

**Leading the Future of the Public Sector: The Third Transatlantic Dialogue  
University of Delaware, Newark, Delaware, USA**

**May 31–June 2, 2007**

**Workshop 5: Leadership and the New Public Management**

# **Struggling with Ambiguity - Public Managers as Users of NPM Instruments<sup>#</sup>**

**Jarmo Vakkuri**

Professor (acting)

University of Vaasa, Faculty of Public Administration

P.O.Box 700, FIN-65101 Vaasa, Finland

e-mail [jarmo.vakkuri@uwasa.fi](mailto:jarmo.vakkuri@uwasa.fi)

Tel. +358 6 324 8420, +358 40 516 2479

Work in progress (1st Draft, 5 April, 2007)

Please do not quote without permission.

## **Abstract**

This paper examines public managers as users of NPM instruments (efficiency artefacts) in their attempts to improve the productivity and quality of public services. The paper has two aims. First, it discusses a three-level theoretical framework in which the uses of efficiency artefacts are determined by the resources and facilities of the institutional context, the social norms of acceptable behavior in the public sector and interpretive schemes of public managers in using efficiency artefacts. Second, the paper analyzes empirical case data on Finnish municipalities regarding uses of Balanced Scorecard (BSC), Activity Based Costing (ABC) and General Performance Indicators (GPI). The data set consists of statistical information and interview data from municipal managers. The objective is to collect interpretive schemes among municipal managers. The analysis builds upon a premise that efficiency artefacts are ambiguous. When interacting with instruments public managers attempt to create ‘order’ for their leadership activities. The special focus is to understand how the order is created using ambiguous instruments, and also what consequences may arise from the setting. For leaders, such attempts can be seen as methods of struggling with ambiguity. But as always, methods may succeed, or they may fail. The paper theorizes both aspects.

## **1 Introduction**

The principle ‘let the managers manage’ has introduced challenges for New Public Management (NPM) reforms, public managers and research on public management. There is a growing demand for instruments that public managers could employ to search for organizational ‘best’ practices. Different kinds of ‘efficiency artefacts’ (e.g. TQM, EFQM, BSC, ABC, ABPA, DEA) are intended to achieve this purpose. Furthermore, it is important to more analytically understand situations in which using these instruments leads to intended and desired, or unintended and even dysfunctional consequences. For this, we need to examine leaders of public organizations as users of NPM instruments (cf. Pollitt 2003).

The objective of this paper is to examine public managers as users of management instruments in their attempts to improve the productivity and quality of public services. The paper has two specific aims. First, it intends to systematically theorize the processes of use of NPM instruments from the viewpoint of public managers. The paper employs a three-level framework in which uses of instruments are determined by the facilities and resources of the institutional context, the social norms of acceptable behavior in the public sector and the interpretive schemes of public managers in using NPM instruments (Vakkuri and Meklin 2006; Orlikowski 2000). The theoretical discussion combines public management (and administration) research with behaviorally oriented research on organizations, economics and accounting. Theories of bounded rationality (e.g. Simon 1978), ambiguity (e.g. March and Olsen, 1987) and decision making heuristics (e.g. Gigerenzer and Goldstein 1996; Kahnemann and Tversky 1982) are utilized.

Second, the paper analyzes empirical case data on Finnish municipalities regarding the uses and users of General Performance Indicators (GPI), Balanced Scorecard (BSC) and Activity Based Costing (ABC). The data set consists of statistical information and interview data from municipal managers (both general managers and managers of social and health care services). The objective is to collect interpretive schemes among municipal managers for modeling efficient and high quality public services by using NPM instruments. The paper is an exploratory multiple case study with an emphasis on the iterative use of theoretical concepts and empirical data. The empirical data on case municipalities is analyzed to interpret and understand use processes for purposes of theorizing (cf. Eisenhardt 1989; Orlikowski 2000; March et al., 1991).

The analysis builds upon a premise that NPM instruments are inherently ambiguous. Therefore, when interacting with instruments public managers attempt to create ‘order’ and ‘meaning’ for their leadership activities. The special focus is to understand this mindset, i.e. how (the) order is created using ambiguous instruments, and also what consequences may arise from the setting (Meyer and Gupta 1994). For leaders, those attempts can be seen as methods of struggling with ambiguity. But as always, methods may succeed, or they may fail (cf. Laegreid, Roness and Rubicksen, 2006). The paper analyzes and theorizes both aspects.

## **2 NPM instruments as efficiency artefacts – theoretical and conceptual perspectives**

An important aim in current political systems is to improve the productivity and performance of public sector systems by making “more” use of the resources available. On the one hand, this may include reducing the amount of resources used for providing a certain level of public services. On the other, the objective could be to provide more (high quality) services with the same quantity (and quality) of financial, material and intellectual resources.

Given such a general aim, the question is how this can be done. Epistemologically, we end up with two types of questions. The first is the ‘knowing’ question: how do we know what the best thing to do is? How do we know the most efficient mechanism for organizing the provision of social and health care services in society? For this purpose, concepts, measurements and models are designed. The second approach is the ‘doing’ question: how do we know how to act upon our conceptions of efficient practices? What are the prerequisites and limitations for public sector systems and managers to follow the most rational procedures (assuming that these are known)? In other words, there may be knowledge of what should be done, but given the case that practices are situated or “canonized”, there are limitations to putting them into practice (Cook and Brown 1999).

To solve the ‘doing’ problem public organizations and managers employ a wide range of instruments. In this paper those instruments are called efficiency artefacts. According to Webster’s dictionary, the word ‘artefact’ refers to anything made by human work or art. The etymology of the word comes from ‘ars’, ‘artis’ (art, skill) and ‘factus’ (made; of ‘facere’, to make). Thus, for instance Orlikowski is talking about technological artefacts as “the bundle of material and symbol properties packaged in some socially recognizable form, e.g. hardware, software and techniques” (Orlikowski 2000, 408).

Using the same reasoning efficiency artefacts could be seen as products of human design aiming to solve social efficiency problems. Akin to technological artefacts, they may be material (e.g. computer programs for cost accounting, performance measurement and strategic management). However, efficiency artefacts may be more symbolic, conceptual and linguistic in nature. Efficiency artefacts can be conceptual and linguistic constructions, physically recognizable tools (e.g. computer software) and systems and processes designed to improve efficiency of social systems. These include, for instance Data Envelopment Analysis (DEA), Balanced Scorecard (BSC), Activity Based Costing (ABC), Logical Framework –system and Total Quality Management (TQM) systems. They have been designed to solve social efficiency problems, and they can be understood in a socially recognizable or “packaged” form.

There exists an industry designing efficiency artefacts for public management. Scientific disciplines, e.g. public administration, economics, accounting, management sciences, are important contributors. However, there are other important actors involved. The design is not only made by scientific disciplines. Just consider international auditing and consultancy companies, regional, European and global regulatory organizations (e.g. the European Union) and national interest group organizations and their efforts to define what is efficient in the public sector and how the related problems should be addressed. The outcome is a hybrid system of “theory” and “practice” in which some efficiency artefacts originate from specialized academic research, usually including a complicated vocabulary of rationality, whereas some are distilled and tested through administrative practices of some sort. It is no wonder that the world of efficiency artefacts in public management sometimes seems ambiguous, incoherent and messy. It is due to the complex system of cooperation and due to representational politics, the struggle for power to define what is rational (Lave 1988).

This paper is interested in how the ‘doing’ problem is solved by public managers. ‘Use’ is referred to as examining what managers actually do with the artefacts in their recurrent, contextual and situated practices (Orlikowski 2000, 408). It is assumed that efficiency artefacts are not fixed. They do not remain the same. In fact, what makes it interesting is the attempt to understand use as a system which is not merely about the application of given standards, but a

system in which public managers as well as politicians and citizens constantly reinterpret, revise and transform the artefacts. The artefacts are used to create order for public policy. Accordingly, the analysis is also focused on how the order is created, or assumed to be created.

### **3 Understanding uses of efficiency artefacts**

#### **3.1 Uses of efficiency artefacts – A system model approach**

One conspicuous way to examine use is to see it as one stage of a larger cycle. Use is described as one part of design-implementation-use-impacts model. For instance, in the theory of public sector performance measurement the model is widely used (Johnsen and Vakkuri 2006).

The model consists of the four stages of adoption, implementation, use, and effects of efficiency artefacts. Adoption refers to the decision to take an efficiency artefact into use. Implementation is the stage from decision to adoption, through conceptualisation, design, development and testing until the model is ready for ‘use’ (Carson et al., 2000). Use is understood as the practical utilization of an efficiency artefact by reporting, comparing and analyzing e.g. performance indicators and related information for different purposes. Effects refer to gains and losses for individuals, organizations and society as a result of a model through the three first stages.<sup>1</sup> The different stages implicitly or explicitly address the following questions: What functions should the model perform? Whose interests should the model serve? Should the implementation be top-down or bottom-up? Who uses the model? What are the positive and negative effects of the model? Who gains and who loses? If the framework should describe a model’s full life cycle, then an evaluation and redesign stage may also be included.

Furthermore, it is possible to see the model through cost-benefit calculations where each stage includes different types of costs and benefits (Johnsen, 2005), the argumentation being that artefacts are used when the assumed benefits of their use exceed those of the costs. These benefits and costs could vary over the model’s life cycle as well as between different stakeholders. In this respect a large part of the costs may, for example, stem from mal-adoption, resistance in implementation, dysfunctional consequences in use, and perverse effects (Ridgway, 1956). Examples of benefits are improved decision relevance, more organizational learning, reduced asymmetric information, and enhanced efficiency, effectiveness and equity.

--- INSERT FIGURE 1 HERE ---

The system model aims to understand the setting and context in which ‘use’ takes place. It also provides a reasonably good analysis of the ways in which users should be addressed in employing the model. The most important limitation of the model coalesces with limitations in other similar models. It is difficult to go deeper into the ‘use’ box.

#### **3.2 Uses of efficiency artefacts – A sociological approach**

Sociologically oriented research on organizations and managerial practices has emphasized the structurational approach to uses of efficiency artefacts. Contemplating e.g. Giddens (1979), Orlikowski (1992; 2000; 2002) and Lave (1988) the research tradition regards use as related to what people actually ‘do’ with the artefacts in their recurrent and contextual practices. It is very much influenced by practice theories and theories of social action as situated practices (Wenger 1999; Arnold 2003).

--- INSERT FIGURE 2 HERE ---

Figure 2 introduces efficiency artefacts as part of larger social structure consisting of three elements: efficiency artefacts, human agents interacting with artefacts and institutional properties and conditions which on the one hand influence users and uses of efficiency artefacts, but on the other are also influenced by artefacts and their uses. Moreover, Figure 2 provides four approaches to study efficiency artefacts. First, efficiency artefacts are social *products*. They are outcomes of creative human action such as design and development. Second, efficiency artefacts can be seen as *medium of human action*. They are used by members of organizations. The information created mediates the activities of the members (cf. Lave, 1988). Two aspects are relevant. First, efficiency artefacts cannot determine social practices. For organizations there always remains an option to practice unique forms of rule-following (to “act otherwise”). They can only condition social practices. Secondly, in conditioning social practices efficiency artefacts both facilitate and constrain. When the members of an organization act upon efficiency artefacts, they do so within the institutional setting of that organization. People design, adopt, implement and use systems in specific institutional conditions. These are the *conditions for interaction with efficiency artefacts* (cf. Chaiklin and Lave, 1993; Vakkuri, 2004). Uses of artefacts have *consequences*. The consequences stem from the interaction of individuals and efficiency artefacts. The consequences include the effect on institutional properties. By using efficiency artefacts the members of an organization may maintain the status quo by reinforcing institutional properties or change it by transforming institutional properties.

The important concept for the structurational theory is obviously structure. Structure is associated with rules and resources that are instantiated in social practices. The assumption is that the rules and resources of social behavior are not “out there”, “external”, but exist only through human action and the activities of human agents. Thus, for instance the use of Balanced Scorecard is not mere appropriation of given structures. It is also a process where BSC is being reinterpreted or even reinvented for purposes of contextual and situated practices. To put it bluntly, the use of Balanced Scorecard cannot be understood solely as an appropriation of the “textbook model”. It has to be examined through interpretations given by the various relevant actors involved. It is those interpretations that constitute the final use, and in fact reshape the artefact as such (cf. Aidemark 2001; Johanson, Backlund and Almqvist 2006).

The previous discussion has its roots in philosophical debate between scientific realism and social constructivism. While scientific realism would consider efficiency artefacts as *embodying* certain structures determining what the artefact is, the constructivist approach would emphasize *emergent* structures constituted recursively as humans interact with certain properties of a technology and thus redefine the set of rules and resources in order to shape their interaction. Based on the interaction properties of the efficiency artefacts come to be utilized. It is the resulting social practice that – according to the theory – produces the use of an efficiency artefact. In this sense, structures are not embodied in efficiency artefacts; they emerge through the inter-active and iterative process. When decision makers interact with efficiency artefacts, they engage with some of the material and symbol properties of the artefacts. (Orlikowski 2000, 407).

Then, how to explore what public managers do with the efficiency artefacts in use? Orlikowski (2000; 2002) provides two relevant concepts. The first one is the concept of *appropriation*. People appropriate structures inscribed in the efficiency artefacts by actively selecting how structures are used. This is an analysis that starts with the structures presumed to

be embedded in the artefact, then analyzes how those structures are used, misused or not used by public managers in various organizational contexts. In other words, the analysis of use starts by examining classic textbook models, interpreting what the “pioneers” originally meant and then scrutinizing whether public organizations are able to follow the rule system of efficiency artefacts. The emphasis is on analyzing how the structure inscribed in the artefact shapes action by facilitating certain outcomes and constraining others. The implications include faithful and unfaithful appropriation of the structures. The question is to what extent the use process corresponds to the structures embedded in the technology, and then relating such structures to the anticipated outcomes of those actions.

The second concept is *enactment*. Instead of starting with the efficiency artefact and examining how actors appropriate its embodied structures, this analysis starts with human action and examines how it enacts emergent structures through recurrent interaction with the efficiency artefact at hand. This would mean that while users can and do use efficiency artefacts as they were designed, they also circumvent inscribed ways of using the artefacts by ignoring certain properties, working around them and inventing new ones. However, this paper assumes a middle position contending that, albeit ambiguous, efficiency artefacts do indeed provide structure for public management. Balanced Scorecard is different from Total Quality Management. Activity-Based Costing is different from Logical Framework, and so forth. Hence, the direction for action is at least somewhat different. Theoretically, it is assumed that the rationale for a public organization or manager to adopt an efficiency artefact involves an analysis of the basic properties (as they “are”) of an efficiency artefact.

#### *How to study efficiency artefacts in use?*

Following Giddens (1979) uses of efficiency artefacts can be studied as a system of structural properties consisting of three dimensions: resources, norms and interpretive schemes. *Resources* (and facilities) are associated with uses of efficiency artefacts in some politico-economic and institutional contexts. Such preconditions for uses may vary. For instance, for a small municipality the adoption and use of efficiency artefacts are constrained by the relevant financial and intellectual resources. Thus, it may be rational to jump on the bandwagon. The following conditional features can be distinguished: e.g. financial resources (budget resources, other relevant material and physical resources), intellectual resources (personnel, level of competence, expertise) and hardware, software facilities (technical artefacts in use.). Users of efficiency artefacts are guided by social *norms* and assumptions of acceptable behavior. The relevant question for a social and health care manager considering the appropriate use of ABC may be, not “what would be the most rational thing to improve performance in my service area?”, but “what should a manager in my position do in this situation?” (March 1994) These norms consist of legal rules, informal rules of legitimate organizational and individual action (e.g. professional, ethical codes) and specific protocols. These norms set limits to what can be done in the name of performance improvements. They may, for instance, be aligned with the “public-private” dichotomy (what should a “public” organization do?) and professional lines (how will I be able to preserve life?).

*Interpretive schemes* are mental models employed by public managers in applying efficiency artefacts for their situated practices. These frameworks are different from the ‘design mode’ or ‘textbook models’ (Orlikowski 1992). They may have several common characteristics,

but at the outset they are presumed to be different. Interpretive schemes originate from three sources. First, the scheme is conditioned by the past. Public managers learn from earlier experience. This is the reinforcement of similar practices from the past, or the transformation of earlier practices into something new. Second, the scheme is constituted socially through communities of practice and group pressure. Uses of efficiency artefacts are shaped by other organizations, groups, individuals and other relevant “peers”. Third, the scheme involves contextually provisional changes, situational adjustments. These are related to interpretations by public managers of what is in fact “use”, what does it mean to use a specific artefact and how are the relevant causalities regarding artefacts and their uses perceived? Schemes are modified, adjusted and improvised. The theoretical origins of this approach can be found in theories of bounded rationality.

### **3.3. Uses of efficiency artefacts – bounded rationality approach**

Consider the following line of argumentation regarding uses of efficiency artefacts in public management.

- 1) *Public organizations have “rational” intentions - they wish to improve their performance (cf. Nozick 1993).*
- 2) *Public organizations assume that using efficiency artefacts will help them achieve performance improvements<sup>2</sup> (cf. Abrahamson 1996)*
- 3) *Public organizations do not know whether (or how) specific efficiency artefacts would help them improve their performances.*
- 4) *Public organizations make an assumption that specific instruments help (i), and help to solve a particular problem (ii).*
- 5) *Public organizations are not aware of the impacts of uses of efficiency artefacts.*

If this is the case, why and how are specific efficiency artefacts used? How is the order created through uses of efficiency artefacts? What kind of order would that be?

The ‘why’ question has been analyzed by asking what characterizes a popular management technique (Staw and Epstein, 2000). One explanation has been conceived to be imitation, learning and isomorphic mechanism. Public organizations use (specific) efficiency artefacts, because other organizations, be they public, private or non-profit, use them. The innovation diffusion approach maintains that using efficiency artefacts is about dealing with fashions and fads (Abrahamson 1996; Birnbaum 2001). Accordingly, it is acknowledged that not only “rational” models diffuse, but also irrational ones. But why would any public organization or manager be willing to adopt an irrational performance model? Abrahamson talks about biases about adopting innovations. Public managers may make assumptions that modern efficiency artefacts always improve performance, and improve performance in an intended fashion. This is known as the rational choice model: public managers are able to calculate the potential benefits and costs of using an efficiency artefact for their specific purposes. This being the case, the

rationale for use is simple. Management innovations diffuse and are used because they are beneficial to public organizations, otherwise not. On the other hand, Abrahamson also refers to a forced selection model where diffusion is forced by politico-administrative systems and institutional pressures therein. For instance, consider the Finnish system of performance management in central government (Ministry of Finance, 2006). The diffusion of performance management reforms into the university sector is significantly enforced by the institutional setting where universities are part of the structure of central government.<sup>3</sup> Performance management reforms have been launched in the university sector by simply arguing: Why should universities have different practices or systems of performance management? They are no different from others. Following Abrahamson, one cannot thus be certain whether such new innovations are useful, or should be used. This is due to the fact that they are new and have not been tested, at least not in terms of their applicability to public administration (Vakkuri 2006).

The institutional diffusion approach contemplates that creating order through use of efficiency artefacts is about social learning. For public managers such a model of the world includes following others, i.e. jump on the bandwagon, or if necessary be proactive and be the first mover (Staw and Epstein, 2000). However, understanding how public managers model the world through efficiency artefacts requires a more detailed analysis of the basic elements of the modeling procedures. Orlikowski calls these interpretive schemes (2000). Theories of bounded rationality are one of the most prominent areas in this discussion.

Using Herbert Simon's metaphor of scissors, bounded rationality is a theory of decision making which attempts to take into account two blades of the scissors: both cognitive limitations of public managers and the structures of their working environments (Simon 1955). Cognitive limitations include e.g. memory, limitations in the comprehension of complex causal relationships and shortage of time. The structure of environments, the context which public managers have to adapt to, is a source of ecological rationality indicating the limitations coming from outside. Simon argued that understanding real-world decision making necessitates analysis of both blades.<sup>4</sup> Moreover, bounded rationality is primarily a theory of *processes* in decision making. It is not so much about *outcomes* of decisions made. As is usually characterized, bounded rationality is not a theory of "irrationality". It is a theory that aims to model decision making using assumptions closely associated with real-world experiences. It is not about wondering why decision makers are not able to make completely rational decisions. Instead, given the starting point that complete rationality is not possible, how do public managers try to cope with the situations? How do they "muddle through" (Lindblom 1959)? In this sense, bounded rationality is a theoretical attempt to model the world through practice lenses, for instance through the lenses of a public manager.

For this study bounded rationality has important implications. *Prima facie* efficiency artefacts are assumed to be ambiguous. They are based upon boundedly rational processes of design and development, and are thus limited in their capabilities to capture and understand the relevant characteristics of performance among public organizations. This is why the links of a certain efficiency artefact to a specific decision making problem within a specific public organization are incomplete, ambiguous and open to contradictory interpretations. Furthermore, the assumption that users of efficiency artefacts are certain of what purposes and contexts of use are appropriate does not hold in real-world practice. The users are faced with limitations from both blades of the scissors: the cognitive side and the structures of the working environment. Nevertheless, this is indeed to ask: what is the mechanism by which the uses of efficiency

artefacts occur? How is the mental model created? This is an important aspect of the empirical analysis.

Public managers use heuristics to simplify the world (Gigerenzer and Selten 2002). They need to model efficiency problems by making judgments at several levels. Consider two of those levels. First, the use of an efficiency artefact requires first-hand judgments on the properties of artefacts *per se*. For instance, a public manager using Balanced Scorecard has to make judgments on how to model the performance of a public service system through BSC (cf. Norreklit 2006; Johansson, Backlund and Almqvist 2006). The second-level judgment involves linking the model to a specific decision making context. For instance, a public manager in the social and health care sector needs to contextualize the model to understand the concrete implications of “the customer perspective” on performance improvements in child day-care services.

Decision making heuristics and choice behavior can be examined as rule systems. This would also indicate that interpretive schemes are constituted heuristically. Heuristics can be seen as a specific form of rules. First, there can be search rules of two types: searching for alternatives for action (defining the “choice set”) and searching for cues for judging the alternatives (Hey, 1982). Search can be random, ordered, based on imitation and emulation (Gigerenzer 2002). Second, there are stopping rules originating, for instance, from the theory of aspirations (Simon 1955). The acceptable level of aspirations provides “satisficing” search procedures. The search is discontinued when an acceptable level is achieved. Third, there are decision rules related to judgments and valuations of the aspiration levels, assessment of cue values etc. Theoretically, decision makers may follow Bayes’s rules, or linear regression types of rules for combining cue values.

When should a specific rule or heuristics be employed? The explanation may be the individual history of a public manager. For example, if a public manager learns to use a rule when there is little time to make a decision, the use of such a rule is more likely in choice situations with time pressures. It is obvious that the preceding situation makes it possible to influence judgments and choices by designing situations in which tasks incorporate or simulate initial learning conditions (Einhorn 1982). Therefore, for example, the amount and schedules of reinforcements, the number of trials should be considered in understanding modeling behavior. Public managers are different in their individual histories of using specific efficiency artefacts.

Another explanation is outcome feedback. Since outcome feedback is the main source of information for evaluating the quality of the judgment rules, knowledge of how task variables both affect outcomes and influence the way outcomes are coded and stored in memory becomes critical in explaining heuristics. This makes it important to understand the perceived causalities of public managers in their decision making (Weiner 1988). In other words, a manager using performance information needs to be convinced of the assumed cause-effect relationships between decisions made and outcomes produced. These “causalities” are perceived. In this sense, a public manager may wonder, how can I determine the relationship between the artefact used and the outcome achieved? Where can I see the benefit?

Kahnemann and Tversky address three types of heuristics.<sup>5</sup> The first is representativeness heuristics. What is the probability that event A originates from process B? What is the probability that process B generates event A? In answering these questions, people rely on representativeness heuristics in which probabilities are assessed by the extent to which A resembles B. The resemblance of two things is assumed to be related to causal relationships. Consider the use of Activity Based Costing for cost accounting in Finnish municipalities. It

appears that ABC is not interpreted as a cost accounting instrument, but is linked to a larger context of process analysis. The objective of the textbook model is to use ABC for more rational cost allocations, for instance in order to determine the indirect costs of service production (Johnson and Kaplan 1987; Cooper and Kaplan 1991). The process analysis is a necessary, but only one starting point. In real-world uses, this “starting point” may in fact be the reason why ABC is used. According to Kahnemann and Tversky people sometimes judge the frequency of an event or causal relations by the ease by which probable explanations and reasons come to mind. For a public manager this availability heuristics can be useful to model performance, because complex causal relationships can be thus decomposed into easier “clues”. Third, decision making may involve adjustment and anchoring heuristics. A decision maker may create a mental model by starting from an initial point of departure and adjusting that to arrive at a final judgment. It is important to understand the elements of the point of departure in the public manager’s decision making. For instance, the social norms and identities of public managers are important. These elements are constructed through the individual experience history of a public manager as well as the organizational context in which decision making occurs.

Emphasizing ecological rationality that is the adaptation of social systems in an evolutionary development, Gigerenzer (2000) proposes ‘the adaptive toolbox’ for social decision making. Recognition heuristic is based on ignorance in decision making. There, the rule is that if one of two objects is recognized and the other is not, then it is inferred that the recognized object has the higher value (Goldstein and Gigerenzer 2002). The emphasis is on past and earlier experience. It may be related to incremental decision making, regarding something that is known from the past as more “rational” than an unknown event. One-reason decision making is based on the idea of using single cues for decision making. The rule system is as follows (Todd 2002). Consider the case where a public manager has to compare two alternatives on some criterion and several cues to assess those alternatives against those criteria. One reason-rule would tell a manager to select 1) a cue dimension and look for the corresponding cue values of the alternatives 2) compare the alternatives in regard to respective values for that cue dimension 3) if the comparison introduces differences, stop the search and choose the alternative with a cue value indicating a greater on choice criterion 4) On the other hand, if there are no differences, return to the beginning of the loop to look for another cue dimension. The “rationality” lies in step 3) minimizing search costs and time taken to create the decision making situation.<sup>6</sup> Elimination heuristics (also Categorization by Elimination or Elimination by Aspects) uses one cue after another to eliminate alternatives. In a case where cues are ordered according to their connections with the environment of the decision making situation, it is possible that only few cues are needed. Finally, satisficing heuristics for sequential search employs aspiration levels. An aspiration level is set and the search for alternatives ceases as soon as the level is achieved. The emphasis is on limiting the search, on discontinuing searching. Quite obviously, using satisficing heuristics for decision making is not a purely psychological process. In public services a discontinued search may be politically complex. For instance, recurrent evaluations of Finnish health care systems have made some experts consider whether more information yields anything new. However, in an area of such importance in Finnish society, the search is pursued even if the marginal benefits of it do not exceed the costs. It is continued, because the process has some other purposes than supporting more rational decisions (Feldman and March 1988). Discontinuing the search is not considered institutionally legitimate.

#### 4 Empirical data and research design

The research design is based on the following theoretical elements addressed in preceding sections of the paper.

- 1) In general, uses of efficiency artefacts are generally understood as instruments to cope with ambiguity in public management. As instruments they are products of boundedly rational design.
- 2) Uses of efficiency artefacts are examined both as the appropriation of given structures and as essential inputs to what efficiency artefacts ultimately are. Emergent structures are also analyzed.
- 3) Use is examined as the enactment of public management behavior through efficiency artefacts. Therefore, public managers, mental models and the ways in which artefacts enable management behavior constitute the core of the analysis
- 4) The study examines uses of efficiency artefacts as an instrument to model public sector performance. The special reference is the social and health care sector, but many implications may be common to all public organizations.
- 5) Public managers need modeling strategies and heuristics for understanding, analyzing and improving performance.<sup>7</sup> These are needed to associate the artefact with the situated practices of the service areas. The paper intends to explore those modeling strategies used by public managers in coping with the ambiguity problem.
- 6) Uses of efficiency artefacts are examined through resources, norms and interpretive schemes. Resources are associated with uses of efficiency artefacts in specific political, financial and institutional contexts. Social norms and assumptions of acceptable behavior create identities for public managers to interact with efficiency artefacts. Interpretive schemes are mental models employed by public managers in applying efficiency artefacts.

The study examines three different efficiency artefacts and their uses in Finnish municipalities: Balanced Scorecard (BSC), Activity-Based Costing (ABC) and General Performance Indicators (GPIs). They illustrate three important aspects of the current systems of Finnish public management.

First, there is a special call for the *strategic approach*. Public organizations are expected to create ‘visions’ of a desired future, they should implement strategies paving the way to this desired future, and they should be able to monitor how these strategies have been implemented and whether they have been successful. It is this “textbook model”, the starting point that has significantly increased the importance of strategic management techniques. Balanced Scorecard has been an extremely popular artefact in attempts to develop performance evaluation, budgeting and strategic management in public organizations. Originally, BSC was proposed as a system to overcome the pitfalls of traditional management accounting and control problems (Kaplan and Norton 1996). The context was American business culture, where a more “balanced” approach to performance metrics was considered a step forward (Meyer 2002; Johnsen, Norreklit and Vakkuri, 2006). Furthermore, BSC came understood as a system for cascading down visions and strategic objectives of the company. BSC aims to provide “measures that drive performance” through coherent links between past performance and future strategies. Thus, it is based on a fairly centralized structure assuming continuity and unambiguity of objectives, centralized top-down management control and the absence of use-it-or-lose-it principle<sup>8</sup> (Meyer 2002). BSC has been studied, for instance, from the perspectives of its managerial contents (Kaplan and Norton

1996; 2001), rhetorical persuasiveness (Nørreklit 2003) and theoretical and cultural background (Nørreklit 2006; Johanson, Backlund and Almqvist 2006; Johnsen and Vakkuri 2006).

Secondly, public managers should be able to increase cost-consciousness in their organizations. This has accounted for the development in numerous directions of *cost-accounting* models and systems. ABC is one of the most widely used artefacts. Cost accounting information is needed for supporting supplementary information on annual financial statements and balance sheets, but in particular for management accounting purposes: setting service fees and examining production processes and productivity. While according to some scholars the origins of ABC applications in the public sector could be traced back to ‘activity accounting’ in the Tennessee Valley authorities in the 1930’s (Mullins and Zorn 1999), the major development of modern ABC is from the 1980’s. The objective was to increase the usefulness of cost accounting information for decision making by improving the accuracy of cost allocations. For public organizations this indicates activity analysis (understanding ‘customers’ and ‘processes’), hierarchies of cost assignments, i.e. methods to causally link activities, processes and related costs (‘understanding how activities incur costs’) and producing cost accounting and performance information for strategic decision making (how costs are related to strategic objectives (understood through ‘activities’)). It is both a cost accounting and a cost allocation model (Tammi 2006). The design of ABC is usually considered an example of wider management accounting change where more emphasis has been placed upon the usefulness of cost data and the link between cost accounting and strategic prioritizing in modern organizations (cf. Malmi 1999).

Third, for purposes of *transparency and accountability*, Finnish public organizations are obliged to provide performance measurement information. For many years, this has loosely followed the three Es’ principle with the emphasis on *economy*, *efficiency* and *effectiveness*. Economy includes minimizing the costs of service production, i.e. unit costs of service production (euros/bed-day, euros/PhD degrees etc.). For instance, systems of social and health care service provision in the Finnish municipalities are compared to criteria of social and health care expenditures/capita. In the three E’s model efficiency indicates the input-output relationships of service production where the focus is on the analysis of optimality in ‘transforming’ inputs into outputs. For instance, child day care units may be evaluated using personnel/child indicators. Effectiveness includes the effects (and impacts) of public service to citizens, customers, patients or other relevant constituencies. It is about public organizations’ ability to achieve desired outcomes, or preventing and alleviating undesired ones. Thus, the third artefact, GPIs, is a form of mandatory reporting and analysis. It is regulated by different, contextually specified rules for central and local governments.<sup>9</sup>

The paper uses statistical data on the context, provision, processes, and outputs of the social and health care sector in the case municipalities. Moreover, the study includes interview data on all three municipalities. The interview data was collected in personal interviews with informants between January and March, 2007. Interviews lasted from one hour to 2.5 hours. They were tape-recorded and transcribed verbatim.<sup>10</sup> The formal positions of the informants include e.g. Deputy Mayor, social and health care manager, financial manager, manager of accountancy, development manager, chief physician, manager of elderly care services, manager of child day care services, manager of social work and manager of strategy and organization (Appendix: interview design and the list of informants). The study regards a ‘user’ as consisting of individuals with power to influence the adoption, implementation and uses of efficiency

artefacts. On the other hand, they are important actors in contributing to interpretation schemes and use modes of efficiency artefacts. This indicates that not all interpretation schemes are equal in terms of their influence.

## **5 Empirical analysis of case data**

### **5.1 The institutional context and resources in the case municipalities**

The case municipalities are medium-sized or large municipalities in the Finnish context. Vaasa with 57000 inhabitants and Jyväskylä with 84000 inhabitants belong to the medium-sized municipalities. Oulu is the sixth largest municipality in Finland with 129000 inhabitants. The development of case municipalities is slightly different. The population increase has been only modest or stable in Vaasa for the last 50 years (with some years of decreasing population). On the other hand, Jyväskylä and especially Oulu have grown more rapidly in relative terms.

--- INSERT TABLE 1 HERE ---

For social and health care services the demographic structure is important. People in specific age cohorts need different types of services. In Finland this has put pressure on cost control for municipalities. This has raised an intense political debate (e.g. Riihelä and Sullström 2006). The general trend in Finland is aligned with the development of many other countries. The population is ageing, and the need for elderly care services is on the increase. For instance, in Oulu the percentage of population over 65 years old is 11.8 per cent, in Jyväskylä 13.4 and in Vaasa 16.2 per cent. However, the Finnish situation may also be the reverse. There are many municipalities (mainly in southern Finland: Tampere, Turku, the metropolitan area of Helsinki and Oulu region in the north) where the demand for child day care services is also on the increase due to the immigration flows from rural to urban areas. For example, in Oulu the percentage of population under 6 years old is 8.5 per cent, in Jyväskylä 7.0 and in Vaasa 7.5 per cent. Demographic dependency ratios are close to 40 per cent in Oulu and Jyväskylä (Oulu 40.9, 2005, Jyväskylä 39.2, 2005).<sup>11</sup> In Vaasa the ratio is higher (48.2, 2005; it has been systematically higher for the recent years). (SOTKANet Indicator Bank and National Research and Development Centre for Welfare and Health).<sup>12</sup>

Table 2 presents the financial volumes of the social and health care sectors in the case municipalities. These are relative monetary amounts indicating investments and use of financial resources in social and health care services.

--- INSERT TABLE 2 HERE ---

Table 3 presents basic statistics on the number of outputs of social and health care systems in the case municipalities. It shows some differences, especially as regards the case of Oulu. On the other hand, the number of personnel in the social and health care sector of Oulu is 4118 (the total number of personnel in Oulu 9581), Jyväskylä 2375 (the total number in personnel of Jyväskylä 4971) and Vaasa 1654 (the total number of personnel in Vaasa 5756). In other words, 43 per cent of the total number of personnel in Oulu works for social and health care services, whereas in

Jyväskylä 48 per cent and in Vaasa 29 per cent. These differences may be due to production efficiencies of the service provision, but also due to differences in the metrics system. For instance, in Vaasa the resources of child day care services are currently included in the educational sector, not in the social and health care sector (as compared to the situation earlier, and as compared to the other case municipalities). As an important area of municipal service, this is of importance when comparing the indicators.

--- INSERT TABLE 3 HERE ---

To summarize, it can be generally argued that the preconditions and resources for social and health care services in the case municipalities are not significantly different. There are differences due to demographic development, possible political emphasis on social and health care services and productivity of the service systems. However, in terms of this study the basic infrastructure for modeling and improving social and health care performance can be assumed to be fairly similar to each other. There are some institutional and historical differences that are addressed next.

## **5.2 Social norms and limits of acceptable behavior**

The social and health care sector is a combination of “social” and “health”. The areas, although merged in the case municipalities (the last one to merge these was Vaasa in 2005) as well as in most Finnish municipalities, originate from different cultural traditions and professional backgrounds. The “social” sector primarily deals with people in need of social, financial, emotional and other types of support. The health sector deals with medical needs. People are considered patients in need of medical problem solving. While it is self-evident for health care professionals to discuss diagnosis and evidence-based reasoning, the social sector professionals emphasize the intention of “*helping people throughout social problems*”. Moreover, the areas seem to have somewhat different political emphases. Political decision makers may be more interested in health care by increasing allocations for the recruitment of new doctors and nurses rather than directing resources to social work, where achieving sustainable solutions for individuals may be more complicated, at least the methods of verifying outcomes are more ambiguous. The reason may be in political profile. It is not surprising that there are still managers considering whether “*the merger of two totally different service cultures will be successful in the long run*”.

On the other hand, it is evident that there are many common characteristics between the two identities. For instance, the assumption on the relationship between the “needs” and “desires” of the general public constitutes common background. Particularly, this is represented in health care services where:

*“It is one thing what the patient wants -- another thing what she needs. People evaluate the formal process. They may be satisfied with health care services when they do not have to wait for long. They can listen to good music in the waiting room. The physician shakes your hand and smiles. We can treat the patients absolutely right, and the patient dies. We can treat her absolutely incorrectly, and she survives. For us, effectiveness means improving long-term health of citizens.”*

Informants assume that information asymmetry is an important element of the social and health care sector. It has implications for what is taken as a social norm, an acceptable working model to support a person in need. Health care intervenes in the social lives of individuals not only by providing treatments for specific medical problems, but also by attempting to influence the every-day behavior of citizens. Public managers are important leaders of these intervention programs. Understanding their role in this intervention public managers struggle to balance the needs of individuals and scarce budget resources. This may result in a social norm of “digging up the money from somewhere”.

When discussing with informants their assumptions of what is conceived to be justified and legitimate in organizing, controlling and managing social and health care services, the common background starts from a well known source, the legislative framework. Legal rules are understood as basis for avoiding ambiguity in several ways. They can provide rational efforts to organize service systems, construct meanings for management work by making organizations visible and classifiable and document history by coding organizational history into rules (March et al. 2000). The Finnish municipalities are required by law to provide social and health care services. The legislation may in some areas regulate nationally the ways in which services are organized and provided. (For instance, children’s day care services are regulated by norms of children/personnel ratios). In addition to legal requirements, municipalities need interpretive schemes to enact legal rules, or to create a value system for the municipality in service areas that are not covered by the national regulation. These discussions referred to general values of justice, equal treatment, humane approach, confidentiality and meeting people’s needs. All the case municipalities had also introduced their “values” and “value strategies” as part of the strategic planning process in the city.<sup>13</sup>

For a more analytical understanding of how the dilemma between social norms and economic constraints is resolved, more sophisticated interpretations are needed in order to avoid tautologies.<sup>14</sup> Therefore, informants were asked to combine these two things by analyzing the relationship between social norms of acceptable behavior and uses of efficiency artefacts. On the other hand, they were asked to characterize themselves as users of management instruments. The interviews introduce interesting profiles reflecting the complicated, somewhat ambivalent nature of social and health care service provision vis-à-vis uses of efficiency artefacts. On the basis of the discussions six different leadership profiles emerge depicting the relationship of informants to decision making where the provision of social and health care services is evaluated on meagre resources. It is good to note that these categorizations are based on my own interpretations of the data (informants themselves were not asked to provide these categorizations) (cf. Pollitt et al., 1999)

--- INSERT TABLE 4 HERE ---

For public managers the institutional context is always important. In other words, ‘production managers’ have to deal with their assumptions on production logics and their applicability in social and health care services. This is a contextual question. Therefore, efficiency artefacts have to be specified to the municipal context in one form or the other. There is a natural way to do this related to the experiential background of a public manager. Managers with prior experience of business sector organizations, artefacts and applications tend to see a resemblance with the sectors. For them, there is nothing wrong with using ABC or other detailed individual

performance measurement technique to identify cost allocations within an organization. On the other hand, a manager with public management background tends to more clearly distinguish the two “sectors”. (Kahnemann and Tversky 1974). Compare the following quotes reflecting the two extremes.

*“But if you think of successful companies they have to base their strategies on knowledge and reasonable guesses...If their guess is wrong they are out of markets. In the long run it is this ability to make good guesses that justifies the position of a CEO. In the public sector you can make wrong guesses, and nothing happens...In these municipal areas there are no sufficient pressures for cost-efficiency. There is room for rationality...and it requires measurements.”*

*“A person with my background tends to see things in a municipal context. It is important to understand differences between business organizations and municipal units. But this background is very applicable...It gives you sense of understanding of this complicated puzzle.”*

### **5.3 Interpretive schemes: public managers as users of mental models**

Every public manager needs a model, a system of perceived causalities to carry out management activities. In the case municipalities these interpretive schemes are needed to address e.g. the following questions: How do I know that the service system benefits the right target groups? How do I make sure that the organization of service provision functions rationally? In a decision making situation where financial resources are used up, how do I make sure that the most acute problems are solved? Efficiency artefacts may help managers to find answers to these questions.

I assumed that public managers are interested in describing their mental models. The research process and data collection confirmed this. It was fairly easy to gain access to the case organizations (the background of data collection and the overall context of the research project on “Public sector efficiency as an ambiguous problem” was announced in advance). The discussions were intense, lively and innovative. Informants addressed and referred to several different systems of perceived causalities. In order to grasp mental models informants were asked to provide interpretations of themes, such as: (“How does the efficiency artefact help to improve performance?”, “What is your interpretation of the intended behavioral effects of using the efficiency artefact?”, “What kind of organizational behavior would be desirable? Can the artefact contribute to this?”). Five mental models can be introduced.

The first model may be called *need –based* reasoning. In this model the interpretive scheme of the public manager is dominantly controlled by the manager’s perception of needs: “*Service is provided, because somebody needs it*”. The role of the system and public manager is to find ways to meet that need without associating it with budget resources. Scarcity of resources, the finite set of means with respect to perceived ends, is acknowledged, but in a specific, incrementalistic manner. The decision rule for such a public manager is to meet the needs in order of appearance. “Somebody” is the one who comes first.<sup>15</sup> Furthermore, the model asserts that most needs are defined by law. This is a traditional model associated with incremental line-item budgeting and strict centralized control of the service process. The model is also close to recognition heuristics, where earlier experience is highly valued and where legal

norms are assumed to be an unambiguous ground for modeling social and health care performance.

*“I try to be of help in digging the money up from somewhere. I do not have to do this. I could always say: why didn’t you take this (unexpected event) into account in your budget. But I try to arrange this in order to make it work: to help people get the services and support they need.”*

The model of *evidence-based reasoning* reflects the “medical” context of social and health care services. A public manager models the performance world through indicators and evidence on what is useful for the client or patient. The usefulness is primarily understood as a medical problem, not as a problem of customer quality. In other words, usefulness cannot be determined solely by eliciting the views of patients. Instead, improving social and health care performance is an attempt to influence the long-term health and behavior of patients. The implications of this model are important, for instance, in validating performance. Measuring long-term impacts is complicated. Even though they could be validly measured, the net effect of a health care organization in contributing to improved health is an ambiguous modeling exercise. In terms of resource allocation this model emphasizes funding areas where possible impacts may be medically and statistically demonstrated.

*“One important problem is that health care is too much used to provide standardized proofs. These “proof-visits” and related bureaucracy are absolutely useless...But otherwise it is much more complicated to determine if there is a need to visit a medical expert. I tend to think that a visit should always have some type of purpose for the patient. For instance, a patient may come to see a physician to hear that nothing can be done. Of course, this can be useful to end uncertainty. But there should be some type of impact coming from the service.*

It is interesting to see *practice-based reasoning* in use. The model starts from the assumption that any management instrument is decoupled from the “practice” and “development discourse” of social and health care. This model assumes two worlds: the world of management instruments describing a general non-contextual framework for management and the world of social and health care practice where “*I know fairly well what should be done and what areas should be influenced*”. The interesting part is how the two worlds interact. It is not so obvious that they are totally distinguishable. Conceptualizations (“balanced approach”, “functions”, “processes”) may very much reflect efficiency artefacts. Therefore, it could be argued that the model appears to be a conceptual and methodological “mutation” of the two worlds (for more on this, see later). As a respondent argues about management instruments:

*“They are general. They are imposed from outside. An “ism” does not include any single recipe of what should be done here in social and health care. After being here for a couple of years it has become obvious to me what should be done....We have known this long before there was any “scorecard”. So, it is possible for a smart MBA or economist to manage these organizations and to understand the basics in production logics. But it is*

*not possible for them to understand how this really works. No new “ism” can change this.”*

*Process-based reasoning* could be understood as a “trust the process” model. Its argument is to try to influence something controllable. A public manager accepts the standpoint that not every element of the whole system can be controlled. The problem is how to identify controllable elements and analytical reasons as to why it is not possible to control others. In fact, for informants the heuristics in developing effectiveness measurement may be close to Occham’s razor problem. Detailed measures of effectiveness do not exist, but if they existed, they would only indicate more clearly those areas that are uncontrollable!<sup>16</sup> A manager has to draw the line somewhere. There is a perceived distinction between ‘what should be known’ and ‘what kind of understanding is possible with reasonable effort’. Accordingly, in process-based reasoning the intention is to control the process of service provision. In terms of decision making heuristics this may indicate “*uses of the board system and information from other service managers to make sure that people are satisfied with services*”. Public managers also need a belief structure. They may convince themselves of making correct choices when everything that is controllable (process) has been implemented in an orderly fashion. The public manager trusts the process, and then believes this to result in intended outcomes.<sup>17</sup>

Finally, *result-based reasoning* is a mental model that aims to link social and health care activities in relation to strategic goals. “Result” is interpreted to indicate conformity with (or deviance from) the political and strategic goal for the service provision. “Results have not been as intended” implies that goals have not been achieved. The Finnish system of performance management has made public managers conscious of the institutional and symbolic consequences if goals are not achieved. By the same token, public organizations have learnt to play with the ambiguity of objectives and performance indicators (Vakkuri and Meklin 2003).

To summarize, these mental models can be presented in a context of Burns’ theory of mental models with three stages: a) ‘how does the model describe the situation’, b) ‘how does the model explain the most probable cause-effect relationships’ and c) ‘how does the model predict the future outcomes?’.

--- INSERT TABLE 5 HERE ---

#### **5.4 Uses of efficiency artefacts in modelling public sector performance**

Then, how do efficiency artefacts contribute to the ambiguity problem in public management? Given the level of resources and local needs for social and health care in the municipalities, acknowledging the general assumptions of what type of managerial and political behavior is legitimate in the social and health care context, and employing the mental models of public managers, what can be said about uses of efficiency artefacts in public management?<sup>18</sup> Do they serve an intended purpose?

Interpreting the data set it becomes apparent that “the intended purpose” is almost a myth (Modell 2004), because purposes are multiple, situated and ambiguous. Consider Vaasa using GPIs. It is a good example in two respects. First, it illuminates the ambiguity in reasons for using GPIs to improve social and health care performance. Public organizations are regulated by

different kinds of norms, i.e. minimum standards for providing performance measurement information. These norms provide some clarity: they tell managers what kind of areas should be reported in performance metrics, but they are unable to specify how that reporting should be accomplished. They create an ideal of “transparent” and “accountable” public organization, but leave managers to deal with the ambiguous task of putting them into practice. This was referred to in all discussions. As expected, measurement problems are easier to solve in issues of economy and efficiency. For instance, Vaasa systematically collects data on resources, costs, and efficiencies of service production. Such data is also used in a comparative setting among Finnish municipalities (the group of middle-sized cities of Finland). The most important problem of economy and efficiency information is about linking it to budget cycle and strategic management systems. Hence, some type of information may be available, but it is not always useful for the respective purpose of use (or user). The most relevant perspective on ambiguity was considered to be understanding, indicating and measuring effectiveness.

*“The most important and difficult problem is the effectiveness side of service provision... We should be able to understand trends in needs, employment conditions and unexpected events. We should be able to tell politicians what kind of impacts budget resources have. We need to verify effectiveness, but also justify symbolically budget resources for use.”*

Second, interpreting data on Vaasa may be used as a tin-opener for understanding argumentative reasons why more specific efficiency artefacts are not adopted, implemented and used. Vaasa has not been extremely proactive in adopting new efficiency artefacts, because it wants to make sure that artefacts can be contextualized for local government purposes. The strategy is more reactive. As on uses of ABC one respondent argued:

*“To some extent I question the benefit and relevance of ABC counting in a municipal context. I don’t buy the idea as such. The idea that every single activity should be coded in detail and use cost drivers to monitor the exact costs. It is too technical... It is almost like in one study where it had been counted how many times the service person had held a child in a day care center during a day... Ok, the result is twice.” (Laughing)*

Irrespective of the formal institutional position, the world of quantification, i.e. the idea of making things more measurable may be considered a significant obstacle among public managers (Llevellyn and Northcott 2005). Thus, performance information is not used to determine decision making. In fact, the situation is almost the opposite. Public managers insist on having the opportunity to “choose otherwise”, circumvent the original way to model performance.

One related example is the effects of performance measurement on organizational behavior, particularly dysfunctional ones. Dysfunctional effects of uses of performance metrics are identified and understood in all the case municipalities. These refer to both efforts to influence the interaction of system actors when using the metrics system and to influence the metrics system as such (Vakkuri and Meklin 2006). Specific examples referred to coalesce with ‘cream skimming’, e.g. selection of easy customers, the possibility of ‘running the patients’ to improve the number of outputs counted (e.g. as number of visits) and ‘ratchet effects’, i.e.

reduced levels of motivation with regard to quality improvement efforts (Bevan and Hood 2006). However, (as expected) informants do not consider public organizations ‘rational maniacs’ (Bevan and Hood 2006, 523) who do not share any of the goals set by central controllers and who would constantly aim to manipulate all data to conceal their true operations. In this respect respondents emphasize identity structure and codes of professional ethics by for instance arguing:

*“...if the organization uses an incentive system that is not considered right, and does not comply with what we are best at, people start to use the ‘exit’ option. They move to other organizational environments.”*

When ‘using’ efficiency artefacts, the case municipalities do not appropriate one “total” structure for one specific purpose. Instead, they use multiple artefacts to serve several parallel purposes. All the case municipalities (naturally) use GPIs. They report using BSC: Jyväskylä and Oulu have systematically used BSC, Vaasa uses BSC in a modest version. Jyväskylä systematically uses ABC in social and health care, Oulu in a modest version. Vaasa does not. Moreover, all the case municipalities have some kind of applications of purchaser-provider models for organizing social and health care services. This is important, because it reveals the decoupling of efficiency artefacts from practitioners’ mental models (see earlier, practice-based reasoning). Users of efficiency artefacts perceive the modes of use from the situated context of their organizations and their decision making problems. The purpose of uses of efficiency artefacts is understood contextually. In Jyväskylä the heuristics is that

*ABC is important for understanding productivity and the success of our products. We get prices for our products if we for instance want to do benchmarking. But BSC is a larger framework to communicate with political decision makers on strategies...It must be BSC 90 per cent and ABC the rest.”*

and:

*“Pricing is the first one for us. This makes it possible to collaborate with surrounding municipalities by buying and selling services. This would not be possible without systematic products and price systems...But information on whether right financial and human resources are allocated to right places is also important. Then, for ‘to buy or make’ decisions...But the pricing is the most important for us.”*

The case municipalities consciously select specific sub-structures of efficiency artefacts for use. Consider Jyväskylä using ABC in its analysis of service production. There, ABC is part of “*the comprehensive reform of increasing productivity through distinguishing providers and purchasers in the city operations*”. ABC is used for understanding products and introducing price mechanisms within the municipal hierarchy. Moreover, it is an attempt to use contestable markets as a “threat” for the production machinery of the city government. The threat is needed to ensure that it is possible for the city of Jyväskylä as a purchaser to use competitive bids (from local and regional companies, charities, third sector non-profit organizations). Furthermore, the threat is required to make cost structure of Jyväskylä more transparent, to make it more

comparable with markets outside. Thus, ABC is ultimately used for pricing, but indirectly for understanding “products” and “service contents”.

However, ABC does not include any organization-specific theory of how processes should be understood or products determined. This is a problem in areas “*which for instance sell preventive services alleviating social poverty and alienation*”. Therefore, in Jyväskylä the use of ABC is

*“...consciously selective and conducted with feasible efforts, because we always have to justify new accounting techniques with the information contents that they provide. Not every part of ABC-apparatus is that useful.”*

It is important to understand the heuristics for selecting sub-structures for use. Consider the city of Oulu using BSC. It has gone through two “BSC processes”, one in 2001, the other in 2005. Both processes have started from the original idea of creating visions for the city, strategies to enable these and a balanced approach to monitor the results achieved. However, BSC is understood as an instrument of strategic management in a specific way. BSC is an instrument for “*vision talk, communicating strategies and objectives and increasing strategic alertness*”. The heuristics seem to be simple cost-effectiveness. The objective has been to “*avoid the heavy burden of managing the whole BSC system*”. The implementation of BSC as a fairly centralized, top-down structure may create a locked-in structure where changes and adaptations of the process are complicated to achieve in a municipal environment (cf. Pfeffer and Sutton 1999; Meyer 2002).

This has resulted in performance measurement ambiguity in an interesting way. The use of BSC is sometimes justified through creating instruments for action as if the artefact itself would entail some theory of how using BSC helps to measure public services. This is not the case. Instead, most measurement problems are still to be solved. The reason is simply that the BSC model does not provide specific solutions for effectiveness measurement. It indicates the areas that should be measured, not the ways in which that measurement ought to be conducted. On the contrary, the measurement problems of public service effectiveness may be even more ambiguous than before, “*because there is another additional level to which measurements should be linked*”. Therefore, BSC is used to “*establish strategic thinking, directing the ‘vessel’ and attention of public managers and political decision makers*”.<sup>19</sup>

Why then BSC? There would be a large repertoire of management instruments for this purpose, starting from classic SWOT analysis etc. The explanation is the enactment of past structures (Orlikowski 2000, 421-425). The decision to “use” BSC to some extent creates path dependency for further uses. Practitioners may think that given that BSC is used (this decision was made by the municipal council in Oulu) for some purposes already, it is important to develop further purposes of use. According to the textbook model it would be logical for a municipality to adopt an efficiency artefact and start to enhance learning in its uses. If it emerges that the artefact is not applicable, it should be changed. However, changing an artefact may be institutionally difficult and politically sensitive.<sup>20</sup> Therefore, it is more likely that managers will create new modes and models for the specific purposes of their municipalities. This may be one explanation why we mostly see “mutations” and “emergent structures” of efficiency artefacts, rather than explicit appropriations of textbook models of BSC (or ABC, GPI etc.). In many municipalities of Finland this seems to be the case.

On the other hand, the case of Oulu also indicates the possibility of an integrative type of use mode. This was clearly visible in the discussion with public managers. Some public managers create their interpretive schemes through artefacts, e.g. BSC. It is possible that the basic mindset of management thinking and identity is conditioned or even defined by interpretations of BSC. These managers regularly use BSC conceptualizations. They constantly refer to BSC applications in other municipalities, government organizations or private companies. They are anxious to create “*a BSC-oriented culture for the city organization...or are worried of the possible obstacles to the future BSC-process... BSC is used to make sure that nothing is forgotten*”. It is evident that this integrative mode is primarily present in interpretive schemes. In other words, there are limitations as to whether it is possible to impose an artefact-oriented mindset on an organization. It depends on other actors, managers, politicians and personnel. It is also conditioned by the past experiences of the organization. Nevertheless, for these managers BSC has become a medium for their leadership activity. Their mental models are significantly influenced by artefacts and the ways in which they interpret those artefacts.

As a summary, Table 6 presents the following models of use that have been addressed. It should be noted that the models are tentative and not intended to be exhaustive. The models may also have common, mutually inclusive characteristics in a specific public organization context.

--- INSERT TABLE 6 HERE ---

## **6 Conclusions**

Efficiency artefacts are instruments to increase rationality and efficiency in public service. To be more precise they are instruments to increase order and alleviate ambiguity in public management. The question is: are they able to do this? What kind of order is created when it is analyzed from the viewpoint of uses and users? This paper is an attempt to examine public managers as users of efficiency artefacts in their attempts to solve the ‘doing’ question: how does one know how to act upon the conception of efficient practices? Is it possible to enable high performance through efficiency artefacts?

The paper has addressed three different theoretical viewpoints. First, uses of efficiency artefacts may be seen in a system theory perspective, the chain of logic from the design of artefacts, implementing and using artefacts, to the effects of those uses. Second, a more sociologically and institutionally oriented approach emphasizes the nature of efficiency artefacts as structures both embodying and enacting social behavior. Public managers are regarded as intentional subjects influencing artefacts through use processes. Thus, artefacts are not stable. They keep changing as they are used, reinterpreted, revised and reshaped. On the other hand, theoretically artefacts are not stable. They are inventions and products of boundedly rational design. Therefore, third, the theory of bounded rationality is needed to understand ambiguous efficiency artefacts and the processes of use with a focus on public organizations and public managers and the way in which they perceive causalities in performance. This theory clearly maintains that, as paradoxical it may seem the use of efficiency artefacts does not always simplify the world. In fact, it may be the opposite. However, public managers need simplifications and heuristics. They need different types of mental models. A public manager needs to model the organizational world, with and without efficiency artefacts.

The empirical analysis of the paper has been based on three levels: analysis of the institutional context: resources and facilities, interpretations of socially acceptable behavior and uses of mental models by public managers. The paper has examined three efficiency artefacts (GPI, ABC and BSC) and their uses in three case municipalities in Finland in order to provide interpretations on the inter-linkages of these elements in a municipal environment. The following table provides tentative, concluding argumentations.

--- INSERT TABLE 7 HERE ---

Table 7 tentatively identifies four use modes of efficiency artefacts, each of which represents a distinct approach to 'use'. Decoupled use is an extension of practice-based reasoning, where public managers retain an option to "choose otherwise", even by circumventing the original design mode of efficiency artefacts. Furthermore, it may result in what is known as symbolic uses of performance measurement and evaluation. Uses of artefacts are complex combinations of original artefact properties and their applications. The simultaneous use of efficiency artefacts stems from the user needs. Efficiency artefacts are used in a specific historical, institutional and political decision making context. For uses in decision making, efficiency artefacts are expected to provide marginal changes to an existing structure. Because needs evolve over time, uses tend to be sporadic and incremental. Using efficiency artefacts seems to be also about enacting specific sub-structures of the artefacts. The rationale is to consciously select those properties and structures that are most applicable to the decision making context. It is also about modifying efficiency artefacts to fit them to the requirements of public administration. Using is about "shopping" for specific features of artefacts, not to implement them as total structures. The interesting question is what is it in fact that the organizations are then using? Finally, the integrative use is about creating a cultural mindset for public management through conceptualizations and applications of efficiency artefacts. It maintains that uses of efficiency artefacts are about establishing a 'rationality vocabulary'. Uses of efficiency artefacts are influenced and determined by identities and social norms of actors. Conversely, artefacts and their uses may create new identities for public managers.

In solving the 'doing' problem public managers attempt to create order and meaning for their leadership activities in several ways using different instruments. Efficiency artefacts are examples of such instruments. For managers, artefacts can be seen as methods to cope with decision making ambiguity. This paper has demonstrated the need for further studies in the area. In particular, the perspective of examining uses of efficiency artefacts as enabling unintended and unexpected behavior is useful. The "textbook models" of efficiency artefacts are naturally important, but less important than one could expect when the focus is on the managerial perspective. They are also important in other ways than one could expect. Further studies are needed for a more analytical understanding of bounded rationality in implementing the rational intentions of public sector performance improvements in public sector service production. In the process rational intentions may turn into something unexpected, but not necessarily "irrational". On the contrary, further research may find other types of decision making intelligence in public administration that is often neglected.

---

## NOTES

# The paper is part of the research project “Public sector efficiency as an ambiguous problem” funded by the Academy of Finland. The author wants to thank Paulus Toropainen and Johanna Jokisuu for their assistance in data collection. As of May 1, 2007, the contact information of the author is: University of Tampere, Department of Economics and Accounting, FIN-33014 University of Tampere, FINLAND, e-mail jarmo.vakkuri@uta.fi.

<sup>1</sup> The research literature has used different terminology for stages. Cavalluzzo and Ittner (2004) distinguished between development and use. van Dooren (2005) talks about adoption and implementation. Julnes and Holzer (2001) used similar concepts to those of van Dooren. (See Johnsen and Vakkuri, 2006)

<sup>2</sup> They do not know this or at least they do not have evidence for it. This is just an assumption.

<sup>3</sup> Universities are considered accounting agencies responsible for managing cash flows, payment transactions and cost accounting. They are also responsible for providing financial statements (Ministry of Finance, 2006). In 2007 there are 87 accounting agencies in the Finnish state government, including the 20 research universities. One recent debate has been whether the institutional and legal position of universities should be changed more towards public corporation model (Jääskinen and Rantanen, 2007).

<sup>4</sup> Gigerenzer (2000) talks about psychological plausibility referring to cognitive limitations, domain specificity referring to heuristic devices in decision making, and ecological rationality associated with understanding structures of decision making environments.

<sup>5</sup> An extensive theoretical debate is about whether heuristics are an indication of the fact that “humans fall somewhat short of adaptive behavior” or whether in fact heuristics would enable adaptive behavior (Todd 2002). There are two important positions. The first one is the “heuristics-and biases program” indicating the possibility that human decision makers use heuristics due to their cognitive limitations in comprehending complex models. However, heuristics introduce lists of biases resulting in inaccurate judgments (Kahnemann and Tversky 1982). The other school emphasizes heuristics as enabling adaptive behavior. Heuristics should not be considered excuses for not being able to make completely rational decisions. For them, simplicity and simplification of complex decision making situations is not a curse, it is a virtue that makes intelligent choices possible. On the other hand, they address the role of environmental structures in adaptive behavior (Kahnemann and Tversky 1996; Vranas 2000; Oppenheimer 2003).

<sup>6</sup> The extensions include “Take the Best” heuristics determining cues in terms of their subjective validity and “Minimalistic” heuristics searching for cues randomly. The research tradition has also provided some computer algorithms to simulate these situations (e.g. so called QuickEst heuristics).

<sup>7</sup> The intention is not identify heuristics per se. Rather they create a basis for discussing and contemplating modeling strategies of public managers.

<sup>8</sup> Use-it-or-lose-it principle refers to a phenomenon where performance metrics that initially discriminate high performance from poor performance lose that capacity as the metrics are used and the variability runs down. “This is caused by people’s behavior when they are exposed to performance measures” (Meyer 2002, 78).

<sup>9</sup> For this study analysis of uses of GPIs is important due to its mandatory role in performance analysis. For municipalities the reason for using GPIs may be obvious, but the ways in which they are used, are not.

<sup>10</sup> The data collection will continue in the municipalities and university hospitals later this year. For instance, the study has not so far used politicians as informants. In the next stage of the project this perspective will be addressed. A technical note: quotes of the respondents are in italics.

<sup>11</sup> This is an indicator measuring the number of people aged under 15 and over 64 per hundred working-age people aged 15-64. The greater the number of children and/or retirement-aged people, the higher the dependency ratio is in a municipality.

<sup>12</sup> In terms of other relevant indicators unemployment rates (2005) are 14.4 in Jyväskylä, 12.8 in Oulu and 10.2 in Vaasa. These rates have decreased significantly since the severe economic recession in the early 1990’s. This situation is similar in all the case municipalities. For instance, the unemployment rate in Oulu was 22.7 per cent in 1994.

<sup>13</sup> It should be noted that in Finland local government has high degree of autonomy in organizing public services at the local level. Local governments are primarily funded by lump-sum subsidies by central government, but organizing service systems at the national level may vary to a significant extent. Therefore local interpretations are

---

important. In their “value documentations” Jyväskylä addresses competitiveness, social cohesion and sustainable development as most important values. Moreover, the social and health care sector attempts to increase citizen participation, contribute to the healthy development of children and young people, prevent social alienation and respond to acute social problems. Vaasa emphasizes creating preconditions for good life through social and health care services by working preventively to avoid social problems. For this, collaboration with the public and other sectors of city services is needed. Oulu emphasizes innovativeness and creativity in addressing future problems, increasing the ‘community spirit’ and tolerance, respect and mutual understanding in a multi-cultural environment. (City documents).

<sup>14</sup> Is there any social and health care manager who would dare to deny that ‘equality’ is not the value of our social and health care service system? Following Brunsson (1989) values include both talk and action.

<sup>15</sup> The heuristics of a public manager may be simple. Help in meeting the need has been supplied if the most acute problems are solved (order of appearance), and if the problem can be solved with the available (or with a “reasonable” additional funding) resources. Existentially, a public manager may be convinced of having done everything possible.

<sup>16</sup> According to health care statistics people are known to live longer on the west coast of Finland. However, as a city on the west coast, Vaasa is not able to “benefit” from that information. They could try to argue that longer life expectancy is due to an effective health care system, but that would not probably be considered only plausible explanation.

<sup>17</sup> Process-based reasoning renders a possibility to understand unintended outcomes, or dysfunctions of efficiency artefacts. Informants applying process-based reasoning do not see possible dysfunctions as relevant. The model does not cover that.

<sup>18</sup> My intention here is to provide general instead of case-specific interpretations on the uses of efficiency artefacts.

<sup>19</sup> Comparing Oulu (using BSC) and Vaasa (not systematically using BSC) reveals that measurement problems are not solved through uses of BSC. They appear to remain the same. The interpretation as to what extent uses of BSC could make the measurement task even more complicated is that public organizations are not only asked to measurement solutions, but in addition to that they should be able to link measurement solutions with the top-down apparatus of BSC. The conclusion of the practitioner may be that BSC is more used as a heuristics for strategic vision talk (cf. Aidemark 2001).

<sup>20</sup> Adopting a modern efficiency artefact may be a politically sensitive issue in a municipality. In Finland, the related discussion has addressed transfer of political power from politicians to bureaucrats (Möttönen 1997). For instance, Oulu has redefined the concept of ‘purchaser-provider model’ in order to make more specific references to the model in use and also to dilute ideological connotations of the term. ‘Purchaser-provider’ model has been assumed to indicate the transfer of power from municipalities to markets (in Oulu the Finnish version is “ydinkunta-palvelukuntamalli” referring, not to ‘public-private’ dichotomy, but to contractual arrangements between municipalities).

## References

- Abrahamson, E. (1996). Management Fashion, *Academy of Management Review*, Vol. 21, No. 1, pp. 254-85.
- Aidemark, L. (2001), 'The Meaning of Balanced Scorecards in the Health Care Organisation', *Financial Accountability and Management*, Vol. 17, No. 1, pp. 23-40.
- Arnold, M. (2003), On the Phenomenology of Technology: the "Janus-faces" of Mobile Phones, *Information and Organization*, 13, pp. 231-256.
- Bevan, G. and Hood, C. (2006), What's Measured is What Matters: Targets and Gaming in the English Public Health Care System, *Public Administration*, Vol. 84, No. 3, pp. 517-538.
- Birnbaum, R. (2001). *Management Fads in Higher Education: Where They Come From, What They Do, Why They Fail*. San Francisco: Jossey-Bass.
- Brunsson, N. (1989), *The Organization of Hypocrisy. Talk, decisions and actions in organizations*, New York: John Wiley & Sons.
- Burns, K. (2000), *Mental Models and Normal Errors*, Paper prepared for 5<sup>th</sup> Conference on Naturalistic Decision Making, Tammsvik, Sweden, May 26-28.
- Carson, P.P., P.A. Lanier, K.D. Carson and B.N. Guidry (2000), 'Clearing a Path through the Management Fashion Jungle: Some Preliminary Trailblazing', *Academy of Management Journal*, Vol. 43, No. 6, pp. 1143-1158.
- Cavalluzzo, K.S. and C.D. Ittner (2004), 'Implementing Performance Measurement Innovations: Evidence from Government', *Accounting, Organizations & Society*, Vol. 29, No. 3/4, pp. 243-267.
- Chaiklin, Seth and Jean Lave (eds.) (1993), *Understanding Practice. Perspectives on Activity and Context*. New York: Cambridge University Press.
- Cook, S.D.N., and J.S. Brown (1999), 'Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing', *Organization Science*, Vol. 10, No. 4, pp. 381-400.
- Cooper, R. and Kaplan, R. (1991). *The Design of Cost Management Systems: Texts, Cases and Readings*. Englewood Cliffs: Prentice Hall.
- Dooren, W. van (2005), 'What Makes Organisations Measure? Hypotheses on the Causes and Conditions for Performance Measurement', *Financial Accountability & Management*, Vol. 21, No. 3, pp. 363-383.
- Einhorn, H.J. (1982), Learning from Experience and Suboptimal Rules in Decision Making, in: Kahneman D., Slovic, P. and Tversky, A. (eds.), *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.
- Eisenhardt, K. M. (1989). Building Theories from Case Study Research, *Academy of Management Review*, Vol. 14, no. 4, pp. 532-550.
- Feldman, M.S. and March, J.G. (1981), Information in Organizations as Signal and Symbol. *Administrative Science Quarterly*, 26, pp. 171-186.
- Giddens, A. (1979), *Central Problems in Social Theory. Action, Structure and Contradiction in Social Analysis* (MacMillan Press, London).
- Gigerenzer, G. (2000). *Adaptive Thinking. Rationality in the Real World*. Oxford: Oxford University Press.
- Gigerenzer, G. (2002). The Adaptive Toolbox, in: Gigerenzer, G. and Selten, R. (2002) (eds.), *Bounded Rationality. The Adaptive Toolbox*. Cambridge: MIT Press.
- Gigerenzer, G. and Selten, R. (2002) (eds.), *Bounded Rationality. The Adaptive Toolbox*. Cambridge: MIT Press.
- Gigerenzer, G. and Goldstein, D.G. (1996). Reasoning the Fast and Frugal Way: Models of Bounded Rationality, *Psychological Review*, Vol. 103, 4, pp. 650-669.
- Goldstein, D. and Gigerenzer, G. (2002), Models of Ecological Rationality: the Recognition Heuristic, *Psychological Review*, Vol. 109, No. 1, pp. 75-90.
- Hey, J. D. (1982). Search for Rules of Search. *Journal of Economic Behavior and Organizations*, Vol. 3, No. 1, pp. 65-81.
- Johanson, U., Skoog, M, Backlund, A. and Almqvist, R. (2006). Balancing Dilemmas of the Balanced Scorecard, *Accounting, Auditing and Accountability Journal*, Vol. 19, No. 6, pp. 842-857.

- Johnsen, Å. (2005), 'What Does 25 Years of Experience tell us about the State of Performance Measurement in Public Management and Policy?', *Public Money & Management*, Vol. 25, No. 1, pp. 9–17.
- Johnsen, Å and Vakkuri, J. (2006). Is there a Nordic Perspective on Public Sector Performance Measurement, *Financial Accountability and Management*, Vol. 22, No. 3, pp. 291-308.
- Johnsen, Å., Nørreklit, H. and Vakkuri, J. (2006), Introducing a Nordic Perspective on Public Sector Performance Measurement. *Financial Accountability and Management*, Vol. 22, No. 3, pp. 207-212.
- Johnson, T. and Kaplan, R. (1987). *Relevance Lost. The Rise and Fall of Management Accounting*. Boston: Harvard Business School Press.
- Julnes, P. de Lancer, and M. Holzer (2001), 'Promoting the Utilization of Performance measures in Public Organizations: An Empirical Study of Factors Affecting Adoption and Implementation', *Public Administration Review*, Vol. 61, No. 6, pp. 693–708.
- Jääskinen, N. and Rantanen, J. (2007). *Yliopistojen taloudellisen ja hallinnollisen aseman uudistaminen*. Helsinki: Opetusministeriön työryhmämuistioita ja selvityksiä 2:2007. [Financial and Administrative Status of Universities in Finland.]
- Kahnemann, D. and Tversky, A. (1974), Judgment under Uncertainty: Heuristics and Biases, *Science*, Vol. 185, pp. 1124-1131.
- Kahnemann, D. and Tversky, A. (1996), On the Reality of Cognitive Illusions, *Psychological Review*, Vol. 103, No. 3, pp. 582-591.
- Kahnemann, D., Slovic, P. and Tversky, A. (1982). *Judgment under Uncertainty: Heuristics and Biases*. New York: Cambridge University Press.
- Kaplan, R.S. and D.P. Norton (1996), *The Balanced Scorecard: Translating Strategy into Action* Boston: Harvard Business School Press.
- Kaplan, R.S., D.P. Norton. 2001. *The Strategy-Focused Organization. How Balance Scorecard Companies Thrive in the New Business Environment*. Harvard Business School Press, Boston.
- Laegreid, P., Roness, P.G. and Rubicksen, K. (2006). Performance Management in Practice: The Norwegian Way, *Financial Accountability and Management*, Vol. 22, No. 3, pp. 251-270.
- Lave, J. (1988), *Cognition in Practice. Mind, Mathematics and Culture in Everyday Life* (University of California Press).
- Lindblom, C.E. (1959), The Science of "Muddling Through". *Public Administration Review* Vol. 19, No. 2, pp. 79-88.
- Lllevellyn, S. and Northcott, D. (2005). The Average Hospital, *Accounting, Organizations and Society*, 30, pp. 555-583.
- Malmi, T. (1999), Activity-based Costing Diffusion Across Organizations: an Exploratory Empirical Analysis of Finnish Firms, *Accounting, Organizations and Society*, Vol. 24, No. 8, pp. 649-672.
- March, J.G. (1994), *A Primer on Decision Making. How Decisions Happen*. New York: The Free Press.
- March, J.G., and J.P. Olsen (1987). *Ambiguity and Choice in Organizations*, (Universitets-forslaget, Bergen).
- March, J. G., Lee, S. S. and Michal, T. (1991) Learning from Samples of One or Fewer, *Organization Science*, Vol. 2, pp. 1-13.
- March, J. G., M. Schulz and X. Zhou (2000), *The Dynamics of Rules. Change in Written Organizational Code* (Stanford University Press, Stanford).
- Ministry of Finance (2006). *Handbook on Performance Management. Governance and Accountability*. Helsinki: Edita.
- Meyer, M.W. (2002), *Rethinking Performance Measurement: Beyond the Balanced Scorecard*. Cambridge: Cambridge University Press.
- Meyer, M.W. and V. Gupta (1994), 'The Performance Paradox', *Research in Organizational Behavior*, 16, pp. 309-369.
- Modell, S. (2004), 'Performance Measurement Myths in the Public Sector: A Research Note', *Financial Accountability & Management*, Vol. 20, No. 1, pp. 39–55.
- Meyer, M.W. and Gupta, V. (1994). The Performance Paradox, In: Staw, B.M, and Cummings, L.L. (eds.), *Research in Organizational Behavior*, 16, pp. 309-369. Greenwich, CT: JAI Press.

- Mullins, D. and Zorn, K.C. (1999), Is Activity-based Costing up to the Challenge when It Comes to Privatization of Local Government Services, *Public Budgeting and Finance*, Vol. 19, No. 2, pp. 37-58.
- Möttönen, S. (1997). *Tulosjohtaminen ja valta poliittisten päätöksentekijöiden ja viranhaltijoiden välisessä suhteessa*. Helsinki: Suomen kuntaliitto.
- Nørreklit, H. (2003), The Balanced Scorecard: What is the Score? A Rhetorical Analysis of the Balanced Scorecard. *Accounting, Organizations & Society*, Vol. 28, No. 6, pp. 592–619.
- Nørreklit, H. (2006). US ‘Fair Contract’ Based Performance Management Models in a Danish Environment. *Financial Accountability and Management*, Vol. 22, No. 3, pp. 213-233.
- Oppenheimer, D.M. (2003), Not so fast! (and not so frugal): rethinking the recognition heuristic. *Cognition*, 90, B1-B9.
- Nozick, R. (1993). *The Nature of Rationality*. Princeton: Princeton University Press.
- Orlikowski, W.J. (1992), ‘The Duality of Technology: Rethinking the Concept of Technology in Organizations’, *Organization Science*, Vol. 3, No. 3, pp. 398-426.
- Orlikowski, W.J. (2000). Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations, *Organization Science*, Vol. 11, No. 4, pp. 404-428.
- Orlikowski, W.J. (2002), Knowing in Practice: Enacting a Collective Capability in Distributed Organizing, *Organization Science*, Vol. 13, No. 3 (May-June), pp. 249-273.
- Pfeffer, J., and R. I. Sutton (1999), *The Knowing-Doing Gap. How Smart Companies Turn Knowledge into Action*. Boston: Harvard Business School Press.
- Pollitt, C. (2003). *The Essential Public Manager*. Berkshire, New York: Open University Press.
- Pollitt C., Girre X., Lonsdale J., Mul R., Summa H. & Waerness M. (1999). *Performance or compliance? Performance audit and public management in five countries*. Oxford University Press.
- Ridgway V.F. (1956), ‘Dysfunctional Consequences of Performance Measurements’, *Administrative Science Quarterly*, Vol. 1, pp. 240–247.
- Riihelä, M. and Sullström, R. (2006). Väestön ikääntyminen, kulutus, säästäminen, tulot ja eriarvoisuus. Helsinki, VATT-keskustelualoitteita 382. [Ageing and its connection to consumption, saving, incomes and inequality]. VATT Discussion Papers.
- Simon, H.A. (1955). A Behavioral Model of Rational Choice, *Quarterly Journal of Economics*, 69, pp. 99-118.
- Simon, H.A. (1978). Rationality as Process and as Product of Thought, *American Economic Review*, Vol. 68, No. 2, pp. 1-16.
- Staw, B.M., and L.D. Epstein (2000), ‘What Bandwagons Bring: Effects of Popular Management Techniques on Corporate Performance, Reputation, and CEO Pay’, *Administrative Science Quarterly*, Vol. 45, pp. 523-556.
- Tammi, J. (2006), Toimintolaskennan käyttömahdollisuudet ja hyödyt kunnan johtamistyössä. Tampere: Acta Universitatis Tamperensis, vol. 1152. [Applicability of Activity-Based Costing in Municipal Management].
- Todd, P.M. (2002), Fast and Frugal Heuristics for Environmentally Bounded Minds, in: Gigerenzer, G. and Selten, R. (2002) (eds.), *Bounded Rationality. The Adaptive Toolbox*. Cambridge: MIT Press.
- Vakkuri, J. (2004), ‘Institutional Change of Universities as a Problem of Evolving Boundaries’, *Higher Education Policy*, Vol. 17, pp. 287–309.
- Vakkuri, J. (2006). Miksi älykkäät organisaatiot tekevät vain rajoittuneesti rationaalisia ratkaisuja? Monitulkintaisuuden ongelma tehokkuusoppien soveltamisessa, *Hallinnon tutkimus* 3/2006, pp. 30-46. [On the Application Problem of Efficiency Artefacts – or Why May Intelligent Organizations Make only Boundedly Rational Choices?]
- Vakkuri, J. and Meklin, P. (2003), The Impact of Culture on the Use of Performance Measurement Information in the University Setting. *Management Decision*, Vol. 41, No. 8, pp. 751-759.
- Vakkuri, J. and Meklin, P. (2006). Ambiguity in Performance Measurement – A Theoretical Approach to Organisational Uses of Performance Measurement, *Financial Accountability and Management*, Vol. 22, No. 3, pp. 235-250.
- Vranas, P.B.M. (2002), Gigerenzer’s Normative Critique of Kahnemann and Tversky, *Cognition*, 76, pp. 179-193.
- Weiner, B. (1986), *An Attributional Theory of Motivation and Emotion*. London: Springer Verlag.

Wenger, E. (1989), *Communities of Practice. Learning, Meaning and Identity*. Cambridge University Press.

### **Other documentary material**

City of Vaasa

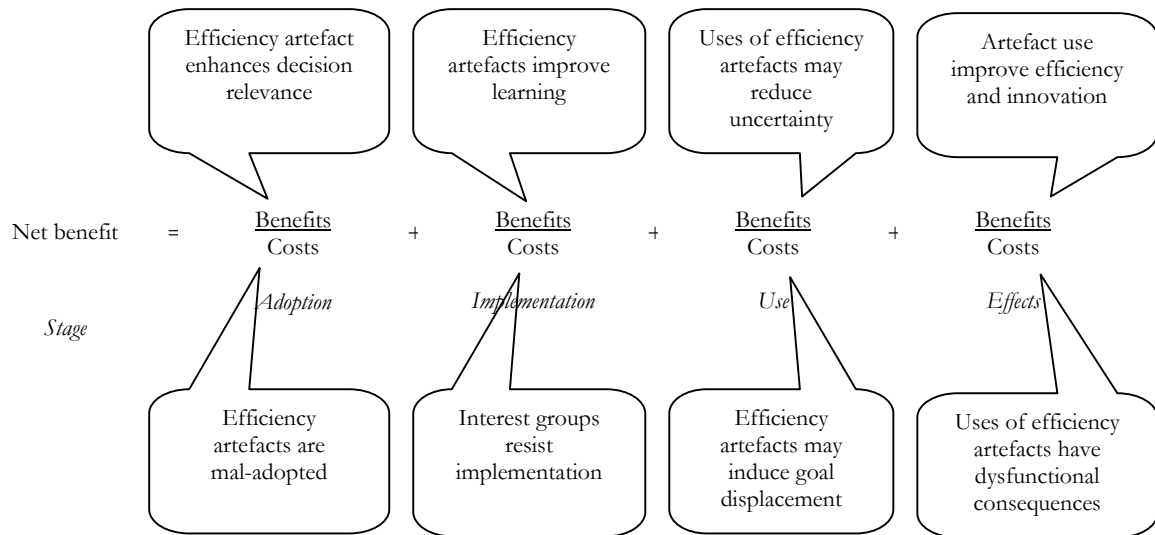
- Budget documents
- Strategy documents
- Financial statements
- Performance evaluation reports of the municipal audit committee

City of Jyväskylä

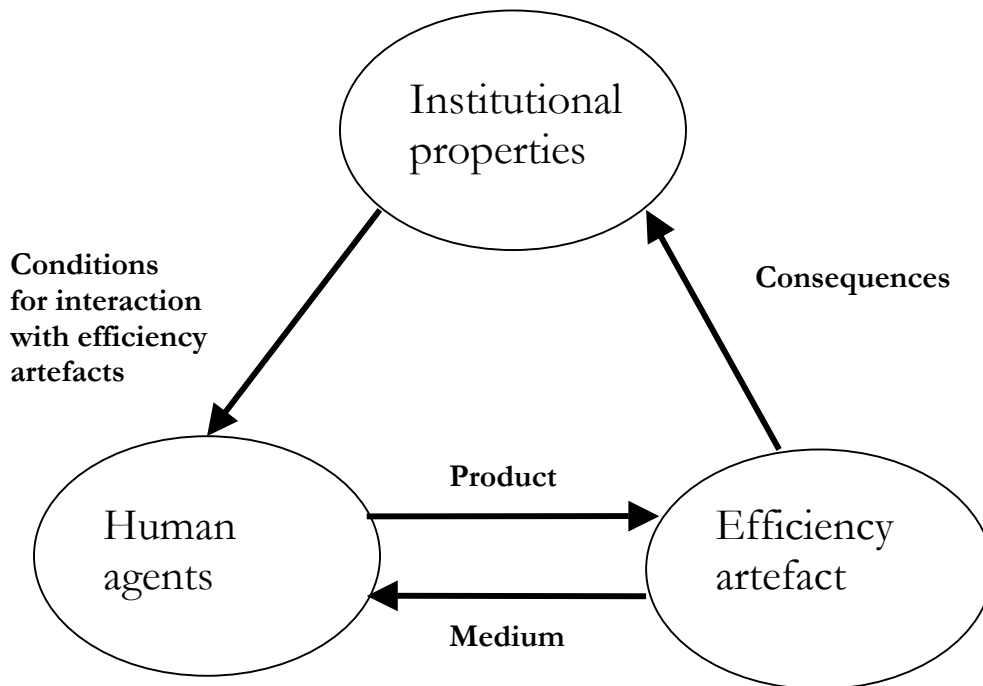
- Budget documents
- Strategy documents
- Financial statements
- Performance evaluation reports of the municipal audit committee

City of Oulu

- Budget documents
- Strategy documents
- Financial statements
- Performance evaluation reports of the municipal audit committee



**Figure 1.** A system theory framework of uses of efficiency artefacts (adapted from Johnsen and Vakkuri 2006)



**Figure 2.** Sociological model of efficiency artefact uses (Vakkuri and Meklin 2006; adapted from Orlikowski 1992)

	<b>1985</b>	<b>1990</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>
<b>Jyväskylä</b>	68 585	70 081	74 072	78 996	84 434
<b>Oulu</b>	97 297	101 379	109 094	120 753	128 962
<b>Vaasa</b>	54 353	53 429	55 502	56 737	57 241

**Table 1.** Population change in case municipalities 1985-2005

	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
<b>The municipal health and social sector</b>						
Jyväskylä	1813	1926	2053	2152	2244	2322
Oulu	1745	1846	2011	2093	2204	2299
Vaasa	2106	2238	2321	2347	2443	2570
<b>The municipal social sector</b>						
Jyväskylä	888	949	1004	1063	1088	1131
Oulu	871	926	958	989	1074	1128
Vaasa	1012	1095	1099	1101	1139	1139
<b>The municipal health sector</b>						
Jyväskylä	925	977	1049	1090	1156	1191
Oulu	875	920	1052	1104	1130	1172
Vaasa	1094	1143	1222	1246	1303	1430
<b>Primary health care (including dental care)</b>						
Jyväskylä	383	404	435	461	499	512
Oulu	262	289	379	439	407	725
Vaasa	437	461	489	490	504	574
<b>Specialised health care</b>						
Jyväskylä	538	574	614	629	663	681
Oulu	605	623	663	659	717	748
Vaasa	647	689	743	772	841	867

**Table 2.** Net expenditures of social and health care in case municipalities, Euro/capita. (SOTKANet Indicator Bank and National Research and Development Centre for Welfare and Health)

	2000	2001	2002	2003	2004	2005
<b>Outpatient visits to physicians in primary health care per 1000 inhabitants</b>						
Jyväskylä	2033	1862	1953	1941	1868	1941
Oulu	1912	1955	1733	1751	1577	1640
Vaasa	1913	1861	1679	1389	1303	1400
<b>Hospital care, care days per 1000 inhabitants</b>						
Jyväskylä	2634.5	2599.7	2597.0	2475.0	2424.6	2381.6
Oulu	2161.9	2149.2	2119.2	2066.7	1629.4	1587.1
Vaasa	3268.4	3259.0	3138.7	3076.5	2885.0	3525.2
<b>Primary health care, care days for those aged 0-74 per 1000 persons of same age</b>						
Jyväskylä	270	288	264	241	307	329
Oulu	60	71	94	98	169	155
Vaasa	318	291	247	300	272	332
<b>Social assistance, euro per capita</b>						
Jyväskylä	127	146	146	148	123	N/A
Oulu	87	91	104	94	84	N/A
Vaasa	117	134	141	135	134	N/A
<b>Children aged 1-6 in municipally funded day care, as % of total population of same age</b>						
Jyväskylä	58.3	55.7	54.5	56.0	49.9	49.1
Oulu	54.3	57.9	59.6	58.4	55.1	55.0
Vaasa	64.3	64.1	62.6	64.0	64.5	66.8

**Table 3.** Social and health care outputs in case municipalities (SOTKANet Indicator Bank and National Research and Development Centre for Welfare and Health)

<b>Public manager in social and health care as a...</b>	<b>The social norm determining leadership activities. How does a public manager identify his/her role?</b>	<b>The link between social norms and rationales for using efficiency artefacts</b>
Service manager	My role is to fight for a social and health care niche in the budget	I use efficiency artefacts to fight for a social and health care niche in the budget. <i>“I try to dig the money up from somewhere”</i>
Financial manager with human values	My role is to make people aware of the budget constraint given the context of public service.	I use efficiency artefacts to understand contextuality of public sector efficiency. <i>“Characteristics of the social and health care context need to be understood, efficiency is not the same everywhere”</i>
Production manager of a social and health care plant	My role is to optimize public service processes.	I use efficiency artefacts to reduce slack in the system. <i>“If there is room for rationalizing, why shouldn't we consider it”?</i>
System manager	My role is to...do my share.	I use efficiency artefacts to trust the bureaucratic machinery. Uses of efficiency artefacts should reproduce the institutional structure of the service provision.
General manager	My role is to try to understand the bigger picture.	I use efficiency artefacts to direct my attention and to deal with managerial ambiguities.
Reform manager	My role is to introduce change in public organizations.	I use efficiency artefacts to change historical performance tradition. <i>“We try to make people aware of inefficiencies”</i> .


**Table 4.** The relationship between social norms and uses of efficiency artefacts

<b>Mental models / characteristics of models</b>	<b>‘Describing the context of service provision’</b>	<b>‘Explaining high performance: high performance is a result of...’</b>	<b>‘Predicting future outcomes of service provision through...’</b>
Need-based reasoning	Service is provided, because somebody needs it	High quality in public service – citizen interface	- Legislation - Subjective assessments of need
Evidence-based reasoning	Service is provided in order to produce evidence-based impacts	Activities providing sustainable long-term impacts	- Performance indicators, especially measures of impacts and outcomes
Practice-based reasoning	Service is provided based on understanding of the practice	Situated interpretations by the managers on “what works”	- Contextual, individual interpretations of managers
Process-based reasoning	Service is provided using the organizational machinery	Due process assuring quality at all stages	- Belief structures, institutional maintenance of trust in due process
Result-based reasoning	Service is provided in order to achieve strategic goals	Goal achievement	- Means-ends frameworks and hierarchies

**Table 5.** Interpretive schemes of public managers in modeling public sector performance

<b>Use mode/ Characteristics of use modes</b>	<b>Decoupled use of efficiency artefacts</b>	<b>Simultaneous use of efficiency artefacts for multiple purposes</b>	<b>Use of sub- structures of efficiency artefacts</b>	<b>Integrative use of efficiency artefacts</b>
How is use understood?	Using efficiency artefacts as an attempt to manage without artefacts	Uses of efficiency artefacts are determined by contextual and situated organizational needs	Efficiency artefacts do not consist of total structures: use is about choosing specific properties of the artefacts	Use is about creating a managerial mindset and organizational culture through artefacts
How is use conducted?	To circumvent original models by employing practice-based reasoning	To appropriate artefacts sporadically: different artefacts for different specific managerial purposes	To consciously select and enact specific sub-structures of artefacts	To enact an artefact as a conceptual framework for management activities
How are impacts of uses perceived?	Uses of efficiency artefacts should improve legitimacy and symbolic appearance of an organization	Uses of efficiency artefacts should provide incremental improvements to organizational management	Uses of efficiency artefacts should improve organizational performance by solving specific problems	Uses of efficiency artefacts should improve organizational performance through cultural change

**Table 6.** Use modes of efficiency artefacts in case municipalities

Institutional context and resources for using efficiency artefacts	Social norms for using efficiency artefacts	Mental models of public managers	
<ul style="list-style-type: none"> <li>* Mid-size or large municipalities of Finland</li> <li>* High demand for social and health care services due to the demographic development</li> <li>* Fairly stable financial and human resources</li> <li>* Differences in cultures and history of uses of efficiency artefacts</li> </ul>	<ul style="list-style-type: none"> <li>* Justice, equal treatment of customers and citizens, confidentiality as general social norms for acceptable behaviour</li> <li>* Efficiency artefacts are used to:               <ul style="list-style-type: none"> <li>-fight for a social and health care niche in the budget</li> <li>-understand the contextuality of public sector efficiency</li> <li>-reduce slack in the system</li> <li>-trust the bureaucratic machinery</li> <li>-direct attention and to deal with ambiguities</li> <li>-change historical performance tradition</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>* High performance is a result of:               <ul style="list-style-type: none"> <li>-high quality in public service –citizen interface</li> <li>-activities providing sustainable long-term impacts</li> <li>-situated interpretations by the managers on "what works"</li> <li>-due process assuring quality at all stages</li> <li>-goal achievement</li> </ul> </li> </ul>	
			
Decoupled use of efficiency artifacts:	Simultaneous use of efficiency artifacts for multiple purposes	Use of sub-structures of efficiency artifacts	Integrative use of efficiency artifacts
<p>Using efficiency artifacts as an attempt to manage without artifacts by circumventing original models. The motive is to improve legitimacy and symbolic appearance of an organization.</p>	<p>Uses of efficiency artifacts are determined by contextual and situated organizational needs. Use is to appropriate artifacts sporadically: different artifacts for different specific managerial purposes. The motive is to provide incremental improvements to organizational management.</p>	<p>Uses of efficiency artifacts are about choosing specific properties of the artifacts, to consciously select and enact specific sub-structures of artifacts. The motive is to improve organizational performance by solving specific problems.</p>	<p>Use is about creating a managerial mindset and organizational culture by enacting artifact as a conceptual framework for management activities. The motive is to improve organizational performance through cultural change.</p>

**Table 7.** Uses of efficiency artefacts in the context of public management of three Finnish municipalities

## **APPENDIX. List of informants, dates of interviews**

Erkki Penttinen, Unit manager, social work and family services. City of Vaasa, 29 January, 10-11.30.

Markku Sirviö, Chief physician. City of Vaasa, 2 February, 10.15-12.15

Matti Paloneva, Unit manager, Elderly care services. City of Vaasa, 5 February, 15-16.30

Kirsti Ikola, Financial manager, social and health care services. City of Vaasa, 6 February, 13.00-14.45

Juha Karvala, Social and health care manager, City of Vaasa, 8 February, 14-16

Pekka Utriainen, Social and health care manager, City of Jyväskylä, 12 February, 12-13.

Vesa Voutilainen, Chief of accountancy, City of Jyväskylä, 12 February, 14.30-16.45

Sakari Möttönen, Development manager, City of Jyväskylä, 13 February, 8.45-10.15

Pirjo Tuosa, Unit manager, Child day care services, City of Jyväskylä, 13 February 10.30-11.45

Heidi Alatalo, Financial Manager, social and health care services. City of Oulu, 1 March, 7.45-9.30

Jari Mäki-Runsas, Social and health care manager, City of Oulu, 1 March, 9.35-11.00

Päivi Laajala, Deputy Mayor. City of Oulu, 2 March, 9.00-11.00

Esa Katajamäki, Chief of strategy and organization. City of Oulu, 2 March, 12-13.30

## **APPENDIX. Themes of the interviews**

### **General framework**

- a) Resources and facilities (statistical data, documentary material on case municipalities)
- b) Social norms and assumptions of acceptable behavior (interview)
- c) Interpretive schemes (interview)

### **Social norms and assumptions of acceptable behavior**

- 1) Could you start by telling about your organization, service areas and your individual role and responsibilities as a public manager?
- 2) How would you characterize general values of the social and health care sector?
  - Documented 'values', respondent's own interpretations
  - How would you describe the identity of this service area? Why does it exist? For whom?
- 3) How would you characterize acceptable and legitimate behavior in the social and health care sector?
  - Legal rules, other important principles applied
  - What is the minimum standard for acceptable behavior in social and health care services? In your area?
  - Are there things that should not occur in any circumstances?
  - How do you see the related future challenges?
- 4) What is the relationship between social norms and uses of efficiency artefacts and performance information?
  - General principles instructing uses of efficiency artefacts
  - Can you identify any examples of efficiency artefacts that have been adopted, but not implemented due to their inapplicability to the local government context? (Why?)

### **Interpretive schemes (these questions are modified according to ABC, BSC and GPI)**

- 1) How does the efficiency artefact work? According to your own interpretation? (Respectively ABC, BSC and GPI)
  - General properties
  - What do you use it for? What things are trying to influence? What are the perceived causalities?
- 2) What does it mean to use an efficiency artefact?
  - Definition of use: How do you know that it is being 'used'?
  - Purposes of use
- 3) What are the most important reasons for using this specific efficiency artefact?
  - Legal rules, organizational needs, peer pressure, others
- 4) What is the history of using similar efficiency artefacts?
  - Pilot projects of the past. Plans
- 5) How does the efficiency artefact help to improve performance?
  - The mental model of the efficiency artefact for improving performance. Can you name any specific causal relationships?
  - What kind of performance elements does the artefact cover? Are there things that are left outside? Why?
  - What are other impacts of uses?
- 6) What is your interpretation on intended behavioral effects of using the efficiency artefact?
  - What kind of organizational behavior would be desirable? Can the artefact contribute to this?
- 7) What are the possible dysfunctional consequences of using the efficiency artefact?
  - Informants were provided with examples of possible dysfunctional consequences of uses of performance measurement information...
  - How, why and in what circumstances would these dysfunctional consequences be possible in social and health care services? Can you identify other consequences? If you disagree, why are they not possible?