and use. This artifact will be ingrained with theory providing prescriptive knowledge and theory providing descriptive knowledge. This research design is comprised of three cases using the same artifact as in the onset. The artifact is a performance indicator set from the research program Semicolon II which in turn is based on the measurement framework from the EU eGovernment Economics Project (eGEP 2006). Three cases (figure 1) will cover the Problem Formulation stage and two counts of Building, Intervention and Evaluation (BIE). The figure shows a time line, and gives an outline of an initial empirical investigation followed by two parallel BIE iterations.

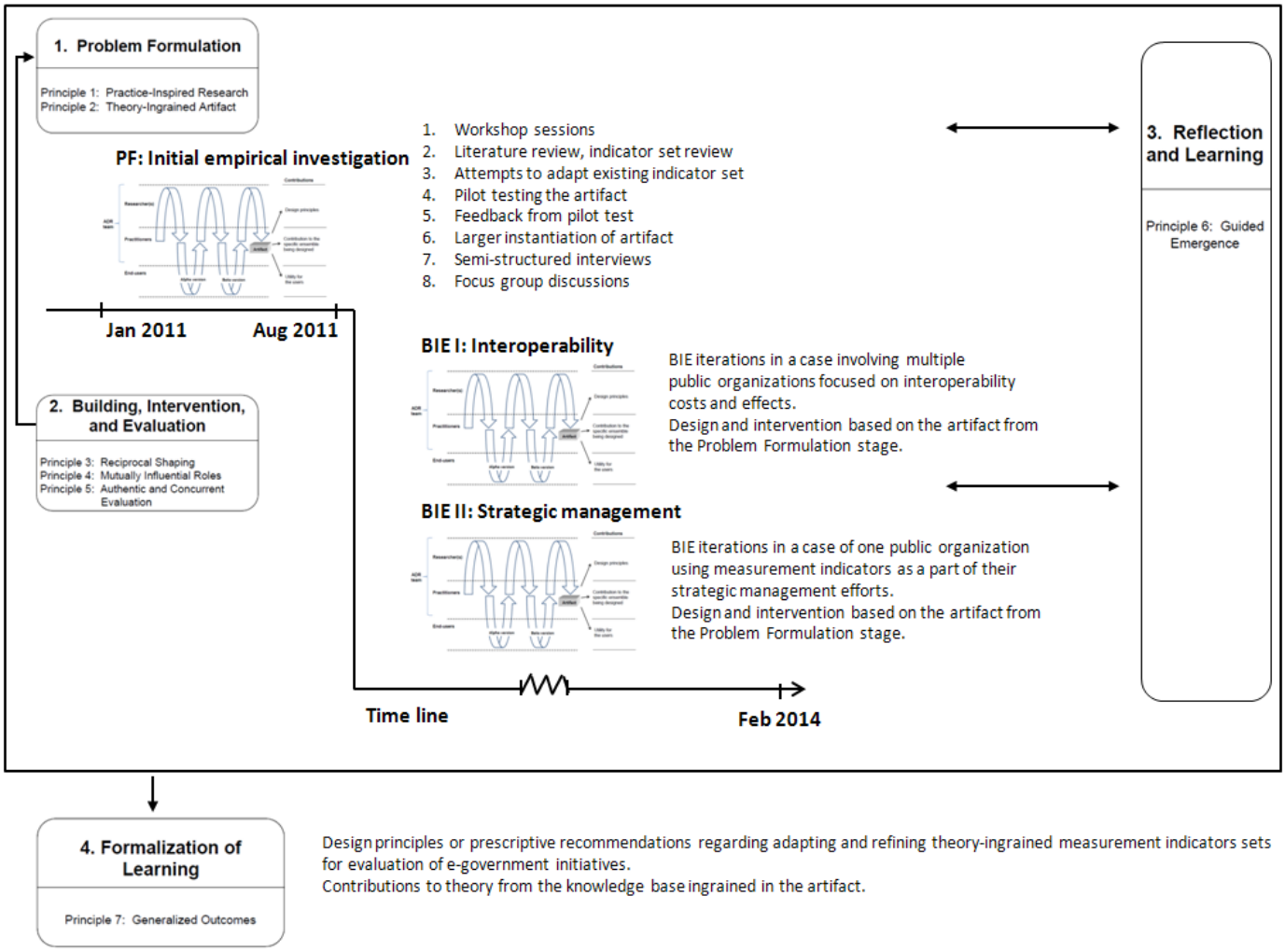

Figure 1: Research design based on Action Design Research (adapted from Sein et al. 2011, pp. 41).

The first empirical investigation is an up-front assessment of possible effects from different solutions for two-way communication between public organizations and citizens and businesses hosted by the Agency for Public Management and eGovernment (Difi). This case provides context information and possible issues relating to the artifact.

The second case will be a longitudinal BIE focusing on the use of performance indicators in an interoperability context. This longitudinal case is hosted by the Brønnøysund Register Center (BRC), and can provide insights into the use of performance indicators in the distribution of costs and benefits across cooperating public organizations when building services on top of the Altinn infrastructure.

The third case is another longitudinal BIE. This longitudinal case will relate to the use of performance indicators for strategic management at the Municipality of Lyngdal. Research in this case may provide insights into the use of performance indicators to help municipalities to conform to performance- and results-based management fitting the delivery of public services.

4 Possible contributions to practice and theory

The proposed research can address the lack of agreed upon key performance indicators by providing an improved performance indicator set tried in different contexts. This collaborative work might help practitioners in their work with the estimation needed to justify investments in e-government initiatives. We may also see an impact on activities connected to the measurement of ex-post effects from e-government initiatives. This might lead to an improved fit between investments and strategy with uniform and comparable performance data over time.

These instantiations of the artifact should also lead to design principles for performance indicator sets and their use for the evaluation of effects of e-government initiatives. These design principles can raise our understanding of how performance indicators can be adapted and used as a part of decision making processes.

Further reflection on the solutions provided by the artifact to the case problems might provide new insights to the theories that were used to ingrain the artifact. We will also provide learning and insights from the use of Action Design Research as a research method.

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