

*Проаналізовано теоретико-практичні моделі офісів управління проектами та базові принципи створення офісу гендерно-орієнтованого управління проектами (Gender-Oriented Project Management Office, PMOG). Звертається увага на особливості гендерних логічних систем управління проектами. Розроблено матрицю оцінки зрілості PMOG, яка представлена областями знань з управління проектами та гендерно-сенситивними характеристиками зрілості*

*Ключові слова: зрілість проектного офісу; гендерно-орієнтоване управління проектами; гендерний мейнстрімінг*

*Проанализированы теоретико-практические модели офисов управления проектами и базовые принципы создания офиса гендерно-ориентированного управления проектами (Gender-Oriented Project Management Office, PMOG). Обращается внимание на особенности гендерных логических систем управления проектами. Разработана матрица оценки зрелости PMOG, которая представлена областями знаний управления проектами и гендерно-сенситивными характеристиками зрелости*

*Ключевые слова: зрелость проектного офиса, гендерно-ориентированное управление проектами, гендерный мейнстриминг*

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# MODELING OF MATURITY OF GENDER-ORIENTED PROJECT MANAGEMENT OFFICE

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## 1. Introduction

Currently, gender components are becoming more defined in the implemented practices of project and program management. The United Nations (UN) pays special attention to gender issues in sustainable development strategies. It is noteworthy that gender approaches in Sustainable Development Goals 2030 [1] are considered in a cross-sectoral dimension and they are an integral part of the initiation, planning, implementation, monitoring and evaluation of projects and programs.

The importance of a gender perspective for managing sustainable development programs, both at the national and local levels actualizes the issues of improving existing management systems. This is also evidenced by the corresponding structural and organizational changes in the sustainable development program and project management at the UN level. The special organization was created in the UN structure (UN Women). The functioning of such a management structure should correspond to the international standards of program and project management on the one hand [2–6], and, on the other hand, the appropriate level of integration of gender knowledge as a contextual platform for program activities. However, the current level of UN Women's program activities is not successful enough, as evidenced by the annual "gender status of countries" in the global ranking (Gender Global Gap Index, GGGI) [7–8]. There is a tendency not to decrease, but to increase gender gaps between

countries. And this updates the issue of organizing more effective management of existing resources for national gender equality programs. In such a situation, scientific and practical developments to assess the maturity of gender-oriented project management at the project office level are becoming extremely valuable.

## 2. Literature review and problem statement

The PMO models developed through integration of a plurality of organizational and technical parameters of management systems constitute the theoretical and methodological foundations of this research. Seven types of PMO that can be organized at the company, department, and others are presented in the paper [9]. Researchers analyzed the potential of the PMO in terms of its contribution to the effective functioning of organizations [10] and the implementation of national programs [11]. The paper [12] presents the role of PMO in relation to project portfolio management, as well as ways to reduce organizational and managerial gaps between the formulation and implementation of the strategy. Generally, it is possible to note the tendency towards the development of conceptual models of PMO organization from technical, where IT technologies are preferred, to socio-technical ones, where a special role is given to human resource management and development of social capital in the project environment. Some research works are de-

voted to such a social component of project management as gender. The gender analysis of the project management guidelines (PMBok) was carried out in the paper [13], and the discourse of masculine and feminine logical systems was proposed. It is defined that gender logical systems define two groups of skills (soft and hard skills). It is assumed that experts in project management of both biological sexes, which have well-developed skills as masculine and feminine logic systems, are able to form a more flexible and gender-sensitive project management. It is noted that gender-sensitive practices of project management are especially important for complex projects aimed at a wide range of stakeholder groups (for example, urban projects [14]). Evaluations of project management systems of certain spheres are developed from a gender point of view. It is proved that the masculine logical system dominates in the management of construction projects [15]. It should also be noted that modern researchers carry out scientific and practical exploration of diversity and equality management systems. The law is substantiated: the high level of gender diversity of the top managers' team leads to greater productivity of the human resources management system [16]. The interdependence of the processes of "involving women in project teams" and "developing social capital in the project environment" is highlighted [17]. Solutions to outline the role of gender specialist/manager (Gender Focal Point) in the project team organizational structure are proposed [18]. Also, the basic principles for modeling the gender-oriented project management office are developed ("supportive G-PMO", "controlling G-PMO", "directive G-PMO").

A special epistemological problem is a measurement of a gender-oriented project and program management office maturity. Currently, gender-sensitive approaches to the assessment of the technological maturity of project management are investigated [19]. The basic model of gender mainstreaming approach implementation in the project cycle (initiation, planning, execution, monitoring and evaluation, completion) is proposed. Also, project and program management systems are analyzed in accordance with the global principles of gender equality in business (Gender Equality Principles, GEP)

[20]. The influence of gender components on the level of organizational maturity of project management of companies is highlighted. The evaluation model of gender maturity of the organization on the platform of the Project Management Maturity Model (PMMM) is proposed. However, gender PMO frameworks, taking into account the concept of maturity, are not represented by thorough research.

### 3. The aim and objectives of the study

The aim of the research is the development of a solution for maturity assessment of the gender-oriented project and program management office based on the project management maturity methodological platform.

To achieve this aim, it is proposed to accomplish the following objectives:

- to integrate the gender component into the contextual parameters of the project management knowledge areas [2];
- to offer an evaluation tool for determining the maturity level of the gender-oriented project and program management office using the basic maturity model of the Project Management Office [21].

### 4. Developing a model to evaluate the gender-oriented project management office maturity

The author's approach is based on an attempt to assess the level of integration of gender contexts into the architecture of a gender-oriented project management office organizational system (PMO<sub>G</sub>) [21]. To this end, the gender characteristics in ten project management knowledge areas: integration management, scope management, time management, cost management, quality management, human resource management, communications management, risk management, procurement management, and stakeholder management are identified [2]. The matrix of gender-sensitive parameters for maturity evaluation of PMO<sub>G</sub> is presented in Table 1.

Table 1

PMO<sub>G</sub> Maturity-Level Evaluation

Project Management Knowledge Areas	PMO <sub>G</sub> maturity characteristics
1	2
<b>Level I – Definition of goals and objectives of PMO<sub>G</sub></b>	
Integration Management	The gender-oriented terminology of project management is not standardized. Gender methods are not integrated into the project activity.
Scope Management	Clear categorical apparatus of gender content does not exist in meaningful project elements.
Time Management	Project team members perform individual project activities without taking into account the gender-sensitive features of the managers' schedules. Projects start and end with a delay.
Cost Management	Gender costs for project work are not evaluated and not tracked. The project manager does not request gender-segregated project reporting.
Quality Management	Project implementers do not know the gender requirements of the beneficiaries.
Human Resource Management	A search of resources begins after the beginning of work. The requirements for job candidates contain a discriminatory context (for example, "requirements for a candidate: a woman, under 30 years"). Project managers and resource managers demonstrate "gender blindness".
Communications Management	Project teams do not use gender terminology; their communication is gender-intolerant. Standardized gender-sensitive reporting on the status of projects is not being conducted.

Continuation of Table 1

1	2
Risk Management	Risks are analyzed informally. Gender discrimination, gender blindness are not recognized as significant project risks.
Procurement Management	Suppliers and contractors are not considered to be members of the project team. The tender procedure is gender neutral.
Stakeholder Management	There is no perception of gender specifics, inclusiveness of the interested parties.
<b>Level II – Organization of PMO<sub>G</sub></b>	
Integration Management	Project management includes reporting, which contains not only the main project indicators but also gender-segregated data. Identification of gender needs allows forming gender-sensitive content, gender-fair budget. The level of satisfaction and trust of the project beneficiaries is increasing.
Scope Management	The technical task, which determines the parameters of the content of the project, is developed by one of the heads of the functional unit. Gender requirements are poorly formulated and presented in the work breakdown structure (WBS).
Time Management	Most projects are delayed. Weak /insufficient monitoring of the “critical path”. Gender barriers are not taken into account.
Cost Management	Methods and tools for gender budgeting are used to formulate/develop a project budget. The project budget contains “gender budget inserts”. Financial calculations contain units of measurement: “number of persons, including women and men”; “cost, including per one woman and one man”, etc.
Quality Management	PMO <sub>G</sub> has an infrastructure to help implementers to identify inclusive gender requirements of beneficiaries.
Human Resource Management	The search for resources is carried out before the work is started. The project team is formed on the principles of gender balance. Project managers and resource managers support gender-sensitive management (gender-responsive, gender-tolerant).
Communications Management	Information on the status of the project contains “gender insertions”. Gender-segregated reporting is provided at the request of the management.
Risk Management	The main risks were identified, taking into account the diversity of stakeholders for important projects. The forecasting of the behavior of stakeholders is carried out taking into account the inclusiveness of gender requirements.
Procurement Management	The tendering procedure includes information on the availability and safety of the route, time, delivery method for a woman or other vulnerable gender group of stakeholders.
Stakeholder Management	Identification of all stakeholders is carried out on a gender basis. The inclusiveness of the gender requirements of all stakeholders, including beneficiaries is investigated and determined. Design solutions are developed that meet the requirements of stakeholders.
<b>Level III –Development of methods for effective gender-oriented project management</b>	
Integration Management	Application of gender mainstreaming technologies and tools throughout the project life cycle. Disclosure of gender capacity of the project team. The level of satisfaction and trust of beneficiaries is a priority criterion in making design decisions.
Scope Management	The development of WBS projects is based on the gender requirements of the internal and external beneficiaries of the project. The audit, monitoring, evaluation of the product content are carried out during the life cycle of the project using the “gender tracking matrix”.
Time Management	PMO <sub>G</sub> provides gender-oriented information to accelerate project work. Gender opportunities for the completion of strategically important projects are known.
Cost Management	Gender-oriented budgeting is integrated into the project activity. The tracking of financial indicators is carried out using gender-sensitive indicators. Total expenditures are differentiated into costs for different gender groups. The economic evaluation of social (gender) effects is presented.
Quality Management	Project executors are aimed at implementing inclusive gender requirements of beneficiaries.
Human Resource Management	A “personalized/gender” assessment of the performance of a larger (80 %) share of the project team is carried out. In the organization, the “visible” synergistic effect, the added value of the results from gender-based management.
Communications Management	The information / reports on the project must contain a gender component. At the meetings, the project team respects gender tolerance, sensitivity, and participation.
Risk Management	Risks related to gender discrimination are quickly detected and opportunities/actions to reduce threats are developed.
Procurement Management	Contractor reports on the work performed contain a gender component. Requirements on pre-term and gender-sensitive conditions of delivery of products are put forward.
Stakeholder Management	Extension of identification of gender groups of stakeholders to gender + (persons with disabilities, pregnant women, elderly people, etc.). Audit of gender requirements and expectations of all stakeholders. Development of strategies for the best involvement of various gender groups of stakeholders in the project.
<b>Level IV – Development of the organization gender competence</b>	
Integration Management	Standard gender mainstreaming processes for project and portfolio management are developed, in particular: gender needs auditing, monitoring of compliance of gender parameters/indicators, gender budgeting, etc. The use of gender-based management ensures a positive synergistic effect, additional value of projects.

1	2
Scope Management	Relationships of gender parameters of projects in the portfolio are established. The content of the project portfolio contains a gender-sensitive context. The gender requirements of all stakeholders are integrated into the content of project activities.
Time Management	Tracking all important projects is underway. The gender factors affecting the lagging behind the planned timing of projects are revealed.
Cost Management	Project managers understand how applying gender budgeting will contribute to optimization, saving of the company's budget. PMO <sub>G</sub> is responsible for the adequacy of using the method of gender budgeting.
Quality Management	Project managers are aware of gender gains and their significance for all gender groups of stakeholders.
Human Resource Management	Formation of the project/portfolio team is based on the gender balance of quantitative composition, gender-sensitive competencies. Automated accounting of labor costs, gender parameters and gender competencies of staff is carried out.
Communications Management	All project managers have the opportunity to receive in a timely fashion gender-segregated information, data necessary to identify threats and opportunities for successful completion of the project. Gender-segregated reporting is being developed throughout the life cycle of the project. Gender participation in the project/portfolio teams supports the development of creativity in making project decisions.
Risk Management	Plans for responding to circumstances of gender-discriminatory nature are developed. Evaluation of the effectiveness of gender-sensitive recommendations of "corrective action" and "preventive action".
Procurement Management	Gender issues with suppliers and contractors have been identified. There are a registry and database of gender-sensitive suppliers and contractors.
Stakeholder Management	Standardized processes of gender-oriented stakeholder management: "Identification of gender stakeholder groups", "Identification of stakeholders' gender needs", "Mediation/management of conflicts of interests of various gender groups", "Development of gender-responsible solutions", etc. have been developed.
<b>Level V – Recognition of PMO<sub>G</sub> effectiveness</b>	
Integration Management	Gender-oriented software tools are applied at all stages of the life cycle of projects. Conclusions and recommendations are based on the system of gender-sensitive data and indicators.
Scope Management	Project managers and implementers are involved in defining project/portfolio gender dimensions. Gender monitoring of the content of the project and the product is carried out during the life cycle.
Time Management	PMO <sub>G</sub> is responsible for meeting the terms of individual projects and portfolios. A gender assessment of resources for project activities is carried out. The gender-sensitive model of the project schedule is developed.
Cost Management	Suppliers and the PMO <sub>G</sub> team have methods of gender budgeting to reduce gender gaps in cost indicators for projects and programs.
Quality Management	The gender-sensitive criteria, which contribute to the achievement of the required quality of projects, are determined. The gender barriers separating functional services and divisions are eliminated.
Human Resource Management	Differentiation of projects is carried out according to the gender strategies of the organization. All project implementers have information about strategic gender resources and understand the inadmissibility of the ineffective use of them.
Communications Management	PMO <sub>G</sub> develops gender-focused operational plans. PMO <sub>G</sub> disseminates gender-sensitive, gender-responsible information.
Risk Management	Management of gender-discriminatory manifestations/risks is an obligatory component of reporting on the status of projects. PMO <sub>G</sub> , sponsors, functional managers support the reduction of gender-based risks.
Procurement Management	Suppliers and contractors on their own initiative apply gender-sensitive efforts for the early delivery of critical goods and services.
Stakeholder Management	Developed gender-oriented PMO <sub>G</sub> participation with all project stakeholders during the project cycle. Increase of support and minimization of the resistance of all gender stakeholder groups.
<b>Level VI – PMO<sub>G</sub> – center for gender-based project management</b>	
Integration Management	Planning processes provide a gender balance of content, budget, resources of projects/portfolios. PMO <sub>G</sub> provides informational, technical support for gender-oriented management. Gender participation is a compulsory cultural communicative platform.
Scope Management	PMO <sub>G</sub> adheres to the fulfillment of the gender requirements of projects/portfolios. The processes of gender-oriented content management: "Gender-based management planning", "Gender requirements collection", "Gender-sensitive WBS development", "Gender content confirmation", "Gender content monitoring" are standardized.
Time Management	Some projects are executed earlier than the scheduled terms. The processes of gender-oriented management of the terms "Planning of gender-based schedule management", "Gender assessment of operations resources", "Development of gender-sensitive schedule" are standardized.
Cost Management	Executors of projects on participative (gender-oriented) principles should independently manage 10 % of the planned budget.
Quality Management	Gender quality issues affecting the timely completion of projects are identified. Gender issues and options and solutions are reflected in the project documents.
Human Resource Management	A clear allocation of human resources in the project portfolio was implemented through gender sensitivity/managerial competence. Human resource management in all divisions is based on the principles of gender equality, respect, tolerance without rebooting and downtime.

Continuation of Table 1

1	2
Communications Management	All project managers have the opportunity to receive in a timely manner the gender-sensitive information necessary to identify opportunities for accelerated implementation and improvement of projects.
Risk Management	Teams of project executors have the competence to prevent risks associated with gender discrimination.
Procurement Management	The contracting organizations apply gender-sensitive methods and tools that are consistent with the PMO <sub>G</sub> 's gender strategies.
Stakeholder Management	Prevention of the gender-oriented behavior of stakeholders allows PMO <sub>G</sub> to act proactively. Most of the gender groups of beneficiaries are supporters of the project.
<b>Level VII – Creation of additional, inclusive, gender project values</b>	
Integration Management	The gender-sensitive criteria for selecting projects are formalized. PMO <sub>G</sub> coordinates the activities of functional units on the application of a unified methodology of gender-based project, program, portfolio management.
Scope Management	Executing teams use gender expertise to meet the requirements of stakeholders in their entirety. Permanent benchmarking of gender mainstreaming practices is carried out.
Time Management	The capacity of the project implementers is consistent with the principles of gender parity and equity. Each executor is aware of his planned workload, priority of projects. Gender factors do not affect the delay in project execution.
Cost Management	PMO <sub>G</sub> considers all the costs of implementing projects with a gender perspective. PMO <sub>G</sub> focuses on reducing gender gaps in project/program outputs/products through the use of gender-focused budgeting.
Quality Management	PMO <sub>G</sub> disseminates the developed gender-sensitive criteria, methods and training programs aimed at removing barriers to successful completion of the project.
Human Resource Management	A gender-oriented approach to assessing the work of teams of project executors has been introduced. All employees of the company are looking for gender-sensitive ways to reduce the duration of projects and identify gender threats to successful completion.
Communications Management	The intensity of using the gender potential of labor resources in projects and project portfolios is increased. The number of cases of gender-discriminatory use of resources has significantly decreased.
Risk Management	In all portfolios of the organization, a gender component is integrated, which allows the prompt introduction of “gender-sensitive insertions, changes” to all interconnected projects and resource support.
Procurement Management	Suppliers support the processes of gender-based project planning at the level of the PMO <sub>G</sub> methodologies and tools.
Stakeholder Management	The gender-oriented management of the stakeholders is supported mainly through the use of online services. The gender-sensitive expectations of stakeholders are predicted in the results and products of the projects.
<b>Level VIII – center for the development of gender-oriented project management</b>	
Integration Management	The mature process of gender-based project management is integrated with all other processes of the organization and is constantly analyzed in terms of opportunities for their improvement. PMO <sub>G</sub> is responsible for the effective use of gender mainstreaming tools and methodologies in project/program/portfolio management.
Scope Management	All the strategic goals of the organization are consistent with the Gender Equality Principles (GEP).
Time Management	More than 95 % of projects are completed within the scheduled timeframe, 10 % – ahead of schedule. Gender factors influence the acceleration of project implementation
Cost Management	PMO <sub>G</sub> actively redistributes the costs of implementing projects, programs, portfolios to reduce or eliminate gender gaps in the results/products of projects and programs by applying gender-oriented budgeting.
Quality Management	The process of continuous improvement of the organization's work using the methods of gender-based control to identify the most effective ways to increase the value/quality of project products is implemented.
Human Resource Management	The intensity of using all resources is stable, gender-sensitive. The organization performs a large number of gender-sensitive projects without the involvement of additional resources.
Communications Management	All stakeholders understand and approve gender interrelationships between the project portfolios, the goals, resources, and assets of the organization. Workers actively initiate gender-specific proposals to speed up projects and refine the gender content of the project portfolio.
Risk Management	The project portfolio is gender-balanced. The problems of one project do not significantly affect the gender performance and value of other projects.
Procurement Management	Suppliers, contractors, PMO <sub>G</sub> use gender-sensitive approaches, procurement procedures in projects and portfolios.
Stakeholder Management	The mature process of gender-based management of all stakeholders. The processes of continuous improvement of gender-oriented strategies for stakeholder involvement have been introduced into the life cycle of the project. More than 95 % of projects meet the gender needs of stakeholders, and 10 % – exceed their expectations.

The presented levels of maturity of PMO<sub>G</sub> show the level of gender responsibility from advisory support to the continuous improvement of gender-oriented project management (Fig. 1).

The question of the functioning of PMO<sub>G</sub> becomes relevant in cases where the gender component is important, in particular in the municipalities for the implementation of the project activity.

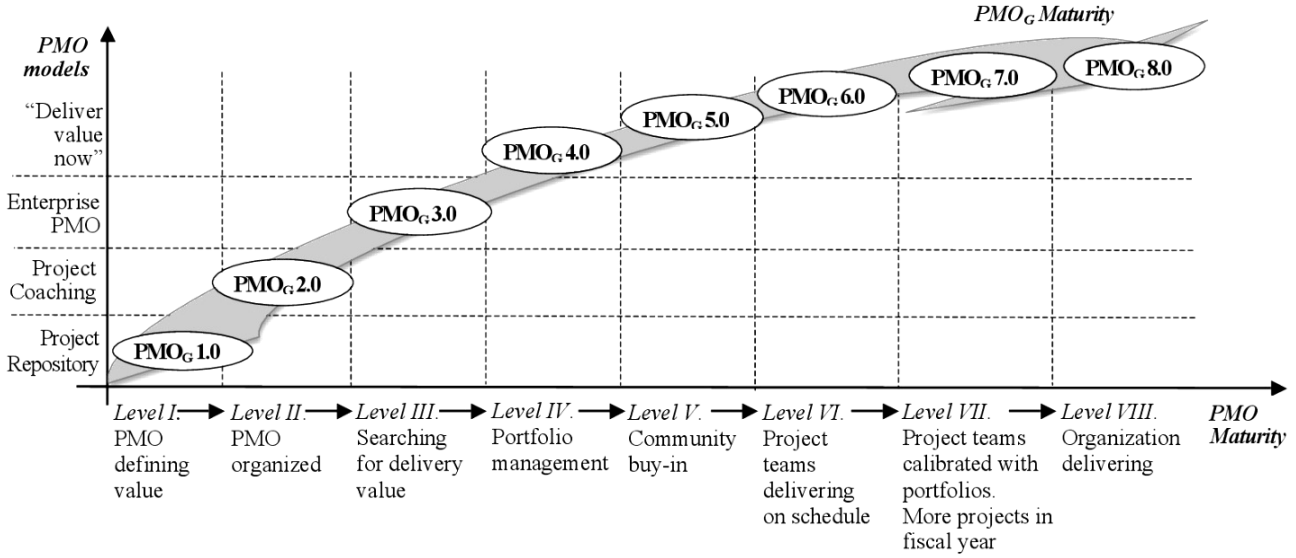


Fig. 1. PMO<sub>G</sub> maturity trajectory

**5. Discussion of results of PMO<sub>G</sub> maturity assessment modeling**

The PMO<sub>G</sub> maturity model allows you to measure the effectiveness of PMO<sub>G</sub> and select strategies for transforming the system from the level of “gender neutrality” to the level of “gender sensitivity”. Determination of PMO<sub>G</sub> maturity is based on an assessment of the level of gender characteristics inclusion (Table 1). The following rating scale is proposed: “0” – non-compliance with the criterion (no criterion); “1” – compliance with the criterion in full. The objective function describing the PMO<sub>G</sub> maturity takes the form of (1)–(11):

$$\Delta PMO_G = \sum_{j=1}^{j'} \sum_{k=1}^{k'} \sum_{l=1}^{l'} \sum_{m=1}^{m'} \sum_{n=1}^{n'} \sum_{p=1}^{p'} \sum_{q=1}^{q'} \sum_{z=1}^{z'} \sum_{u=1}^{u'} \sum_{t=1}^{t'} (A_j + B_k + C_l + D_m + E_n + F_p + G_q + H_z + R_u + W_t) \rightarrow opt, \quad (1)$$

$$A = \{A_1, A_2, \dots, A_j\}, j = \overline{1; j'}, \quad (2)$$

$$B = \{B_1, B_2, \dots, B_k\}, k = \overline{1; k'}, \quad (3)$$

$$C = \{C_1, C_2, \dots, C_l\}, l = \overline{1; l'}, \quad (4)$$

$$D = \{D_1, D_2, \dots, D_m\}, m = \overline{1; m'}, \quad (5)$$

$$E = \{E_1, E_2, \dots, E_n\}, n = \overline{1; n'}, \quad (6)$$

$$F = \{F_1, F_2, \dots, F_p\}, p = \overline{1; p'}, \quad (7)$$

$$G = \{G_1, G_2, \dots, G_q\}, q = \overline{1; q'}, \quad (8)$$

$$H = \{H_1, H_2, \dots, H_z\}, z = \overline{1; z'}, \quad (9)$$

$$R = \{R_1, R_2, \dots, R_u\}, u = \overline{1; u'}, \quad (10)$$

$$W = \{W_1, W_2, \dots, W_t\}, t = \overline{1; t'}, \quad (11)$$

where PMO<sub>G</sub> – complex organizational and technical system of the gender-oriented project and program management office;

A<sub>j</sub> – assessment of the gender-oriented project and program integration management, j – quantitative assess-

ment of the gender-oriented project and program integration management capacity of PMO<sub>G</sub>, j =  $\overline{j; j'}$ , j' – expert’s evaluation of the gender-oriented project and program integration management capacity of PMO<sub>G</sub>;

B<sub>k</sub> – assessment of the gender-oriented project and program scope management, k – quantitative assessment of the gender-oriented project and program scope management capacity of PMO<sub>G</sub>, k =  $\overline{k; k'}$ , k' – expert’s evaluation of the gender-oriented project and program scope management capacity of PMO<sub>G</sub>;

C<sub>l</sub> – assessment of the gender-oriented project and program time management, l – quantitative assessment of the gender-oriented project and program time management capacity of PMO<sub>G</sub>, l =  $\overline{l; l'}$ , l' – expert’s evaluation of the gender-oriented project and program time management capacity of PMO<sub>G</sub>;

D<sub>m</sub> – assessment of the gender-oriented project and program cost management, m – quantitative assessment of the gender-oriented project and program cost management capacity of PMO<sub>G</sub>, m =  $\overline{m; m'}$ , m' – expert’s evaluation of the gender-oriented project and program cost management capacity of PMO<sub>G</sub>;

E<sub>n</sub> – assessment of the gender-oriented project and program quality management, n – quantitative assessment of the gender-oriented project and program quality management capacity of PMO<sub>G</sub>, n =  $\overline{n; n'}$ , n' – expert’s evaluation of the gender-oriented project and program quality management capacity of PMO<sub>G</sub>;

F<sub>p</sub> – assessment of the gender-oriented project and program human resource management, p – quantitative assessment of the gender-oriented project and program human resource management capacity of PMO<sub>G</sub>, p =  $\overline{p; p'}$ , p' – expert’s evaluation of the capacity of PMO<sub>G</sub> gender-oriented project and program human resource management;

G<sub>q</sub> – assessment of the gender-oriented project and program communications management, q – quantitative assessment of the gender-oriented project and program communications management capacity of PMO<sub>G</sub>, q =  $\overline{q; q'}$ , q' – expert’s evaluation of the gender-oriented project and program communications management capacity of PMO<sub>G</sub>;

$H_z$  – assessment of the gender-oriented project and program risk management,  $z$  – quantitative assessment of the gender-oriented project and program risk management capacity of PMO<sub>G</sub>,  $z = z; z', z'$  – expert’s evaluation of the gender-oriented project and program risk management capacity of PMO<sub>G</sub>;

$R_u$  – assessment of the gender-oriented project and program procurement management,  $u$  – quantitative assessment of the gender-oriented project and program procurement management capacity of PMO<sub>G</sub>,  $u = u; u', u'$  – expert’s evaluation of the gender-oriented project and program procurement management capacity of PMO<sub>G</sub>;

$W_t$  – assessment of the gender-oriented project and program stakeholder management;  $t$  – quantitative assessment of the gender-oriented project and program stakeholder management capacity of PMO<sub>G</sub>,  $t = t; t', t'$  – expert’s evaluation of the gender-oriented project and program stakeholder management capacity of PMO<sub>G</sub>.

Restrictions of the objective function of PMO<sub>G</sub> maturity are shown in Table 2, and the mathematical model (1)–(11) takes the form:

$$\Delta PMO_G = \sum_{j=1}^{j'} \sum_{k=1}^{k'} \sum_{l=1}^{l'} \sum_{m=1}^{m'} \sum_{n=1}^{n'} \sum_{p=1}^{p'} \sum_{q=1}^{q'} \sum_{z=1}^{z'} \sum_{u=1}^{u'} \sum_{t=1}^{t'} (A_j + B_k + C_l + D_m + E_n + F_p + G_q + H_z + R_u + W_t) \rightarrow opt,$$

$$\begin{cases} M_I \in F \cup G \cup W, \\ M_{II} \in A \cup B \cup C \cup D \cup E \cup F \cup G \cup H \cup R \cup W, \\ M_{III} \in A \cup B \cup C \cup D \cup E \cup F \cup G \cup H \cup R \cup W, \\ M_{IV} \in A \cup B \cup C \cup D \cup E \cup F \cup G \cup H \cup R \cup W, \\ M_V \in A \cup B \cup C \cup D \cup E \cup F \cup G \cup H \cup R \cup W, \\ M_{VI} \in A \cup B \cup C \cup D \cup E \cup F \cup G \cup H \cup R \cup W, \\ M_{VII} \in A \cup B \cup C \cup D \cup E \cup F \cup G \cup H \cup R \cup W, \\ M_{VIII} \in A \cup B \cup C \cup D \cup E \cup F \cup G \cup H \cup R \cup W. \end{cases} \quad (12)$$

The path (trajectory) to development of PMO<sub>G</sub> maturity takes the form:

$$T \in M_I \cup M_{II} \cup M_{III} \cup M_{IV} \cup M_V \cup M_{VI} \cup M_{VII} \cup M_{VIII}. \quad (13)$$

The positive synergy of optimality of the state (level of maturity) of PMO<sub>G</sub> is defined by:

$$opt \approx \frac{\partial PMO_{G_{x+1}}}{\partial PMO_{G_x}}, \quad (14)$$

where PMO<sub>G<sub>x</sub></sub> – complex organizational and technical system of the gender-oriented project and program management office, which is at the  $x$  level of maturity; PMO<sub>G<sub>x+1</sub></sub> – complex organizational and technical system of the gender-oriented project and program management office, which moved to the next ( $x+1$ ) level of maturity.

The global criterion is considered as a measure of PMO<sub>G</sub> maturity and defined by:

$$M_{PMO_{Gx}} = \sum_{\forall_i} \alpha_i \times v_i, \quad (15)$$

where  $\alpha_i$  – weighting factors,  $i = \overline{1;10}$ , 10 – number of project management knowledge areas;  $\forall_i$  – cum restrictions of the objective function of PMO<sub>G</sub> maturity (Table 2).

In a situation where for one decision-maker (individual decision-making); all project management knowledge areas are of equal importance ( $\alpha_A = \alpha_B = \alpha_C = \alpha_D = \alpha_E = \alpha_F = \alpha_G = \alpha_H = \alpha_R = \alpha_W = 0.1$ ), the overall result can be integrated as follows:

*Level I – definition of goals and objectives of PMO<sub>G</sub> (global criterion range [0;0.05]).* PMO<sub>G</sub> examines the extent to which gender knowledge and approaches are used to manage projects and programs.

Table 2

Restrictions of the objective function of PMO<sub>G</sub> maturity

Project Management Knowledge Areas	The levels of PMO <sub>G</sub> maturity							
	I (M <sub>I</sub> )	II (M <sub>II</sub> )	III (M <sub>III</sub> )	IV (M <sub>IV</sub> )	V (M <sub>V</sub> )	VI (M <sub>VI</sub> )	VII (M <sub>VII</sub> )	VIII (M <sub>VIII</sub> )
Integration Management (A)	0	0.25	0.5	0.7	0.9	1	1	1
Scope Management (B)	0	0.3	0.45	0.6	0.8	1	1	1
Time Management (C)	0	0.25	0.5	0.8	1	1	1	1
Cost Management (D)	0	0.25	0.4	0.6	0.8	0.9	1	1
Quality Management (E)	0	0.25	0.5	0.75	1	1	1	1
Human Resource Management (F)	0.15	0.3	0.45	0.6	0.7	0.8	0.9	1
Communications Management (G)	0.15	0.3	0.45	0.6	0.7	0.8	0.9	1
Risk Management (H)	0	0.15	0.25	0.5	0.7	0.9	1	1
Procurement Management (R)	0	0.15	0.4	0.6	0.8	1	1	1
Stakeholder Management (W)	0.15	0.3	0.5	0.7	0.8	0.9	1	1

Also, a feasibility study of its value for the organization is developed. At this level of maturity, the main role of PMOG is consulting, informational support of the organization's functional units in the application of gender knowledge and approaches, the development of databases with gender-sensitive information, assistance in understanding and operating gender terminology, and mastering of gender knowledge/approaches by the organization's staff.

*Level II – organization of PMOG (global criterion range [0.05;0.28]).* PMOG determines how the functional units of the organization use gender approaches for the implementation of project and program management processes. Engineering and re-engineering of the processes of gender-based project management are conducted. The systemic and orderly activity of the PMOG personnel is enhanced, and gender competence is included in job descriptions.

*Level III. PMOG: development of methods for effective gender-oriented project management (global criterion range [0.28;0.44]).* Functional units use the potential of PMOG to study and develop quality approaches to gender-sensitive project management. At this level of maturity, the basis for the systematic application of gender knowledge for gender-sensitive project and program management is laid.

*Level IV. PMOG: development of the organization gender competence (global criterion range [0.44;0.65]).* PMOG pays more attention to the proper selection of projects, attraction (participation) of top management to gender-oriented project management. IT tools, online services for gender-sensitive project portfolio management are actively applied. Methods of gender-based management of changes in all portfolio projects are developed, in particular: priorities, tracking the progress of project activities, reporting on all projects.

*Level V. Recognition of PMOG effectiveness (global criterion range [0.65;0.83]).* Gender instruments (gender planning, gender budgeting, gender audit, and monitoring, etc.) are applied throughout the life cycle of the project. Project teams are aware of their responsibility for financial performance and achievement of gender values of projects. The PMOG team contributes to the cost-effective, client-oriented budgeting of projects.

*Level VI. PMOG – center for gender-based project management (global criterion range [0.83;0.93]).* PMOG is characterized by the achievement of significant improvements in gender-based project management. Most of the projects are carried out within the scheduled date, in full and with additional gender values. Best practices are documented and used for benchmarking and dissemination. Marketing of successful projects is important to support the motivation of all project groups and functional managers.

The competence of PMOG includes:

- capacity building of project teams on the use of gender knowledge and tools for the project, program, portfolio implementation with additional gender values;
- increasing the focus of inclusiveness (creating new database blocks, supporting centralized information sharing among all gender stakeholder groups);
- gender monitoring of the implementation of gender-oriented processes, procedures, operations, as well as the use of gender models, methods, tools for project, program, portfolio management;
- improvement of practices of gender-based project management that create additional value.

*Level VII. PMOG: creation of additional, inclusive, gender project values (global criterion range [0.93;0.98]).* PMOG implements projects, programs, portfolios with expanded parameters of inclusiveness. The organization benefits from PMOG in the form of client-oriented, gender-based budgeting, project implementation in the scheduled time and according to the schedule, as well as high level of participation and meeting inclusive, gender requirements project beneficiaries. The gender component (gender knowledge, methodologies, tools) is integrated into all project management processes. This allows the office to predict how changes in one element (project component and parameter) affect the state of other and/or other assets, organizational strategies.

*Level VIII. PMOG – center for the development of gender-oriented project management (global criterion range [0.98;1]).* In the organization, all projects are implemented using best practices of gender-based management. The organization has introduced a process of continuous improvement using gender knowledge, techniques, tools to identify the most effective ways to improve the effectiveness and gender value of projects. More than 95 % of projects are highly valued by project beneficiaries, and 10 % of projects exceed expectations.

The developed PMOG maturity assessment tools are important for improving the monitoring and analysis system of gender-based project management. The application of the developed analytical tools will be useful in the project activities of UN Women's offices [22], as well as other UN structures, which carry out gender-sensitive projects and programs.

At the same time, the author's approach requires further scientific and practical development in the direction of working with specific data. The empirical basis for further research shall be analytical reports on the functioning of PMOG in Ukraine (both at the national and local levels). It should be noted that at present, there are several PMOGs in Ukraine within the framework of the project activity of international funds (USAID, Friedrich Ebert Foundation, etc.). The creation of PMOG in state and local government structures is in the process of initiation. The impetus for their creation was the "Concept of the State Social Program for Ensuring Equal Rights and Opportunities for Women and Men" [23], adopted in 2017. Now the organizational and technical measures for the creation of PMOG are also carried out at the local level with the aim of implementing sustainable development strategies.

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## 6. Conclusions

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1. The matrix of maturity estimation of PMOG, presented by the project management knowledge areas and gender-sensitive maturity characteristics, is developed. The parameters of the organizational maturity of PMOG in the context of the development of gender-based project management are indicated. Eight levels of PMOG maturity are established: "I – definition of goals and objectives of PMOG"; "II – organization of PMOG"; "III – development of methods for effective gender-oriented project management"; "IV – development of the organization gender competence"; "V – recognition of PMOG effectiveness"; "VI – PMOG – center for gender-based project management"; "VII – creation of additional, inclusive, gender project values"; "VIII – center for the development of gender-oriented project management".



2. It has been established that the use of this model will allow the PMO<sub>G</sub> directorates and top management of gender-sensitive organizations to self-assess the progress in the development of gender-based project management, as well as to select the actions needed to move to a higher level of maturity.

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