Assessment and Development of Public Servants Using the Design Thinking Methodology for the Reforms and Innovations Introduction

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Abstract

The purpose of the study is to investigate the features of assessment of public servants' characteristics and their ability development to introduce reforms and innovations in public authorities using the design thinking methodology. The following tasks were set: 1) to investigate the problems of assessing the personal qualities and behavioral characteristics before and after training activities; 2) to find out what peculiarities of the introduction of reforms and innovations in public authorities should be taken into account in the assessment of public servants and their practice-oriented training; 3) based on the results of the research, to determine the features of the use of design thinking methodology in the public servants development. To achieve the research objective, the dialectical research, content analysis, questionnaire survey, expert assessment, methods of statistical analysis, and modeling were used.

The results of the study testified that in many cases the method of self-assessment of personal qualities does not ensure the indicators objectivity. Therefore, such indicators should be compared with expert estimates. Based on the analysis of the results of empirical research in the public sector, the peculiarities of the reforms and innovations introduction related to bureaucracy and political influence, drivers of reforms and their outcomes, strict control over the use of resources, evaluation of the performance of public servants have been identified. The research allowed substantiating the proposals for the use of the design thinking methodology in training of public servants and evaluation of its results.

KEYWORDS: design thinking; assessment; training; public servants; innovation; reform.

Introduction

For the reforms and innovations introduction, the personal qualities and behavioral characteristics of public servants are no less important than the level of their professional knowledge and skills. Therefore, in 2016 OECD started to unpack the complex topic of skills and capabilities for public sector innovation. Its beta model of skills to promote and enable innovation in public sector organizations contains user centricity, curiosity, insurgency, iteration, data literacy, and storytelling (OECD 2017, p. 8). Nesta Competency Framework for Experimental Problem Solving is more structured. It includes three groups of core skills, namely working together, leading change, and accelerating learning (each of them is divided into 4-5 components), as well as the following key attitudes: empathetic, curious, agile, action-oriented, reflective, courageous, out-

comes-focused, imaginative, and resilient (Nesta, 2019). Content analysis of these two models allows us to conclude that the formation of core skills and attitudes for reforms and innovations introduction in public authorities is possible through the use of design thinking methodology. This social technology can deliver the following benefits to public decision-making: strengthening the ability to detect problems; a human-centric perspective of defining the user needs by focusing on the person not on the product; problem solving through creativity, multidisciplinarity and teamwork; application of experimental and holistic approaches to reduce risks; targeted solutions as a starting points for continued innovation. However, the main problems of using this methodology in the assessment and development of public servants are, firstly, the complexity of measuring the design thinking mindset of public servants; and secondly, the need to take into account the peculiarities of the reforms and innovations introduction in public authorities. These problems need to be addressed in a way that ensures not only a practice-oriented training, but also a real change in attitudes and behavior of public servants through transformative learning (Dzvinchuk, Petrenko, Orliv, Mazak & Ozminska, 2020) to increase executive capacity of public authorities in the context of sustainable development.

Unfortunately, the experts who are trying to measure the design thinking declare that their tools are not valid or are not real tools and they use tools that "a bit manufactured [fabricated]" (Schmiedgen, Spille, Koppen, Rhinow & Meinel, 2016). Besides this, there is always the possibility of ethnocentric biases (Kaivo-oja & Lauraeus, 2018). Therefore, the most valid measurement tools are feedbacks and customers satisfaction (Dosi, Rosati & Vignoli, 2018). However, such measurement can be a problem because of long-term of reform implementation in the public sectors. Beside this, the peculiarities of the reforms and innovations introduction in public authorities depend on the bureaucracy and political influence, drivers of reforms and their outcomes, strict control over the use of resources, specifics of performance management, open collaboration with stakeholders, etc. These features need to be taken into account in the process of training and assessing the ability of public servants to implement changes and promote increased executive capacity of public authorities.

The purpose of the study is to investigate the features of assessment of public servants' characteristics and their ability development to introduce reforms and innovations in public authorities using the design thinking methodology. To achieve this purpose, the following tasks were set:

1   to investigate the problems of assessing the personal qualities and behavioral characteristics before and after training activities based on results of empirical research using known self-assessment tools;

2   to find out what peculiarities of the introduction of reforms and innovations in public authorities (related to bureaucracy and other public sector system qualities) should be taken into account in the assessment of public servants and their practice-oriented training;

3   based on the results of the research, to determine the features of the use of design thinking methodology in the public servants development.

The research was carried out at three stages. On the first stage we found out whether it is appropriate to rely on the results of self-assessment of personal qualities and behavioral characteristics in the process of planning training activities and determining their effectiveness. The results of questionnaire surveys and expert assessment of two groups of extramural master students, who in 2020 completed their studies under the program "Public Administration and Management" at the Ivano-Frankivsk National Technical University of Oil and Gas (it gave them the right to hold senior positions in public authorities), were used for analysis.

Self-assessment of the first group (N_1 = 74) was conducted using the methodology created by

Peter Koestenbaum (2002) based on the Leadership Diamond Model. The choice of this tool is due to the fact that "among all the models of leadership diamonds, it is the closest to solving the problem of personality assessment regarding satisfaction with the components of the leadership vocation and formulation of recommendations for their further development, as it allows assessing the level of provision of each of the established by the "Leadership Diamond" model list of criteria such as vision, ethics, reality, and courage" (Dzvinchuk, Ozminska, Orliv & Petrenko, 2021, p. 2).

Self-assessment of the second group (N_2=91) was conducted using the Woodcock–Francis test (Dzvinchuk, Orliv & Petrenko, 2021), which provides an evaluation of 11 important managerial characteristics, namely: self-management skills; clear values; personal goals; continuous self-development; problem solving abilities; creativity; impact on others; understanding the features of managerial work; ability to manage; ability to teach; team building skills (Woodcock & Francis, 1986).

To determine the feasibility of using known self-assessment tools, we conducted a questionnaire survey and expert assessment of a control group of respondents interested in the objectivity of the indicators (N3 = 16). This group included lecturers (87.5% of which have managerial experience) selected to participate in the implementation of the joint Ukrainian-Lithuanian R&D project "Competence Development of Lithuanian and Ukrainian Public Sector Employees Using Design-Thinking Methodology". For this category of respondents we can reliably determine the implementation of learning outcomes in further professional activities. The methodology of their assessment was chosen taking into account the results of the first two experiments.

On the second stage the peculiarities of the introduction of reforms and innovations in public authorities which should be taken into account in the assessment of public servants and their practice-oriented training (based on the analysis of theoretical and empirical research conducted by scientists in different countries) were clarified. To resolve the contradictions identified in scientific publications, we conducted a correlation analysis, which allowed investigating how index of innovation is influenced by different cultural dimensions. The empirical basis for correlation analysis is the data from the European innovation scoreboard 2019 (European Commission, 2019) and the results of the GLOBE research program (Global Leadership and Organizational Behavior Effectiveness), which is one of the most large-scale and prestigious international management research projects in social sciences ever (GLOBE, 2020). Selected cultural dimensions indicate what is important for a society (future orientation, uncertainty avoidance, performance and human orientation), how is society organized (institutional collectivism) and how does society interact (assertiveness, power distance). To identify the main barriers to innovation in the public authorities in Ukraine, we also conducted a questionnaire survey of 195 public servants of the Ministry of Justice of Ukraine after their acquaintance with the design thinking methodology.

On the third stage we identified the features of the use of design thinking methodology in the public servants development based on the results of the first two stages of our research.

Assessing the personal qualities and behavioral characteristics of public servants

The results of self-assessment under the Leadership diamond model of the first group of extramural master students (Dzvinchuk, Ozminska, Orliv & Petrenko, 2021) showed that, on average, respondents have the most developed vision and ethics (4.11 score on a five-point scale) and the least developed courage (3.89 score). We were going to take these indicators into account during the next revision of the master's program. However, we surprised that, firstly, the vision of all public servants, including ordinary officials, is at the same high level as ethics (82.2%), and secondly, the average courage is also unexpectedly high (77.8%).

The results of the self-assessment of managerial characteristics of the second group of extramural master students revealed using the Woodcock-Francis test on a ten-point scale were more informative (Dzvinchuk, Orliv & Petrenko, 2021). Their generalization is presented in Table 1.

Indicators	Average score	Maximum total score	Minimum total score	Dispersion	Standard deviation	Coefficient of variation	Grade
Self-management skills	6,70	10	1	4,28	2,07	30,85	9
Clear values	6,58	9	4	4,02	2,01	30,47	7
Personal goals	6,67	10	2	3,76	1,94	29,06	8
Continuous self-development	7,31	9	1	4,30	2,07	28,39	11
Problem solving abilities	6,14	9	5	3,35	1,83	29,78	6
Creativity	5,42	9	3	4,85	2,20	40,63	1
Impact on others	7,21	10	3	4,57	2,14	29,65	10
Understanding the features of managerial work	5,55	9	4	6,14	2,48	44,65	4
Ability to manage	5,56	10	2	8,67	2,94	52,96	5
Ability to teach	5,49	10	1	5,79	2,41	43,78	2
Team building skills	5,54	10	1	6,07	2,46	44,50	3

Table 1

Generalized results of the second group assessment

Source:
Authors' based on (Dzvinchuk, Orliv & Petrenko, 2021).

Among the average scores, the continuous self-development (7.31) and impact on others (7.21) are the highest, while the creativity (5.42) and ability to teach (5.49) are the lowest. Indicators of standard deviation and coefficient of variation indicate that "ability to manage" has the largest range of self-assessments. Beside this, some respondents do not understand the relationship between the managerial characteristics, in particular the respondent with a minimum total score. The combination of self-assessment with the expert assessment of respondents allowed detecting cognitive bias in the vast majority of master students, which manifested as the effect of Dunning-Krueger (4.4%) or Klans-Imes (74.7). The last indicator shows that the vast majority of respondents lack self-confidence and courage. Thus, if the results of the first experiment are questionable, the results of the second one confirm that in many cases the method of self-assessment of personal qualities does not ensure the indicators of objectivity.

Therefore, in the third experiment with the control group, we used the following methods: self-assessment under the Leadership diamond model by Peter Koestenbaum (2002); self-assessment of design thinking mindset using the tool developed by Dosi, Rosati and Vignoly (2018) which has already validated via the Kaiser-Mayer-Okin's test and the Bartlett's test; and the expert assessment. We evaluated outcomes of learning by design thinking methodology two months after the training activities. Such approach allows, firstly, to analyze whether it is enough to have leadership qualities for change implementation in public organizations, and secondly, to determine the feasibility of using known self-assessment tools. For this, we grouped the results of self-assessment of design thinking mindset into indicators "vision", "ethics", "reality", and "courage" and compared them with the results of self-assessment under the Leadership diamond model. After that we compared the results of above mentioned self-assessments with the results of expert assessment taking into account the facts of the learning outcomes implementation in professional activity (Table 2).

Table 2

The results of the control group assessment

Indicators	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}	N_{15}	N_{16}	N^-
Results of self-assessment of design thinking mindset																	
Being comfortable with ambiguity	2,8	3,2	4,0	4,4	3,0	3,0	3,8	3,2	3,8	4,0	3,6	4,2	3,6	3,4	2,6	3,2	3,5
Embracing risk	2,5	4,5	3,0	4,0	3,5	2,5	2,5	2,0	3,5	3,0	4,0	2,0	3,5	3,0	1,5	2,5	3,0
Human centeredness	3,7	4,3	3,7	5,0	4,3	4,0	4,7	4,3	3,7	4,7	4,0	3,0	4,0	5,0	3,0	3,7	4,1
Empathy	3,8	3,3	4,0	4,8	4,8	4,0	4,5	3,8	4,5	5,0	3,5	4,0	4,5	4,5	5,0	2,5	4,2
Mindfulness and awareness of process	3,7	3,0	3,3	3,7	4,0	3,0	4,0	2,7	3,7	4,7	3,7	4,3	3,7	4,7	3,3	3,7	3,7
Holistic view	3,7	3,7	4,0	3,7	4,0	3,3	4,0	4,0	4,0	5,0	4,0	4,7	4,0	4,0	3,3	3,3	3,9
Problem reframing	5,0	5,0	4,0	5,0	4,7	4,7	5,0	4,0	4,3	5,0	5,0	4,7	4,3	4,0	5,0	4,7	4,7
Team working	3,8	4,8	4,5	4,3	4,8	3,8	4,5	4,3	3,3	4,5	4,3	4,0	2,5	4,3	4,3	3,8	4,1
Multidisciplinary collaboration	4,3	5,0	5,0	5,0	4,3	3,8	4,3	3,8	4,3	5,0	4,0	4,8	4,3	4,8	3,5	3,8	4,4
Open to different perspectives	4,8	4,5	5,0	5,0	4,5	5,0	4,3	3,5	4,3	4,8	3,5	4,5	4,3	4,8	4,5	4,0	4,5
Learning orientation	4,5	4,8	4,8	4,5	4,3	5,0	4,8	3,5	4,0	4,3	4,2	4,2	4,0	4,2	4,5	3,3	4,3
Experimentation or learn from mistake	3,5	4,2	4,2	4,0	3,7	4,3	3,7	3,7	3,8	4,2	3,7	4,0	3,8	4,7	4,0	3,8	4,0
Bias toward action	3,5	4,5	4,3	4,0	3,5	3,8	4,0	3,3	3,3	4,0	3,5	3,3	3,3	3,5	2,8	3,3	3,6
Critical questioning	5,0	4,7	4,3	5,0	5,0	4,3	4,0	4,3	3,7	4,0	3,3	4,3	3,7	5,0	4,7	4,0	4,3
Abductive thinking	3,0	3,3	3,8	4,0	3,5	4,0	3,8	3,5	4,3	4,3	3,8	4,0	4,3	4,8	3,3	3,5	3,8
Envisioning new things	3,3	3,3	3,3	4,0	4,0	4,0	3,7	3,7	3,7	4,7	4,0	4,7	3,7	3,7	4,3	2,7	3,8
Creative confidence	3,0	4,0	3,3	3,5	3,8	4,5	4,0	3,8	4,8	4,8	3,3	4,0	4,8	5,0	4,0	3,5	4,0
Desire to make a difference	3,7	4,0	5,0	4,0	3,7	4,3	3,3	3,3	4,0	5,0	4,3	3,0	4,0	4,7	3,7	2,7	3,9
Optimism to have an impact	3,7	4,7	5,0	4,7	4,3	4,0	4,3	4,0	4,3	4,7	4,3	3,7	4,7	4,0	3,3	2,3	4,1
Average score	3,8	4,1	4,1	4,3	4,1	4,0	4,1	3,6	4,0	4,5	3,9	4,0	3,9	4,3	3,7	3,4	4,0

Bringing the results of self-assessment of design thinking mindset to indicators of the Leadership diamond model

	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}	N_{15}	N_{16}	N^-
Vision	3,3	3,4	3,7	3,9	3,8	3,8	3,8	3,7	4,0	4,7	3,9	4,5	4,0	4,2	3,6	3,2	3,8
Ethics	4,0	4,2	4,3	4,8	4,6	4,2	4,5	4,0	4,0	4,8	3,8	3,9	3,8	4,7	4,2	3,5	4,2
Reality	4,4	4,0	3,7	4,4	4,4	3,9	4,5	3,4	4,0	4,9	4,4	4,5	4,0	4,4	4,2	4,2	4,2
Courage	3,2	4,2	4,1	4,1	3,6	3,8	3,7	3,3	3,9	4,2	3,8	3,5	4,0	4,0	3,1	3,0	3,7
Average score	3,7	4,0	3,9	4,3	4,1	3,9	4,1	3,6	4,0	4,6	4,0	4,1	3,9	4,3	3,8	3,5	4,0

Results of self-assessment under the Leadership diamond model

	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}	N_{15}	N_{16}	N^-
Vision	3,7	4,0	3,7	4,2	3,7	4,1	3,8	4,2	4,4	4,6	4,0	4,1	4,3	4,4	4,5	4,5	4,1
Ethics	3,9	4,3	3,9	4,3	3,9	4,3	4,0	4,2	4,3	4,9	4,0	3,1	4,4	4,3	3,5	4,8	4,1
Reality	4,1	4,2	3,8	4,5	4,1	3,9	4,2	4,2	3,8	4,7	3,4	3,9	3,9	4,6	3,8	4,9	4,1
Courage	3,5	4,6	3,8	4,6	3,5	3,8	3,7	3,6	4,1	4,2	3,7	3,5	4,0	4,5	3,0	4,1	3,9
Average score	3,8	4,3	3,8	4,4	3,8	4,0	3,9	4,1	4,2	4,6	3,8	3,7	4,2	4,5	3,7	4,6	4,1

Indicators	N_1	N_2	N_3	N_4	N_5	N_6	N_7	N_8	N_9	N_{10}	N_{11}	N_{12}	N_{13}	N_{14}	N_{15}	N_{16}	N^-
Results of expert assessment																	
Average score	4,4	4,0	4,1	4,4	4,0	4,1	4,2	4,1	4,0	4,6	4,4	4,2	4,0	4,6	4,2	4,3	4,2
The use of learning outcomes in professional activity																	Σ
Scientific research	+	-	+	+	-	-	+	-	-	+	+	-	-	+	+	-	8
Project management	+	-	-	+	-	-	-	-	-	+	+	-	-	+	-	-	5
Cognitive bias																	
Design thinking mindset assessment	<	-	-	-	-	-	-	<	-	-	<	-	-	<	<	<	6
Leadership assessment	<	>	<	-	-	-	<	-	-	-	<	<	-	-	<	>	8

Source: Authors'

Grouping the results of self-assessment by the design mindset questionnaire into indicators "vision", "ethics", "reality", and "courage" revealed that, firstly, the Leadership diamond model does not take into account "multidisciplinary collaboration", "learning orientation", and "critical questioning", and secondly, the correlation between the results of evaluation by two methods are absent, only for "courage" correlation is positive but not strong enough (0.683).

Comparison of the results of two self-assessments with expert assessment and organizational performance ensured the detection of cognitive bias for 6 respondents by the tool of the design thinking mindset and for 8 respondents by the tool of the Leadership diamond model. In the second case the tendency not only to display of effect of Klans-Imes (N_1, N_3, N_7, N_{11}, N_{12}, N_{15}), but also Dunning-Krueger (N_2, N_{16}) is revealed. The type of cognitive bias coincided with the two methods for only three respondents. The results of the self-assessment roughly correspond to the results of expert assessment and organizational performance for only nine respondents (N_1, N_4, N_5, N_6, N_9, N_{10}, N_{11}, N_{13}, N_{15}). In addition, the respondent N_{16} assessed himself situationally. Thus, two self-assessment tools for seven respondents (43.8%) gave results which are absolutely different. All this leads to a low level of trust in various self-assessment tools. In particular, the results of a questionnaire survey of 106 senior and middle-level government officials, which we conducted in 2017, show that only 9.4% of respondents use self-assessment questionnaires to determine their leadership and other personal qualities (Orliv, 2018, p. 79).

Thus, the results of the first stage of the study testify that in many cases the method of self-assessment of personal qualities does not ensure the indicators objectivity. Therefore, before the training activities such indicators should be compared with expert estimates. If expert assessments are not available, average indicator (which characterize the sample as a whole) should be used in shaping the content and teaching methods. After training, it is necessary to assess a behavior change and the use of new knowledge and skills in professional activities.

While summarizing the results of empirical research published in peer-reviewed journals on the identification of factors that affect the public sector innovations, we found a number of inconsistencies. They mostly relate to differences in the assessment of the impact of bureaucracy and other restrictions in public authorities on their innovativeness. In particular, results of multilevel analysis conducted by Lapuente and Van de Walle (2020) indicate that the bureaucratic politicization has a negative impact on receptiveness to new ideas and is negatively associated with the pro-innovation index. However, according to Demircioglu and Audretsch (2018), in bureaucratic

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public organizations dissatisfied employees value invention and innovative ideas that can increase organizational performance. They claim that individual employee efforts may be more important than leadership support and an existing positive climate, which do not have a statistically significant impact on innovation complexity. In this context, the results of our survey of 195 public servants of the Ministry of Justice of Ukraine conducted in 2020 deserve attention. The respondents pointed the following main barriers to innovation in public authorities: bureaucracy (42.9%); unwillingness of public servants to change (41.9%) and low level of their motivation (35.2%); lack of time (34.3%), funding (21.9%), necessary knowledge and skills (20%) and leaders (19.1%). Therefore, we also investigated how the innovativeness is influenced by the bureaucracy and leadership behaviors of CEOs in different cultures and countries (Dzvinchuk, Orliv, Janiunaite & Petrenko, 2021). The results of analysis confirmed a strong inverse correlation between bureaucracy and innovation index (-0.793 with the level of significance <0.01). Positive but not strong enough correlation between participative leadership and innovation index (0.597 with the level of significance <0.1) means that it is important not only to involve others in decision-making, but also to create innovative culture, attract motivated professionals who have the necessary competences for innovative changes introduction and provide the availability of resources for overcoming obstacles. This is confirmed by the results of our experiment with the control group as well, because the motivation, access to resources and influence in decision making of lecturers from different departments were unequally. The same opinion was held by Berry and Berry (1990), Teodoro (2009) and other scientists. However, while analyzing the condition for innovation in Australian public sector, which is estimated by the World Bank (2020) and Quality of Government Institute (2021) as a leader by the level of government effectiveness, Demircioglu and Audretsch (2017) prove that budget constraints do not have any statistical effect on public sector employees' innovation.

Indeed, in highly developed countries resource constraints can often be a driver of reforms. However, using the results of such studies, we should take into account that according to the European innovation scoreboard 2020, Australia at the time of these studies had R&D expenditure public sector relative to the EU at 113.6. Despite the fact that in 2019 this figure decreased by 4.1 points, Australia strengthened its position as a strong innovator (European Commission, 2020). For comparison, in Ukraine, which is a modest innovator, this figure is only 2.1. Thus, without investment in the public sector it is impossible to increase the level of its innovativeness. Under such conditions, the hypothesis of the Canadian researcher Borins (2001) that "Innovators are more likely to be responding to internal problem before they reach crisis proportions, or taking advantage of opportunities, such as the availability of new information technology" (p. 314) for Ukraine will not be confirmed. Therefore, not all results of studies conducted in developed countries with a high level of innovativeness may be generalizable to modest innovators without taking into account different cultural dimensions, administrative traditions (Oikonomou, 2019) and resource constraints.

In particular, the results of correlation analysis between cultural dimensions of different countries (GLOBE, 2020) and their innovation index (European Commission, 2019) are presented in Figure 1. As shown in it, the impact of future orientation and uncertainty avoidance on innovation index is very strong (0.928 and 0.895 respectively with the level of significance <0.01). A positive statistically significant relationship was found between performance orientation and innovation index (0.635 with the level of significance <0.05) as well as between institutional collectivism and innovation index (0.500 with the level of significance <0.1). These dependencies for the public sector need to be explained.

It is generally considered that uncertainty and risk are unavoidable in innovations implementation. However, there is a significant difference, namely: risk being decision making in the context
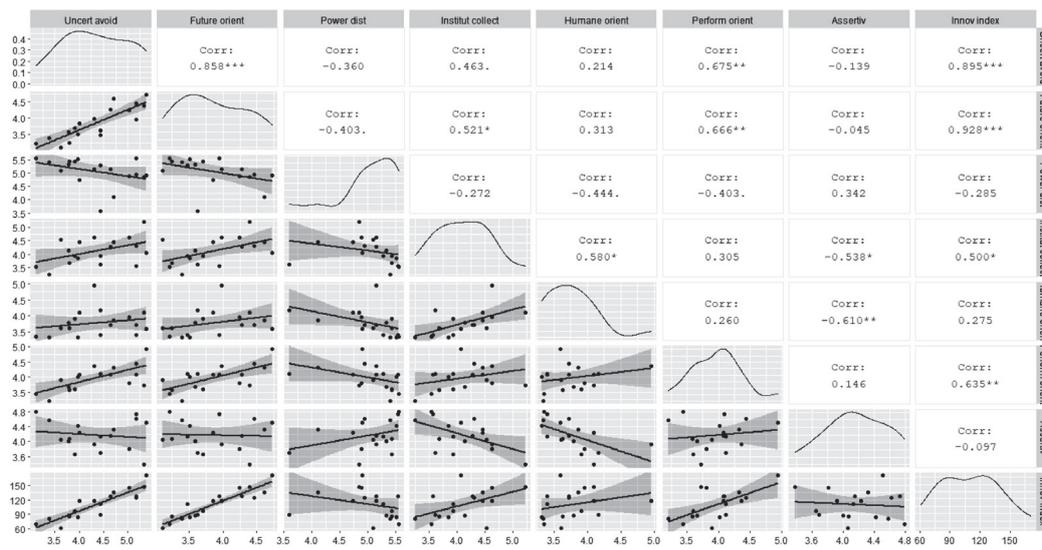
of known options and their likely outcomes, and uncertainty being decision making in the context of unknown options and outcomes (Tversky & Fox 1995; Riabacke, 2006; Osborne & Brown, 2011).To be successful, an innovation process must avoid uncertainty and deliver lower costs of change and risks (Liedtka, 2018), for instance, through building a portfolio of options, strategic planning, performance management, etc. It explains the strong correlation (0.858 with the level of significance <0.01) between the uncertainty avoidance and future orientation (the extent to which individuals engaged in future-oriented behaviors such as planning, investing in the future, and delaying gratification), as well as a positive statistically significant relationship (0.675 with the level of significance <0.05) between the uncertainty avoidance and performance orientation (the degree to which a collective encourages and rewards group members for performance improvement and excellence). However, achieving high performance through the use of effective tools is often hampered by a strict control over the use of budgets that are generated by taxpayers. Although such control can prevent or detect inefficient use of resources and corruption, it constrains innovations in the public sector.

An unexpected result of our analysis is a weak correlation between human orientation and innovation index (0.214). It can be explained by the fact that people tend to resist change when we are not dealing with administrative service innovation, which ensures their highest quality for citizens, but with governance, process or conceptual innovation. The situation is exacerbated when the recovery of the state's economy becomes impossible without radical measures aimed at the long term (the most striking example is the reform of Balcerowicz in Poland), which are accompanied by a temporary drop in production, rising unemployment, reduced budget subsidies, etc. This is a long and difficult path, as the citizens does not support such measures. In all likelihood, a society do not want the public sector to be as innovative as the private sector, it wants the public sector to be more innovative than it traditionally has been (Borins, 2001, p.311). Therefore, most experts are in favor of incremental change. In any case, the principle of human-centeredness need to be applied with due regard for the goals of sustainable development and key reform trends in the policy area (digital- or e-government, collaboration and cooperation, focusing on outcomes and results, flexible employment, etc.). If the drivers of reforms are political decisions, new policies or strategies rather than internal problems of public authority or new opportunities created by technology, then the analysis of alternative solutions for change should take into account relevant government regulations and programs for which budget funds are allocated. After

all, according to the results of empirical research of Bertelsmann Foundation (2020), effective policy implementation is the most important factor among those that contribute to the strong steering capabilities of public authorities. Besides this, in public authorities we have to choose not only between quality and efficiency, but also between equity and efficiency, following rules and achieving results, customer and citizen orientation, tax financed or user charges for public services, etc. The results of study by Danish and Norwegian scientists conducted on the basis of data from the COCOPS executive survey (Coordinating for Cohesion in the Public Sector of the Future) show that East Europe, Nordic, Anglo-Saxon and other countries have different balancing needs between these criteria (Greve, Laegreid and Rykkja, 2016, p. 88-90).

Considered peculiarities of the introduction of reforms and innovations in public authorities related to bureaucracy and other public sector system qualities influence the behavior of public servants and their social interaction, and therefore should be taken into account in the assessment of public servants and their practice-oriented training.

Features of the use of design thinking methodology in the public servants development

The results of the first two stages of our research testify that in the process of training of public servants we should take into account the following three components: (1) personal qualities; (2) public sector system qualities; (3) personal and social qualities manifested into the public sector system. The first component, in addition to design thinking includes knowledge and skills in strategic planning, project management, sustainable development, etc. The second component provides accounting features of public sector analysed on the second stage of our research. The third component is formed in the process of public servants' professional activity under the influence of political, bureaucratic, financial and other factors. (Figure 2).

Figure 2

Personal, social and public sector system qualities
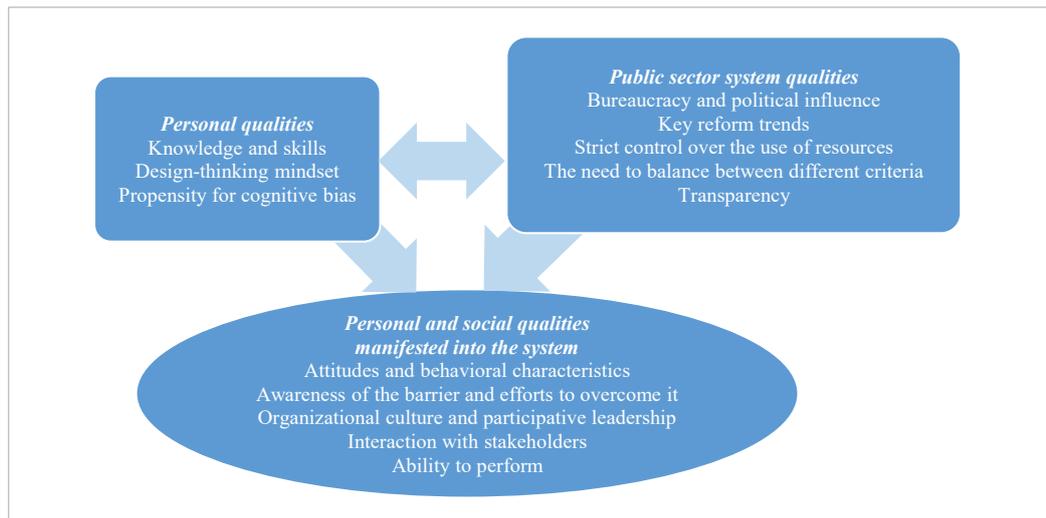
Since most innovations in the public sector are process ones (De Vries, Bekkers, & Tummers, 2015), in determining the methodology of assessment and training of public servants using the design thinking methodology, we should define both results-oriented and process-oriented requirements which are reflected in the Matrix of approaches and requirements (Table 3).

The Kirkpatrick model is appropriate for using both process- and result-oriented requirements because it provides the following types of evaluation: (1) reaction measures immediately after the training activities to determine the level of satisfaction of participants; (2) learning outcomes based on the results of testing prototypes developed during training; (3) change in behavioral

	Individual-centric approach	System-oriented approach
Process-oriented requirements	Methods of assessment and training provide the ability of a public servant to use the design thinking methodology in professional activities for the reforms and innovations introduction	Assessment and training using the design thinking methodology take into account the features of the reforms and innovations introduction in the public sector, therefore they provide the steering capacity of public authorities
Result-oriented requirements	The functional capacity of public servant to introduce reforms and innovations using the design thinking methodology has increased	Assessment and training using the design thinking methodology contribute to the implementation of projects focused on the reforms and innovations introduction in public authorities

Table 3

Matrix of approaches and requirements

Source: Authors'

characteristics; (4) results as a positive impact on organizational performance which should be determined in a few months after training or during the annual performance appraisal of a public servants (according to Ukrainian legislation it combines self-assessment with the assessment of the supervisor and the head of the department).

Since the technology of the design thinking process and features of its stages in general are described in the scientific literature (Brenner & Uebernickel, 2016; Müller-Roterberg, 2018; Tu, Liu & Wu, 2018), there is no need to dwell on these issues in detail. In forming proposals for the use of the design thinking methodology in training of public servants it is important to adhere to the following principles: human centeredness taking into account the goals of sustainable development and key reform trends in the policy area; incrementalism; multidisciplinarity of project teams; creativity; iterativeness of design processes; consistent application of divergent and convergent thinking; use of holistic and experimental approaches; focus on achieving SMART goals; development of the most simplified but meaningful prototypes. Therefore, personal, social and public sector system qualities from the Figure 2 should be taken into account in the application of all methods shown in Figure 3, except for brainstorming.
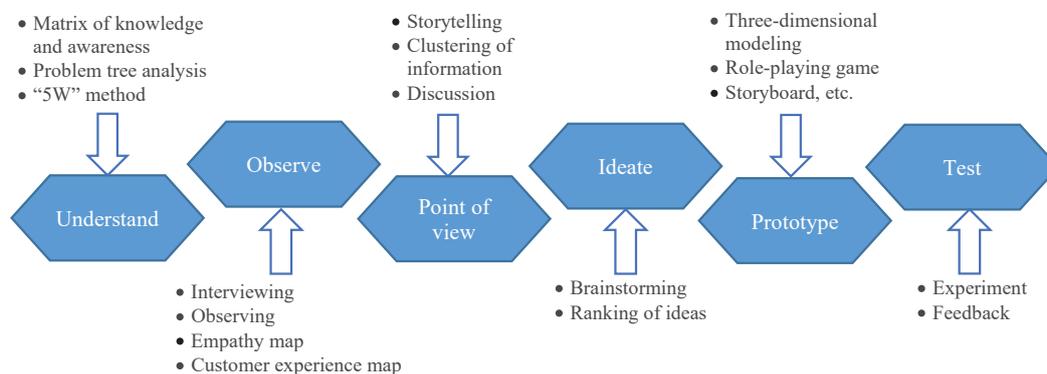
Figure 3
Design thinking process

- Matrix of knowledge and awareness
- Problem tree analysis
- "5W" method

- Storytelling
- Clustering of information
- Discussion

- Three-dimensional modeling
- Role-playing game
- Storyboard, etc.

Understand → Observe → Point of view → Ideate → Prototype → Test

- Interviewing
- Observing
- Empathy map
- Customer experience map

- Brainstorming
- Ranking of ideas

- Experiment
- Feedback

At the stages of "Ideate", "Prototype" and "Test" the most important task is further implementation of the decision. Therefore, starting from the formation of criteria for ranking ideas, the public sector system features as well as personal and social qualities manifested into public authorities are important. In particular, it is necessary to take into account the peculiarities of organizational culture, aware the barrier and efforts to overcome it, etc.

Conclusion

The results of the study testified that in many cases the method of self-assessment of personal qualities does not ensure the indicators objectivity. This is due not only to the problems of ensuring the validity of self-assessment tools, but also to the possible cognitive bias even in university lecturers who have significant experience in assessing others. Therefore, self-esteems should be compared with expert estimates before training activities. Comprehensive evaluation of learning outcomes according to the Kirpatrick model involves determining the change in behavioral characteristics of participants as well as positive impact on organizational performance, which should be determined in a few months after training or during the annual performance appraisal. To increase the use of learning outcomes in professional activity of public servants, it is necessary to take into account the peculiarities of the public sector in the process of their assessment and development. Therefore, open-ended questions should be included in the questionnaires to clarify the awareness of the barrier to the reforms and innovations introduction. Besides this, the following peculiarities of the public sector should be taken into account during training activities: bureaucracy and political influence; key reform trends; strict control over the use of resources; the need to balance between different criteria (quality and efficiency, equity and efficiency, following rules and achieving results, customer and citizen orientation, tax financed or user charges for public services, etc.) and ensure the transparency of public authorities. These features affect the organizational culture and participative leadership, attitudes and behavioral characteristics of public servants, their interaction with stakeholders and ability to perform. Therefore, in training of public servants using the design thinking methodology, the public sector system features should be taken into account in the application of all methods except those that require creativity, including brainstorming.

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