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# Consolidating Back Office with a Shared-Services Center: A Case Study From the Housing Facilities Sector in the Republic of North Macedonia

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ABSTRACT

**Purpose:** The paper points out a novel approach to e-Government back-office reengineering based on creating a Shared-Services Center at the sectorial level.

**Design/Methodology/Approach:** To prove the Shared-Services Center as a proper solution for e-Government back-office reengineering, the authors used the case study of the Housing Facilities Sector in the Republic of North Macedonia. The research process follows Kettingers et al.'s framework of IT-enabled change with a holistic data-driven approach.

**Findings:** The study indicates a complex information flow between stakeholders, an abundance of the same information and data collected from local stakeholders, and enormous citizen and institutional burden. The e-Government back-office reengineering solution for the specific case study based on creating a Shared-Services Center overcomes the problem of data redundancy, radically simplifies the information flow, and reduces citizen burden in line with the "Once-Only" principle.

**Practical Implications:** The paper shows that by observing the network of all relevant stakeholders at the sectorial level, based on the information flow of core data, back-office problems can be identified, whereby the Shared-Services Center proves itself as a suitable solution. It may be a prerequisite for further studies on back-office process reengineering at the sectorial level.

**Originality/Value:** Publications concerning back-office research at the sectorial level and, as in our case, within the House Facility Sector are almost non existing in scientific literature. Considering that there is a lack of analyses based on information flow and visualization of the information-flow network at the sectorial level (before and after the reforms), this paper will add original value to scientific literature.

*Keywords: e-government, back office, process reengineering, housing facilities sector, shared-service center, once-only principle*

## 1 Introduction

More than a quarter of a century, governments worldwide made severe attempts to become better governments by introducing Information and Communication Technologies (ICTs) in their work. ICTs have an important role - they serve as a tool for replacing the traditional with an electronic way of working. They are also a significant driving force towards providing new structural and process-oriented changes in governments' functioning, now widely known as e-Government.

All complex organisations, including governments, rely on interconnected networks (Panayiotou, et al., 2007, p. 217), and that is why they need to face significant front- and back-office reforms, which include not only transferring existing paper-based processes on an electronic platform but also reengineering the process that drives public administration in the process of service delivery. In the course of these reforms, ICTs are seen as "the hummer that breaks down the walls between government agencies involved in service delivery as a result of their interconnection" (Gauld, 2006, p. 37). So, the reforms should transform the traditional government and its "institution-centric" model into a "citizen-centric" model by interconnecting public institutions, which, in turn, leads to an increased level of effectiveness and efficiency of their functioning (Cshhabra and Kumar, 2009 p.1-16).

Over time, it was noticed that the reforms focused on redesigning the services of a single governmental institution, and the information delivery did not give the expected results and values. Thus, it became clear that reforms need to be carried out by integrating services across the different departments and governmental agencies (Pateli and Philippidou, 2011, p.128). This confirms Wimmer's conclusion (2002, p. 149) that in the process of e-Government implementation, customer-oriented services need cross-agency collaboration with information-flow network changes, interconnecting public authorities, and integrating functionality, data, and resources used by different authorities. This data-driven cooperation and integration necessitate reaching

agreements between different entities: two or more local public units (Bel and Warner, 2015, p.53), or agreements between a local government institution and its partnerships with federal or state governments (Silvestre et al., 2018, p.686); cooperative relationships between public sector entities including public-public partnerships among others (Agranoff, 2014, p.505; Bel et al., 2018, p.1). These findings confirm Layne and Lee's vision (2001, p.133) that vertical and horizontal integration of the back office is an enabler of the higher level of e-Government achievement and that in conducting reforms, it is necessary to observe public administration as a whole (Vintar et al., 2004).

Public administration transformation changes the provision of public services and leads to a change in the process landscape. Thus, today we are witnessing new models of public sector functioning that employ the new information systems, based on a business model, aimed at achieving a high level of efficiency and effectiveness. Thus, just like "the companies use business models in their efforts to offer superior services at lower costs" (Miskon et al. 2010, p.60), governments, too, should approach and explore business models as an innovative solution to achieve better efficiency and effectiveness as well as to increase consumer satisfaction. Business models are especially suitable for e-government since they contribute to the reengineering of the back office (Janssen et al., 2008; Modrzyéski, 2020; McIvor et al., 2011); some of them point to shared services as a suitable business model at different government' levels (Joha and Janssen, 2011; Cradle Coast Authority, 2017; Silvestre et al., 2019). A comprehensive overview of literature by Richter and Brὺhl (2016) points to different perspectives and functions of shared services, while Fielt et al. (2014) discuss the dual relevance to shared services: as a core function amenable to the shared services arrangement, and as a critical enabler of shared services across other functions, including data collection. Janssen (2005) explores an SSC in e-government by analyzing stakeholder issues in the research applied in a case study after SSC was implemented. In conclusion, he points out that such stakeholder analysis can be conducted before implementation.

However, the literature review points to a limited number of papers that observe and elaborate shared services or SSCs introduced in the domain of housing. Few papers focus on urban development, housing, sanitation for small local governments (Silvestre et al., 2019), property management and building supervision (Becker et al., 2009). These studies focus on local government and inter-municipal cooperation for local service delivery and agreements between two or more local public units or two and more public partners at different governmental levels (Silvestre et al., 2018). This indicates that there is a severe lack of research tackling housing facilities with a sectorial approach.

Additionally, what is worth mentioning is that many years after the advent of e-government, the administrative burden on citizens is still present. One-Stop-Shop and the principle of "one access point" proved to assist significantly in decreasing the citizens' burden. However, as it failed to give the expected results, the service delivery process still requires the active involvement of the citizen, and it is still very time-consuming. In order to avoid this inconven-

ience, the 'Once Only' Principle (OOP) is "high on the political agenda of many countries including the Member States of the European Union" (Wimmer et al., 2017, p.1). Hence, undoubtedly, the successful creation of e-Government solutions requires a holistic approach combined with methods for business-process analysis focused on back-office reengineering and on analysing its impact in terms of the "Once-Only" Principle.

This paper proposes a solution for back-office consolidation that will contribute to the realisation of the "Once Only" Principle at the sectoral level. It is a case study of the Housing Facilities Sector (HFS). The proposal involves creating a Shared-Service Center (SSC) for not core function – database for Housing Facilities (HF) and Housing Facility Owners (HFO) for the local institutions that belong to the HFS in the municipality of Bitola, Republic of North Macedonia (RNM). The outcome of this study is intended to serve as a guide for future research regarding the implementation of shared services at the sectoral level in data collection function for decreasing administrative and citizen burden in the service delivery process. This research article is structured as follows: Section 2 provides an overview of the literature, which deals with the core terms discussed in this paper: business models and shared services as a business model, an SSC in the public sector and the "Once Only" Principle. Next, the methodology applied in the research process and the results obtained are presented in Sections 3 and 4. Finally, section 5 discusses some critical insights gained from the case study analysis, focusing on the "Only Once" Principle. In contrast, Section 6 offers conclusions and some helpful remarks for future research.

## 2 An overview

This section discusses five main terms that are central to this research: domain of Housing Facilities Sector (HFS), business models; shared services (SS); a Shared-Services Centres (SSCs) and "Once Only" Principle (OOP).

### 2.1 Housing Facilities Sector

In the broadest sense, the concept of "housing" means dwellings provided for people (Merriam-Webster Dictionary), whether it is a house or some other kind of accommodation. This issue is related to specific legislation within each country, and each law provides an appropriate definition. As an example, the Housing Law of the Republic of Slovenia, Article 4 (Stanovanjski Zakon Republike Slovenije, 2003) defines housing as "a set of rooms intended for permanent residence which is a functional unit with one entrance, for housing or other purposes".

There is a pool of literature related to housing facilities: some papers present the results of research projects on housing operation and administration (Nielsen et al., 2012), others identify aspects of facility management services (Lai, 2011); but there are also analyses of the institutional framework of the housing sector of Serbia and Montenegro (UN, 2006, Country Profiles on the Housing Sector - Serbia and Montenegro).

## 2.2 Business Models

Business models present an interesting topic not only for practitioners but for theorists as well. As a result, there are many definitions offered and different business model taxonomies proposed (Joha and Janssen 2011, p. 27). For example, Timmers, in his book "Business models for electronic markets", in an attempt to create a business model typology, defines business models as "an architecture of the information, product, and financial flows that includes a description of the various business actors and their roles, and description of the potential benefits for the various business actors" (Timmers, 1998, p.2). More recently, business models are defined as "a platform which connects resources, processes and the supply of a service" (Nielsen and Lund, 2014, p.5).

Business models are used in the public sector too. Business models are appealing and valuable in the public sector (Janssen et al., 2008, p.202) and contribute to the creation of public values; and "contribute to balancing between improving citizen-centric service delivery and adapting and reengineering organisational practices" (Keen and Qureshi, 2006 in Joha and Janssen, 2011, p.27). In the public sector context, business models are defined as "a collection of organisational roles, a system of functionalities, detailed description of a mechanism, and relationships among parties" (Janssen et al., 2008, p.204-205). A business model "contains information about the strategy of the public sector organisation, the production factors, and the functions of the actors involved ... thus, the business model approach can be considered as a public management instrument that supports the systematic creation of better, superior service offerings and provides public services for society with a higher value for the public, supporting the public sector's service remit." (Wirtz and Daiser, 2015, p.88).

## 2.3 Shared Services

Shared services (SS) are one aspect of business models. According to Schulman et al. shared services present a "tactical technique" (Schulman et al., 1999, p. xv) used by large organisation in the direction of "the concentration of company resources performing like activities, typically spread across the organisation, in order to service multiple internal partners at lower cost and with higher service levels, with the common goal of delighting external customers and enhancing corporate value" (Schulman et al., 1999, p.9). Singh and Craike (2008, p.228) describe SS as "concentration and centralisation of all transaction-based services and appropriate knowledge-based functions with the intention of delivering these services in an economical and high-quality manner to both internal and external customers..." and as "models that are focused on transaction-based non-core administrative and back-room services". Bangemann (2005, p.13) notes that SS are considered an element of the company's strategy that understands "organisational restructuring; a best-practice route; a process reengineering exercise; a technology optimisation project with organization and process alignment".

SS is not new in the public sector as a business model, are mostly connected with back-office functions (The Gershon Review, 2003-2004, 'Shared Service and Management – A Guide for councils'). The main points all researchers bring forward about SS is that they contribute to increased savings as well as greater effectiveness and efficiency: "the government believes SS will save the Public Sector 20% or more of their back-office costs" (Change Associates, p.2). Other authors define SS as a collection of intra-organizational and inter-organisational business models (Janssen and Joha, 2006, Joha and Janssen, 2011, Fielt et al., 2014); most appropriate for supporting functions widely adopted in Human Resource Management, Finance, and Accounting; and, more recently, in the creation of the Information Systems and their operations, which is seen as an important enabler and driver of shared services in all functional areas (Miskon et al. 2010, p.373). In the context of the public sector and the rapid evolution of ICTs, Dawes and Pre'fontaine note that new and important opportunities have been created for governments to redesign their services through collaboration – a voluntary agreement between two or more public sector agencies for government service delivery (Dawes and Pre'fontaine, 2003, p.40). The report "The future of Shared Services in the Public Sector" (Change Associates, p.2) points to that the objective of shared service introduction is often "to drive efficiency across the organisation by reducing the downtime in departments where work is replicated, and by increasing efficiency by simplifying, standardising and centralising processes using a range of IT solutions" (Change Associates, p.2).

## 2.4 Shared-Services Center

One organisational form of shared services is forming a business unit – a Shared-Services Center (SSC), which is directed at better using the internal resources by eliminating their duplication in decentralised units. Bergeron (2003, p.4) define SSCs as "a shared semi-autonomous business unit within a wide range of possible architectures in that the reporting structure necessarily breaks from the traditional corporate hierarchy"; Grant et al. (2007) notice that SSCs have been seen as a suitable solution for public sector's organisational performance and fast and cheap solution for e-Government implementation; while according to Cradle Coast Authority of Australia (2017), SSCs often means for reshaping existing procedures related to service delivery by using ICTs (Final Report of Share Service Project, 2017). Wang and Wang (2007) analyse two aspects of SSCs: (1) the configuration of SSCs as shared service collaborative network and (2) the configuration of SSCs as a centre that represents the centralised organisational format (certain functions are concentrated into one single place and provided to several other administrative units). Joha and Janssen (2011, p.26), based on the analysis of many definitions of SSCs in literature, claim that Shared-Service Centers (SSCs) can be viewed as "a particular type of sourcing arrangement, where resources and services are retained in-house". SSCs help improves productivity by affording organisations more time and workforce, but they can also catalyse overall changes in the business processes. Moving services to a central location can

help remove old, outdated, bureaucratic processes and introduce the new technology into the public sector offices and, thus, avoid duplication and inefficiency in the existing public administration procedures related to service delivery. Schulz and Brenner (2010, p.210) rightfully note that "there is no unique perception of the term SSC in literature, and in practice. Thus, for this paper, SSC stands for "a partly autonomous business unit that operates consolidated support activities and provides services to internal clients" (Bergeron, 2003; Schulz amd Brenner, 2010); a semi-unit as intra-organizational part for local-level institutions whose function is data collection, storage, manipulating and sharing data with stakeholders.

### 2.5 The "Once Only" Principle

One of the seven initiatives noted to be launched as part of EU e-Government Action Plan 2016-2020 - Accelerating the digital transformation of government (EU Commission, 2016) is the "Once Only" Principle.

The "Once Only" Principle (OOP) is "closely related to interoperability, enterprise architectures, organisational reform and privacy and data protection amongst many more" (Wimmer et al., 2017). The OOP suggests that citizens and businesses should have the right to supply information only once to a public administration. Public administration offices should be permitted to re-use this data internally, duly respecting all data protection rules. This principle implies that information needs to be provided to a public administration once, and public administrations have to receive and validate it (EU Commission, 2016).

From the public administration's point of view, the need for the OOP implementation stems from the assumption that "collecting information is more expensive and burdensome than sharing already collected information" (Wimmer et al., 2017). However, from the citizens' perspective, introducing this principle reduces the burden on them as far as submitting identical data in different administrative procedures is concerned.

## 3 Methodology

The methodology used in this paper can be described as qualitative, in-depth, and explorative with descriptive nature. The undertaken research represents a case study (Yin, 2003) – a predominant method to explore and describe phenomena of SSCs (Richter and Brühl, 2016, p.7) and the most common qualitative method used in information systems (IS) (Orlikowski and Baroudi, 1991) since the object of the discipline is the study of IS in organisations given organisational issues. The qualitative approach was chosen because of the complex nature of SS arrangements in the public sector (Janssen et al., 2007, p.274). The research process is based on Kettingers et al.'s (1997) framework of IT-enabled change. For this research, two instruments for data collection were employed: on desk document-content analysis and interview (semi-structured and structured). The different phases of the research process lasted from 2018 to 2020.

In the beginning, on-desk content analysis with a focus on documentation was carried out. The scope of this analysis encompassed the legislative (the laws and administrative procedures) related to the HFS. The next phase of the research process was ethnography. Ethnography as a method was used for collecting information related to the work of the Housing Inspector that was located as a central stakeholder in the HFS. The ethnographic statements addressed in detail the problems present in the HFS from a practical point of view. In the ninety-minute process of procuring the ethnographic statements, a semi-structured interview was used as a guideline. At the next phase of the research process, the interviews were conducted in all organisations (institutions in the public sector and companies in the business sector) identified as possible stakeholders in the HFS. The total number of the interviewed informants was 24. However, only 20 were included in the analysis as it was realised that 4 of the interviewed organisations did not match the profile of stakeholders suitable for this study. The interviewed informants were executive officers (10) and directors (14) of the selected institutions. The thirty-minute, structured interviews incorporated questions touching on issues related to the interviewees' perceptions of their organisation's performance, the types of HF-related data they process, their interaction with the other stakeholders and citizens, and the necessity of changes in the HFS business process by introducing ICTs. The synthesis method was employed at the end. Based on the results obtained from the interviews and the ethnographic statement and analysis of the results, a visual presentation of the information flow between the stakeholders was created. The visual presentation of the whole sector was very complex, so we needed to create a narrow version that resulted in following the few attributes. In this way, we select a group of few stakeholders that later on, based on the SSC characteristics, we used it as possible shareholders of proposed SSC in HFS.

Given the existing pool of methodological approaches, technics and tools, viewed from a diverse perspective such as:

opportunities, modelling tools, system and information engineering, constraints, and new process design, reviewed by Müler et al. (2012); publication perspective, research perspective, conceptual perspective, analyzing units and modes of organisational change (vom Brocke et al., 2021); as well as contextual conditions, mechanisms, and outcomes (Hanelt et al., 2021); we recognized that there is an abundance of positions and approaches to this kind of this research. We followed the established principles of Kettinger et al.'s framework to outline our research steps at fit for our approach and domain.

Kettinger et al.'s framework of IT-enabled change (Kettinger et al., 1997) was the general research method employed in all research processes, but only the first four phases (Envision, Initiate, Diagnose and Redesign); there was no possibility for the realisation of the last two phases (Reconstruction and Evaluation). So, we adapted its research steps (Kettinger et al., 1997, p.59), as presented in Table 1.

Table 1: Outline of Research Steps

| | Research Step | Exhibits | Activities | Kettinger et al.'s phases |
|---|---|---|---|---|
| Step 1 | Literature review of SS and SSC in back-office reengineering, and OOP and HFS | An Overview (see Part 2) and methodology (see Part 3, Figure 1) | Theoretical background and detailed description of the research methodology | Envision |
| Step 2 | Collect information from key-person about HFS | Research results (Part 4, see the Second phase) | Create two lists: one for possible stakeholders and second for data and information at HFS | Initiate |
| Step 3 | Conduct semi-structured onsite interviews with executive officers and directors from the listed stakeholders | Research results (Part 4, see Table 2 and Table 3, column III) | Detail description of the results | |
| Step 4 | Establish research databases for subsequent analysis. | Research results (see Table 3) | Categorisation of stakeholders and its matching with data and information | Diagnose |
| Step 5 | Analyse information flow | Research results (Part 4, see Table 3, column Iv to IX) | Mapping of narrow stakeholders group of HFS according to three attributes | |
| Step 6 | Applying mapping techniques | Discussion (Part 5, see Figure 2) | Visualisation of HFS – the current (narrow) situation with selected stakeholders by specific attributes | |
| Step 7 | Apply BPR with SSC as a future solution based on literature review | Discussion (Part 5, see Figure 3) | Visualisation of future-proposed solution of HFS with SSC | Redesign |

Source: The Authors (adapted according to Kettinger et al., 1997)

Besides the Kettinger et al.'s framework (1997) related to IT-enabled change, following the phases in our research with the adaptation of the same steps point out the opportunity to be used in other kinds of research.

## 4 Research results

This section discusses the research results, obtained in the different research phases, as follows:

The first phase of the research was doing an on-desk content analysis of the laws and the administrative procedures related to the HFS. The outcome of this analysis was an overview of the sector: the scope, the definition of the term HF, data and information flow management. The findings from this phase were as follows:

– The HFS in the RNM mainly is regulated by the Law of Housing of RNM (2009) and several rulebooks. The law regulates issues such as the different types of residential buildings, the management of residential buildings, the relations between the owners of separate parts and third parties, the community of owners, the records of apartments, the rental relations in housing, buildings management and maintenance; municipalities' rights and obligations towards the state in the housing sector; inspection and administrative supervision and other issues in the housing sector. HFO has

the obligations: to take care of the HF; to take care of the common parts of the building (by forming an Association of Owners or appointing a Manager from the owners), as well as to pay taxes and to pay for the services related to the HF delivered by the state institution or other companies;

- The scope of the HFS is quite comprehensive and covers: public institutions at all government levels as well as companies that are directly or indirectly connect with HF (e.g. delivering services for HF or applying for information of HF);
- The central level institution in the HFS is involved in creating policy or making some evidence for HF, while the local level institutions in the HFS are involved primarily in delivering services for HF, law enforcement, or some kind of evidence for HF;
- No document presents the organisational chart of HFS with those previously mentioned institutions;
- The evidence for HF, according to the same law, is entrusted to the municipalities, i.e. the local government;
- The law stipulates paperwork, without compulsory electronic interconnection among the public institutions;
- Back-office reengineering of the process is not present - there exists no integrated back office at sectoral level; the separate back offices at each institution work traditionally with their databases;
- All public institutions have websites that are updated regularly.

During the research process, due to a thorough of the documents and its deep analysis, we located a stakeholder that, given its function and information flow, can be a central person in the HFS research regarding its function and information flow – the Housing Inspector.

The *second phase* of the research was ethnography, i.e. taking ethnology statements from the Housing Inspector as a starting point for researching the HFS and the information flow related to HF and HFO. The second phase of the research yielded the following results:

- Mapping of all possible data and information related to HF that circulate in the HFS (see Table 2);
- Mapping of all possible stakeholders (public, private, public-private-partnership) in the HFS (see Table 3);
- Mapping the information and data flow from stakeholders' perspective (see the last columns of Table 3).

Table 2. Data and Information on the HF in the HFS

| No | Category | No | Subcategory | Data and Information |
|---|---|---|---|---|
| I | II | III | IV | V |
| 1 | Data on the HF itself (12) | 1.1 | Primary data (7) | Address; Year of building the object of housing/ construction; Year of reconstruction, Materials used in building the housing facility; Square footage; Type of HF: building (which floor), detached object/house (number of floors). |
| | | 1.2 | Additional data (5) | Plugs; Energy efficiency; Project for seismic stability; Access for people with disabilities; Elevator. |
| 2 | Data on the HF Owner (6) | 2.1 | Ownership (4) | The number of owners; Personal data of all of them (name(s), address, ID number); Certified power of attorney; Proxy data (if available). |
| | | 2.2 | Tenant (2) | Renting contract |
| 3 | Data on the HF Management (4) | 3.1 | Owners' community (2) | Statute of this authority; Name of the president of owners' community. |
| | | 3.2 | Legal entity (2) | Registration (data related to the company); Hiring contract. |

Source: The Authors

The analysis of the collected data and information that circulate in the HFS resulted in:

- Locating a total of 22 different types of data and information that stakeholders use for different purposes;
- Categorisation of the 22 relevant HFS-related data in the following three main categories (presented in Table 2): within column I, there are three categories – marked as 1, 2, and 3; within Column II these three categories are named (e.g., Data on the HF itself (1)). Each category consists of two subcategories (within Column III, they are marked with numbers, and within Column IV, they are given a title): 1.1 Primary data that relate to data on the HF itself, and 1.2 Additional data as subcategories for Data on the HF itself as category 1. The full description of the data and information on HF is given in Column V of Table 1. Please note that in the research process, personal data, such as name, surname, address, and ID number related to the owner/proxy/tenant of the house facilities, were treated as a single set of data or information in order to simplify their visual representation;
- Quantification of the different categories of data is marked with numbers in brackets given next to each category and subcategory (e.g. Primary data (7) + Additional data (5) = Data on the HF itself (12)). Thus, the sum of the three categories (Data on the HF itself (12) + Data on the HF owner (6) + Data on the HF management (4)) gives the total number of data and information that circulate in the entire HFS, which is 22.

Table 3 depicts the results obtained from the mapping of all possible stakeholders in the HFS. This table presents two essential points. First, it gives the structure of the stakeholders involved in the HFS (Column I) according to the sector they belong to the public, public-private-partnership (PPP) business, and it also gives the hierarchy levels of these stakeholders in the public sector: central, regional or local level (Column II); and the full name of the stakeholder (Column III). Second, it gives information about the data- and information

flow from the stakeholders' perspective (Column IV to IX) as presented in the legend of Table 3, according to the single subcategory of data and information in the HFS that was given in Table 2, using its numeral presentation of the subcategories (e.g., 1.1 for Primary data of the category 1 – Data on the HF itself, etc.)

Table 3: Housing Facilities Sectors' Stakeholders

| Stakeholders | | | Subcategories of data and information in HFS | | | | | |
|---|---|---|---|---|---|---|---|---|
| Type | Level | Title | 1.1 | 1.2 | 2.1 | 2.2 | 3.1 | 3.2 |
| I | II | III | IV | V | VI | VII | VIII | IX |
| PUBLIC | LOCAL | Municipality | C | C | C | C | | |
| | | Register of Managers of Housing Facilities | C | | C | | | |
| | | Register of Housing Facilities | A | A | A | A | A | A |
| | | Housing Inspector | C | | C | | C | C |
| | | Public Institution for Sewage System | A | | A | | | |
| | | Public Institution for Waste Utility | A | | A | | | |
| | | Public Institution for Water Utility | A | | A | | | |
| | REGIONAL | Basic Court | C | | C | | | |
| | | Center for Social Affairs | C | | C | | | |
| | | Public Revenue Office | C | | | | | |
| | CENTRAL | Agency of Real Estate Cadaster of RNM | C | | C | | | |
| | | Public Institution for Managing Residential and Business Premises of RNM | B | | B | | | |
| | | Central Register of RNM | | | | | D | D |
| | | State Statistic Office of RNM | | | B | | | |
| | | Ministry of Transport and Communication of NRM | B | | B | | | |
| | | Ministry of Economy of RNM | | | B | | | |
| PPP | | Electrical power ASM of RNM | A | | A | | A | |
| BUSINESS | | Companies | C | | C | | | |
| | | Notary | C | | C | | | |
| | | Law office | C | | C | | | |

Legend:

A – Collection and storage data and information for its service delivery; B – Dealing with demands for creating reports needed for decision/policy making or statistical analysis; C – Dealing with demands for different processes related to stakeholders' work; and D – Supplying data and information.

Source: The Authors

In Table 3, by matching each stakeholder horizontally with some of the Columns from IV to IX, one obtains information about the status of data- and information flow from the stakeholders' point of view: it collects and stores data and information for its service delivery (e.g., Public Institution for Water Utility collects and stores data and information about the HF owners and the HF itself in order to generate water bills); it demands data and information for creating reports needed for decision/policy making or statistical analysis (e.g., Ministry of Transport and Communication of RNM needs data and information about HFs for creating reports about the status of energy efficiency). Its purpose is to reach decisions that are then forwarded to the government, which is expected to endorse subsidies for the reconstruction costs of certain housing facilities by installing materials to increase energy efficiency - installation of insulation). Another example of the usage of these reports would be the demand for data and information for different processes related to stakeholders' work (e.g., Law offices need information about the HF for litiga-

tion); or D - Supplying data and information (e.g., The Central Register of RNM supplies information about the registration of legal entities that operate in the area of the HF management).

Additionally, the analysis yielded some further findings related to the matching of the stakeholders with the data and information in the HFS, which are not presented in Table 3:

- Local government institutions function as separate islands without mutual information flow; the HFO supplies institutions with documents for HF, the administrative procedures are lengthy, time-consuming, and sometimes endless; there still exists a traditional, institution-based manner of functioning without electronic integration of data and information;
- Central government institutions and the business sector companies only demand information about the HF from the institutions at the local government for their purposes, sometimes, in the form of row data and information, and, at other times, in the form of reports, valid for the process of decision- or policy-making; and
- HFO must supply local institutions with different kinds of data and information;
- The empirical research points to the fact that 92% of the stakeholders in the HFS need the data under 1.1 and 2.1 in Table 2. This group of stakeholders includes the Register of Housing Facilities, Public Institution for Sewage System, Public Institution for Waste Utility, Public Institution for Water Utility, Electrical power ASM of RNM (in Table 3, they are marked with 'A' in the column from IV to IX).

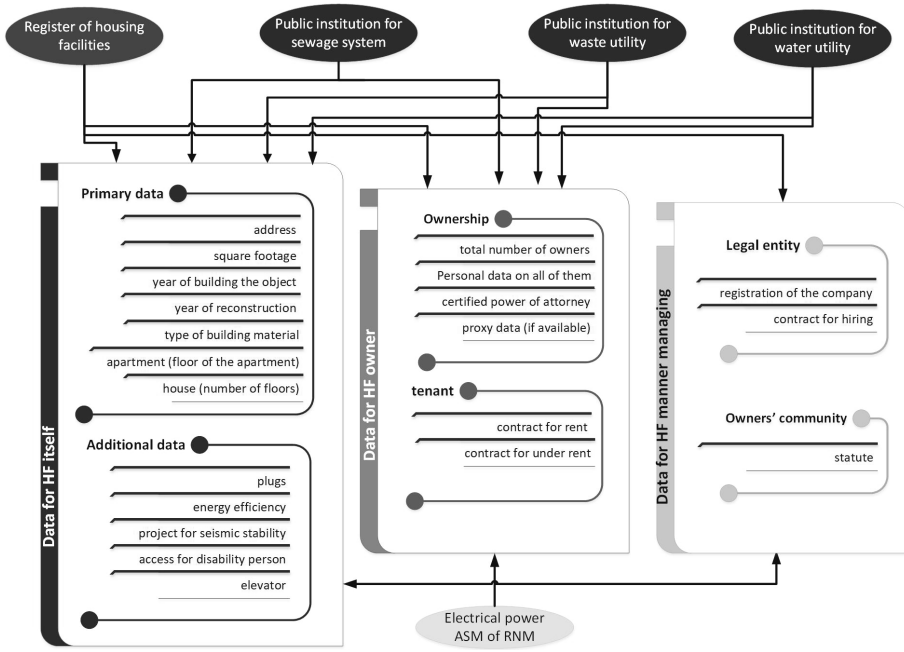
## 5 Discussion

We support the discussion of the research findings with a visual presentation given in two figures (Figure 2 – current situation – a narrow version with selected stakeholders; and Figure 3 – the proposed solution with SSC implementation) related to the HFS. In analysing the research findings, we follow Field et al.'s (2014) analytical framework of exploring the concept of SS to prove that the SS and especially SSC are relevant for the consolidation of the HFS's back office.

The current situation at HFS presented in Figure 1 is the narrow version of the HFS; the whole picture of HFS was very complex. To solve the problem with visual presentation of the stakeholders and its information flow related to data and information for HF and HFO, we decided to make a selection according to few attributes based on the analysis of the information given in Table 1 and the separate interviews with each stakeholder. So, as attributes that we took as a filter for stakeholder's selection are: (1) the stakeholder deal with collecting and storage of information and data for HF and HFO; (2) the stakeholder belongs to the sector because delivery services to the owners of HF; and (3) the institution belongs at the same governmental level. Follow those

attributes and the analysis of Table 3 (matching the stakeholders with data and information according to the given legend - marked with 'A'). We extract five stakeholders: four local level institutions (Public Institution for Sewage System, Public Institution for Waste Utility, Public Institution for Water Utility and Register of Housing Facilities) and one public-private-partnership institution (Electrical power ASM of RNM). All those stakeholders collect, store and operate with almost the same data and information related to HF, HFO, and HF management, for service delivery and belong to the same government level – the local one. The visual presentation of those stakeholders is present in Figure 1; it depicts the present situation in the HFS at the local government level, the narrow one.

**Figure 1. The current situation in the HFS at the local level with some specific stakeholders**




Source: The authors

In Figure 1, the oval form of the figure is used for the stakeholders: the dark ones represent the local public institutions, and the brighter one represents the public-private-partnership institutions. The square form is used for the categories of data and information related to the HF and the HFO and the HF management; each of those squares (inside) consists of two subcategories presented previously in Table 2, marked as 1.1, 1.2, etc. The lines give information about the kind of data and information each stakeholder needs, collects, stores, and operates on.

The visual presentation in Figure 1 triggered us to start with planning the possible solution for the given current situation. Having in mind that all selected

stakeholders deal with the same (or almost the same) data and information for HF and HFO (duplicate); and each of them does it separately, in their database (costly), to charge for the service delivery (it is not the core activity of the stakeholder), we come up with the idea for creating SSC at the local level, as all of the separated stakeholders belong to the local level government.

The results from the analysis of Figure 1 match with Field et al.'s (2014) analytical framework and are presented in Table 4.

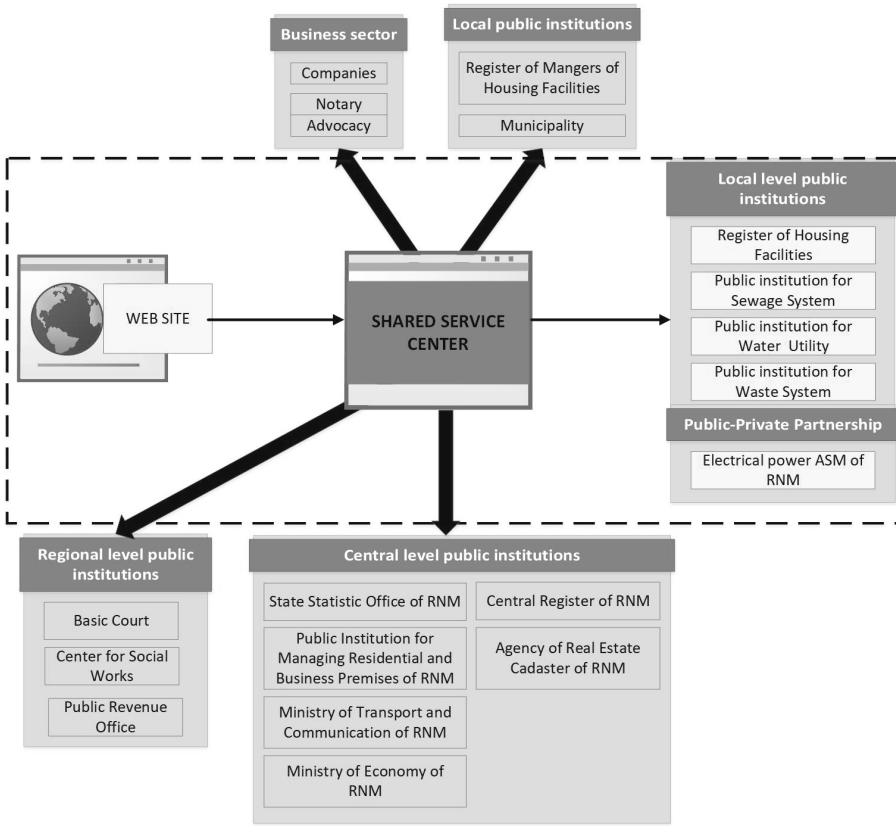
Table 4: Results according to Field et al.'s (2014) analytical framework

| Question | Answer |
|---|---|
| ***Who*** | Five local level institutions (stakeholders) with core function - service delivery in HFS |
| ***Why*** | Locate duplication in the database of the HF and the HFO – administrative burden, needs for avoiding it. |
| ***What*** | Find out that duplication is not in the function that is a core activity for none of the shareholders. |
| ***How*** | By establishing new, electronic, well connected IS between the shareholders. |

Source: The Authors

These findings confirm our idea for back-office consolidation of the HFS by introducing shared services. Furthermore, considering that there still exists a vast citizen and administrative burden, we propose this reengineering process to connect with one access point at the front office. Hence, this instigated us to go deeper to find a solution and propose a Share Service Center as a semi-unit with its access point that will be a solid foundation for achieving the "Once Only" Principle. Based on these findings and conclusions, we tried to anticipate a visual presentation of our proposed solution, given in Figure 2.

Figure 2. Back-office reengineering solution for the HFS by establishing an SSC




Source: The Authors

Figure 2 gives the possible future outlook of the back-office consolidation at the HFS after implementing the SSC. As presented in Figure 2, the SSC presents a new entity whose scope of operation is marked by dashed lines. It encompasses the SSC's website as front office and its shareholders: four local level public institutions and one public-private-partnership institution. From the visual presentation, it is evident that the role of the SSC will be to collect data and information about HF and HFO from the owners and store them. Upon demand, the SSC will generate different kinds of reports and analyses. The information flow from the SSC to the stakeholders or shareholders is presented using different lines in Figure 2 above. The thin lines present unprocessed information and data about the HF that the SSC will obtain from the owners and immediately disperse them the involved stakeholders as row data;

In contrast, the bold lines present the information flow that the SSC will deliver to those stakeholders that have requested specific analyses or reports. In Figure 3, all stakeholders encompassed by the HFS are grouped according to the sector they belong to (public, private, or public-private partnership) and their level in the public sector (central, regional or local). The set of five

stakeholders (presented in Figure 2) that will be shareholders in the SSC are grouped in one square, together, on the right-hand side of the SSC, as part of the figure marked with dashed lines.

The list of expectations that are very likely to be achieved by this back-office reengineering based on literature (Wang and Wang, 2007) are given in Table 5.

Table 5. The achievements expected from introducing the SSC in the HFS

| To whom | What | How |
|---|---|---|
| Institutions as shareholders | Improved productivity | - the back-office integration of activities will create more time, workforce and room for the shareholders to focus on their core business of service delivery |
| | Cost-savings | - the centralisation of data and information collection will eradicate the issue with the unnecessary duplication of data and information, i.e. "collecting information is more expensive and burdensome than sharing already collected information" Krimmer et al., 2017) |
| | Increased accessibility | - data and information will be available and valuable also for new users (e.g., Fire Protection Service)<br>- a possibility for automatic updating of HF' data and information; and<br>- automatic generation of new reports. |
| Citizens as stakeholders | One access point | - as a semi-unit, the SSC offers a web page where the citizens will share data and information, instead of visiting all institutions - shareholders in the SSC; |
| | Increasing consumer satisfaction | - the citizens' burden will decrease as a result of sharing data online,<br>- simultaneously up-dates will be available, and<br>- mistakes will be avoided. |
| | The "Once Only" Principle | - One access point for online sharing data and information |

Source: The Authors

Kettinger et al.'s framework of IT-enabled change (1997), i.e. its research steps was the general research method employed in all research processes, but only its first four phases: (1) the Envision phase – visualisation of the SS, SSC and HFS was achieved; (2) the Initiate phase – the stakeholders and data used in the HFS were mapped; (3) the Diagnose phase - the ratio of institutions, the information flow, and the actual problem of duplication of data-related processes were detected; and (4) the Redesign phase – a Shared Services Center was offered as a possible solution for back-office reengineering at the local level.

## 6 Conclusion

This paper discusses the idea of adaptation of an SSC in a specific segment of the Macedonian public administration – the HFS, to consolidate the back-office at the local level and open possibilities for achieving the "Once Only" Principle. Based on the literature review (Wang and Wang, 2007, Richtel and Brühl, 2016) and the findings regarding SSC's characteristics given by Schulz and Brenner (2010) and Becker et al. (2009), we find out that the SSC can be one of the most appropriate solutions for consolidating back office of the HFS in Macedonia. However, the importance of this paper comes from the idea to implement many of the pointing that some authors note in their papers: our research is ex-ante (before implementation) the fact the Janssen (2005) men-

tion as further research is related to shared services as ICT solution for data collection that is the function that needs to be shared (Fielt et al., 2014), it is the back-office solution at one government level but with implication at all government levels (Joha and Janssen, 2011) and it point out (without validation) that this business model application at public sector contributes for back-office reengineering (Janssen et al., 2008; Modrzyéski, 2020; McIvor et al., 2011).

The study has a few limitations: it focuses on one particular sector (Housing Facilities Sector), and it focuses on the information flow of row data and information related only to HF and HFO, i.e. the information flow between the stakeholders in the form of reports and analyses is not part of this research, so the generalisation of the results in our research is limited. Also, this research used only the first four (out of six phases) proposed in Kettinger et al.'s framework due to the lack of resources and time. Also, this research made use of Kettinger et al.'s established framework instead of some recent ones. Thus, for further research, we recommend an empirical validation of the SSC in the HFS.

This paper aims to offer a proposal for a new approach that can be used in the process of structural and process-oriented change of public administration by creating ICT solutions for achieving citizen-oriented e-government in the field of the HFS, as well as it will be a step forward in promoting SS and SSC for e-government back-office development at a sectoral level in general. Also, we expect that the findings presented in this paper will instigate further debates regarding the existing law regulations in the Republic of North Macedonia and help decision-makers in the process of finding more suitable solutions for this sector.

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