<http://www.diva-portal.org>

Postprint

This is the accepted version of a paper presented at *Hawaii International Conference on System Sciences*.

Citation for the original published paper:

Magnusson, J., Nilsson, A. (2006)

Infusing an architectural framework with neo-institutional theory: Reports from recent change management initiatives within the Swedish public administration.

In: (ed.),

N.B. When citing this work, cite the original published paper.

Permanent link to this version:

<http://urn.kb.se/resolve?urn=urn:nbn:se:su:diva-94885>

Infusing an Architectural Framework with Neo-institutional Theory

Reports from recent change management initiatives within the Swedish Public Administration.

Johan Magnusson & Andreas Nilsson

Gothenburg School of Business, Economics and Commercial Law

magnusson@informatik.gu.se , anilsson@informatik.gu.se

Abstract

Swedish public administration is currently undergoing radical change towards dynamic models of governance relying on a high level of inter-governmental collaboration. This high level of interoperability between governmental organizations and the subsequent quality of service for citizens and companies depending on the services provided by government is summarized in the vision-statement of the 24-hour government (24-timmarsmyndigheten). According to the primary actor's (Statskontoret) recommendation, this vision is to be realized through the application of web-service based technology, resulting in a Service Oriented Architecture (SOA). The purpose of this paper is to investigate a possible infusion of a previously developed architectural framework for change management with neo-institutional theory. The results show that neo-institutional theory could be used to infuse the architectural framework with aspects regarding primarily history and legitimacy, but also with an overall contradictory perception of change. Given the vast differences in fundamental assumptions underlying the architectural framework and neo-institutional theory, the paper concludes that these results are however somewhat problematic.

1. Introduction

Swedish public administration is currently undergoing radical change towards dynamic models of governance relying on a high level of inter-governmental collaboration (G2G). This high level of interoperability between governmental organizations and the subsequent quality of service for citizens and companies depending on the services provided by government is summarized in the vision-statement of the 24-hour government (24HG). According to the primary actors' (Statskontoret) recommendation this vision is to be realized through the application of

web-service based technology, resulting in a Service Oriented Architecture (SOA).

The work towards the 24HG is still at a very early stage. Currently, technical G2G enabling infrastructure is being developed, but nothing is in use (as of May 2005). Several government and non government actors are currently trying to influence the agenda of the 24HG such as: e-Nämnden, 24-timmars delegationen, Statskontoret, Skatteverket, VM-Data, Tieto Enator, Microsoft, Sambruksplattformen, Serviam and NSUF among others.

As has been hinted above the complexity of the context surrounding the 24HG initiative is significant and a large number of interdependencies between the different actors make all change within this environment highly difficult to analyze.

This paper springs from practical work within the 24HG initiative where 13 agencies were contacted to answer questions regarding their interoperability and their change management processes. After an initial analysis of the individual situations using an architectural framework (DELTA), a feeling of analytical shortcoming and potential oversimplification became apparent to the involved researchers.

The purpose of this paper is to investigate a possible architectural framework for change management within Swedish public administration. This is realized through the theoretical infusion of an existing rationalistic architectural framework with recent theoretical findings from the field of institutional analysis

2. Methodology

With the scope of the paper being to infuse an existing architectural framework with neo-institutional theory, an initial literary review of institutional theory was conducted. The literary

review covered a large number of articles and books and resulted in fourteen analytical implications.

Through applying these analytical implications to previous outcomes of analyses using the DELTA architectural framework (in the form of situational analyses), the paper then discusses the potential infusion of some of the analytical implications from neo-institutional theory to the original DELTA architectural framework.

The interviews underpinning the 13 case studies were conducted during the spring of 2005 with the overall purpose of capturing how interoperable the governments in questions were and how their change management initiatives were designed. All in all 22 interviews were conducted with an average of 2 hours. The interviews were documented through audio recordings and later partially transcribed.

The situational analyses of the 13 cases were conducted in one long workshop with solely academic participants. Through the application of the architectural framework the situations in questions were analyzed and modeled in concurrence with the framework's ordinations.

The illustration below attempts to describe the overall research process.

Figure 1: Research process

3. Theoretical foundation

The theoretical foundation for this paper presents both the architectural framework applied and summarizes the assumptions underlying neo-institutional theory.

3.1. DELTA Architectural Framework

The theoretical foundation of change management in this study springs from the DELTA project and is in this paper summarized in a framework for critical coordination issues.

The DELTA meta-model (Figure 2) is based on factors derived from interviews with practitioners and an extensive review of management literature (Magnusson and Nilsson, 2003a, Magnusson and Nilsson, 2003b, Enquist, Magnusson and Nilsson, 2003, Simon, 1962, Leavitt 1965, Churchman, 1971,

Lynch, 1985, Huber, 1987, Zachman, 1987, Hoffman, 1988, Checkland, 1989, Sowa and Zachman, 1992, Bernus and Nemes 1997 and Bernus, 1997)

According to the framework, the basic elements always relevant in any change management context are Enterprise Images and Stakeholders concerned in them, Development Goals and Development Processes conducting changes and realizing goals. Below follows a description of each of the elements.

Enterprise Images (Simon, 1962, Zachman, 1987 and Lynch, 1985) is the perception of current and alternative future enterprise designs. It includes all recourses such as humans, facilities, technology etc. Many different modeling techniques are often used in order to support process models, organizational schemas, system maps, etc. Images representing the actual and near future are more concrete whilst images of the distant future are less concrete visions.

Stakeholders ([Simon, 1962, Zachman, 1987 and Lynch, 1985) are internal and external actors within and around the enterprise who in some way affect, or are affected by the enterprise development. Among these are partners, personnel, management, owners, clients, customers and authorities.

Development Goals (Simon, 1962 and Lynch, 1985) are clear formulations of required changes necessary to transform the enterprise from its current- to a desirable future condition. The transformation may be done in numerous ways. Development Goals point out what the development work should comprise.

Development Processes (Simon, 1962) are the activities (development projects) concerned with the execution of the development- and change work. Depending on the degree of uncertainty, the processes may follow different process patterns such as Waterfall, Iterative, Concurrent and Explorative.

The DELTA framework does however not solely focus on the previously described change elements; but instead it focuses on the relationship between the elements. By this approach, coordination issues regarding the relationships between the key elements of change are identified.

Figure 2: The change elements and relationships of the DELTA framework

3.1. Neo-institutional Theory

"The new institutionalism in organization theory and sociology comprises a rejection of rational-actor models, an interest in institutions as independent variables, a turn toward cognitive and cultural explanations, and an interest in properties of supra-individual unit of analysis that cannot be reduced to aggregations or direct consequences of individuals' attributes or motives." - Powell & DiMaggio (1991:8)

Institutions as "recognized practices" (Young, 1986) have since the beginning of the 1950's been recognized as powerful constructions influencing the behavior of organizations. As early as 1949, Philip Selznick started to criticize what he and his associates referred to as over-rationalized views of organizations. In their view, organizations should be understood as delimited in their behavior by external institutions, and through this they were never fully rational and intentionality when referring to action never complete.

In two seminal works during the later part of the 1970's (1977), John Meyer pushed the envelope even further by more explicitly arguing that organizations acted under strain of myths of rationality. By relating the processes of isomorphism and a strive for legitimacy to the existence of myths influencing the structure of organizations, Meyer & Rowan (1977) can be seen as the starting point of a school of thought that has become known as "neo-institutional analysis".

Neo-institutional analysis stresses the fact that actors and organizations are never free to choose from an unlimited repertoire of action. Instead the actor is enveloped by institutions that constitute the full array of available action, or in the words of Powell & DiMaggio (1991:10): "Institutions do not just constrain options; they establish the very criteria by which people discover their preferences."

Hence, neo-institutional analysis displays what is often referred to as a "cognitive turn" within theory, where cognitive and cultural aspects of behavior are highlighted instead of the mere functional aspects (eloquently elaborated upon by Parsons, 1956).

In a 1983 article in American Sociology review, DiMaggio & Powell presented their thoughts on how institutions act as bars in what they referred to as an "Iron cage". By relying on terminology passed down from Weber, the authors discussed how organizations within the same set become more and more alike and under what conditions this could be observed.

Using the analogy of an Iron cage to illustrate the charge-de-affairs of organizations today and their forever narrowing window of possible action, students

of organizational theory are given a possible toolbox for understanding why and how organizations change.

Change, or more correctly adoption of new practices has been addressed in a large number of articles that can be viewed as examples of neo-institutional analysis. From Tolbert & Zucker (1983) and Zucker (1987) to Washington (2003), neo-institutional analysts have strived to understand the process of adoption as something other than an intentional and rational process.

According to neo-institutional theory, change occurs (in the phenomena studied) by way of dramatic change in the surrounding and influencing institutions. With the forces of institutions being cognitive in essence, this change is often saltomortal or episodic. Through studies such as the previously mentioned Tolbert & Zucker (1983), Washington et al (2003) and Thomas (1989) a number of interesting results have been published stipulating relationships such as if the behavior is institutionalized it is more likely to reject efforts of change, and if other organizations in the set adopt the organization is more likely to follow.

Key to understanding neo-institutional analysis is the perception of individual action as unreflective and routine. Relating the stream-of-thought back to ethnomethodology (Garfinkel, 1967) and post-structuralists such as Barthes (1965) and the focus on common-understandings and practical-reason as regulative in the way it effects our choice of action; neo-institutional analysis takes a step away from the constructs of commitment, norms and values that were figurative for the institutional analysis of Salanzick and associates and instead incorporates the notion of cognitive scripts.

To clarify this introductory discussion, neo-institutional analysis could aid the analysis of adoption of a service oriented architecture in the Swedish public service sector through its assumptions:

- Adoption is not a rational process
- The sources of motivation are ambiguous
- Intentionality is too coarse an analytical tool when it comes to understanding adoption
- Institutions will affect adoption (in less than rational ways)
- Organizations strive for legitimacy by adopting or pseudo-adopting to common standards
- Organizations within an organizational set act over time become more and more isomorphic
- Cognitive and cultural aspects of the adoption-process need to be taken into account

- Adoption occurs within a specific historic and cultural context
- Actors are not free to choose
- Institutions constrain
- Change will be episodic and dramatic as an effect of macro-level changes
- Individual action is unreflective, routine and rests upon a ground of taken-for-grantedness

These assumptions are further elaborated upon under the headings Action, Adoption, Isomorphism and Legitimacy in the section of Analytical Implications.

3.3. Analytical implications of neo-institutional theory

As previously described, the analytical implications of neo-institutional theory can be described under the four headings Action, Adoption, Isomorphism and Legitimacy.

3.3.1. Action

“Institutions do not just constrain options; they establish the very criteria by which people discover their preferences.” - Powell & DiMaggio, 1991:11

As previously described, the shift that neo-institutionalism embodies can be seen as a cognitive turn regarding the sources of motivation and behavior. By rejecting utilitarianism (Parsons, 1937) and intentionality as the founding principles of individual action, a shift towards ethnomethodology and cognitive psychology as a foundation for a new and improved theory of action is chosen.

Hilbert (1992:39) paraphrases Garfinkel by stating that “ethnomethodology returns sociology to the ‘concreteness of things’...” and this implies a shift towards viewing action through the concepts of common sense. Common sense could in this aspect perhaps be better understood as conceptual idealizations, or folklore. Zimmerman and Wieder (1970) give a procedural description of ethnomethodological investigation.

“The first step is to suspend the assumption that social conduct is rule governed, or based in and mounted from shared meanings or systems of symbols shared in common. The second step is to observe that the regular, coherent, connected patterns of social life are described and explained in just such terms, or close relatives to them, by laymen and professional sociologists alike. The third step is to treat the appearances of described and explained patterns of orderly social activities as appearances produced.” - Zimmerman and Wieder 1970:288-289

By describing social conduct as governed by rules and that descriptions are produced, ethnomethodology

relates culture to something that is constantly under production.

Careful readers of ethnomethodology and neo-institutional theory might find a divergent point in the Garfinklean notion of reflexivity. With neo-institutionalism perceiving individual action as unreflective and based on routines that are to a large extent taken for granted (Powell & DiMaggio, 1991), ethnomethodological reflexivity refers to the process of individual organizing of actions and creation of the impression of stable social order.

The previously described Carnegie School with researchers such as James March and Herbert Simon present the final step towards a new theory of action based on a cognitive (or practical) rather than a normative approach (Powell & DiMaggio, 1991).

By relating the discussion above to the foundations for individual action, institutions are regarded not merely as the regulative boundaries of available action/choice. Neo-institutional theory goes one step further than this and analyses institutions as the determinants of individual cognition. For students of institutions, this divergent point of reference together with the ethnomethodological research-design stance implies that institutions can be studied mainly through non-articulated common understandings.

3.3.2. Adoption

As previously described, neo-institutional theory takes one of its starting-points in the refusing of rationality and intentionality as an individual and organizational *modus operandi*. With this fundamental stance towards perhaps foremost the lack of intentionality in organizational action, any analysis of organizational adoption (or change) will be greatly affected.

Within institutional theory, the adoption of new organizational forms or structures is one of the most substantively researched. Through the works of Tolbert & Zucker (1983), Washington et al, (2004), Miner & Haunschild (1995) and Buckley (1967), the processes of morphogenesis (elaborating and changing of form) and morphostasis (preserving and maintaining of form) has been thoroughly addressed.

“When organizational change does occur, it is likely to be episodic and dramatic, responding to institutional change at the macro-level, rather than incremental and smooth. Fundamental change occurs under conditions in which the social arrangements that have buttressed institutional regimes suddenly appear problematic” - Powell & DiMaggio, 1991:11

According to neo-institutional theory as described above, change in the organizational configuration is an effect of changes in the institutional environment surrounding the organization. With institutions not

merely constraining the options of the organization but on a more basic level cognitively specifying the available scripts governing the perception of options (see above), change thus occurs when a fundamental shift is brought on in the surrounding institutions.

A wide range of researchers have addressed the notions of change and adoption within neo-institutional theory (Fligstein, 1991; Brint & Karabel, 1991), and all more or less advocate the view of the organization as an open system under constant influence from its environment (Scott, 2003). By stressing the importance of context-sensitivity when it comes to institutional analysis, this open relationship between the environment and the focal system (the organization) heavily emphasizes the dimensions of culture and history.

With institutions being regulative and in one way elements resistant to change, the process of institutional change is one that has received a large amount of attention through researchers such as Meyer & Rowan (1977), Jepperson (1991) and Fligstein (1991). These authors describe institutional change as being either exo- and endogenous. Given that organizational change and adoption of new practices needs to be supported by changes on the macro-institutional level, the question regarding how to induce institutional change becomes a central issue where contemporary theory leaves us rather flat.

3.3.3. Isomorphism

"The major factors that other organizations must take into account are other organizations." - Aldrich, 1979:265

Acting on the principle of the organization existing in an "Iron Cage" of institutional pressures elaborated in DiMaggio & Powell (1983), organizations within the same organizational set display a homogenization over time. This drive or strive (the latter would imply some sort of intentionality) towards homogenous organizational has been actualized in numerous articles within the field of institutional theory (see for instance Deephouse (1996) for an extensive review) under the heading of isomorphism.

With various approaches being present, isomorphism can be viewed as either state or process (Deephouse, 1996); directed towards structure and practices (Meyer & Rowan, 1977; Tolbert & Zucker, 1983) or strategies (Fligstein, 1991; Haunschild, 1993; Haveman, 1993); being competitive or institutional (DiMaggio & Powell, 1983).

Previous studies of isomorphism have thus studied the phenomenon from different angles and perspectives. Regardless of the differentiation of theory and the creation of more and more distinct and elaborate models of isomorphism, the bulk of research

conducted identifies "powerful forces" (DiMaggio & Powell, 1983:148) behind the strategic, structural or practical change of organizations that according to Hawley, 1968 face the same set of environmental conditions.

A large part of these environmental conditions exist as institutions (or at least that is what institutional theory would have us believe), whereby institutions act as driving forces for isomorphism. This view accentuates the differentiation between what DiMaggio & Powell (1983) refer to as institutional and competitive isomorphism. According to this article, analytical differences can be identified in the two different instances of isomorphism, where isomorphism as an effect of competitive pressure differs from isomorphism that can be traced back to homogenization as the outcome of non-competitive pressure, such as legislation or moral.

3.3.4. Legitimacy

"Organizations receive support and legitimacy to the extent that they conform to contemporary norms – as determined by professional and scientific authorities – concerning the 'appropriate' way to organize." - Scott, 2003:137

Closely connected to the concept of isomorphism, the notion of legitimacy can be regarded as one of the key necessities for any organization and also an "anchor-point" in institutional theory (Suchmann, 1995:571). Through the upholding of legitimacy, the organization in question signals that it is in tune with external norms, values and expectations (Ashforth & Gibbs, 1990). According to the same authors, legitimacy is attributed the organization in question by its constituents.

Researchers such as Pfeffer (1981) and Richardson (1985) have identified different management approaches for the seeking of legitimacy. Through substantive (referring to changes in organizational goals, structures, processes etc) and symbolic (referring to changes in the meaning of acts) management, organizations seek to uphold or capture legitimacy.

According to Ashforth & Gibbs (1990), the mix and intensity of legitimated practices (being either substantive or symbolic) varies whether the organization seeks to defend, maintain or extend its current legitimacy.

Through work on the adoption of new organizational forms, Tolbert & Zucker (1983) differentiate between institutionalization through law or gradual legitimation, implying a fundamental difference between law and gradual legitimation. Law in this case being direct and legitimate more or less

par definition, and various other forms of legitimation categorized as gradual in essence.

“Under some conditions, these pressures lead the organization to be guided by legitimated elements, from standard operating procedures to professional certification and state requirement, which often have the effect of directing attention away from task performance. Adoption of these legitimated elements, leading to isomorphism with the institutional environment, increase in the probability of survival.”
- Zucker, 1987:443

The quote above from implies the almost contradictory relationship between the strive for legitimacy and the subsequent isomorphism (since the constituents and sources of legitimacy within an organizational set are shared) and operational efficiency. In institutional theory, much of the research conducted on adoption of legitimated structures, strategies and practices is conducted by organizational ecologists and students of organizational population such as Zucker (1987) and Hannan & Freeman (1984). This research accentuates the relationships between organizations that are regarded as legitimate and organizations that survive (examples of this can be seen in Deephouse (1996) and Elsbach & Sutton). The correlation between performance and legitimacy is however much more elusive (see for instance Zucker (1987) and DiMaggio & Powell (1983)).

Given these four areas of inquiry, a number of potential analytical implications can be derived.

1. Change needs to be analyzed as instigated at the macro- or supra-individual level.
2. Change needs to be regarded as dependant upon the adoption of standardized routines.
3. The episodic nature of change needs to be addressed in any form of analysis of change.
4. Change needs to be analyzed as a less then rational process.
5. Individual action needs to be understood as cognitively controlled by surrounding institutions.
6. Organizations need to be analyzed as open systems under constant pressure from institutions in their environment.
7. The notions of culture and history need to be addressed as key elements in the analysis of organizations.
8. Organizations within the same set need to be analyzed as constantly striving for homogeneity.
9. Organizational isomorphism needs to be analyzed as either process or product.

10. Organizational isomorphism needs to be understood as implying strategic, practical and structural change.
11. Organizations acting in competitive environments need to be analyzed differently than organizations acting in non-competitive environments.
12. Organizations need to be understood as striving for legitimacy in the eyes of its constituents.
13. Organizations need to be understood as using both substantive and symbolic management practices to ascertain legitimacy.
14. Legitimation needs to be analyzed as either legal or gradual in essence.

On the basis of these 14 analytical implications we can engage in inhancing the architectural framework with neo-institutional theory.

4. Infusion

After conducting situational analyses related to 13 cases of SOA adoption in Swedish Public Administration (see table 1 below for a more detailed description of the encompassing cases), the analytical implications derived from neo-institutional theory function as a starting point for further discussions concerning an infusing of the applied architectural framework.

Government	Number of respondents
Swedish National Labour Market Board	2
Swedish Companies Registration Office	2
Swedish National Board of Student Aid	1
Swedish Social Insurance Agency	2
Sweden's County Administrations	2
Swedish Agency for Economic and Regional Growth	1
Swedish Patent and Registration Office	1
Swedish National Police Board	1
Swedish Maritime Administration	1
Swedish National Tax Board	3
Swedish Agency for Public Management	2
Swedish Customs Service	1
Swedish Road Administration	3

To enhance readability of the findings, the structure of this discussion will follow the previously described distinction between adoption, isomorphism

and legitimacy. The heading of Action has been purposefully avoided as an affect of its analytical implications being represented under the other headings. After this, a short, more general discussion concerning the infusion of the architectural framework is presented.

4.1. Adoption

As the analytical implications regarding the nature of organizational adoption as episodic in nature, dependant upon adoption of standardized routines and instigated on the macro-level show, the cases investigated in this study all display a need for a heavy emphasis on these aspects of adoption.

With the hierarchal relationship between the different agencies and governments investigated is partly somewhat ambiguous, some agencies function as regulative actors in relation to others; something that in turn increases the interdependencies and level of analytical complexities when it comes to the adoption of a new set of routines/technologies such as web services and SOA.

With these routines and technologies being standardized in nature, the creation of a critical mass of usage is a key imperative for facilitating the change and the realization of described benefits.

The architectural framework applied in this study was developed through research conducted at large organizations such as SKF, Volvo and SAAB, and it is possible to argue that these environments show more homogenous characteristics than the disparate institutional environment surrounding governmental SOA adoption. This would also imply that the notion of changes being instigated in the external rather than the internal environment is a fundamental aspect that the architectural model applied is not specifically designed to address. In the cases presented in this study the process of SOA adoption is directly instigated by actors in the individual agencies external environment such as the Swedish Agency for Public Management and even the Government offices of Sweden in the very vision-statement of the 24-hour Government it self.

An infusion of neoinstitutional theory on the architectural framework surrounding the concept of adoption would hence be related to a more detailed methodology to identify and analyze interrelations between different stakeholders. Apart from this, the framework could be further developed towards encompassing the notion of a vast difference in change instigators, from the present framework not supporting the process of change initiative identification where this may be somewhat unclear.

4.2. Isomorphism

The analytical implications related to the concept of isomorphism identify the necessity for organizations to be analyzed as acting under constant influence from other organizations in their institutional environment. This strive is a constant, often non-articulated strive for homogeneity in relations to strategy, practice and structure; and organizations acting in competitive versus non-competitive environments need to be studied differently.

With regulations being directed very much towards down-sizing and constantly reorganizing the different agencies from the 13 cases in this study, there is a constant and increasing pressure for the agencies to append to general notions of efficiency and efficient organizing.

This implies that the notion of isomorphism is a less than rational process where the different organizations strive for homogeneity without absolutely knowing of it. This constant strive for homogeneity needs to be directly addressed by any architectural framework hoping to increase our manageability of the situations in question.

As previously described, the framework in question for this study has been developed within large industrial organizations in Sweden, where the strive for homogeneity differs from the strive within governmental organizations acting in non-competitive environments.

An infusion of neo-institutional theory on the architectural framework surrounding the concept of isomorphism would imply a redesign towards better encompassing a conceptual terminology dealing with the process of isomorphism in organizational sets acting in noncompetitive environments. This would also imply the creation of new possibilities of mapping and modeling other organizations within the same set to see possible similarities. A further implication that needs to be directly taken into account is the concept of historical dependency where the theoretical foundation applied stresses the importance of a historical dimension in any analysis of change. With this in mind, a further infusion concerning an expansion of the enterprise images related to the architectural framework to also encompass a historic enterprise image is necessary.

4.3. Legitimacy

As the analytical implications related to the concept of legitimacy show, any study of organizational change needs to be understood as a process where an organization seeks to increase its legitimacy in the eyes of its constituents. This strive for legitimacy can take on a number of forms and

different organizations manage this process differently.

In the case of SOA adoption in the Swedish Public Administration this strive can be seen in the different ways in which the different actors try to communicate their progress in relation to their achieved level of interoperability. Through the study of communications emanating from the different agencies concerning their current level of interoperability and electronic service-level it is possible to identify the leaders and the followers, and it is also possible to identify a counterproductive technology diffusion directly dependant upon this strive for legitimacy.

The technological infrastructure of the 24-hour Government is to be acquired and implemented under the heading of the Swedish Agency for Public Management and the project Infraservice (Infratjänst). With this project currently running on its last months and the infrastructure still not being in place a large number of agencies instead turn to the Swedish National Tax Board and their SHS-solution. This can be seen as an example of a struggle for legitimacy where this analysis would lead us to expect a large amount of communications regarding the full implementation of Infraservice in the nearest couple of months.

An infusion of neo-institutional theory on the architectural framework surrounding the concept of legitimacy would imply the need for a more elaborate methodology for analyzing the concept of legitimacy and evidence of an organization's strive for acquiring legitimacy in the eyes of its constituents. With these (constituents) being either internal or external, the modeling of goals related to legitimacy needs to be directly related to the identification of possible constituents. The constituents also need to be differentiable from other stakeholders.

4.4. General discussion

Any infusion of an existing architectural framework is by definition directly dependant upon the general assumptions underpinning the original framework. As we have previously hinted, the DELTA architectural framework is the result of an attempt to develop an architectural framework for coordinated development within large, complex enterprises.

The enterprises in the form of agencies, boards and governments in the 13 case studies in this study all fall under the heading of complex enterprises, yet there is still substantial differences in among other this issues such as the notion of competition.

The DELTA framework is clearly built on a quite different conceptual platform than the proposed infusing neo-institutional theory. Where the proposed

theory strongly advocates a view of change as episodic, non-intentional and less than rational, the framework is more rationalistic in essence.

Through our work with the different cases and situational analyses in relation to the cases we have however found the framework helpful in conducting in-depth analyses of change activities within complex environments. IT is our belief that the difference in basic assumptions underpinning the two elements of our proposed infused architectural framework less be seen as potential contradictions but more complements regardless of how counter-intuitive this might first seem. As we have found in our work with SOA adoption in the Swedish Public Administration, the infusion of neo-institutional theory to the DELTA architectural framework leads us further towards a well functioning architectural framework for analyzing change initiatives in complex, institutionally burdened environments.

5. Acknowledgements

We would like to thank NUTEK (Swedish Business Development Agency), DELTA, and the Centre for Business Solutions (at Gothenburg School of Economics and Commercial Law) for their support in the writing of this paper. We would also like to thank the Department of Informatics at the IT-University in Gothenburg for their continued support. Special thanks also go out to Carl Hedin and Mattias Uppström who have conducted the empirical fieldwork underpinning this study.

6. References

- [1] Ashforth, B.E. & Gibbs, B.W. 1990. The double-edge of organizational legitimation. *Organization science*, 1(2), 177-194
- [2] Barthes, R. 1998. *Criticism and truth*. London: Athlone
- [3] Bernus, P. (1998). "GERAM: Generalised Enterprise Reference Architecture and Methodology version 1.6.2 IFIP-IFAC task Force."
- [4] Bernus, P., Nemes, L (1996). "A Framework to Define a Generic Enterprise Reference Architecture and Methodology." *Computer Integrated Manufacturing Systems* 9,3 (July 1996) 9(3): 179-191
- [5] Bernus, P., N., L (1997). "Requirements of the Generic Enterprise Reference Architecture and Methodology." *Annual Reviews in Control* 21: 125-136.
- [6] Brint, S. & Karabel, J. 1991. Institutional origins and transformations: the case of American community colleges. In Powell, W.W. & DiMaggio, P.J. (Eds.). *The new institutionalism in organizational analysis*. The university of Chicago press: Chicago & London

- [7]Buckley, W. 1967. Sociology and modern systems theory. Upper Sadle River, NJ: Prentice Hall
- [8]Checkland, P. (1989). Soft Systems Methodology. Human Systems Management. Vol. 8, No. 4:273 – 289.
- [9]Churchman, C. W. (1971). The Design of Inquiring Systems: Basic Concepts of Systems and Organization, Basic Books, Inc., Publisher.
- [10]Deephouse, D.L. Does isomorphism legitimate? Academy of management journal, 39 (4):1024-1039
- [11]Den offentliga förvaltningen i e-samhället, Diskussionsunderlag om en arkitektur för en modern nätverksförvaltning, 2004:27, 2004-09-24
- [12]DiMaggio, P.J. & Powell, W.W. 1983. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. American sociological review, 48, 147-160
- [13]Elsbach, K.D. & Sutton, R.I. 1992. Acquiring organizational legitimacy through illegitimate actions: a marriage of institutional and impression management theories. Academy of management Journal, 35 (4), 699-738
- [14]En inblick i kommuners tillståndshantering –en promemoria, 2003
- [15]En kartläggning av företagens administrativa börda, NUTEK, 2004
- [16]Enquist, H., Magnusson, J. and Nilsson, A. (2003). ICT Design implications in SME Networks. Proc. of 11th ECIS Conference.
- [17]E-tjänster i offentlig verksamhet: Analyser av innovationssystemet, VINNOVA TO, 2003
- [18]Fligstein, N. 1991. The structural transformation of American industry: an institutional account of the causes of diversification in the largest firms, 1919-1979. in Powell, W.W. & DiMaggio, P.J. (Eds.). The new institutionalism in organizational analysis. The university of Chicago press: Chicago & London
- [19]Garfinkel, H. 1967. Studies in ethnomethodology. Englewood Cliffs, NJ: Prentice-Hall
- [20]Hannan, M.T. & Freeman, J.H. 1984. structural inertia and organizational change. American sociological review, 49:149-164
- [21]Haunschild, P. 1993. Interorganizational imitation : the impact of interlocks on corporate acquisition activity. Administrative science quarterly, 38: 564-592
- [22]Haveman, H.A. 1993. Follow the leader: mimetic isomorphism and the entry into new markets. Administrative science quarterly, 38:593-627
- [23]Hawley, A. 1968. Human ecology. In international encyclopedia of the social sciences. Sills, D.L. (Ed): New York, Macmillan
- [24]Hilbert, R.A. 1992. The classical roots of ethnomethodology. University of North Carolina Press
- [25]Hoffman, T. (1988). Corporate Information Systems Strategy. Information Systems in Practice and Theory. P. Pirow, N. Duffy and J. Ford, Elsevier Science Publishers B.V. (North-Holland): 28-56.
- [26]Huber, G. P. (1987). The Information Environments of Organizations. Handbook of Organizational Communication. F. M. Jablin, L. L. Putnam, K. H. Roberts and L. W. Porter, Sage.
- [27]Jeperson, R.L. 1991. Institutions, institutional effects, and institutionalism. Powell, W.W. & DiMaggio, P.J. (Eds.). The new institutionalism in organizational analysis. The university of Chicago press: Chicago & London
- [28]King, W. R. and V. Sethi (2001). “Patterns in the organisation of transnational information systems.” Information & Management 38: 201-215.
- [29]Leavitt, L.J. (1965). Applied Organizational Change in Industry. Handbook of Organizations. J.G. March. Chicago, Rand McNally.
- [30]Lynch, K. (1985). Good City Form, MIT Press.
- [31]Magnusson, J. and Nilsson, A. (2003a). SME Network Taxonomy –A qualitative study of network practice in the EU. Proceedings of the 14th Information Resource Management Association Conference.
- [32]Magnusson, J. and Nilsson, A. (2003b). To facilitate or intervene. Journal of Knowledge Management Practice. In the knowledge Garden, 4, 2003.
- [33]Meyer, J.W., & Rowan, B. 1977. Institutionalized organizations: formal structure as myth and ceremony. American sociological review, 83, 340-363
- [34]Miner, A.S. & Haunschild, P.R. 1995. Population level learning. In Research in organizational behaviour, 17:115-166. Baum J.A.C. & Singh, J.V. New York: Oxford University press
- [35]Parsons, T. 1937. The structure of social action. New York : McGraw Hill
- [36]Parsons, T. 1956. Suggestions for a sociological approach to the theory of organizations. Administrative Science Quarterly 1:63-85
- [37]Potential för inre effektivisering av offentlig förvaltning genom automatiserad ärendehantering, Statskontoret, 2004
- [38]Powell, W.W. & DiMaggio, P.J. (Eds.). 1991. The new institutionalism in organizational analysis. The university of Chicago press: Chicago & London
- [39]Richardson, A.J. 1985. Symbolic and substantive legitimation in professional practise. Canadian journal of sociology, 10:139-152
- [40]Scott, W.R. 2003. Organizations: rational, natural, and open systems. London, UK: Prentice-Hall
- [41]Simon, H. A. (1962). “The Architecture of Complexity.” Proceedings of the American Philosophical Society 106(6): 467-482.

- [42]Sowa, J. F. and J. A. Zachman (1992).
 "Extending and Formalizing the Framework for
 Information Systems Architecture." IBM Systems
 Journal 31(3): 590-616.
- [43]Suchman, M.C. 1995. Managing legitimacy:
 strategies and institutional approaches. Academy of
 management review, 20(3):571-610
- [44]Sv Näringsliv, www.kfakta.se, 2005-02-17
- [45]Thomas, G.M. 1989. Revivalism and cultural
 change: Christianity, nation building, and the market
 in the nineteenth century united states.
 Chicago:University of Chicago press
- [46]Tillstånd – var god vänta. En studie av
 kommunala handläggningstider, Sv Näringsliv, 2002
- [47]Tolbert, P.S. & Zucker, L.G. 1983. Institutional
 sources of change in the formal structure of
 organizations: The diffusion of civil service reform,
 1880-1935. Administrative science quarterly, 28:22-
 39
- [48]Vad kostar ett tillstånd? –förslag till enklare
 tillståndsgivning, Statskontoret, 1999
- [49]Washington, M. & Ventrasca, M.J. 2004. How
 organizations change: the role of institutional support
 mechanisms in the incorporation of higher education
 visibility strategies, 1874-1995. Organization science,
 15 (1):82-97
- [50]Williams, T., H. Li, et al. (1998). The Lifecycle
 of a Enterprise. Handbook of lifecycle engineering. A.
 Molina, A. Kusiaka and J. Sanchez. Dordrecht,
 Kluwer Academic publisher.
- [51]Young, O.R. 1986. International regimes: toward
 a new theory of institutions. World politics 39:104-22
- [52]Zachman, J. (1997). "Enterprise Architecture:
 The Issue of the Century." Database programming
 and design Mars 1997.
- [53]Zachman, J. A. (1987). "A Framework for
 Information Systems Architecture." IBM Systems
 Journal 26(3): 276-292.
- [54]Zimmerman, D.H. Wieder, D.L. 1970.
 Ethnomethodology and the problem of order. In
 Understanding everyday life, 287-95. Walton, R.E. &
 Lawrence, P.R. (Eds.). Boston: Harvard Business
 School Press
- [55]Zucker, L.G. 1987. Institutional theories of
 organization. In W.R. Scott & J.F. Short, Jr. (Eds)
 Annual review of sociology, Vol 13, 443-463, Palo
 Alto, CA: Annual reviews