

# ORGANIZATIONAL TRANSFORMATION IN SUBNATIONAL GOVERNMENTS: SELECTED TECHNICAL EVIDENCE ON THE EXISTENCE OF LEARNING



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## ABSTRACT

This paper addresses the concept of learning organization in public sector from the technical perspective. The „learning curve“ of 10 Slovenian cities during the crisis period 2009-12 is investigated, where the focus is on outcomes and not on the processes of learning. In essence, the working concept of dynamic performance monitoring is utilized. The empirical evidence suggests that productivity of 10 Slovenian cities decreased on average during the crisis period 2009-2012, however this decrease was particularly intensive in 2010, whereas in 2011-2012 period productivity started to consolidate. The main contributor to this was technology, represented by innovation and adoption of new operating techniques and procedures. Paper addresses the concept of learning organization from the technical perspective. When the technical perspective is expanded to the social perspective, the results might suggest that innovations come in the form of the utilization of new modes of subnational government service provision.

## KEY WORDS

learning organization, productivity, technical perspective

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## INTRODUCTION

Learning organization concept was developed in 1970's, but it became popular during the 1990's with the influential work of Senge (1990). Throughout last quarter of century, the learning organization has been increasingly addressed in literature, and even researchers are increasingly interested into this concept. Several reasons exist for that, as for example increasingly changing and dynamic external environment and increasing necessity to innovate. As the basic definition of learning organization suggests, those organizations are places where people continuously expand capacities to create desired results and new patterns of thinking are emerged and implemented (Senge, 1990). In essence, this means that learning organization fosters innovations, and innovations enable adaptation to changing environments, which contributes to better performance (Shipton et al., 2013). This empirical paper examines „learning“ of Slovenian cities during the fiscal stress, and the focus is given on performance monitoring. Consequently, the research problem

is related to addressing the technical aspect of learning organization concept.

## 1. LITERATURE REVIEW

Learning organization is one of the phases in a new organization design paradigm. The first successive phase involves total quality organization, the second learning organization and the third successive phase is world-class organization (Hodgetts et al., 1994). Basic differences among those phases are that learning organizations, in contrast to total quality organizations, possess double-loop learning feedback that provides capability of the organization to anticipate change, whereas world-class organizations tend to be recognized by their peers as the very best in their class and/or in some aspect of activity. Nevertheless, all those concepts or phases develop on the total quality management and systems thinking, where focus is given on the

interrelationship between inputs (root causes) and outputs (effects), which facilitates managers that they address not just the symptoms but also the real causes of problems. This facilitates the importance of feedback mechanisms in organizations, and furthermore, the long-term orientation of organizations.

The above stated elaboration provides the idea that two types of learning exist in an organization: single-loop (adaptive) learning is learning that happens when a problem is detected and corrective action is delivered without any other changes; double-loop (generative) learning is learning that also includes changes in organizational policies, norms etc. The evidence shows that most organizations have a tendency to the utilization of the first type of learning (Avci, 2014). The concept of learning organization is based on the organizational culture that means increased ability of learning, adaptation and change, which include new values, training, policies, structures and system of organization that support and promote the learning of all members in organization (Bennett, O'Brine, 1994; Daft, 1997). Basically, Ortenblad (2004) provided the framework of learning organizations, which includes four aspects, that learning organizations should achieve: learning at work, organizational learning, developing a learning climate, and creating learning structures.

Learning organization concept is heavily based on the total quality management (TQM) principles. Evidence shows that quality management has been widely used in private as well as in public sector organizations, although the consensus exists that TQM is not suitable for general adaptation to the public sector and challenges are widely discussed in the existing literature (see, for example, Swiss, 1992; Stringham, 2004). Those challenges involve the necessity to substantially modify the orthodox TQM to fit the public sector's unique characteristics, which involve orientation on services; multi-dimensional customers; specific emphasis on results and omitted top-management functions. However, those authors tend to admit that a limited application of certain elements of TQM is warranted in the public sector, and those elements include client feedback evaluation, performance monitoring, continuous improvement and employee participation. It is also worth noting that the definition of learning organization possesses some challenges itself. Not just that it correlates, at least in terms of semantic if not otherwise, very similar concept of organizational learning, but learning organization concept involves two variants, technical and social one. The first one looks at organizational learning curve (costs-output relations), and focus on outcomes is preferred,

whereas the social variant focuses on discussing process orientation in organizations (see Smith, 2001).

## 2. RESEARCH METHODS

On the basis of above stated elaborations, this methodological paper examines double-loop learning feedback of selected public sector entities when facing fiscally challenging environment and the focus is given on performance monitoring. Some authors (for example, Stringham, 2004) even argue that performance monitoring becomes even more important in times of crisis, as it becomes crucial to be able to determine which entities (or programs) are working well and which not. Moreover, increased competition as well as crisis challenges usually increases the utilization of business-managed style and customer-oriented principles in organizations (Hsao, 2011) – in the public sector this effectively means that management-based reforms are further accelerated. The existing evidence on cutback management practices in the public sector may support the idea that concepts like efficiency assurance are on the rise again, and those concepts belong to the once very influential New Public Management ideology (Pevcin, 2014).

Unlike the majority of existing literature, which prefers to address the concept of learning organization from the social aspect (see, for example, Shipton et al., 2013; Fard et al., 2009), this paper addresses the technical aspect of learning organization concept, so the „learning curve” in selected public entities is investigated during the crisis period. This means that the focus is on outcomes and not on the processes of learning, and the working concept of dynamic performance monitoring, which is suitable also for public organizations, is utilized.

Performance monitoring includes monitoring of efficiency, effectiveness and productivity of organizations. Out of that, in relation to learning curve investigation, productivity seems to be particularly suitable indicator to monitor. It is expected that learning organization practices increase performance. Productivity changes can be divided into technological and technical changes, where both improvements directly address organizational changes that contributed to productivity growth, and might therefore be the direct consequence of learning organization practices.

This empirical paper would like to assess productivity levels and productivity change for 10 Slovenian cities for the 2009-2012 time period. The purpose of this research is to gain the insight if we can find the „evidence of learning” among

Slovenian cities, and the selection of time period under consideration directly corresponds to extremely severe conditions and changes in the external environment due to the emerging fiscal crisis. Empirical estimation is based on the input-orientated Malmquist Productivity Index approach. This methodology is suitable for estimating productivity change, and this change can be decomposed into technological change and technical efficiency change. The second one indicates that observed units are catching up with the frontier, whereas the first one indicates that frontier is shifting upwards over time (Barros, 2006).

The inclusion of input and output variables in the analysis is based on the combination of literature review as well as on the legal provisions that determine specific tasks of cities under consideration. Since we are interested in determining costs-output relations, total current expenditures of cities are taken as proxy for operational costs (all values are transformed to initial 2009 level with GDP deflator), and output bundle is represented by following variables: the total city population, the number of children attending public kindergartens, the number of pupils in public primary schools, the number of population over 65 years; the number of construction permits issued by the city, and the amount of waste collected by public waste collectors. This output bundle roughly represents the most important responsibilities of cities under consideration with respect to the social, educational, planning and infrastructure services they need to provide for their residents. A specialist DEAP program version 2.1, developed by Coelli (1996), is used to estimate total factor productivity. Descriptive statistics for the variables employed in the analysis is presented in the Tab. 1 below.

### 3. RESEARCH RESULTS AND DISCUSSION OF THE RESULTS

Columns of the Tab. 2 present technical efficiency change (MTE), technological change (MT), and total factor productivity change (MTEFP). The change in technical efficiency relates to deviations from best-practice technology in the management of the activity, and can be attributed among others to the changes in planning, technical experience and organization in units under observation. In contrast, technological change relates to the innovation and the adoption of new technologies, procedures and techniques as well as skill-upgrades by best-practice units (Barros, 2006).

The results presented in Tab. 2 indicate that total factor productivity annual means decreased by 5.8% in the period 2009-2012 across the cities included in the sample. This productivity decrease is the sum of technical efficiency and technological change, so these two values should be compared. In this case, the overall decrease in productivity over the period is composed of an average technical efficiency decrease (movement from the frontier) of 1.3%, and average technological regress (inward shift of the frontier) of 4.5% annually. Clearly, the decrease in productivity of Slovenian cities over the period 2009-2012 is more the result of contraction in the frontier relating inputs to outputs rather than in decrease of technical efficiency. This might suggest that, in particular, the existing procedures, techniques and skills, that are being used, are not in accordance with the ones needed during the contraction; that is in the period of fiscal crisis.

However, the above table suggests that productivity changes varied between the years under consideration.

Tab. 1. Descriptive statistics, input and output variables (yearly data, period 2009-2012)

VARIABLE	AVERAGE	STD. DEVIATION	MINIMUM	MAXIMUM
Total current expenditures (in EUR)	5,731,952	2,893,567	2,173,046	13,275,368
Total population	42,904	26,535	16,787	112,642
Number of children in public kindergartens	1,606	911	574	3,926
Number of pupils in public primary schools	3,175	1,684	1,425	7,304
Population over 65 years	7,446	5,419	2,427	22,396
Number of construction permits issued	44	30	8	130
Amount of waste collected (in metric tons)	19,548	13,301	3,707	58,939

Sources: author's calculations on the basis of (Ministry of Finance, 2014; SORS, 2014).

Tab. 2. Productivity changes and learning cities evidence, annual means 2009-2012

MALMQUIST INDEX SUMMARY OF ANNUAL MEANS			
Year	$M_{TE}$	$M_T$	$M_{TFP}$
2010	0.978	0.860	0.840
2011	0.983	0.997	0.979
2012	1.001	1.016	1.017
Mean	0.987	0.955	0.942

The high mean productivity decrease can be observed for the year 2010 with 16% reduction on average, which was composed of 2.2% reduction in technical efficiency and 14% of technological regress. In contrast, total factor productivity even increased on average in year 2012 by 1.7%, predominantly through technological gain (1.6%).

techniques/procedures utilization might be involved. This evidence might suggest that learning exists also in public entities under observation.

If we observe city mean changes of productivity during the period 2009-2012, it is evident that in some cities (for example Novo mesto) productivity even increased, on average, during the period under

Tab. 3. Productivity changes and learning cities – city-by-city means

MALMQUIST INDEX SUMMARY OF CITY MEANS			
City	$M_{TE}$	$M_T$	$M_{TFP}$
Celje	1.006	0.921	0.926
Koper	0.961	0.975	0.937
Kranj	1.000	0.980	0.980
Maribor	1.000	0.933	0.933
Murska Sobota	0.951	0.913	0.868
Nova Gorica	1.022	0.899	0.918
Novo mesto	1.000	1.008	1.008
Ptuj	0.991	0.975	0.966
Slovenj Gradec	0.954	0.962	0.918
Velenje	0.988	0.990	0.978
Mean	0.987	0.955	0.942

What does this indicate? In contrast to mean values, there is some year-to-year empirical evidence on the existence of learning in cities, as on average both technical efficiency and technological improvements occurred in 2012. This means that after initial slump, cities were able to learn and adapt to new circumstances, thereby improving their performance, and drivers like innovation and new

observation. Out of 10 observed cities, 2 cities (that is Celje and Nova Gorica) experienced mean technical efficiency improvements. However, technological regress can be observed in all cities, except in the above mentioned city of Novo mesto, which indicates the lack of innovation leveraging the organizational factors in cities. Moreover, in 6 out of 10 cities mean technological regress outpaced mean technical

Tab. 4. Number of cities with productivity improvements, 2010-2012

CITY	$M_{TFP2010}$	$M_{TFP2011}$	$M_{TFP2012}$
Celje	1.087	0.853	0.856
Koper	0.773	0.940	1.131
Kranj	0.825	1.039	1.097
Maribor	0.829	0.975	1.007
Murska Sobota	0.830	1.003	0.786
Nova Gorica	0.766	1.043	0.968
Novo mesto	0.940	0.970	1.125
Ptuj	0.561	1.451	1.106
Slovenj Gradec	0.997	0.765	1.012
Velenje	0.915	0.887	1.153
Number of cities with $M_{TFP} \geq 1$	1	4	7

efficiency decrease, which means that those cities experienced the deterioration of organizational factors when using inputs and outputs and their combinations, but they also need to adopt new technology in order to upgrade their organizational skills.

What does this suggest? Similarly to previous elaboration, each city should be analyzed separately, year-by-year. This analysis is presented in Tab. 4 below. The evidence suggests that over the years under consideration, the number of cities where productivity improvements could be observed increased, which suggests that they have tried to adapt to the new circumstances that occurred under the contraction, although support for this suggestion is not entirely straightforward. However, we should not dismiss the existence of evidence that productivity improvements, also in number of observed units, exist, and consequently enable the justification of a proposal that, in fact, also cities already behave like learning organizations; the real question remains if the crisis might be a reason for that.

## CONCLUSIONS

During the period 2009-2012 cities in Slovenia experienced, on average, total factor productivity decline, which could be contributed mainly to technological regress. Namely, fiscally challenging environment decreased demand for certain services, but the lack of innovations deteriorated organizational skills that would enable adaptation to new circumstances. Productivity decreased suddenly in 2010, but it started to improve in the period 2011-2012. Selected evidence suggests that cities started to adapt to new circumstances, and technological factors, like innovation and adaptation of new techniques, were the main factor facilitating those processes, which indicates that cities are „learning“.

Turning from the technical aspect of the topic to the social aspect, the question needed to be answered is: could some evidence on changing practices in organization and management be outlined? One of the practices recently heavily implemented is the creation of the so-called joint municipal/city boards, responsible for joint provision of selected services at the local level. This describes the alternative mode of service provision, which is literary the adoption of new procedures – innovation. This experiment was widely accepted, and more than 90 percent of cities and municipalities in Slovenia are involved more or less intensively in those ventures. This kind of cooperation among localities can lower transaction costs, help achieving

economies of scale, and increase efficiency and productivity. Finally, this might be the case that cities, which are not involved in such ventures (for example, Murska Sobota), also practically exhibit less evidence on learning. This relation should be addressed further.

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