

Vertical Differentiation and De-differentiation in Electronic Government Initiatives: Understanding the Puebla State Web Portal from a Niklas Luhmann's Perspective

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Abstract: In order to achieve success, e-government projects have to face numerous challenges. Some of these challenges are related to tensions between government operations and political decisions pushed by external actors. Government information technology initiatives can be the scenario of these tensions. In this paper, we use three theoretical propositions derived from Luhmann's framework to start developing what could be called an e-government social systems approach: (1) what has been conceived as the politics/administration relationship is, in fact, a vertical differentiation and integration of systemic levels in government; (2) *change* is understood as a symbolic medium of obtaining for the political system; and (3) information technologies, specifically Internet portals, can be used like a way to represent and communicate *change*, particularly political change. Using the government state portal of Puebla in Mexico as an example, we illustrate the role of information technologies in a developing country during a governor's change.

1 Introduction

Although it is true that information technologies offer promises to transform and improve government operations and to reach better results, it has also been observed that a number of social, organizational and institutional factors affect the use of IT and, therefore, the actual results obtained [GP05] [Ro95]. It is understood, of course, that there is not linear causality from the social to the technical; they are, in fact, bidirectional and, sometimes complex, relationships [[OI01]. This work offers a way to analyze a social and organizational phenomenon within an e-government initiative: the role of information technologies in what is traditionally understood as the relationship between politics and administration. This relationship has not been discussed in depth by previous e-government literature. We propose to understand it from the perspective of Niklas

Luhmann's theory and considering government internet portals as playing an important mediation role in this relationship, particularly during a governor's change.

The politics/administration tension is a foundational problem in public administration as a discipline [Wi87]. Traditionally, there is a differentiation in terms of political and administrative positions and functions based on hierarchy, command, and role. This differentiation creates a divergent dynamic guided by the self-interests of these two realms of action [Ma85]. The sociological perspective that we propose, mainly embodied in Niklas Luhmann's theory, distinguishes administration (the government) from politics (mainly represented by political parties) as independent subsystems of the political system. As systemic units they are based on the operational closure and self-reference principles. Then, there are no joint political and administrative positions within government. What happens instead, from the perspective that we propose, is a vertical differentiation or de-differentiation, between societal and organizational system levels within government.

In this way, the goal of this paper is to propose what could be called an e-government social systems approach, based on Luhmann's theory to analyze the potential problems that can emerge in e-government projects: the de-differentiation of the organizational level by the societal level using technology. We used the governor's transition process and the Web portal of the State of Puebla as a case to illustrate the applicability of this approach. Being an ongoing research, our main objective is to formulate a preliminary theoretical approach. We also provide some preliminary results from the case, which will be more fully developed in future writings. The paper is organized in four sections, including the foregoing introduction. Section two carefully explains the elements of Luhmann's systems theory, which is our basis for this paper and offer some propositions that outline what could be called an e-government social systems approach. Section three briefly describes the research design and methods used for this study. Finally, section four presents and discusses some preliminary results.

2 Towards an E-Government Social Systems Approach: Understanding Niklas Luhmann's Theory and the Role of Information Technologies in Government

The social systems theory of Luhmann is a theory of modern society. It is a meta-theory of evolution and social change in the field of differentiation theories, specifically functional differentiation [Al90]. Luhmann's proposal opens a new era in the sociological theory. The focus is no more the individual and her action, nor the agent and his agency. When systems theory was used in sociology, as the case of Parsons, action, consciousness, and the individual are the focus of its analysis. Luhmann's theory, in fact, breaks the sociological tradition, setting as the core of the observation what he assumes is the basal operation of society: communication. Society, the society system, is then pure communication. Thus the individual, his/her body and his/her consciousness are left in its environment. Action is not more than communicative attributions [Lu98].

Luhmann's social systems theory is supported by the difference principle, and the starting point and the basal difference of the theory is what constitutes the distinction between system/environment [Lu09]. Luhmann no longer speaks of objects, but of distinctions: A distinction draws a two-sided form, traces a border that divides the world, leaving in one side the system, and in the other the environment [Lu09] [Lu07]. So, with a theory based on the difference system/environment, and not in the relationship all/parts [Lu98], Luhmann integrates to his proposal the most important achievements of systems biology, the second-order cybernetics, and epistemology of radical constructivism, to understand social systems as autopoietic, operationally closed, self-referential, and self-determined structurally [Lu98] [Lu09].

2.1 Horizontal and Vertical Differentiation

Horizontal differentiation in Luhmann's theory refers to the reproduction of the differences in system/social-environment within society. These internal system/social-environment differences conform to the functional-societal structure of society. It is the differentiation of large systems, which integrate the societal level, as in the case of the political system, economic system, religious system, science system, etc. These systems have a specific function in society and that is what gives modern society its particular character as functionally differentiated [Lu07]. A societal problem to be solved gives rise to that type of communication and, eventually, to the societal system. Then, in that way a societal system closes and differentiates itself from its social environment, reproducing its identity based on a particular binary code, which in its operation includes all that remains as part of that system and excludes everything that is not part of it [Lu10] [Lu07].

Vertical differentiation is the differentiation of social systems by their class. Vertical differentiation refers to the different types of systems that take form in the society: societal or functional systems, organizational systems, and interactional systems. The differences that exist between these types of systems can be described in three levels: (1) the criteria from which the system links its operations, allowing its autopoiesis and, therefore, defining its identity: societal = function, organization = decision, and interaction = topic [Lu98]; (2) the way in which people is integrated in communication: interaction = presence, organization = membership, and societal = communicative accessibility [Lu10a]; and (3) the type of communication, determined by a particular medium of communication that is especially characteristic of a kind of system, and thus helps to define its identity: societal = symbolic and writing, interaction = oral and body, and organization = integration of both [Lu07]. Both kinds of differentiation are functional differentiations. However, horizontal differentiation refers to the different types of primary functions, taking form in societal systems; while vertical differentiation is related to different types of secondary functions, taking form mainly in organizational systems, that is, different organizational systems or subsystems (areas in which an organizational system is divided) playing different roles to perform a primary societal function. There is a third form of differentiation that traverses the entire modern society: center/periphery differentiation, which is a relational position regarding the distance from an ideal performance of functional differentiation model. In society some regions,

the center, are oriented towards a more clearly differentiated and autonomous operation based on their function; while in other regions, the periphery, the operation of systems is generally less differentiated and less autonomous. One of the main problems with differentiation is the dynamics of the political system, because it always wants to go beyond its own societal limits, absorbing other societal functions and deleting other operational limits; then, de-differentiating other systems or sub-systems. Some authors claim that horizontal differentiation depends on a clear vertical differentiation [He11], and we propose that there is not only horizontal de-differentiation, but also a vertical one: the societal systemic level can de-differentiate the organizational systemic level, particularly in countries from the periphery. We think, in this sense, that the de-differentiation of the organizational systemic level by the societal systemic level is an important problem within government and could be clearly reflected in certain information technologies such as government Internet portals.

2.2 Integration and Structural Coupling

Society is not only differentiated; in fact, differentiation and integration are two sides of the same distinction. In modern society integration presupposes functional differentiation, and it is functional orientation which operates for both integration and differentiation: it must be from a structural coupling that contributes to the functional reproduction of each system [Lu07]. Luhmann focused this distinction especially for horizontal differentiation, but it is equally important for vertical differentiation [He11]. In this case, the integration of organizational systems and interactional systems to societal systems must be performed in the functional sense that enables the reproduction of a societal system, but also the functional reproduction of organizational or interactional systems. The clear functional differentiation and integration of these types of systems in vertical form is conditional to horizontal differentiation [Ti11]. Integration in society is made base on structural couplings. Structural couplings implied the operational closure and the structural auto-determination of systems. What the concept of structural coupling tries to specify is the no-determination of a system by its environment. Systems in a structural coupling make available irritations that another system can select like a way to modify its structure, and that appears like a causal relationship, but such change is only determined by the system or structure that select the stimulus. The whole society is constructed by structural couplings, both horizontally and vertically. Structural coupling, however, not only works within social domain, but between social and no social domains: There is structural coupling with psychic environment and with communication and diffusion means [Lu07].

2.3 The Political System and its Vertical Differentiation

The political system is one of the functional systems in which modern society differentiates. The political system has a specific function: to make collectively binding decisions. It has a medium of symbolic obtaining (MSO): power. And it has a code of operation that defines its sense spectrum and, therefore, its identity: power/no-power. However, with democracy, based primarily on "valid" elections, the system assumes a more specific recoding: government/opposition [Lu10].

The political system differentiates in a center/periphery way, leaving at the center the organizational administration and at the periphery the political parties and the public [Lu10]. So, administration is all government organizations, and politics is mainly political parties [Lu93]. The politics/administration relationship is the most general form taken by the government/opposition code. Politics (parties) and administration (government) are two different systems, processing information independently, though they must cooperate with each other [Lu10a]. Although politics introduces variety through premises of decision in the form of people (officials) and programs [La03], it does not imply that politics can enter into administration. When people and programs enter administration, they are part of that organization. Then, they are not the same social forms that were in the political party. Thus, according to the logic of the theory [GP05], it is not possible to assume the traditional understanding of the Politics/Administration relationship as a distinction of positions within government, represented by differentiating levels of hierarchy, command, and function [Wi87] [Ma85]. What can be stated from Luhmann's theory is that government (administration) may operate simultaneously in two levels. These planes are defined by the sense of their operations to realize the primary or the secondary political function. It depends on whether its operation remains only towards and involving itself, as organizational unit doing specific functions (internal differentiation), or towards the political environment and societal environment in general, then doing its societal function. This means that decisions should be differentiated, whether they are in the societal level or in the organization level, i.e., in order to distinguish between political power and organizational hierarchy.

2.4 Change, Technology, and Political Vertical Differentiation

In Luhmann's theory language is not enough to solve the contingency and the improbability to be accepted the communication. It is necessary a specific condensation of sense to obtain the acceptation and the continuity of communication: These are mediums of symbolic obtaining (MSO). Then, a MSO is a semantic societal institution that secure premises of Ego become premises for selections of Alter. MSO does not imply obedience, but attach a spectrum of sense and derivative the whole operative spectrum that conform a societal system. The limits of the operational spectrum are set by what is out of that sense, then by a binary code that define what is and what is not part of the sense spectrum [Lu10]. In political system, the MSO is power, and therefore the code is power/no-power. However, Luhmann proposes a new code for political system with democracy: government/opposition [Lu10]. It is clear that in a basal level power continue being the MSO and power/no-power the code, they mark the limits of the system outward. But inward, in the internal operation and political communication, is where government/opposition code, activating the political dynamic: the possibility of positional change in the code, either being government or being opposition. Change stay then in the base of the operation codes and we think and propose that it could become a new MSO or at least a new representation of power.

In contemporary society, the medium of obtaining can get specific symbolic forms, and not only semantic. In a society where most communication is mediated by

technology, IT innovation can represent a change to improve all society fields. We think that government can use IT innovation not only as a communication medium, but also as a MSO to construct and to inform the change; specifically the difference between a previous and a new government (governor). But the decision to use IT to inform the change is made by the societal level, while the organizational level, in this case the IT area, has to find ways to perform those decisions. In some e-government projects, there are important structural couplings between the IT area and the technological artifacts. In order to realize the primary and secondary functions of the political system, the societal and organizational systemic levels have to operate in a differentiated way, respecting each other's' operation and structures. In developing countries, although not only there, the needs of the societal level to construct the change can derive in a de-differentiation of the functions and dynamics of the organizational level, breaking structural couplings previously accomplished between the technology and the IT organization.

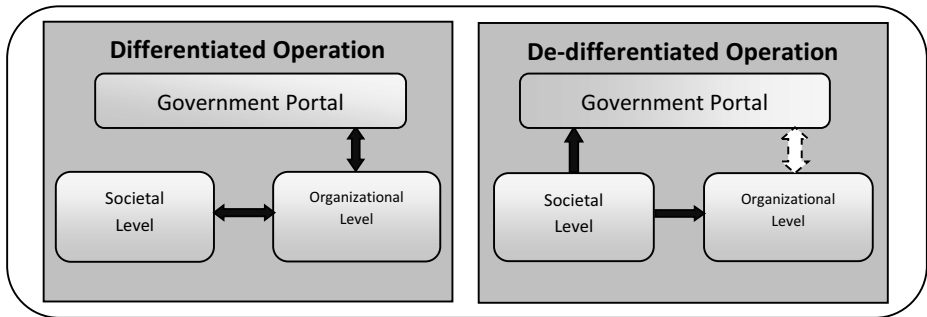


Figure 1. Two possible relations in e-government project: Differentiation and De-differentiation of systemic levels using the government portal.

3 Research Design and Methods

This case was developed as part of a research project entitled "Inter-Organizational Collaboration and Performance of State E-Government Portals in Mexico." The project uses multiple methods, but this paper reports on preliminary results from one of the case studies: the government portal of the state of Puebla. The particular objective of this case was to observe the relationships between the portal, the IT area, and some political actors during the process of governor's change of 2011. We conducted 11 semi-structured interviews with three kinds of individuals: (a) members of the IT area; (b) members of areas that have a sub-portal within the state portal; and (c) new governor's transition team members who developed the new portal project. The interviews were transcribed and analyzed, looking for three key themes: a) the formation of a stable process and links between the IT area, the portal, and the user areas; b) the aims and objectives behind the new portal project and the way that project was developed and implemented; and c) the results of the implementation of the new portal in the transition process. Official documents were also reviewed to complement the data from the interviews.

4 Preliminary Results

Before the governor change in Puebla, the IT area had been designed as a functionally differentiated organizational sub-system of the state government. It developed a self-referential and recursive operation in order to perform its specific organizational function fixed by the governor and other political actors (societal level). It achieved a successful operation performing structural couplings between three elements: the IT area, the Internet portal, and some of the portal user areas. One version of the portal was launched in 2009, moving it from eleventh to second place in a Mexican evaluation of state portals in 2010. For this, the IT area integrated many “best practices” from other national and international portals, a careful study of several international IT projects, and an evaluation of content management software. The process was developed in terms of its own structural terms and possibilities. The whole team of the IT area obtained a good specialization and training during the process, as well as the portal user areas. In this way, organizational areas and technology were clearly integrated to the daily operations of government, performing a horizontal integration at the level of organizational areas and a vertical functional integration. So, each systemic level did its own function: (1) the societal level establishes general objectives and general decisions towards society, and (2) the organizational level performs its specific assignments, within its own structural possibilities, in order to collaborate in the achievement of the general functions and programs. Therefore, the result was a high-performing government internet portal.

Between November and December of 2010, a transition team, which was not yet part of the government, was specifically appointed to develop a new government portal that could be launched by the first day in office of the new government. The plan was to use the portal as one of the first ways to communicate the government change. The change that they were seeking to construct implies also to identify the new government with modernity and technological sophistication. With these objectives in mind, the transition team worked in a project for a new state portal. But the diversity of the transition team members and the enormous amount of technical and organizational complexity did not allow the team to be successful. There was new technology that offered possibilities to generate a form of change based on technological innovation and the political actors tried to integrate all that complexity into the new project, with limited time and technical knowledge. As mentioned before, this is an example of how such actors influence both the societal systemic level and the organizational systemic level (central IT area), because the way the transition team was designing and implementing the new portal did not take into consideration the point of view or the real structure and capabilities of the IT organization.

The overall result of the project was a new portal that was unable to fully integrate the transition team design. In fact, the transition team did not know the IT architecture and infrastructure until one week before the first day of the new government. In addition, the limited changes accomplished clearly caused instability and problems for the IT organization to implement and manage the new portal. Once the new portal was operating, there were also some issues in the relationships among the IT organization, the new portal, and the user areas. Besides, with the government change came also many changes in terms of personnel within the IT area and the government in general. The IT

area had to resist the instability and the tension produced by these changes (which were producing de-differentiation), and restart the process of structural couplings with the technological artifact and with the user areas. This was a new co-shaping between organizational and technological aspects. This case is interesting because the sophistication of the technological artifact (Internet portal) did not allow a definitive de-differentiation produced by the societal level. The transition team was still able to change the portal, but the changes were limited by the structural couplings among the IT organization, the portal, and the user areas.

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