

# Epistemological Perspectives on eGovernment Research

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**Abstract:** Conducting eGovernment research, multi-national and multi-disciplinary collaboration becomes more and more important. However, researchers from different research communities and academic disciplines often use different research methods for approaching a certain research question. The resulting paradigmatic and methodological pluralism can be seen as one of the core issues of eGovernment research management, because in this case, studying the same phenomenon does not necessarily mean that mutual understanding prevails. The extensive publication of epistemological assumptions is thus, in effect, mandatory. Here, the aim of this paper is to structure and systematize the epistemological discussion by providing an epistemological framework.

## 1. Introduction

Electronic Government (eGovernment) has been a motor for modernizing public administrations for more than a decade. It draws on and provides nexus for many different research fields, academic disciplines, research communities, and research approaches. Apart from information systems, many other disciplines including business administration, information science, law, sociology and psychology, contribute to studying the development, implementation, and use of information systems and information technology within public administrations. As a consequence, conducting eGovernment research, multi-national and multi-disciplinary collaboration becomes more and more important. Different (national) research communities and different academic disciplines contributing to eGovernment (research) are often shaped by certain research paradigms and a set of certain research methods and methodologies. Thus, the situation in eGovernment research that has developed can be described as a “methodological

pluralism”<sup>1</sup>. The wide spectrum comprises heterogeneous approaches which differ very substantially in their basic – especially epistemological – foundations and assumptions. These assumptions have a great impact on how to understand such concept as research validity, research reliability and also “quality” of research results. The discussion of research rigor thus also has to consider epistemological issues. Therefore, the theoretical epistemological analysis of research methods applied in eGovernment – especially in the move of multi-methodological approaches – has great relevance for research practice. In this respect, however, the discussion of epistemological assumptions of research methods is, in effect, mandatory. Nevertheless, the lack of epistemological foundation of research methods is apparent and extensively discussed<sup>2</sup>. Thus, working together in multi-disciplinary and multi-national eGovernment research projects does not necessarily mean that mutual understanding prevails. The difference of (often non-explicated) epistemological assumptions becomes significant taking into account the distinct research cultures in different disciplines and research communities contributing to eGovernment research. Therefore, the main research question within this paper is: What are the main theoretical – especially epistemological – issues that ought to be considered in the context of planning, conducting, and evaluating multi-methodological eGovernment research?

## 2. The Role of Research Cultures

Diverse academic disciplines as well as diverse (national) research communities contribute to eGovernment research. Different disciplines and different research communities are regularly influenced by different research paradigms, they often use different research methods, methodologies and approaches, and furthermore they rely in many cases on different basic assumptions. Such paradigmatic and methodological differences can also be found analyzing the different academic disciplines contributing to the field of eGovernment. To find a more general term which comprises these distinguishing aspects, we can assume that different disciplines and different research communities provide different research cultures. Referring the theory of culture

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<sup>1</sup> *Mingers, J.*, Combining IS research methods: towards a pluralist methodology (2001), *Information Systems Research*, 12, 240-259.

<sup>2</sup> *Hirschheim, R., Klein, H. and Lyytinen, K.*, *Information Systems Development: Conceptual and Philosophical Foundations* (1995), Cambridge University Press, Cambridge/MA.

which was strongly influenced by Edgar Schein<sup>3</sup>, we can differentiate three levels of culture: the level of artefacts and symbols, the level of norms and values, and the level of basic assumptions.

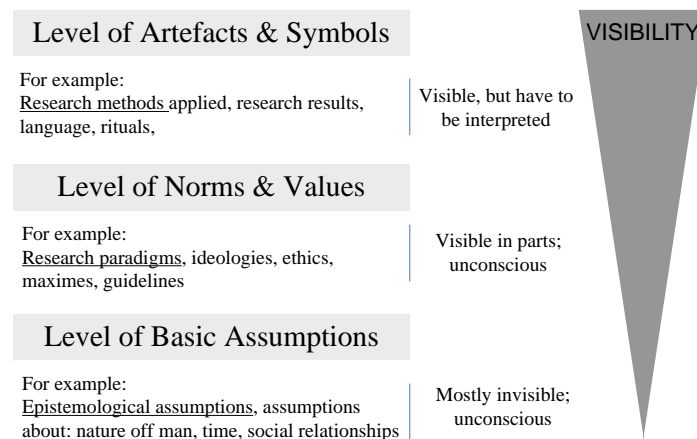


Figure 1: Distinct levels of research culture

These levels are distinguished by the degree of visibility to an observer. Applying this schema on research culture, we can classify the terms most relevant in the discussion of multi-methodological research: research methods, research paradigms, and epistemological assumptions. Research methods, methodologies, as well as research results (level of artefacts and symbols) are the most visible part of (eGovernment) research. In most cases these entities have to be interpreted, for instance, data, research results, languages, etc. Research paradigms on the other hand (level of norms and values) are visible in some parts, for example (in information systems research) when certain paradigms are questioned because they seem not to take into account significant influencing factors. The growing belief in subjectivity as a main influencing factor on information systems research, for example, led to the broad discussion of positivism and interpretivism over the last years. Nevertheless, paradigms are mostly unconscious and not explicated in every research approach or by eve-

<sup>3</sup> Schein, E. H., *Organizational Culture and Leadership. A Dynamic View* (1992), 2nd Edition. Jossey-Bass Publishers. San Francisco/CA.

ryone conducting research. On the third level, the level of basic assumptions, we find entities that underlie those discussed above. Epistemological assumptions which shape research paradigms as well as research methods can be found here. They are mostly invisible and in most cases unconscious to the researcher (see figure 1).

### 3. Epistemological Framework

Epistemological assumptions are those about the nature of human cognition. Epistemology can be understood as the science of analyzing the way human beings (eGovernment researchers in this case) grasp knowledge about what is (perceived to be) existing (Burrell et al. 1979)<sup>4</sup>. It addresses the question of how a person can come to true cognition. Epistemological assumptions have a great impact on a) the research method selection and b) on how to understand such concepts as validity, reliability and quality of eGovernment research. If one neglects, for example, the validity of inductive conclusions (see figure 2), he will restrict himself basically from empirical research methods in form of statistical analysis (ad a). If one emphasizes the influence of the subject during the research process (see figure 2), research results achieved by another researcher claiming that objective cognition would be possible, have little validity (ad b). Therefore, firstly, the epistemological analysis of research methods applied in eGovernment – especially in the move of multi-methodological approaches – has great relevance for research practice. Secondly, the epistemological assumptions of certain research methods which are about to be combined within a multi-methodological approach have to be a) epistemologically compared and b) aligned against the background of the epistemological position of the subject(s) conducting the research.

But the discussion of epistemological questions must, at least presently, be considered as an open issue. No theory based on a philosophy of science can be considered as binding on researchers. The individual selection, however, necessitates that the fundamental epistemological assumptions are made explicit. Here, basic and central epistemological questions must be differentiated from one another and will be presented in the following in form of an epistemological framework. The basic concept of this framework is the explicit breakdown of epistemological questions, which reveal especially high relevance in information systems and eGovernment research (see figure 2)

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<sup>4</sup> Burrell, G. and Morgan G., *Sociological paradigms and organization analysis* (1979). Heinemann Educational Books, London.

<p>[I] What is the object of cognition? (Ontological aspect)</p>	<p><i>Ontological realism.</i> A world exists independently of human cognition, for instance, independent of thought and speech processes.</p>	<p><i>Ontological idealism.</i> The „world“ is a construct depending on human consciousness.</p>	<p><i>Kantianism.</i> There exist entities that are independent from (<i>noumena</i>) as well as dependent on human mind (<i>phenomena</i>)</p>
<p>[II] What is the relationship between cognition and the object of cognition?</p>	<p><i>Epistemological realism.</i> Objective cognition of an independent reality is possible.</p>	<p><i>Constructivism.</i> The relationship of cognition and the object of cognition is determined by the subject.</p>	
<p>[III] Where does cognition originate?</p>	<p><i>Empiricism.</i> Cognition originates from the senses. Such experience-based knowledge is called <i>a posteriori</i> or <i>empirical knowledge</i>.</p>	<p><i>Rationalism.</i> Cognition originates from the intellect. Such non-experience-based knowledge is referred to as <i>a priori knowledge</i>.</p>	<p><i>Kantianism.</i> Both experience and intellect are sources of cognition. Thoughts are meaningless without content, cognitions are blind without being linked to terms.</p>
<p>[IV] By what means can cognition be achieved? (Methodological aspect)</p>	<p><i>Inductivism.</i> Induction is understood as the extension from individual cases to universal phrases, the generalization.</p>	<p><i>Deductivism.</i> Deduction is the derivation of the individual from the universal.</p>	<p><i>Hermeneutics.</i> The understanding of a certain phenomenon is influenced by the pre-understanding of the entire/context.</p>

Figure 2: Epistemological Framework<sup>5</sup>

<sup>5</sup> Niehaves, B., A Framework for Analysing the Epistemological Assumptions of Research Methods (2004). In: Innovation Through Information Technology. 2004 IRMA International Conference New Orleans/LA.

## 4. Conclusions

eGovernment research is conducted in many diverse research fields and academic disciplines. Also many (national) research communities conduct eGovernment research. Multi-disciplinarity and multi-nationality of eGovernment research shape the situation of methodological pluralism. In the move of joint eGovernment research, the combinability of different research methods is very much depending on their epistemological assumptions. The epistemological framework presented can be used to structurize and systematize the epistemological discussion.