Discovering the learning mechanism

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1 Discovering the learning mechanism

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In this chapter we address the following question: **How does learning work in public organizations?** In the course of the chapter we present the steps of our empirical research that allowed us to gradually build and validate an organizational learning framework. The final, validated version of the framework is offered in the Conclusions of this chapter. It should help our reader understand, what elements form an organizational learning cycle, what factors influence its performance and quality, and finally, how we can measure and monitor this phenomenon in our public organizations.

To answer the opening question we use a mixed-methods approach, both at the level of research design and data analysis. As a research strategy we used a modification of explanatory mixed-method design (a follow-up explanation model) (Creswell & Clark, 2010, p. 72). Figure 1 illustrates our research process.

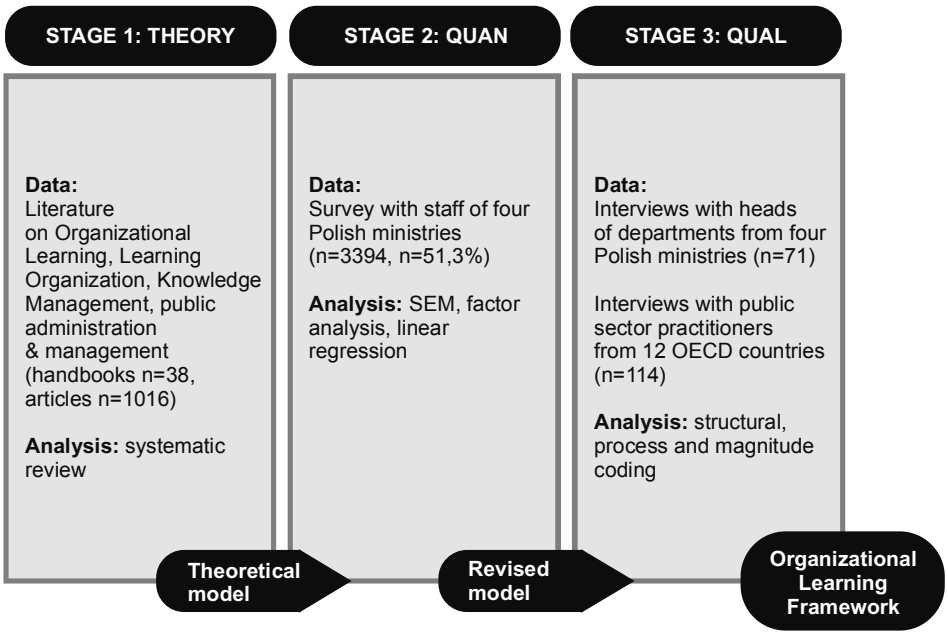

Figure 1. Stages of the research process

Source: own study.

The structure of the chapter closely follows the sequence of our three analytical stages, allowing us to show how adding new layers of data and different analytical methods expanded our understanding and allowed us to develop a more comprehensive picture of the phenomenon of organizational learning.

In the next section we briefly present the theoretical framework of organizational learning grounded in a literature review. Section two discusses the testing of the theoretical framework using quantitative analysis of data from the survey with ministry employees. In section three we expand our framework by adding qualitative data drawn from two sources. We explore the perspective of the heads of studied departments through in-depth interviews, and then we compare Polish specificity with international practice, using qualitative data from study visits conducted in 12 OECD countries. Finally, in conclusion, we discuss the key findings and present a framework for organizational learning in public administration.

But first, we need to understand why Poland constitutes a good subject for public administration studies. This country can be seen as a European laboratory of public intervention and modernization of public administration. During the last 25 years Poland has undergone substantial systemic transformation from a socialist state-owned and centrally planned system, to a dynamic market economy. Although system transformation has been almost completed (Morawski, 2010), Polish public administration is still undergoing modernization. The strongest modernization impulse comes with European Union membership (Czaputowicz, 2008), mostly from implementation of EU-funded programs in the field of Regional Policy (Kozak, 2006). During the last 10 years the Polish administration has been implementing the European Union Cohesion Policy – a set of socio-economic development programs worth over 100 billion euro. In order to run EU-financed programs, the number of departments in Polish ministries has had to adapt to a new set of skills and new philosophy of public management. At the same time, units not involved in EU programs work in line with the traditional bureaucratic paradigm. This duality makes Polish Ministries an interesting case of administration under transformation. In our analysis we looked for signs of this transformation in the field of organizational learning.

1.1 Stage 1: Developing the theoretical framework

The aim of the first stage of our research was to develop a theoretical framework of organizational learning in public administration. For this purpose we conducted an extensive literature review.

Analytical procedure and methods

Organizational learning constitutes a broad range of phenomena analyzed by different strands of literature (see: Introduction). We performed an extensive literature search to pinpoint its driving characteristics for use in our framework. The starting point for building a framework of organizational learning was a review of handbooks and references in encyclopedias of management, public administration,

governance, organization studies, knowledge management, organizational learning, etc. (n = 38). This allowed us to get an overview of the field, identify classic literature and avoid "citation amnesia" – a common shortcoming of bibliometrics periodical searches. What emerged from the overview were three main strands of literature: Organizational Learning, Learning Organization, and Knowledge Management. We further explored these three strands by applying a systematic review of the collection of research articles in the Web of Science and SCOPUS databases. We focused our search on empirical articles related to the public sector, published between 1990-2010. The result was a sample of 1016 documents. Based on a review of abstracts we selected articles with clear empirical cases of both private and public administration organizations (n = 252). To this sample we added 10 top-cited articles from each of the three branches of literature (according to Web of Science). This ensured that we would not omit important sources in our analysis that were mostly theoretical in nature. This analysis was supplemented by a review of 25 definitions from "classic" publications in each field. For the content analysis we used MAXQDA software (www.maxqda.com) and an initial coding strategy (Saldana, 2012, p. 100).

Findings

Based on the literature overview, for the purposes of our framework, we define organizational knowledge as a result of the social process of verifying assumptions, strategies and "theories in use" through interaction with an environment. This is followed by reflection and adaptation. Here we follow the view of the majority of authors from the organizational learning field (Argyris & Schon, 1995, p. 3-30; Crossan et al., 1999; Levitt & March, 1988, p. 320; Lipshitz et al., 2007).

Further, we divide institutional learning in our framework into four basic elements: knowledge, feedback, reflection and adaptation (or process of change). Apart from learning processes, the framework includes a number of organizational learning factors. These are the independent variables that can potentially have a significant impact on the organizational learning process. A graphical version of the framework is presented in Figure 2.

The starting point for an organizational learning framework is a taxonomy of knowledge adapted from knowledge management (KM) literature. We define knowledge as "information in action". Instead of distinguishing types according to the form of knowledge (tacit vs. explicit) we make the distinction based on the content of knowledge. The three types are (Alavi & Leidner, 2001, p. 113):

- Strategic knowledge – "knowing why we do things", knowledge about the objectives of the department, its mission and effects expected from the department;
- Operational knowledge – "knowing how", operational knowledge about tools, procedures that allows us to act smoothly, on time and in accordance with regulations;
- Contextual knowledge – "knowing what/about", knowledge about the environment in which the department operates, understanding the trends, relations and causal connections policy in the department's field of expertise.

The second element in our framework is feedback. This is a central mechanism in both organizational learning (OL) and learning organization (LO) literature, as well as in the latest approaches to knowledge management (KM). It allows an organization to determine whether a particular activity or process worked or whether should it be redefined (Sessa, London, 2006, p. 163). Based on the literature from psychology and system thinking we define feedback as any impulse that informs us about an organization's performance (Anderson & Johnson, 1997; Levy et al., 2006; Meadows, 2008). Literature on psychology points to the fact that useful feedback should meet four key criteria (Kluger & DeNisi, 1996). First, it is vital to acquire feedback from diversified, external sources. Second, feedback should be collected on a regular basis. Third, feedback formulated in a constructive and structured way is more useful. Finally, positive feedback is considered more helpful than negative communication.

What follows feedback is a social process of reflection (Antal et al., 2001a, p. 5; Ortenblad, 2001, p. 130). This takes form of discussions, deliberation, and analysis. Some authors refer to it as "inquiry" (Argyris & Schon, 1995), in which templates, solutions and mental models used in particular organizations are tested and questioned (Fulmer & Keys, 2004).

Reflection can lead to eventual change in knowledge structure and volume. In other words – it can change the mental models shared by members of the organization. This creates feedback-loops – a situation in which certain outputs of the system (in this case departments activities) influence their environment and then, inputs from the environment are fed back into the system-organization (Bardach, 2006, p. 339). Literature identifies three types of loops (also called types of adaptation or orders of learning) (Antal et al., 2001b, p. 923; Argyris & Schon, 1995, pp. 27-30; Fiol & Lyles, 1985):

- single loop learning – a simple adjustment of actions, procedures and routines that changes operational knowledge;
- double loop learning – requiring in-depth inquiry that leads to substantial change in the underlying assumptions, premises, values and key theories that were used for a particular policy or action;
- deutero-learning – learning to learn, leading to adjustment in the sources and structures used for information collection and analysis.

In our framework we distinguish a fourth type of loop underlying the mission of an organization. This is strategic loop learning (Bennet & Bennet, 2004, p. 442) that leads to the adjustment of the main goals and the redefinition of departmental tasks.

The organizational learning factors were elaborated in a different way to the learning processes. We took a more open approach and put forward only broad groups of potential factors, instead of a list of detailed hypotheses. The clusters included personnel, leaders, resources, organizational environment, and interactions and relations. The reason for taking this approach was twofold. First, the literature we reviewed described the context of different countries, and mostly – private organizations. We assumed that the character of causal relations might be significantly different in the case of the Polish public administration. Second, we wanted to

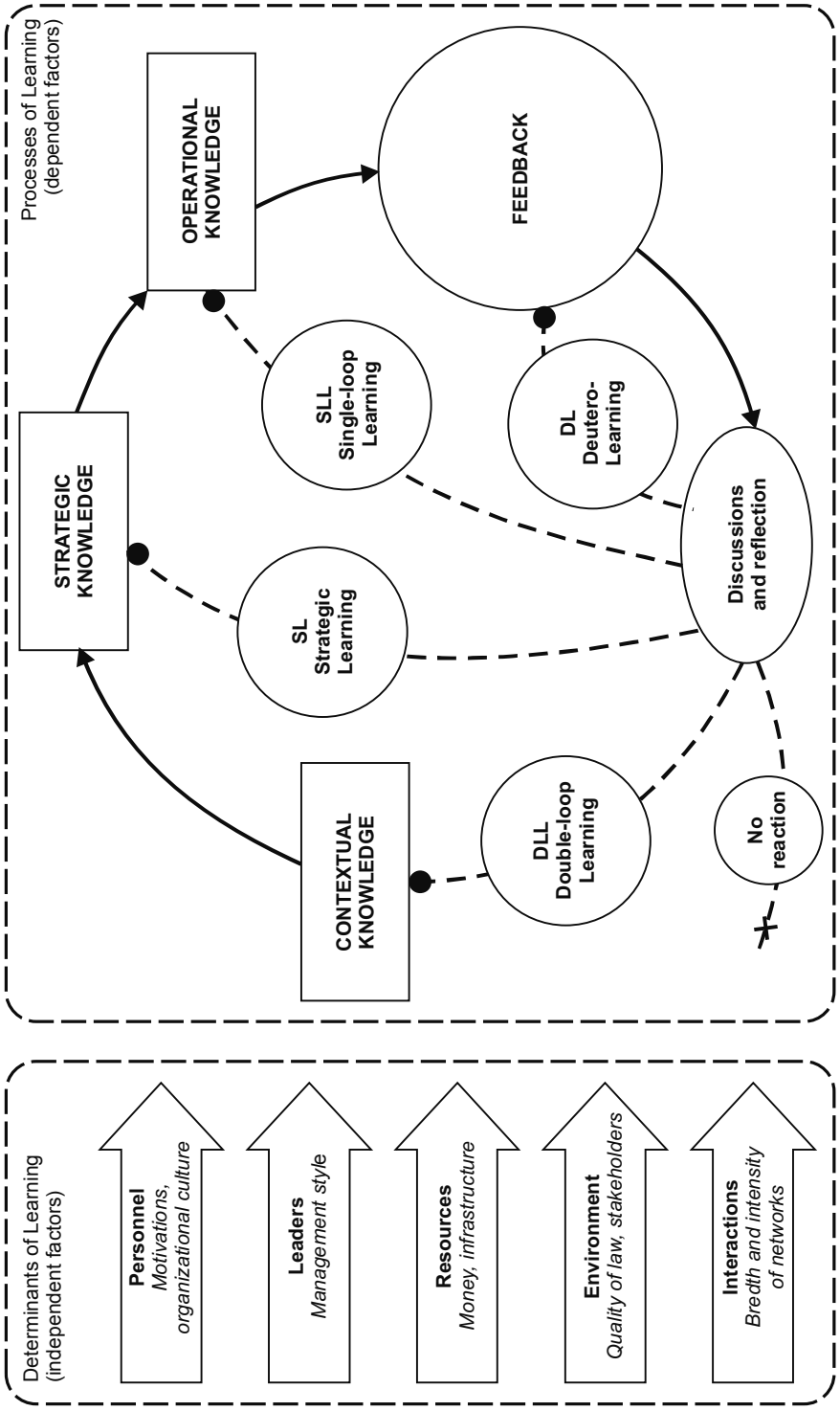

Figure 2. Framework of organizational learning – version 1

Source: own study.

keep a maximum level of openness, in order to take account of factors that are not sufficiently explored in the international literature.

Each element of the framework was transformed into a set of survey questions, inspired by earlier survey tools presented in the literature (Marsick & Watkins, 1999; Perez-Lopez et al., 2004; Preskill & Torres, 1999). However, we adapted some of the questions to the specific structure and characteristics of Polish ministries.

The framework presented above attempts to combine a cyclical approach (loops of learning) and a linear approach (relations between the organizational learning factors and processes of learning). Thus, it takes into account the cyclical nature of organizational functioning, while simultaneously providing a starting point for practical strategies of organizational change by identifying cause-effect relations.

1.2 Stage 2: Testing the framework in practice – a survey with ministry employees

The aim of this stage of our research was to empirically test the theoretical framework using quantitative data analysis. In other words, we wanted to verify, whether the theory rooted in the literature would prove its validity in practice.

Analytical procedure and methods

The source of data was a Computer-assisted Web Interview (CAWI), conducted in the period from March 7th to April 4th, 2011 among all employees (with the exception of heads of departments) of four Polish ministries involved in the project: the Ministry of Infrastructure, the Ministry of the Interior and Administration, the Ministry of the Environment and the Ministry for Regional Development.[2] The sample examined consisted of all 3394 ministry employees and the rate of return of the questionnaire was 51.3% (1741 respondents).

The quantitative tool – the CAWI questionnaire – was structured so that individual questions were clustered into groups that constitute the broader dimensions, that is, our analytical categories (see: Annex 1[3]). Some of these were based on questions taken from earlier studies on knowledge management in organizations and thus, as such, they were verified within other research projects. Other questions were created in consultation with practitioners and theoreticians of the Polish governmental administration system. At the development stage of the questionnaire, we made sure that most (about 90%) of the questions would have a coherent, five-point Likert scale.

Overall coherence of the questionnaire was verified in several ways. First of all, we checked their face validity through discussion with project stakeholders. Then we conducted pilot research that allowed us to collect feedback from the interviewees.

[2] Ministries were selected as representations of different organizational and functional solutions present in the Polish administrative system.

[3] Annex 1 presents the questions from the CAWI questionnaire that were used to measure particular analytical categories. Items are clustered into the categories according to the final version of the organizational learning framework.

Pilot data was analyzed to make sure that the questionnaire was coherent, using Cronbach's alpha test. The test results were very high – on average, the components reached a scale of 0.96.

In our research, we took advantage of both types of factor analysis: first, we attempted to recreate the assumed constructs (confirmation analysis), then, if the first approach failed, to approach the matter from an exploratory point of view and attempt to identify new factors. When we had constructed new factors, we reverted back to confirmation analyses to see how these 'new' factors impacted one another.

In terms of the learning processes, the framework assumed the structure discussed in the previous section (see: Figure 2). It anticipated three types of knowledge (operational, strategic, contextual), a feedback stage, reflection and five types of reactions (no reaction, double-loop learning, strategic learning, single-loop learning and deutero-learning). These feedback-loop components were to exert impact on the state of types of knowledge, and their indirect impact upon one another. Determinants of organizational learning were also derived from a literature review, and consisted of a broad set of phenomena related to intra- and inter-organizational characteristics.

SEM – Structural Equation Modeling

Prior to commencement of modeling, the survey data was preprocessed. Namely, the 'blank' answers and missing data were replaced with the average for a given ministry.

The next step was to construct the model coefficients themselves. According to the information obtained at the pilot stage, not all factors that had their equivalents in the first framework were reflected in the data. Initially we attempted to recover these elements by building the original framework. However, it turned out that most elements had not been built in the expected manner[4]. Their factor loadings were incoherent (some were very high, others – very low) or negative. Therefore, we focused on factor analyses that would allow us to obtain the empirical constructs reflected by the data.

For this purpose, we used factor analysis of the principal components with orthogonal Equamax rotation. This preliminary analysis was aimed at checking whether the data would group into other elements than those pre-determined within the constructed theoretical framework. In this manner, we obtained ten factors – components of the organizational learning process, which only partially matched the elements from the theoretical framework (for instance, the knowledge-building factors); others were entirely new constructs. The analysis consisted of two stages: the first stage was the factor analysis that pertained to all components of the organizational learning process, and this resulted in the determination of the ten factors. The second stage consisted of the identification of explanatory factors. In the case of the latter, the

[4] And, to be exact, that is why we conducted pilot stage – we expected that our variables would settle into consistent factors, and they finally did, although in the end we received different factors than we expected.

procedure was very similar to the identification of the process components; however, this time, the analysis was performed for each focus area individually: separately for groups of variables pertaining to different categories such as personnel, resources etc. As a result, a total of 26 explanatory factors regarding the learning process was obtained.

On the basis of these factors, new structural models were built. We used confirmatory factor analysis to redefine the factors present in the data at the SEM level. At this stage of analysis, we were not interested in correlations between individual components of the organizational learning process, therefore we applied orthogonal rotation, at the modeling level[5], to de-correlate the individual factors. This in turn allowed for the construction of partial models, containing, for instance, only the knowledge- or adaptation-building factors.

In this way, we obtained a link between individual components of the learning process and the determinants of this process. Thus, our analysis uncovered another level of 26 factors which had indirect influence on the learning process and which we describe as 'determinants of the learning process'. Our overall approach is presented on Figure below.

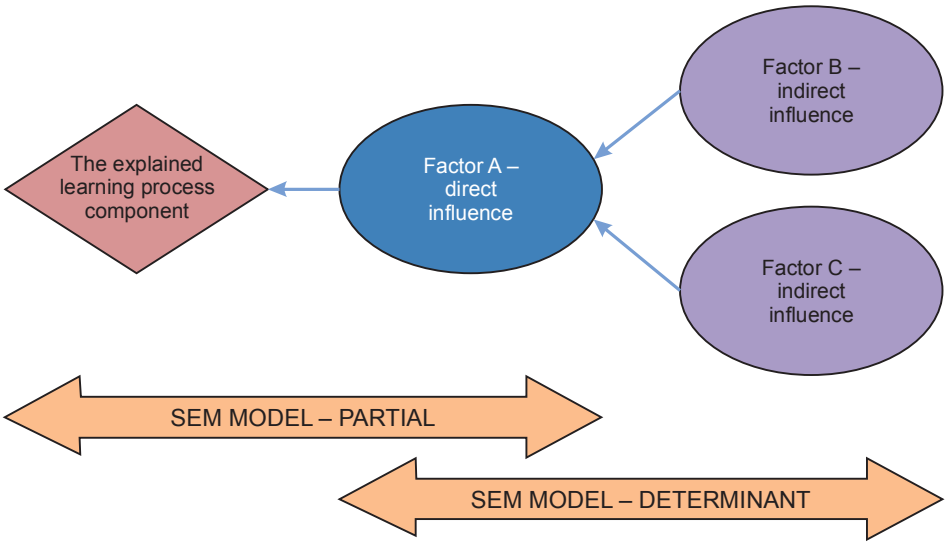

Figure 3. SEM modeling stages

Source: own study.

Of these 26 factors (determinants) only a few appeared to be important for further analysis. To determine which factors had significant explanatory power, we correlated factors from the determinant side with elements of the learning process to see which

[5] Orthogonal rotations make it possible to obtain uncorrelated factors. The advantage of this approach is the possibility to treat factors as unrelated.

of the determinants actually interacted with the core of our framework. Out of the 26 factors, only 7 were correlated relatively strongly ($R^2 > 30\%$), and these factors passed for further statistical analysis.

To summarize, the quantitative analysis was conducted in several stages:

- Analysis of missing data
- Factor analysis (exploratory) for learning processes
- Factor analyses (exploratory) for determinants of the learning process
- Creation of factors in the database on the basis of SEM analysis
- Analysis of average values of factors for individual departments in the context of results obtained for individual ministries.

The structural models created described well the common reality in the examined fragment of the Polish public administration system. However, our objective was not only to diagnose the processes responsible for learning, but also – and most importantly – to verify the existence of individual processes in the specific ministries and departments.

Using the CAWI method enabled us to maximize the number of respondents, who participated in the survey. The sample obtained was large enough to allow for complex quantitative analysis leading to the building of an organizational learning framework. The next section summarizes our findings at this stage.

Findings

As Figure 4 shows, our two-level factor analysis resulted in defining 10 dimensions of learning. We examined the questions hidden behind each dimension and came up with the four main issues constituting the learning process: reflection mechanisms, knowledge base, adaptation processes and existing impulses.

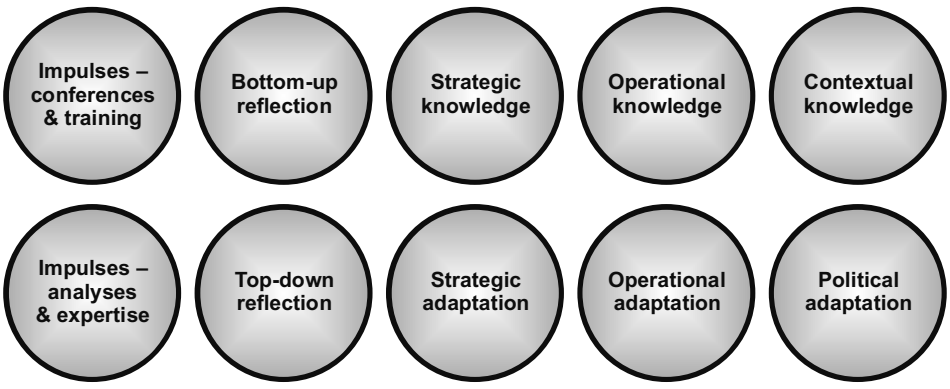

Figure 4. Framework of organizational learning – version 2

Source: own study.

Compared to our initial, theoretical framework, the factors obtained referred mainly to the state of reality[6], only some of them had a processual character. Also, the framework based on quantitative data failed to confirm the existence of feedback mechanisms, as described in the literature. In-depth analysis proved that the theoretical factors associated with feedback could not be recreated based on the gathered data. However, another, more general source of knowledge emerged – impulses. They included two types of impulses: "analyses and expert opinions" and "conferences and training".

Constructing a new framework was aimed not only at unveiling the processes of learning in Polish ministries, but also at exploring the potential determinants of these processes so that they constituted a coherent part of the framework. The analytical procedure described above resulted in defining 7 organizational learning factors, i.e.: mutual support, group cohesion, psychological safety, democratic leadership style both at the level of heads of departments and heads of units, availability of analyses and information, and quality of expertise.

To sum up, the quantitative analysis described above resulted in major changes in our theoretical framework. All four learning loops and feedback disappeared, and the complex cycle of learning was replaced with a static picture comprising 10 dimensions of organizational learning, grouped into 4 main categories, i.e. impulses, reflection, knowledge and adaptation. The first determinants of learning were established, emphasizing the characteristics of teams and leadership style.

The findings regarding the learning processes triggered the following questions: First, why was the picture of the learning cycle we obtained from quantitative analysis more static than processual, even in the area of impulses? Second, why didn't the feedback mechanisms appear as a practice of obtaining knowledge in the examined ministries? In the case of both questions we stipulated that it may be the result of some integral characteristic of Polish administrative institutions. Answering these questions called for the use of different methods that would allow us to verify the reasons for the mismatch between the theoretical framework and the quantitative results. The next stage, therefore, was to use qualitative data to verify and deepen our analysis.

1.3 Stage 3: Exploring learning in-depth – interviews with leaders

The overall aim of this stage of our analysis was to enrich the framework that emerged from the quantitative data gathered among ministry employees with the perspective of public administration leaders, both from Poland and from 12 OECD countries.

We began with interviews with the heads of the studied departments in Poland. In particular, we wanted to verify two main issues. First, what day-to-day practices are

[6] Even if we take into account that some of our factors described processes (e.g. Adaptation or Reflection), we still only received static information about states rather than processes. Further analyses were designed to show the impact of individual factors emerging from the determinant, allowing the recognition process in terms of cause and effect analysis and analysis of the influence of each factor on the elements of learning.

hidden behind the static rather than processual picture that emerged from our data. Second, is feedback gathering, as a practice of obtaining knowledge, really as rare as was indicated by the quantitative analysis.

Next, we confronted the Polish situation with the first-hand experience of civil servants in selected OECD countries. We broadened the picture obtained in this way by interviewing academics specializing in public management in a given country. We focused on checking if the reality of foreign administration was coherent with the literature (occurrence of feedback and structured practices of organizational learning) and therefore different from what we had observed in Poland. We were also looking for particular practices supporting organizational learning (see: next chapter).

Analytical procedure and methods

Qualitative data collected in Poland consisted of 71 transcripts and notes from interviews with the heads of all the departments in the four ministries. Interviews were conducted using structured interview protocol (see: Annex 2), over the period of two months in 2011.[7] In order to address the questions presented at the beginning of this section, we used coding and an analytical procedure that consisted of six steps.

First, for each interview we applied an attribute coding that included: (1) The type of department (Internal service provider vs. Merit – policy department) and (2) the department's relation to EU policy (Management of EU funds vs. National issues).

In the second step, two researchers performed random selective coding to develop a detailed coding list. For this purpose we used a combination of two coding strategies: structural coding with process coding (Saldana, 2012). Our starting list of phrases was very general and followed our initial division into three types of knowledge and feedback (that could overlap with the types of knowledge). These were: (1) How do they obtain strategic knowledge? (2) How do they obtain operational knowledge? (3) How do they obtain contextual knowledge? (4) Which process is a feedback mechanism? Process coding uses gerunds to connote action in the data. It reveals routine actions that form wider tactics and strategies. This coding fitted well the description of knowledge as a process. Moreover, it allowed us to focus our search on the possible dynamics that were missing in the quantitative analysis.

In the third step, each coder moved to the 2nd coding cycle for pilot data, in order to come up with more summative groupings. We applied pattern coding (Saldana, 2012, p. 209) in a search for repeated activities and similarities.

In step four, we built inter-coder agreement. Coding pattern of one, overlapping interview was compared between two coders. Coherence was very high. Differences in coding were discussed and joint definitions were clarified. That procedure allowed us to increase reliability of the research. At this stage we also decided to introduce code categories that would allow us to explore characteristic and quality of learning

[7] The interview scenario was constructed on the basis of the literature review. Interviews were conducted by members of the research team who participated in the development of the theoretical model as well as survey and interview scenarios. The average length of interview was 45 minutes.

practices, i.e. structure, regularity, positive or negative character, and utility from the user perspective. The final list is presented on Table 2.

In the fifth step, two researchers conducted coding for the whole set of data (71 interviews), using the list of categories that emerged from the pilot coding. Again we combined two types of coding – this time provisional coding with magnitude coding. Provisional coding allows a "start list set of coded data prior to fieldwork and generated in the preliminary investigation' (Saldana, 2012, p. 144). It focuses inquiry and at the same time allows flexibility because it can be modified during the research. Magnitude coding allows assigning the intensity of frequency to particular phenomena (Saldana, 2012, p. 72). By applying this technique we were able to evaluate the extent to which each practice is structured (that is regular, organized as procedures, routines). Each fragment of the interview was also coded with multiple codes (so-called simultaneous coding) e.g. types of knowledge, regularity, knowledge source.

Table 2. Coding categories and coding results

Code	Definition	Number of coded segments
strategic knowledge	knowing why	399
operational knowledge	knowing how	284
contextual knowledge	knowing what/about	249
feedback	An impulse acquired from an external source that provides an evaluative response to action undertaken by the recipient	358
source	Sources of information acquired by a department; 16 sub-codes, including "other"	1017
regularity	The regularity of obtaining knowledge from a given source; 3 sub-codes: high, medium and low.	457
positive or negative	The positive or negative character of given feedback; binary code – 2 sub-codes	117
structured process	A formalized and/or systematic process of acquiring knowledge from a given source of information; binary code – 2 sub-codes	343
perceived utility	An explicitly stated opinion on the usefulness of a given source of information; 3 sub-codes: high, medium and low	245

Source: own study.

In the final step, we applied a mixed-methods approach in order to draw quantified results from qualitative data. We assessed the main features of knowledge acquisition practices used across the entire sample, and broke down the results according to two

types of departments, i.e. those dealing directly with EU-funds and the rest. However, quantitative analysis and interpretation of qualitative data had its limitations. Data was derived from structured questionnaires aimed at exploring key learning processes, and thus providing only partial information on the absolute frequency of a given phenomenon. Moreover, narrative could be fragmented, with a given issue surfacing in several places in the course of the interview. To address these limitations we focused on relative values, e.g. comparing the performance of two types of departments and using the code relations browser.

The second data set consisted of 114 transcripts and notes from in-depth interviews conducted during the study visits in 12 OECD countries[8]. In each country a study visit comprised of three inter-related parts: on the spot interviews, followed up by desk research and a literature review on practices of organizational learning and knowledge management. We conducted semi-structured interviews with central governmental managers and academic experts to (1) establish state-of-the-art organizational learning and knowledge management in each country, and (2) to identify promising practices of organizational learning. Interview transcripts and relevant documents identified by our interviewees were analyzed with MAXQDA software, using a basic structural coding system (Saldana, 2012, p. 84-87).

It should be noted that this part of our research did not aspire to be a systematic overview of OECD countries. Rather, it was designed as a set of national exploratory case studies. We were interested more in getting an idea of the range of existing solutions than in a review of practices in each organization. We focused mainly on identifying examples of day-to-day practices on (1) obtaining knowledge, (2) getting feedback, and (3) storing knowledge.

Findings

Applying the above-described procedures led us to number of observations. First, we describe the emerging picture of organizational learning in Polish ministries. Then we move on to report the key observations from the study visits, which influenced the final version of the organizational learning framework.

We discovered that, in case of Polish ministries, sources of knowledge are located mostly inside the administration, often inside the given institution (see: Table 3). The main channel of obtaining strategic knowledge is from heads of the ministry. Operational knowledge is drawn predominantly from training sessions and different control/audit activities. Mechanisms for acquiring contextual knowledge seem to be generally less frequent, with expert analyses and contacts with other units of public administration being most common.

Mapping sources of feedback revealed a similar pattern. The majority of impulses obtained comes from inside the public administration system, with heads of ministry and external control activities being the main sources. Typical external sources, i.e. stakeholders and clients, are responsible for only 12% of collected feedback. More

[8] The methodology of this step is described in detail in chapter 3 of this book.

than 70% of recorded feedback falls into the category of strategic knowledge, and a further quarter regards operational knowledge.

Table 3. Results of the mixed-method analysis – sources of knowledge

Sources	Type of knowledge			Feedback
	strategic	operational	contextual	
heads of the ministry	37%	2%	8%	20%
contacts within the ministry	7%	1%	8%	7%
contacts within public administration	7%	4%	16%	6%
recipients/clients	6%	1%	4%	7%
stakeholders	5%	0%	6%	5%
system of indicators	9%	1%	1%	9%
internal audit	0%	12%	0%	9%
external audit	2%	6%	0%	5%
external control	4%	14%	1%	14%
expert analyses and research	3%	6%	19%	3%
guidelines	3%	4%	3%	0%
internet	0%	3%	4%	0%
media	2%	1%	6%	3%
training	0%	20%	5%	0%
own experience and practice	4%	12%	1%	2%
other	10%	13%	17%	9%

Source: own study.

The regularity of feedback inflow is poor (see: Table 4), with almost half of observed feedback falling into the low regularity category. Systems of indicators were by far the most regular source of feedback, while impulses obtained from within the ministry were mostly of an incidental and *ad hoc* nature.

Structured feedback is rather rare, occurring only in 38% of analyzed cases, and in less than a third of cases, when it comes in response to impulses regarding strategic knowledge. Systems of indicators, expert analyses and external controls tend to provide structured feedback more often than average, while contacts within the ministry and public administration system relies mostly on unstructured communication.

Finally, negative feedback is more prevalent than positive feedback. This imbalance is particularly evident in the case of communication within the ministry.

On the basis of these observations we can come up with three more general observations related to our framework of organizational learning. First, there is a dynamic in the everyday learning of Polish departments. However, these processes

are unstructured, irregular and – most of all – internal. Our survey questions were focused on relations and interactions with the environment as the main channel of knowledge and learning. Polish ministries clearly miss this connection. That is why in the quantitative model learning elements appeared as static categories.

Table 4. Results of mixed-method analysis – characteristics of feedback

Characteristics of feedback	
structured	38% (no. of coded segments: 72)
unstructured	62% (117)
high regularity	22% (42)
medium regularity	32% (60)
low regularity	46% (86)
negative	58% (67)
positive	42% (48)

Source: own study.

Second, feedback is present in Polish ministries, but its inflow from outside the Ministry is very limited. Feedback is dominated by one source – heads of the ministries (political appointees) and it is directed solely to senior management (heads of the departments). It is both unstructured and irregular, often in form of a simple message e.g. "Well done" or "we have a problem". A statement from one of our interviews illustrates this issue well:

It [feedback] has never been formalized in any way. If I know that something is going wrong, it is usually thanks to some current feedback. But it has never happened in a systemic way. [pause]. But on the other hand, from various conversations I know that I am positively evaluated. However, it is not like there are any specified criteria for this evaluation. [Interview – Poland]

As a result, there is little concrete content to be passed from senior management to the staff of the departments. That is why our quantitative analysis that explored the staff's point of view, did not register the presence of organizational feedback.

Third, it is worth assessing the usefulness of the observed feedback from a theoretical point of view. Feedback most useful for learning should share the following characteristic (Kluger & DeNisi, 1996): be acquired from diversified sources external to the organization, be collected on a regular basis, and formulated in a constructive and structured way. Comparing this list to the Polish situation we have to state that none of these criteria is met. That means that in its current form the use of feedback for learning is very limited.

The absence of structured, regular processes of learning and lack of feedback from the environment led us to the final question: Is this a typical trait of central administration or just a peculiarity of the Polish public administration and something that could be improved? In order to solve this puzzle we moved to the last stage of our exploration – an international comparison.

As an outcome of study visits conducted in selected OECD countries, we identified 78 interesting practices of organizational learning and knowledge management.[9] We compared the results with the coded data from interviews with Polish senior civil servants and discovered only a few, quite isolated cases of similar practices in Poland[10]. These findings allowed us to conclude that the absence of structured, regular processes of learning and lack of feedback from the environment is indeed a peculiarity of public administration in transition when compared to other countries with developed administration systems.

Analysis of the interviews conducted during the study visits allowed us to introduce further improvements to our organizational learning framework. First of all, many interviewees highlighted the role of feedback in the process of organizational learning. It turned out that in more mature administration systems, the feedback is usually structured, may take many different forms, and is derived from a variety of sources. Thus, we decided to replace a narrow 'analyses and expertise' element (part of the impulses category), with a broader category of feedback.

Second, the quantitative analysis emphasized the dynamic nature of the learning process. Static categories derived from the former analytical step might be transformed into a logical sequence of steps that reflects the iterative and cyclical character of organizational functioning. Our interviewees pointed to the fact that only an on-going, cyclical process leads to accumulation of knowledge and raises the organization's effectiveness.

Third, the analysis of international practices aimed at enhancing learning processes allowed for elaborating new determinants of organizational learning. Describing the feedback, our interviewees pointed to the key role of reference frameworks. These practical systems of goals and indicators serve as a compass in the everyday work of an organization, and allows the impulses from external sources to be organized into a consistent message about the results of a department. The reflection upon incoming impulses turned out to be much more codified, than it is in the case of the Polish public administration. But these routines, checklists and procedures are not rigid. Instead, they are constantly redefined and adjusted, drawing on the experiences of an organization.

The question of the ability to fully tap the potential of organizational learning practices turned our attention to the issue of individual traits of personnel. In the CAWI questionnaire, under the personnel theme, we included only questions regarding the characteristics of work performed by a given person (workload, infrastructural barriers, etc.). Further statistical analysis proved they are not significant for organizational learning. However the qualitative stage of analysis allowed us to elaborate three individual traits that raise the capability of organizational learning, i.e. critical thinking, goal-oriented thinking and system thinking.

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[9] Their short, unified descriptions in English are available at the project webpage: www.mus.edu.pl

[10] These are namely: (1) a newsletter implemented in one of the four studied ministries, (2) a community of practice in the field of audit experts, (3) three cases of the use of performance budgeting for reflection on departmental performance, (4) use of evaluation studies and their recommendations in a few departments related to EU-fund recommendations, (5) use of regulatory impact assessment in Polish administration (a new development only mentioned in one of the interviews).

Interviews with heads of departments allowed us to look at the question of resources and relations of a department from a different perspective. The quantitative analysis, drawing on the knowledge of regular employees, failed to acknowledge the role of financial resources. It seems that the role of this issue is recognized only at the senior level, where the responsibility to allocate the funds is located. Similarly, the importance of relations with both the remote and immediate environment (especially the relations between heads of departments and their political supervisors) is better reflected at the managerial level.

To sum up, this stage of analysis put feedback back among the elements of organizational learning, and allowed to uncover the dynamic and cyclical nature of the organizational learning process. Major changes occurred in the part of the framework depicting the determinants of organizational learning. 8 new factors were elaborated, i.e. the reference framework, codification of practices, goal-oriented thinking, system thinking, and critical thinking, relationships with both the immediate and remote environment, and financial resources were included under the broadened category of financial and technological resources. Together with 7 factors elaborated in the quantitative stage, these 15 determinants were grouped under 6 thematic areas, i.e. personnel, teams, leadership style, resources, procedures and customs, and relationships with the external environment.

1.4 Conclusions – the organizational learning framework

Thanks to research carried out in the Polish ministries we know that organizational learning is a dynamic mechanism, which consists of (1) a set of learning processes and (2) factors that support these processes.

These two elements together, and the relations between them, constitute the so-called learning mechanism (see: Figure 5). The definitions of all elements of the learning mechanism, i.e. learning processes, and learning determinants are presented in Tables 6 and 7. The description includes the role that each element plays in supporting the performance of an organization or its organizational learning processes.

Learning processes form an action cycle (the blue cycle in the center of Figure 5), which allows an organization to create new knowledge, and on the basis of this knowledge – to adapt to challenges of the complex and dynamic reality. The cycle consists of four elements, i.e. impulses, reflection, knowledge and adaptation. In other words, a department obtains information from external sources (including feedback), which induces reflection. This eventually leads to creation of new knowledge, which, in turn, serves as a basis for decisions altering the current activities of a department (i.e. adaptation). A department might than learn about the outcomes of this adaptation, drawing on feedback received from the external environment. A situation such as this indicates that a full loop of the learning cycle has been completed.

The cyclical process described above should occur in regard to particular projects, issues, and tasks that a given department carries out. The performance of organizational learning depends both on the quality of particular elements of the cycle (i.e. learning processes), and on the ability to systematically combine them.

Every organization, in order to carry out its activities and reach its objectives, needs human resources (staff, teams, leaders) and physical resources (infrastructure); it also utilizes various procedures and has relationships with its external environment. The proposed organizational learning framework takes into account all of these fields. Our focus is, however, only on those dimensions of the organizational resources, procedures and relationships that influence the learning processes. These findings fit well into the results of recent research on critical success factors of organizational learning in public administration (Pokharel & Hult 2009, Barette et al., 2008). However, our framework provides a more comprehensive, multi-layer description of learning determinants, ranging from the individual level, through teams and the organizational level, to relations with the external environment. Furthermore, it includes both soft, cultural dimensions (customs, leadership style), as well as the 'hardware' of an organization (procedures, financial and technological resources).

Particular factors support only a part of the learning cycle. The study conducted in the Polish ministries allows us to indicate which processes are most likely to be influenced by a given factor. Knowing the relations between learning processes and the phenomena that support them, we can determine the set of factors that needs to be strengthened in order to enhance a given stage of the learning cycle (see: Figure 6).

It is worth noting that our framework resembles a classic Kolb's model of experiential adult learning (Kolb, 1984), which treats an organization as a living organism. This approach might prove helpful to understand, as well as measure, different inter-organizational processes.

Table 5. The practical utility of framework – tool for monitoring organizational learning

The organizational learning framework has a nested structure. This means that: (a) a list of one hundred survey items measures the frequency of certain behaviors in an organization; (b) survey items are clustered to measure elements of the organizational learning mechanism; (c) these elements are graphically arranged into wider categories: processes of learning and determinants of learning.
So, looking at Figure 5 and Annex 1, consider this example. Two survey items comprise the element labeled "Conferences and Training", while five survey items construct the element called "Feedback". These two elements are grouped under the name "Impulses", which in turn is one of the four clusters (impulses, reflection, knowledge, adaptation) that build the most general category called "Processes of Learning".
This nested logic allows public managers to measure and monitor easily all aspects of organizational learning at the different levels of their agency. Namely it allows:
(1) Collecting reliable data on the learning mechanism Employees of an organization respond anonymously to survey items. Particular questions measure the frequency of certain behavior in their organization important for organizational learning.
(2) Aggregating survey data and turning the data into information Validated formulas allow: (a) aggregation of individual responses into elements of the learning framework; (b) demonstration of the condition of each element of the learning mechanism (e.g. system thinking, mutual support, feedback) at the 1-10 scale (1 = lowest intensity, 10 = highest).

Table 5 – continued

(3) Visualizing and comparing the results of the organization The Prezi template allows combining, visualizing and animating different layers of data: (a) showing on one screen dashboard the bigger picture - intensity of all processes and determinants of learning; (b) zooming in and out of each element of the mechanism (e.g. impulses – feedback; strategic knowledge) and see results of all survey items that have built that element; (c) comparing and benchmarking results of own organization with average of Polish ministries, mean of whole organization (if survey covered different units within organization) or even, if survey has been repeated, changes over time.
(4) Conducting constructive data-driven discussion about the condition of an organization The agenda for a team meeting allows leaders and members of the organization: (a) to engage in conversation grounded in data; (b) to identify the reasons for the observed situation; (c) to discuss possible improvements in organization and (d) to evaluate the effectiveness of implemented management solution over time.
Please note that survey questions are presented in Annex 1 of this book. The template for the on-line survey, all analytical formulas, Prezi templates, data for comparison and agenda for discussion are available for download for free from project web page: www.mus.edu.pl

In the conclusions of this chapter we presented a framework of organizational learning for public administration. This framework has been empirically developed and tested, and it relies both on qualitative and quantitative analyses. It combines both the perspective of public administration under transformation, and mature administrative systems from leading OECD countries. It reflects the viewpoint of both regular employees (CAWI questionnaire), and senior management (in-depth interviews). It attempts to bridge the gap between theoretical literature and everyday practice. The universal nature of the proposed framework helps to describe the mechanism of organizational learning in various public organizations, and to re-create the causal relations leading to the current state of this phenomenon.

The framework, as it has been presented in Table 5, has high practical value. We believe that it could help the public administrations of countries in transition to begin thinking about organizational learning in a structured way. Senior management as well as staff would appreciate (as testing in the Polish ministries indicated) its usefulness in monitoring organizational learning in their agencies. This framework provides them with reliable data on the learning mechanism. It gives insight into the functioning of different levels and aspects of a given organization without losing the bigger picture of the whole organization. Finally it allows for making management decisions and testing organizational improvements based on analysis grounded in data (for detailed information see: www.mus.edu.pl). The selection of management tools designed to support elements of the learning mechanism, and eventually advance the whole organizational learning process, are presented in next chapter of this book.

Table 6. Processes of organizational learning

Name of the process	What it is	How it benefits the organization
Conferences and training	Participation of employees of a department in conferences and training related to their area of work.	Participation in conferences and training helps the organization to acquire new knowledge, find inspiration and ideas for novel approaches to challenges and to current activities.
Feedback	All information from the external environment of a department assessing the efficiency, effectiveness and usefulness of the activities carried out by this department. It can be in the form of analyses and expertise, monitoring data, principals' assessments (e.g. politicians), opinions of the stakeholders of a given policy, comparisons with other departments, etc.	Feedback is like school grades – it allows us to understand whether things are going in the right direction, and whether the tasks implemented by a department bring the expected results, and benefit their recipients.
Top-down reflection	Discussions and analyses of issues important for a whole department, conducted with the participation of a department's management.	Top-down reflection allows employees of a whole department to think about incoming information, relate it to their own work and eventually translate it into knowledge useful in the specific context of their department.
Bottom-up reflection	Discussion and analyses of received impulses and the current situation, which take place in a unit of a department, among its employees.	Bottom-up reflection allows employees of units and teams to think about incoming information, relate it to their own work and eventually translate into knowledge useful in the specific context of their unit.
Contextual knowledge	Knowledge of the environment in which a department operates and of the subject related to its tasks, held by staff of a department. The ability to explain the trends and possible causes of various phenomena in a given sector or policy area.	Helps to explain what is happening around the department, in a given policy area, subject or sector, which is linked to the activities of the department. It also allows you to relate observed changes to the situation of the department.
Strategic knowledge	Employees' knowledge of the objectives of a department, of the expected effects of the activities undertaken by a department, of its role in the ministry, in the system of public policies, and in society.	Strategic knowledge explains to employees how their work contributes to the realization of the most important tasks of the organization. It allows them to guide their activities towards a common, overarching goal.
Operational knowledge	Technical, operational knowledge (know-how), associated with the use of different tools, operating methods, application of effective processes and procedures.	Allows employees to continuously improve established processes, procedures, and operating methods. As a result, it improves workflow in a department.

Table 6 – continued

Name of the process	What it is	How it benefits the organization
Operational adaptation	Change in operational issues – the current working methods, procedures, ways of performing daily activities – made as a result of reflection on the impulses that reached a unit or a department.	Thanks to operational adaptation, an organization changes the way it performs daily activities (doing the same things more efficiently). It improves the smoothness and efficiency of work.
Strategic adaptation	Change in the future directions of a department, the tasks or the perception of the area, in which a department operates. Occurs under the influence of reflection on the impulses that have reached the organization.	With strategic adaptation, a department responds to the challenges and needs of the evolving environment. As a result, both the effectiveness and usefulness of the activities performed by a department are improved.
Political adaptation	Change in the course of action, revision of the purpose of a department, under the influence of a political or personnel change at the highest levels of the ministry.	Thanks to the political adaptation, a department adjusts to a vision put forward by the leaders of the organization – politicians.

Table 7. Determinants of organizational learning

Name of the determinant	What it is	How it supports the learning process
Goal-oriented thinking	The ability to use cause-effect reasoning, to perceive and define the activities of a department in the form of causal relationships: challenges and needs – inputs – processes – outcomes (positive changes).	Thanks to this skill employees can identify and obtain feedback from external sources, which concerns the most important outcomes of an organization's activities. They can also use this ability to pursue critical reflection, draw conclusions and strengthen their strategic knowledge.
System thinking	Identifying relationships and interdependences, perceiving the broader context in which public activities and different projects are taking place. Awareness of the dynamics of phenomena in time.	Thanks to this skill employees can identify and acquire information from external sources, related to the context and longitudinal effects of a given activity. On this basis, they can pursue critical reflection and strengthen their strategic and contextual knowledge.
Critical thinking	The ability to ask questions, to formulate problems clearly, to build arguments, to evaluate evidence and its credibility, and the ability of logical inference.	This ability allows employees to identify reliable sources of information, to build a clear argument during team discussions, and to base decisions on firm evidence. Depending on the topic, it can improve different kinds of knowledge (operational, strategic, and contextual).
Mutual support	Support provided by co-workers in the face of emerging problems.	It is a prerequisite of cooperation and fruitful discussions in the team. It also strengthens operational knowledge.
Group cohesion	Good relationships in the team, mutual kindness and a spirit of cooperation.	It benefits team cooperation, and supports common reflection on improving one's work and its effects.
Psychological safety	Freedom to express opinions (including critical ones), acceptance of different views occurring among the team members, lack of fear of risk-taking, absence of deliberate disturbance of colleagues.	It is necessary for the smooth functioning of the team. It enables collective reflection, and learning from successes and failures of a department and its teams.
Democratic leadership style – heads of department	A style of team management. Democratic leaders encourage staff to discuss and to put forward ideas, provide inspiration, and respect employees' independence. They can also clear up misunderstandings between employees. Such leaders ensure that employees are informed of their roles and the objectives and tasks of a department.	Democratic leadership enables organizations to develop reflection on the effectiveness and efficiency of the department. It strengthens contextual knowledge and strategic knowledge.

Table 7 – continued

Name of the determinant	What it is	How it supports the learning process
Democratic leadership style – heads of units	A style of team management. Democratic heads of units encourage their staff to discuss and to put forward ideas, provide inspiration, and respect employees' independence. They can clear up misunderstandings between staff members and ensure that employees are informed of their roles and the objectives and tasks of a unit.	Democratic heads of units enable their teams to develop reflection on the effectiveness and efficiency of the unit. They strengthen contextual, strategic as well as operational knowledge.
Availability of analyses and information	Availability and accessibility of databases, publications, information used in everyday work.	A source of inspiration and impulses. It supplies the reflection process with facts, and – depending on the scope of information – helps to build contextual, strategic or operational knowledge.
Financial and technological resources	The money available to a department for training, commissioning of expertise reports, obtaining information, but also for the equipment used in everyday work.	Financial resources allow participation in training, collecting feedback, and facilitating reflection processes. In turn, technological resources facilitate e.g. collection and processing of knowledge, or communication between team members.
Reference framework	The function of a department translated into a set of practical information and indicators, by which the department monitors the effects of its activities and relates them to the broader goals set at the institution level. Thus, the reference framework sets a benchmark to evaluate the performance of a department. It should include the opinions of the clients of a department and its stakeholders.	Allows the impulses from external sources to be organized into a consistent message about the results of a department. In simple terms, it tells us whether we have succeeded as an organization. Therefore, it creates a framework for meaningful top-down reflection and builds all kinds of knowledge.
Codification of practices	Well-established practices of commissioning research and expertise, of internal reflection in teams, of knowledge sharing and storing information. The codification may take the form of an internal procedure, checklist, template, action scenario, manual, or custom.	The codification of practices allows the organization to remember the modes of action which proved useful. Depending on the subject, it may support all three types of knowledge.
Relationship with immediate environment	The breadth and intensity of contacts a department has with other departments within the same ministry, as well as relationships with political superiors.	It allows useful feedback to be gathered from the immediate environment, i.e. from within the ministry.

Table 7 – continued

Name of the determinant	What it is	How it supports the learning process
Relationship with remote environment	The breadth and intensity of contacts a department has with actors from beyond the ministry – stakeholders of a given policy, academics, consultants, experts, other ministries, think tanks, etc.	Allows diverse and useful feedback to be gathered. The more sources a department has, the wider perspective it may have. As a result, a department gains a more objective view and a deeper knowledge of the needs of stakeholders and the appropriate lines of action.
Quality of expertise	The ability to obtain knowledge from independent experts, and the general assessment of the quality of external research and expertise.	Expertise of high quality is an important source of feedback. It provides essential input to reflection processes in a department, and supports contextual and strategic knowledge.

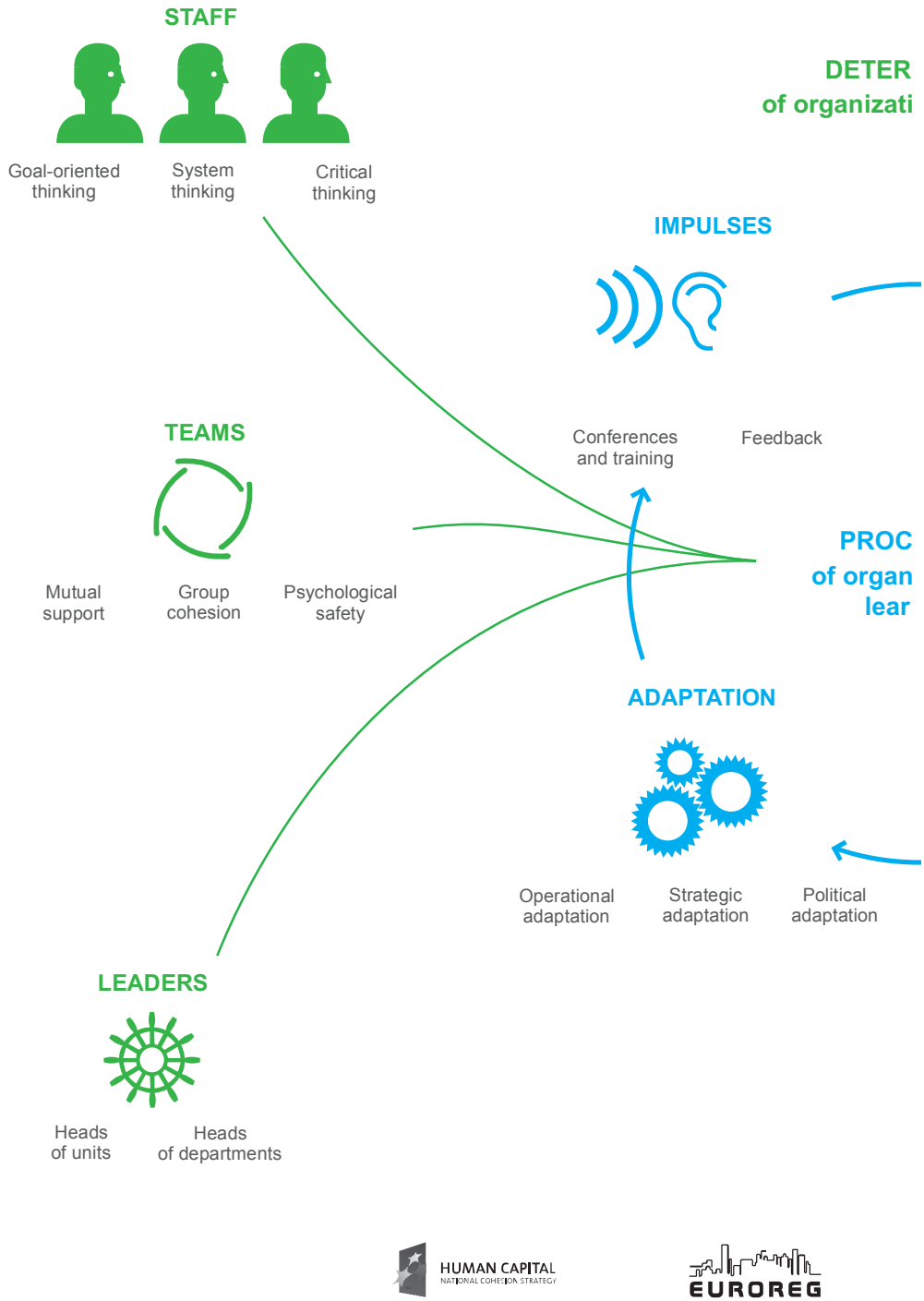

Figure 5. The mechanism of organizational learning

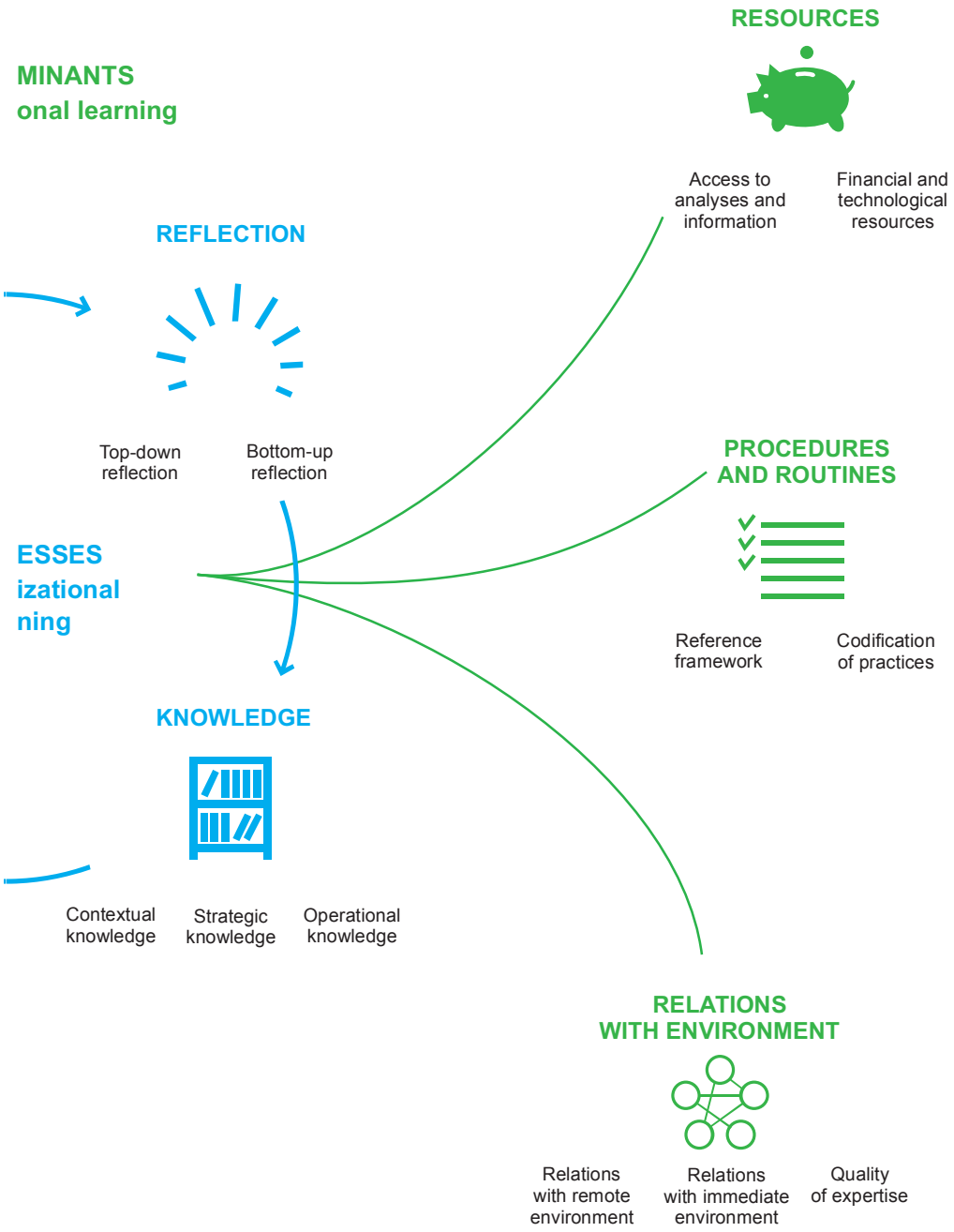

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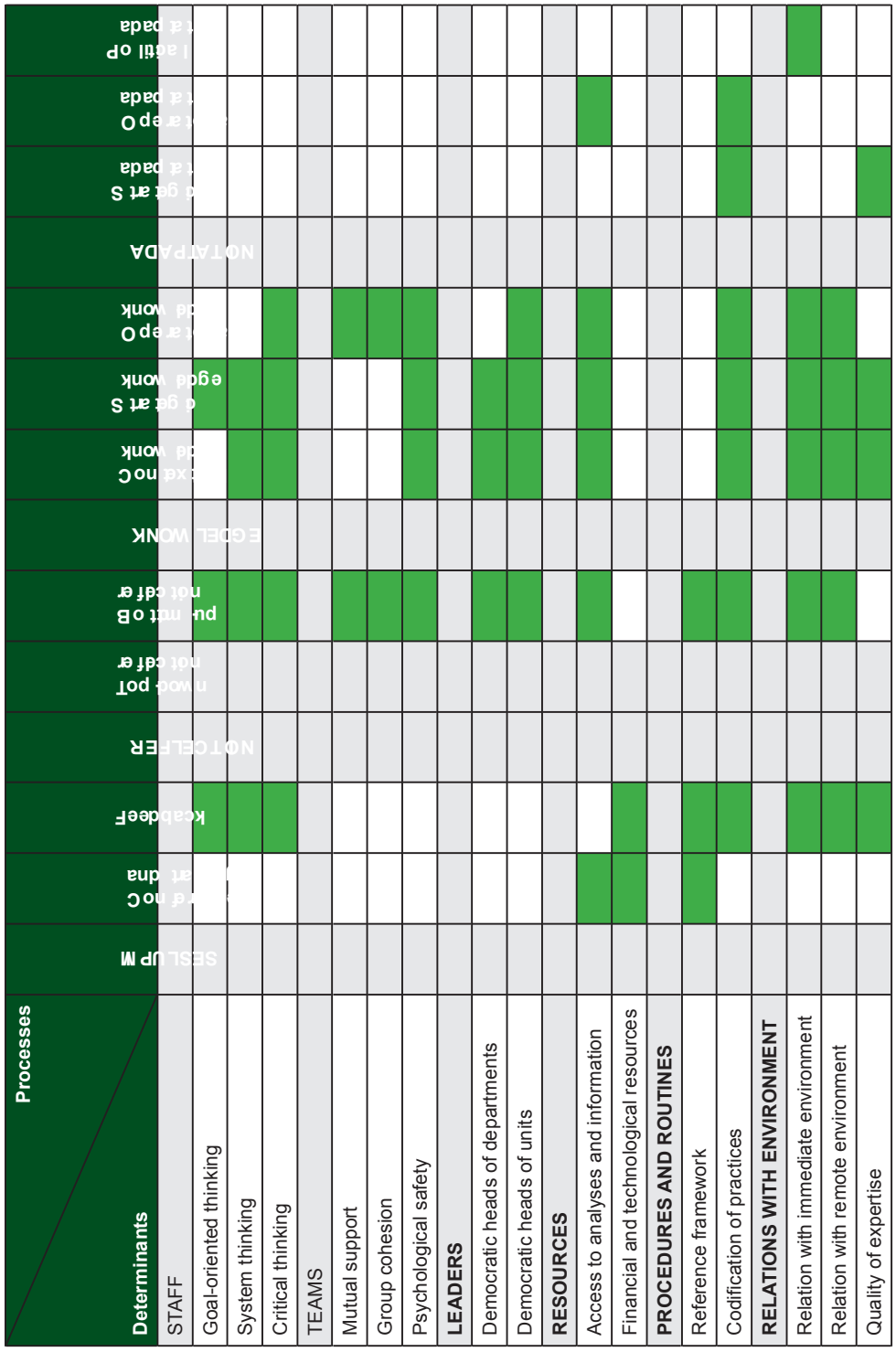
Figure 6. Relations between processes and determinants of organizational learning



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