

# Organizational resilience assessment in Lithuania's public sector

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## Abstract

*This study aims to examine the perspective of public sector resilience development, which is explored as a three-stage construct: Planning, Adaptation, and Enhanced Learning. We analyzed whether these three stages are equally important in developing organizational resilience in the public sector. To assess the developmental importance of the three stages of organizational resilience, this study adopted a quantitative methodology. First, expert research was conducted to analyze whether all three stages were equally important in developing organizational resilience. Second, the level of resilience of public sector organizations in Lithuania was assessed by analyzing the survey results of 401 organizations. The results revealed that according to experts, the Adaptation stage is the most important in developing resilience, while Enhanced Learning is the least important. Meanwhile, resilience assessment in the Lithuanian public sector showed that Planning and Adaptation were equally developed, while Enhanced Learning demonstrated a significantly higher score.*

**Keywords:** public sector resilience, public sector resilience assessment, organizational resilience, planning, adaptation, enhanced learning

## Introduction

The last few years have been particularly challenging for public sector organizations (PSOs) as they were expected to effectively tackle various challenges, such as ensuring public health and security and minimizing economic impacts and instability. Nevertheless, there has been criticism of the public sector's ability to operate in uncertain environments, as many conventional practices, norms, and knowledge have become outdated when dealing with crises. Moreover, PSOs face many constraints that differ from those in the private sector. These constraints

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include a complex hierarchical structure, limited political autonomy, lack of skills, and budgetary constraints. However, it is essential to acknowledge that certain PSOs demonstrate proactive behaviour in effectively preparing for and adapting to rapidly evolving circumstances. This observation naturally leads to the question of why the performance of some PSOs deteriorates during times of adversity while others thrive. In this respect, the role of the organizational resilience (OR) phenomenon has been brought to light by various scholars as it delves into an organizational ability to prepare for uncertainty and cope with crises promptly. Thus, it is imperative to study the conditions, factors, and behaviours that contribute to developing resilience in the public sector (PS).

The fundamental principle of PSO resilience is the ability to prepare for disruptive events (Mazzucato & Kattel, 2020), adapt to changed circumstances (Bright, 2021; Elston & Bel, 2022; Plimmer et al., 2022), return to a new stable situation (Orth & Schuldis, 2021), and use acquired experience and knowledge as a driving force to ensure successful service continuity (Hartley, 2018; Herrero & Kraemer, 2022; Hoegl & Hartmann, 2021; Kirsop-Taylor, 2022; Leite & Hodgkinson, 2021; Wójcik-Mazur et al., 2022). Moreover, resilience comes into force when organizations can no longer perform within the limits of existing rules, regulations, and knowledge (Rajala & Jalonen, 2022; Termeer & van den Brink, 2013). Realizing that a crisis is inevitable enables organizations to focus not on how to avoid it, but on overcoming it and even taking advantage of it by enhancing foresight, as disruptive events are considered a significant trigger for resilience development (Mithani et al., 2021). Organizations that have experienced significant threats are more likely to evolve and become stronger in the long run than those that have managed to avoid shocks. These statements lead to the assumption that adversities and failures are a part of life. If there is no failure, there is no learning; if there is no learning, there is no change.

Although the scientific literature highlights the importance of planning, adaptation, and learning, knowledge about the extent of development at each stage still needs to be improved. Little is still known about whether, by paying more attention to planning, PSOs become more resilient and can afford to pay less attention to the adaptation and learning stages. In contrast, more attention should be paid to managing crises once they occur. Can organizations that already have formal learning mechanisms in place take a breather and focus on other priorities? These questions are partially analysed in Darkow's (2019) study, where a capability-based approach acknowledges resilience as the organizational ability to prepare and respond to threats and a shift between practices. The author argues that prioritizing one over the others disregards the interconnections between the stages and the capabilities necessary to manage them. Thus, planning and recovery should be treated as two distinct stages that require precise preparation; however, they should be considered equally important in developing OR.

Moreover, Darkow (2019) argues that although these two approaches are distinct, they must be explored jointly to explain why some PSOs operate thrivingly in an environment of shocks while others struggle. Although Darkow's (2019) study has contributed significantly to the theory of resilience development in PS, we also identified the shortcomings addressed in this study. First, we examine OR as planning and adaptation and highlight the importance of enhanced learning. Extensive literature shows (Herrero & Kraemer, 2022; Kirsop-Taylor, 2022; Loon, 2016; Lynn et al., 2021; Vigoda-Gadot et al., 2022) that learning is perceived as a root activity that enables organizations to restructure themselves when faced with diversity and acquire new knowledge, which becomes essential in recognizing potential adversities. Second, we explored the importance of developing the three stages that foster OR. Considering these drawbacks, this study aimed to investigate whether the stages of OR (i.e., planning, adaptation, and learning) are equally important in developing OR. We conducted a quantitative assessment of experts and assessed the resilience level in Lithuania's PSOs.

The paper is structured as follows: first, we present the analysis of scientific literature and the hypotheses formed based on it; second, we present the methodology; third section provides and discusses the results of the empirical study; and fourth concludes the paper.

## **1. Literature review**

The resilience phenomenon of PS is becoming a highly relevant subject of scientific debate owing to increased uncertainty and recurring crises (Manea, 2022). This trend became particularly evident after the Covid-19 crisis when representatives of the scientific community and PS managers realized that organizations must respond to the altered environment and adapt their activities to meet the changed realities.

Aragao and Fontana (2022) revealed that developing OR in PS is challenging for most managers. 88.24 percent argued that resilience in the PS is almost impossible due to:

difficulty in planning; lack of agility in the execution of services; excessive bureaucracy in day-to-day activities; constant internal changes in personnel; lack of communication and sense of team; lack of training for civil servants; resistance to change; lack of incentive for civil servants; lack of clarity of objectives; lack of operations control; excessive empiricism in decision-making; and dependence on other institutional spheres (p. 72).

Only 11.76 percent agreed that resilience development in the PS is an easy task, as the PS constantly operates in turbulent conditions. Lack of predictability measures, transparency, and poor communication are also negative factors impeding resilience (Phillips et al., 2021; Ticiu et al., 2021). Challenges are also caused by

the need for more theoretical and empirical knowledge regarding the development of resilience and the possibility of assessing it over time in PSO.

Different scientific sources have explored resilience in different ways. One approach states that OR can be explored as organizational capability 'to bend out of shape during a shock and return to a new stable situation by acting as an adaptive system, enriching its internal complexity to deal with the growing complexity of the environment (Rochet et al., 2008, p. 66). Another approach is to examine the phenomenon through different states, such as defensive and adaptive (offensive) resilience (Rajala & Jalonen, 2022). Defensive resilience is ensured by the robustness and stability that preserve normalcy during adversity, as it relies on activities supported by existing knowledge. By contrast, offensive resilience is achieved by delivering new behaviours that arise from new knowledge generated during adversity. Ishak and William's (2018) dual-spectrum model examined resilience from a similar perspective. The authors explored resilience by amount, that is, less resilient, more resilient, and by type, that is, anchored resilience (fixed mindset) and adaptive resilience (growth mindset). Both types of resilience are meaningful, regardless of whether organizations maintain a fixed or growth-mindset approach. The main difference is that adaptive resilience can absorb and take advantage of changes and become the basis for bouncing forward momentum (Reichenbach et al., 2021). Moreover, adaptive resilience treats shocks as normality because that is their as ration, that is, a constant search for how to adapt. Thus, there is no break in the alcy. Adaptive resilience is usually practiced in Highly Resilient Organizations (HROs) that recognize adversity as an inherent part of their operations (Darkow, 2019). In contrast, the ultimate effort for anchored resilience is to return to normal. When faced with adversity, anchored-resilient organizations are not yet prepared to meet the challenge (Ishak & Williams, 2018). In both cases, learning is the basis for developing OR, and it depends only on the organizations themselves how and they perceive the resilience phenomenon (Hillmann & Guenther, 2021). The higher the level of resilience, the more resources will be consumed (Brykman & King, 2021). This is essential because financial constraints are identified as one of the most significant obstacles to achieving resilience in PSOs (Barbera et al., 2017; Kirsop-Taylor, 2022). However, another view is that not only is the amount of resources essential, but also the ability to use them properly, that is, redistributing them efficiently and promptly during adversity (Mazzucato & Kattel, 2020; Shaw, 2012). These insights lead to the assumption that the development of resilience manifests itself as strategic momentum, accompanied by paradox momentum. According to Rajala and Jalonen (2022), resilience occurs when strategic planning is complete. This argument is based on the assumption that resilience comes to force when organizations can no longer perform within the limits of existing rules, regulations, and knowledge, that is when decisions that go beyond strategic planning are required. However, it is essential to note that the ability to shift from strategies and make timely decisions based on current state conditions requires specific

abilities and preparedness (Fehrer & Bove, 2022). Proper planning and preparation for crises enable organizations to be ready to meet and deal with them. Regardless of how we plan, unforeseen crises are unlikely to be avoided. However, it is crucial to remember that more resilient PSOs can reduce their impact and recover faster and more efficiently than less resilient ones can. Successful planning helps not avoid setbacks but to learn how to cope with them and appreciate them as a natural evolutionary process of organizational development (Androniceanu et al., 2022; Pashapour et al., 2019). Furthermore, one of the essential characteristics of OR is its ability to identify new opportunities that would not have been possible to recognize at regular times (Chen, 2022; Pettersen & Schulman, 2019; Ruiz-Martin et al., 2018). Thus, PSOs are encouraged to prepare for the unknown and act without a plan (Termeer & van den Brink, 2013). Boin and van Eeten (2013) are convinced that the ability to act outside of strategic planning depends on organizational sense-making, which has been acknowledged as a root activity for OR development as it provides the knowledge and capability to navigate uncertainty when existing routines and knowledge are insufficient to cope with setbacks. More is discovered about sensemaking in Termeer and van den Brink's (2013) study, as they examine the conditions that evolve sensemaking, such as appreciation of past experiences, staying in motion, improvisation, encouragement and bricolage, looking closely and often updating, and developing an attitude of wisdom. Most people, particularly those with engineering backgrounds, believe that uncertainty can be explained by inventing better models. However, the more we learn about a particular domain, the greater the number of uncertainties, doubts, questions, and complexities occur' (Weick, 2001 as cited in Termeer & van den Brink, 2013). Thus, organizations must learn to navigate between extreme confidence and caution.

Moreover, it is worth analysing Duit's (2016) six-step resilience ladder, where the lowest step represents the most basic interpretation of OR, that is, the organizational ability to maintain its core functions during the setback. The second step directs the organization's ability to maintain structure and integrity during the setback, followed by the third step, which reflects the ability to maintain structure and integrity during adversity and ensure a successful recovery to return to normalcy. The fourth step calls for successful crisis management and recovery, followed by the fifth step, which assumes that the most thorough conceptual approach towards OR directs purposeful learning. The sixth promotes lesson drawing and institutional and organizational reforms. This is indicated as the uppermost state of resilience and takes the top spot on the resilience ladder. However, in Franken et al. (2021) argument, resilience development in the PS faces challenges associated with the sustainable support system for successful knowledge transfer among the pairs. To solve these issues, Franken et al. (2021) proposed five areas that promote goal-oriented behaviours: the ability to manage the whole team, enable self-management, recognize individual needs and contributions, support both career and personal growth, and manage safe failures. Moreover, each behaviour identifies processes,

techniques, and guidelines for managers at various levels on how to become effective change agents and enhance their subordinates' abilities. This moment is vital, as extensive literature shows that most resilient leadership studies explore the behaviour of senior managers and executives (Angelis & Polychronidou, 2022; Brykman & King, 2021; Lund & Andersen, 2023) and exclude middle managers directly responsible for successful service delivery and knowledge transfer to their subordinates. This is worrying because managers are more responsible for solving crises than their subordinates (Näswall et al., 2019). In the face of setbacks, frontline managers expect to deactivate organizational know-how that does not fit the shifted parameters and is no longer sufficient for use due to changed conditions. Frontline managers are challenged to quickly develop new knowledge that arises from adversity and to ground it into new norms according to situational conditions. In this respect, resilience is closely tied to robustness and protects organizations from bouncing back with their usual organizational behaviours (Lund & Andersen, 2023).

To conclude, OR is an organization's ability to prepare for crises and plan how to cope with them in the face of adversity. Second, it explores the organizational ability to adapt to stabilize and return to normal activities aftershocks. Third, using the moments of the organization's ability to learn, use the acquired experience, and take advantage of the new knowledge to ensure successful operations continuity. Two important points can be observed from various scientific sources. First, it emphasizes thorough preparation of the organization for unforeseen changes, threats, and shocks. Second, experience gained during shocks is seen as an advantage that leads to effective and high-quality continuity of public service provision. Hence, we concluded that the resilience of PS consists of three stages: Planning, Adaptation, and Enhanced learning. However, we still need to understand the importance of each developmental stage. Therefore, we aimed to address this knowledge gap by investigating whether each stage is equally important in the development of OR. To address this challenge, we propose two hypotheses:

*H1.* Based on the expert assessment of the stages of OR, Planning, Adaptation, and Enhanced Learning are equally important in developing OR.

*H2.* Based on the assessment of PS resilience, the stages of OR (i.e., Planning, Adaptation, and Enhanced Learning) were developed equally.

## 2. Methodology

To explore the resilience of PSO, we adopted a quantitative methodology that has been widely used in various studies (Brown et al., 2017; Gonçalves et al., 2019; Lee et al., 2013; McManus et al., 2007; Sobaih et al., 2021; Whitman et al., 2013). The measurement instrument presented in Table 1 refers to two validated questionnaires: a short version of the Resilience Benchmark Tool (RBT-13) developed by Whitman et al. (2013) and later validated by Gonçalves et al. (2019), and an adapted questionnaire by Mardaras et al. (2021).

## 2.1. Questionnaire

In contrast, Gonçalves et al. (2019) used an 8-point Likert scale and Whitman et al. (2013) used a 4-point Likert scale, which we considered a 7-point Likert scale, with 7 representing strong agreement and 1 presenting strong disagreement.

**Table 1. The structure of the organizational resilience measurement instrument**

Stages	Item	Abbrev.	Authors
Planning	Our management thinks and acts strategically to ensure we are always ahead of the curve.	P_1_SA	Whitman et al. (2013)
	There would be good leadership within our organization if a crisis struck us.	P_2_GL	
	Our priorities for recovery would provide direction for staff in a crisis	P_3_PR	Gonçalves et al. (2019)
	Our organization practices and tests emergency plans regularly	P_4_EP	
	We build relationships with other organizations we might have to work with during a crisis.	P_5_BR	
	We proactively monitor our environment to have an early warning of emerging issues.	P_6_PM	
Adaptation	Our organization can shift rapidly from business-as-usual to responding to crises.	A_1_RS	
	In a crisis, we seek opportunities for our organization	A_2_SO	
	People in our organization "own" a problem until it is resolved	A_3_OP	
	Our organization's culture is to be very supportive of staff	A_4_SC	
	Our organization can make tough decisions quickly	A_5_QD	
	Staff is rewarded for "thinking outside the box."	A_6_OB	
	The staff has the information and knowledge they need to respond to unexpected problems.	A_7_IK	
	There is a sense of teamwork and camaraderie in our organization	A_8_TW	
Enhanced learning	Our organization maintains sufficient resources to absorb some unexpected changes.	A_9_SR	
	We learn lessons from the past and ensure those lessons are carried through to the future.	EL_1_LL	
	Talent is empowered and managed.	EL_2_TE	
	There are formal organizational knowledge management tools supported by senior management.	EL_3_KM	
	Our teams freely make their short-term plans	EL_4_FP	
	Our teams learn from their mistakes and are not penalized for them	EL_5_LM	
Team members must be able to adapt capabilities to the environment's needs	EL_6_AC	Mardaras et al. (2021)	

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Our organization allows the team to react quickly and freely to opportunities. EL\_7\_RQ

We believe that the best results in innovation come from intuition and team improvisation. EL\_8\_II

Gender equality is important in our organization. EL\_9\_GE

We use crises as an opportunity to enhance an organization's activity EL\_10\_EA

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Source: Authors' representation

The questionnaire was translated into Lithuanian by a professional translator. Furthermore, the translated version was validated during the pilot study to confirm that it was understandable and user-friendly.

## 2.2. Sampling

The survey for collecting the data necessary to evaluate OR in Lithuania's PS was conducted by interviewing organizations that provide public services (March-April 2022). Since there is no register of public service organizations in Lithuania, and thus, the population size is unknown, we calculated the sample size assuming that the population size is infinite. With a confidence level of 95% and a margin of error of 5%, the minimum required sample size (SS) was 385. The unknown size and characteristics of the population prompted us to ensure a representative sample. We assumed that the spatial (regional) distribution of PSO in Lithuania should follow the spatial (regional) distribution of the population, with a slight bias towards the capital region Vilnius and the second largest region, Kaunas, due to the higher concentration of healthcare, higher education, and other public service organizations. Quotas of public service organizations that provide services were assigned in each NUTS 3-level region according to Lithuania's regional population distribution (data for 2021) plus 10% and 5% for the capital and Kaunas regions, respectively (see Table 2). Thus, the overall number of organizations for which the data were collected was 401. In the second step, to represent various public service organizations according to the type of services provided and their size, we purposefully tried to reach organizations with a different number of employees that would represent all service categories based on "The methodology for estimating the Public Services User Satisfaction Index" prepared by the Ministry of Internal Affairs of the Republic of Lithuania (see Table 2). An electronic survey was sent to the organization managers, followed by a phone call to ensure a better response rate.

At the same time, we carried out expert research to (i) estimate the importance (weight) of each criterion in developing the resilience of PSO and (ii) collect experts' insights and opinions based on their leadership experience in the PS. The expert research was conducted using survey interviews with experts according to the prepared questionnaire (a modified version of the questionnaire we used to survey public service organizations).



**Table 2. Sample of the research**

	<b>Number of organizations</b>		<b>Number of organizations</b>
<b>Total</b>	<b>401</b>		
<b>By counties</b>		<b>By the type of provided services</b>	
Telsiai	18	Employment	24
Panevezys	30	Law enforcement	7
Siauliai	37	Real estate management	12
Taurage	13	Public transport and communication	26
Vilnius	120	Tourism	33
Utena	18	Legal	5
Klaipėda	46	Other	14
Alytus	19	Culture and sports	45
Kaunas	81	Business	27
Marijampole	19	Health care	31
<b>By the size of the organization (number of employees)</b>		Utilities and environmental management	33
Micro (less than 10)	61	Education	55
Small (10 - 49)	124	Social	39
Medium (50 - 250)	168	Fire protection and rescue	29
Large (more than 250)	48	Taxes administration	21
<b>By the gender of the organization's head manager</b>		<b>The head manager's management experience in the organization</b>	
Male	208	Up to 1 year	21
Female	193	1-2	41
<b>By the age of the organization's head manager</b>		3-5	73
Bachelor (undergraduate)	78	6-10	68
Master (postgraduate)	294	11-20	125
Doctoral	25	More than 21 year	73
<b>By the age of the organization's head manager</b>			
Below 39	44		
40-49	118		
50-59	137		
60 and above	102		

Source: Authors' representation

Experts were asked to indicate on a 7-point Likert scale, the importance of each criterion in developing resilience in PSOs. Because the number of criteria in

each stage (Planning, Adaptation, and Enhanced Learning) differed, the weight of each element was adjusted according to the relative importance of a stage based on the expert interview. In addition, a study of experts' opinions, comments, and suggestions was conducted using content analysis based on the statistical and qualitative evaluation of the insights of various experts. We aimed to isolate specific experts' statements and study multiple opinions about the criteria and stages of OR and their relationships with each other.

### **Criteria for selection of experts**

First, the experts had to represent various areas of PS, such as: PS administration; education and science; health protection; social security and work; economy; culture; utilities. Second, the experts had to represent all regions in Lithuania. Third, the main criteria for experts were work experience, competence, professional knowledge of PS, and positions held in public service organizations. Fourth, experts were distinguished by their professional activities in different fields.

For example, a PS manager is engaged in scientific research activities, often with a scientific degree, or researchers who come to administrative work in the PS. Based on these criteria, 30 experts were selected and interviewed.

- 26.7 percent- eight representatives of municipalities, including one director of the Association of Municipalities of the Republic of Lithuania, a former Minister of Education, and five heads of municipal administration (administrative directors and deputies, deputy mayors, mayors' advisors, heads of municipal departments related to public service provision and quality assurance).
- 26.7 percent- eight managers and specialists of public service organizations in the fields of health protection, culture, and utilities;
- 20.0 percent- six members of the Seimas of the Republic of Lithuania, including two former ministers and two former municipal council members;
- 13.3 percent- four representatives of the field of education and science (university professors, heads of faculties, scientific research laboratories).
- 10.0 percent- heads of departments of three ministries of the Republic of Lithuania (Ministry of Economics and Innovation, Ministry of Social Security and Labor, and Ministry of Agriculture);
- 3.3 percent- 1 Director of the Documents Department of the Chancellery of the Seimas of the Republic of Lithuania.

### 2.3. Data analysis methods

Following the studies by Whitman et al. (2013) and Gonçalves et al. (2019), the reliability of the collected data was tested using Cronbach's alpha. To identify the current status of OR in public service organizations and their differences in the sample that might be driven by the organization's location, type of services provided, or organization's head manager's characteristics, following Sengul et al. (2018) descriptive statistics, and ANOVA were used. For ANOVA, F or Welch, together with Brown-Forsythe tests, depending on the results of Levene's test of variance homogeneity, were applied.

### 3. Results and discussion

After collecting the data, we tested the internal consistency of the criteria on a scale (see Table 3).

**Table 3. Cronbach's alpha**

Group of criteria, i.e. stages	Number of criteria	Cronbach's alpha	
		Organizations' questionnaire	Experts' questionnaire
Planning	6	0.853	0.852
Adaptation	9	0.854	0.811
Enhanced Learning	10	0.884	0.851
All	25	0.940	0.927

Source: Authors' representation

The calculated Cronbach's alphas ( $>0.7$ ) show the internal consistency between the criteria on a scale in all stages of OR, considering organizations' surveys and expert interviews.

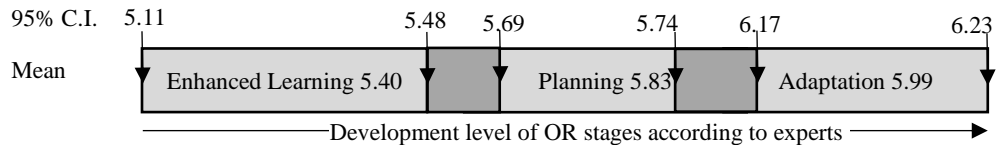
#### 3.1. Expert assessment

Interviews with experts revealed that none of the three stages of OR had the same importance in developing the overall resilience level. The t-test showed that experts indicated adaptation to be significantly more important than Enhanced Learning. The 95% C.I. of planning and adaptation averages overlap. The same was true for Planning and Enhanced Learning. However, the 95% C.I. of adaptation and enhanced learning averages did not overlap (see Figure 1).

Moreover, the assigned weights to OR stages range from 31.4% to 34.8% (see Table 4), and specific nuances can be noted. According to experts, when faced with adversity, adaptation to new conditions has the greatest importance (weight 34.79 percent), preparation for such unexpected situations accounts for 33.83 percent, and

learning from crises experiences 31.37 percent in developing OR. Based on these findings, we partially reject H1, which states that based on expert assessment of the stages of OR, that is, Planning, Adaptation, and Enhanced Learning, are equally important in developing OR.

**Figure 1. The development level of OR stages according to experts**



Source: Authors' representation

**Table 4. Descriptive statistics of experts' interviews and organizations' survey**

OR structure		Estimated criterion's weight according to experts	Descriptive statistics of public service organizations survey				
			Average	95% C.I.	Std. dev.	Skewness	Kurtosis
Stage and its weight according to experts	Criterion's abbreviation						
<b>Planning (33.83%)</b>	P_1_SA	5.74%	6.02	(5.92; 6.12)	1.03	-1.46	3.39
	P_2_GL	6.26%	6.20	(6.12; 6.28)	0.77	-0.95	1.79
	P_3_PR	5.46%	5.91	(5.81; 6.01)	1.04	-1.19	2.00
	P_4_EP	5.36%	5.16	(5.00; 5.31)	1.59	-0.82	-0.02
	P_5_BR	5.39%	5.66	(5.54; 5.77)	1.21	-1.30	2.25
	P_6_PM	5.63%	5.96	(5.86; 6.06)	0.99	-1.18	1.81
<b>Adaptation (34.79%)</b>	A_1_RS	3.87%	6.05	(5.96; 6.14)	0.92	-1.21	2.26
	A_2_SO	4.01%	6.20	(6.11; 6.29)	0.89	-1.73	5.15
	A_3_OP	4.08%	6.23	(6.15; 6.30)	0.80	-1.08	2.16
	A_4_SC	3.87%	6.22	(6.14; 6.31)	0.87	-1.57	4.54
	A_5_QD	3.94%	6.02	(5.93; 6.11)	0.88	-1.00	2.38
	A_6_OB	3.82%	5.90	(5.81; 5.99)	0.92	-0.96	1.36
	A_7_IK	3.78%	5.76	(5.67; 5.85)	0.90	-0.72	1.65
	A_8_TW	3.64%	6.04	(5.96; 6.13)	0.85	-0.58	-0.08
	A_9_SR	3.78%	4.76	(4.63; 4.90)	1.40	-0.48	-0.34
<b>Enhanced Learning (31.37%)</b>	EL_1_LL	3.30%	6.14	(6.06; 6.23)	0.83	-0.82	0.46
	EL_2_TE	3.34%	6.16	(6.07; 6.25)	0.90	-1.33	2.81
	EL_3_KM	2.82%	5.36	(5.22; 5.50)	1.44	-0.99	0.61
	EL_4_FP	3.03%	5.96	(5.85; 6.06)	1.04	-1.30	2.04
	EL_5_LM	3.05%	5.98	(5.88; 6.08)	1.01	-1.37	2.98

EL_6_AC	3.19%	6.24	(6.17; 6.32)	0.73	-0.69	0.06
EL_7_RQ	3.40%	6.10	(6.02; 6.18)	0.82	-0.90	0.98
EL_8_II	3.21%	6.20	(6.11; 6.28)	0.87	-1.02	0.71
EL_9_GE	2.72%	6.42	(6.33; 6.51)	0.91	-1.93	4.51
EL_10_EA	3.32%	6.21	(6.12; 6.29)	0.85	-1.12	1.39

Source: Authors' representation

The obtained results contradict existing knowledge, emphasizing the necessity of evenly developing all three stages and the danger of prioritizing one over the other (Darkow, 2019). Darkow (2019) highlighted the urgency of exploring all stages in conjunction when assessing PSO resilience. The results also revealed that experts highlighted the need for preparedness for adversity based on their practical experience. If all efforts to cope with the setback are made just when a crisis occurs, it reduces the possibility of successfully overcoming the crisis. Thus, specific abilities should be developed at this stage and crisis management plans should be prepared and practiced (Aragao & Fontana, 2022).

Although with a slight deviation, the experts rated the enhanced learning stage as the least important (31.37%). This result is alarming, as learning is perceived as a root activity that enables organizations to restructure themselves when faced with diversity and acquire new knowledge to recognize potential adversities. Orth and Schuldis (2021) highlighted the positive effect of organizational learning capability on OR. The results reveal that learning enhances the organizational ability to prepare and is strongly related to the organizational ability to adapt during and after a disruptive event. Thus, even though the first hypothesis is partially rejected, the experts' long-term experience in the PS could have influenced the course of the results, which the experts relied upon in assessing not what is essential in resilience development but how it is.

In addition, more significant gaps were observed when examining the distribution of different criteria in each stage. At the preparation for change stage, the largest weight and thus importance was attributed to the role of the leader (6.26 percent) and management behaviours according to the available pre-prepared strategy to manage crises (5.74%). The results support Fischer et al. (2022) study, in which the role of leadership in developing OR is identified as a predecessor in developing employee resilience. Moreover, Plimmer et al. (2022) provided evidence-based findings stating that employee resilience develops naturally with supportive leadership, contributing to the organization's overall resilience.

The results revealed that the criterion that the organization constantly tests for emergency management plans is the least important (5.36%). This is also concerning, as creating plans without active practice will not deliver any benefit (Aragao & Fontana, 2022). When faced with a crisis, organizations will not have the necessary knowledge and practice to apply them and therefore face difficulties.

Nevertheless, deviations from other criteria vary relatively slightly, and all other criteria' roles are roughly evenly distributed.

When evaluating the criteria for adapting to turbulent events, the responsibility of the organization's employees for the work performed comes first - 4.08%, and the search for new opportunities to continue the organization's activities in a difficult situation is also essential; 4.01 percent is also interesting that the last place in the experts' evaluations is the sense of teamwork (3.64%), reflecting a more individualistic approach. However, Brykman and King (2021) and Vigoda-Gadot et al. (2022) argue that team resilience capacity is positively related to team learning, which in turn creates conditions for the knowledge spillover effect.

The analysis of expert evaluations of the criterion of the Enhanced Learning stage revealed that the most significant importance is given to the organization's ability to quickly react to opportunities that arise during adversity (3.40 percent); use crises as an opportunity to improve its operations (3.32 percent); organizational ability to empower talented employees (3.34 percent). In the context of uncertainty, the role of talent, non-standard thinking, and original thinking are particularly important because such employees can foresight opportunities that arise in times of crisis and suggest innovative solutions to cope with the setback. The latter is closely related to the importance of sensemaking, which was highlighted by Termeer and van den Brink (2013) and Boin and van Eeten (2013). Sensemaking can be cultivated by learning from experience (Mithani et al., 2021), and learning from change and mistakes (Bartuseviciene et al., 2022; Kim et al., 2022). Possessing proper organizational knowledge management systems and maintaining gender equality is the least important criterion, respectively - 2.82 and 2.75%, respectively. However, Orth and Schuldis (2021) and Arsawan et al. (2022) stressed the importance of formal learning, as informal learning does not capture tacit knowledge. As for gender equality, the experts are fully justified in giving their opinion that the essential matter is professionalism and the competence of the employee, and not gender.

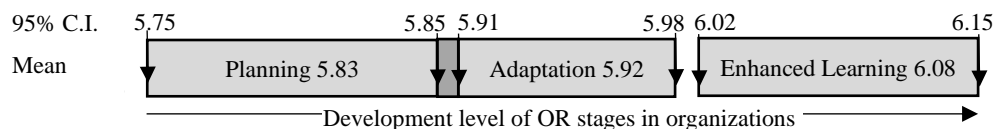
In addition, an open question was included to examine the opinions of experts on the suitability of the statements to explore OR in the PS. After thorough content analysis, three directions of expert opinions were identified. *The first group*, 33.3 percent of experts, stated that the statements allowed comprehensive reflection of groups of resilience stages. *The second group*, 53.0 percent, argued that the statements were suitable; however, they could be supplemented with some aspects that do not change the essence but expand it. Importance is given to the organization's strategy for uncertain situations, the creation and mobilization of reserves, and the extra financial resources necessary for implementing that strategy. *In the third group*, 13.3 percent of experts argued that statements are acceptable but need to sufficiently reflect the country's actual situation and fully correspond to ways of strengthening the resilience typical of Lithuanian PSOs. Experts in this group argue that the importance of some criteria is questionable, and challenges of great importance to Lithuania are not highlighted. In their opinion, resilience development struggles

because of strict regulatory rules, lack of original and innovative solutions, limited financial resources, professionalism, heavy workloads, and poor preparation for unforeseen situations and crises. However, these statements are not typical of Lithuanian PSO. Lack of political autonomy and hierarchical constraints (Kirsop-Taylor, 2022; Profiroiu & Nastacă, 2021), measurable benefits, effective transfer (Franken et al., 2021), and motivation and restrictions of fiscal responsibility (Aragao & Fontana, 2022) have also been identified as the main constraints in developing resilience in PSO in various regions of the world.

### 3.2 Estimation of OR in PSOs

We estimated resilience in the PS using a weighting system (Table 4) and data collected from 401 PSOs in Lithuania. Keeping in mind that the theoretical minimum is 1 and the maximum is 7, the estimated average score of 5.94 revealed a relatively high overall level of OR (see Table 5 Table 5). The results revealed that enhanced learning has the highest overall score, which significantly differs from the other two stages of OR - Planning, and Adaptation, that is, the confidence intervals do not overlap (see Figure 1).

**Figure 2. The development level of OR stages in organizations**



Source: Authors' representation

Hence, we partially reject H2, which states that, based on the assessment of OR by organizations' managers, the stages of OR, that is, Planning, Adaptation, and Enhanced Learning, are developed equally. A significantly higher score for Enhanced Learning could be explained by the fact that PSO employees are involved in various competency-enhancing initiatives through various projects; thus, new knowledge is incorporated into their daily routines.

**Table 5. Estimates of resilience level in Lithuanian PSO**

	Average	95% C.I.	Std. dev.	N
Overall level	5.94	(5.88; 6.00)	0.65	401
Planning	5.83	(5.75; 5.91)	0.85	401
Adaptation	5.92	(5.85; 5.98)	0.64	401
Enhanced Learning	6.08	(6.02; 6.15)	0.67	401
<b>Overall OR level by counties</b>				
Telsiai	5.27	(4.99; 5.56)	0.62	18

Panevezys	5.69	(5.43; 5.96)	0.74	30
Siauliai	5.79	(5.61; 5.96)	0.54	37
Taurage	5.83	(5.42; 6.24)	0.75	13
Vilnius	5.88	(5.76; 6.00)	0.66	120
Utena	6.00	(5.68; 6.32)	0.69	18
Klaipėda	6.07	(5.91; 6.22)	0.54	46
Alytus	6.12	(5.84; 6.41)	0.64	19
Kaunas	6.12	(5.99; 6.26)	0.63	81
Marijampole	6.39	(6.30; 6.47)	0.19	19
<b>Overall OR level by the size of the organization (number of employees)</b>				
Micro (less than 10)	5.76	(5.57; 5.96)	0.76	61
Small (10-49)	5.85	(5.74; 5.97)	0.66	124
Medium (50-250)	6.06	(5.96; 6.15)	0.61	168
Large (more than 250)	5.98	(5.82; 6.15)	0.58	48
<b>Overall OR level by the gender of the organization's head manager</b>				
Male	5.93	(5.84; 6.03)	0.69	208
Female	5.94	(5.86; 6.03)	0.62	193
<b>Overall OR level by the age of the organization's head manager</b>				
Below 39	5.85	(5.66; 6.04)	0.64	44
40-49	5.84	(5.74; 5.94)	0.57	118
50-59	6.01	(5.90; 6.12)	0.64	137
60 and above	5.99	(5.85; 6.14)	0.76	102
<b>Overall OR level by the educational degree of the organization's head manager</b>				
Bachelor (undergraduate)	5.82	(5.67; 5.96)	0.66	78
Master (postgraduate)	5.95	(5.87; 6.02)	0.66	294
Doctoral	6.17	(5.96; 6.38)	0.53	25
<b>Overall OR level by the head manager's management experience in the organization</b>				
Up to 1 year	5.97	(5.75; 6.18)	0.50	21
1-2	5.73	(5.52; 5.94)	0.68	41
3-5	5.91	(5.76; 6.05)	0.64	73
6-10	5.87	(5.73; 6.02)	0.61	68
11-20	6.03	(5.91; 6.15)	0.68	125
More than 21 years	5.99	(5.84; 6.15)	0.67	73
<b>Overall OR level by the type of provided services</b>				
Employment	5.58	(5.22; 5.93)	0.88	24
Law enforcement	5.69	(5.39; 5.98)	0.40	7
Real estate management	5.70	(5.35; 6.05)	0.62	12
Public transport and communication	5.73	(5.48; 5.98)	0.66	26
Tourism	5.79	(5.58; 6.00)	0.62	33
Legal	5.79	(5.17; 6.41)	0.70	5
Other	5.81	(5.42; 6.21)	0.75	14
Culture and sports	5.82	(5.62; 6.02)	0.67	45
Business	5.86	(5.63; 6.09)	0.61	27



Health care	5.88	(5.62; 6.13)	0.71	31
Utilities and environmental management	5.97	(5.74; 6.20)	0.68	33
Education	6.14	(6.01; 6.28)	0.51	55
Social	6.18	(6.02; 6.35)	0.52	39
Fire protection and rescue	6.21	(6.00; 6.41)	0.57	29
Taxes administration	6.24	(5.99; 6.48)	0.57	21

Source: Authors' representation

The findings also highlighted significant spatial differences in the OR. In three out of ten counties, the average resilience score was significantly lower than the country average, and two performed substantially better. These differences cannot be attributed to regional economic factors. The lowest resilience scores were in counties with an average per capita GDP, and the highest scores were in one of the most developed (Kaunas) and lagging (Marijampole) counties. Similarly, we found significant regional differences considering the stages of OR (see ANOVA).

The results also revealed that the level of resilience was higher in large PSOs. Even though small organizations can adapt quickly to changes, they cannot dedicate enough resources to OR development. This conclusion summarizes Brykman and King's (2021) study, which argues that organizations with more resources are less vulnerable to resource loss during adversity. Thus, large organizations are in a better situation to gain the resources they need in a time of adversity because of opportunities to redistribute. Nevertheless, despite limited resources, PSOs must seek ways to ensure the availability of reserve resources in times of adversity. It is worth noting that, although *the results show that even the development of the overall planning stage significantly differs by the size of the organization*, discrepancies in Adaptation and Enhanced Learning are not very different (see ANOVA).

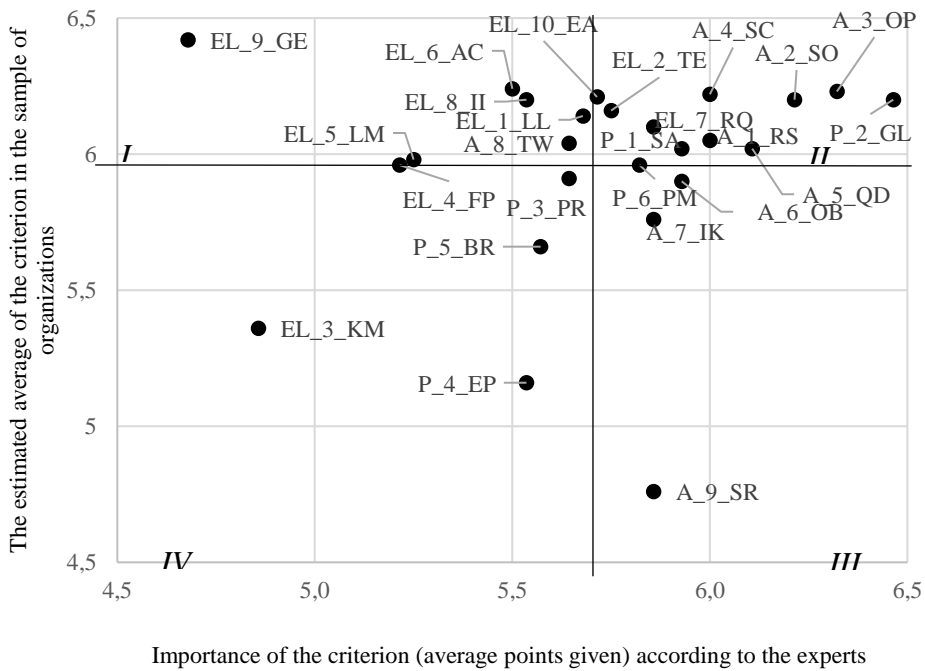
The results of the study showed that gender, age, or management experience of the head manager are not significantly related to the development of OR level or its stages; however, the level of education is. OR is significantly lower when head managers hold undergraduate diplomas and significantly higher when head managers have doctoral degrees compared to the country average. ANOVA shows that head managers' education is significantly related to the stage of Enhanced Learning, while the stages of planning and adaptation are not.

In addition, we estimated the average score of the OR grouping organizations according to the types of services they provided. We found that four groups out of 15 demonstrated significantly better resilience levels, and one was significantly lower than the country average. We found strong evidence that all stages of developing resilience significantly differ in organizations according to the type of service provided. Still, we do not see any patterns in which the type of services provided would systematically lead to a higher or lower resilience level. Thus, we acknowledge that some organizations (by the type of services provided) have significantly higher or lower OR levels.

### 3.3. OR development: expert vs organization managers

Figure 3 reports the grouping of the OR criteria in four sections. Section I presents criteria developed by organizations more than it should be according to the importance of these criteria by experts. The results highlight that Enhanced Learning criteria dominate in this section. Section III includes criteria developed by organizations less than they should be according to the importance of these criteria by experts. Hence, the results reveal this section's domination of the Adaptation criteria.

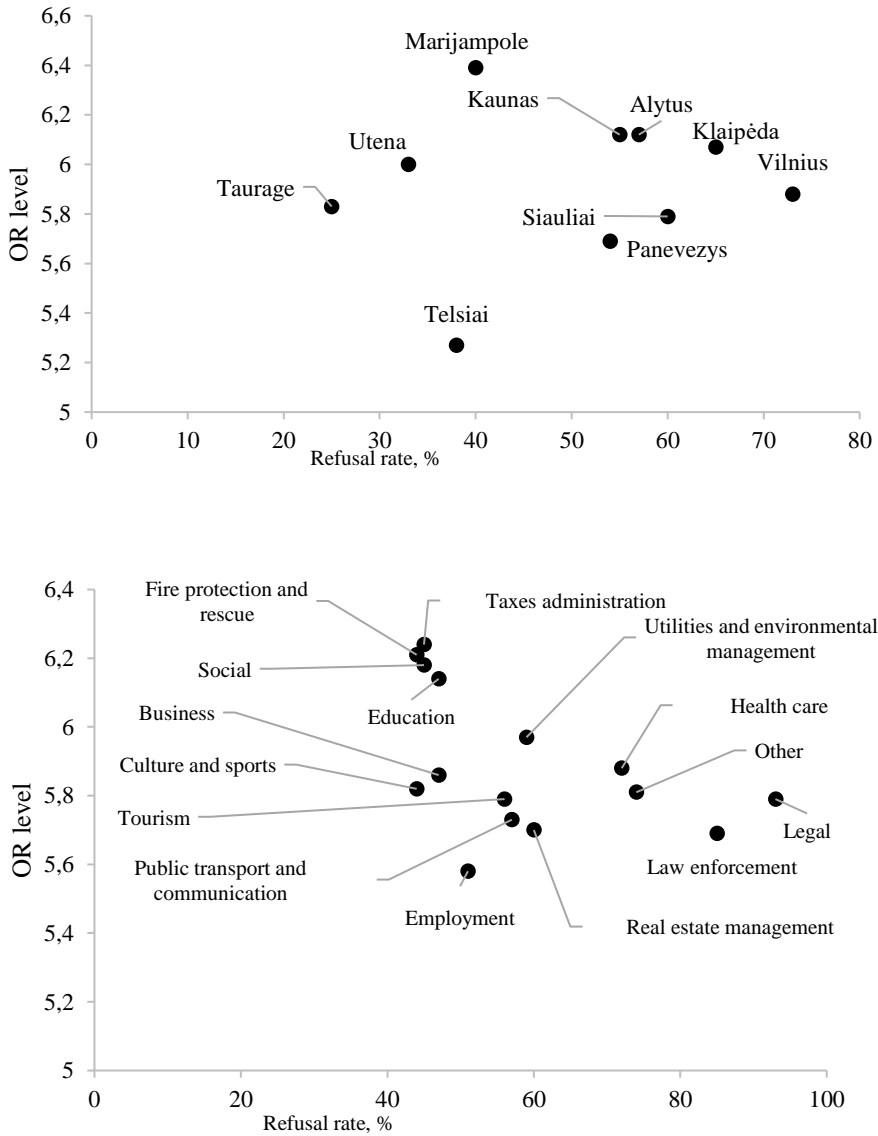
**Figure 3. The development level of resilience: managers vs. experts**



Source: Authors' representation

To conclude, it is necessary to note that during the survey, the experts were asked to indicate the importance of the criterion for the development of OR; however, organizations (i.e., their head managers) estimated their current OR level. This result highlights the divergence and indicates that we still need to further the knowledge about OR development in PSOs.

**Figure 4. Relationship between refusal rate and OR level**



Source: Authors' representation

### 3.4. Limitations

Because organizations could voluntarily accept or refuse an invitation to participate in the survey, there is a chance that those who agreed had a relatively higher resilience level than those who refused. We checked this by comparing the percentage of organizations (by type of provided services and by region) that refused to participate after the research team contacted them with the estimated level of resilience (see Figure 4). Thus, a higher level of resilience can be expected in groups of organizations where the rate of refusal is higher.

The cross-regional correlation between refusal rate and resilience level is 0.13 ( $p=0.720$ ). According to the type of service provided, this correlation is negative (-0.49), but still insignificant at the 5 percent level ( $p=0.065$ ). Another limitation is the expert assessment. The assumption that their long-term experience working in the Lithuanian PS might have caused subjectivity cannot be ruled out. Instead of assessing the importance of every stage in the development of OR, it cannot be ruled out that they focused on the actual assessment of OR. Such a viewpoint would assess the development of resilience retrospectively, which was not the purpose of this study.

### Conclusions

This study derives several critical points. First, scientific literature studies revealed that PSO's resilience could be explored as the organization's ability to cope with and adapt to emerging challenges and to use the acquired experience to strengthen the organization. Moreover, we suggest exploring the resilience of PSOs in three stages: i.e. Planning, Adaptation, and Enhanced Learning. Second, we explored the developmental importance of the three stages. To achieve this goal, we adopted expert research, where we asked experts to provide their opinions about the importance of developing each OR stage. Second, we assessed the actual resilience of PSOs in Lithuania by surveying 401 PSOs.

Expert research has revealed that all three stages of OR have different importance in developing the overall OR in PSOs. Experts have indicated that the adaptation stage is significantly more critical in developing OR than Enhanced Learning; meanwhile, planning becomes equally essential in developing OR as both Enhanced Learning and Adaptation.

The survey results showing the level of resilience in Lithuanian PS revealed different trends. PS managers' evaluations of the level of resilience in PSOs. Enhanced Learning had the highest overall score, which significantly differed from the other two stages of OR, that is, Planning and Adaptation. Hence, based on the results, organizations develop this stage more than the other two stages. In addition, the results show that, although adaptation has a slightly higher score than planning, the development of these two stages is given equal attention in PSO. The fact that the experts' view of how to develop the resilience of organizations in the PS differs

from the organization's survey results reveals how much knowledge on developing resilience in the PS needs to be studied further. Experts argue that the primary focus should be on adaptation, while managers have assessed that the Enhanced Learning stage is the most developed in Lithuanian PS. Moreover, both shreds of evidence slightly differ from Darkow's (2019) theoretical provisions, which state that the stages of resilience in PSOs must be developed equally without creating conditions for prioritizing one over the other. These findings imply that the OR phenomenon is still emerging, as empirical evidence does not fully support theoretical provisions.

Furthermore, these findings serve as empirical evidence for public sector managers that, contrary to theoretical expectations, organizations tend to prioritize specific stages based on their strategies. Prioritizing planning and adaptation enables organizations to recover more swiftly with fewer resources, but it does not necessarily enhance their ability to learn from adversity. Conversely, if organizations solely focus on learning from crises without adequate preparation and adaptation strategies, they expose themselves to chaotic and reactive learning risks. Hence, this study emphasizes the significance of public sector organizations in developing all three stages of OR in a balanced manner to harness the advantages of maintaining resilience in times of uncertainty.

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## Appendix 1. ANOVA

	Factor	Levene's test of homogeneity of variances		F-test of equality of means		Robust Tests of Equality of Means			
		Test statistics	P-value	Test statistics	P-value	Welch		Brown-Forsythe	
						Test statistics	P-value	Test statistics	P-value
County	Overall	2.052	0.033	5.579	<0.001	12.092	<0.001	5.682	<0.001
	Planning	1.884	0.053	4.726	<0.001	6.446	<0.001	4.542	<0.001
	Adaptation	1.501	0.145	4.635	<0.001	7.242	<0.001	4.766	<0.001
	Enhanced Learning	2.094	0.029	4.933	<0.001	9.091	<0.001	5.169	<0.001
Size of the organization	Overall	1.661	0.175	4.179	0.006	3.870	0.011	4.009	0.008
	Planning	3.412	0.018	6.546	<0.001	5.890	0.001	6.246	<0.001
	Adaptation	0.821	0.483	2.128	0.096	2.191	0.092	1.996	0.115
	Enhanced Learning	0.969	0.407	2.660	0.048	2.446	0.066	2.575	0.054
Gender of the organization's head manager	Overall	1.271	0.260	0.023	0.880	0.023	0.879	0.023	0.879
	Planning	1.902	0.169	0.593	0.442	0.598	0.440	0.598	0.440
	Adaptation	1.169	0.280	0.013	0.909	0.013	0.909	0.013	0.909
	Enhanced Learning	1.259	0.262	2.000	0.158	2.015	0.157	2.015	0.157
Age of the organization's head manager	Overall	3.149	0.025	1.928	0.124	2.123	0.099	1.906	0.129
	Planning	3.211	0.023	3.120	0.026	3.472	0.018	2.952	0.033
	Adaptation	2.380	0.069	1.702	0.166	1.808	0.148	1.756	0.156
	Enhanced Learning	0.757	0.519	0.555	0.645	0.563	0.640	0.551	0.648
Educational degree of the organization's head manager	Overall	0.740	0.478	3.050	0.048	3.778	0.028	3.563	0.032
	Planning	1.199	0.302	2.666	0.071	4.228	0.019	3.485	0.034
	Adaptation	0.269	0.765	2.337	0.098	2.147	0.126	2.345	0.101
	Enhanced Learning	0.815	0.443	3.058	0.048	4.250	0.019	3.726	0.027
Head manager's management experience in the organization	Overall	0.529	0.755	1.587	0.163	1.464	0.206	1.702	0.134
	Planning	0.775	0.568	1.163	0.327	1.382	0.236	1.321	0.255
	Adaptation	0.254	0.938	1.308	0.260	1.199	0.314	1.309	0.261
	Enhanced Learning	0.420	0.835	2.225	0.051	2.006	0.083	2.249	0.050
Type of provided services	Overall	1.397	0.151	2.852	<0.001	2.840	0.002	2.780	0.001
	Planning	1.817	0.034	2.604	0.001	2.500	0.005	2.739	0.001
	Adaptation	0.802	0.667	2.204	0.007	2.095	0.020	2.137	0.011
	Enhanced Learning	2.273	0.005	3.528	<0.001	3.836	<0.001	3.184	<0.001