

1. Introduction

Efficiency increasing of functioning of high-tech enterprises which includes aviation profile enterprise foresees the problem solving of team formation by colleagues whose level of competences will provide effective realization of high-tech project on the one side. But on the other hand, it carries out the rational distribution of human resource with purpose of the efficient realization of the all portfolio projects of the aviation profile enterprise [1]. In this article there are described results of model development and methods of support decision making of HR and project managers to formation of team executors composition of high-tech projects on the aviation profile enterprise.

Specifics of the high-tech projects define the necessity of number of special methods appliance, which based on the principles of competence approach at the pretenders' choice on the including to the team of high-tech project [2, 3]. The latest years in Ukraine and abroad there were published a lot of papers conducted to the problem of efficiency increasing in functioning of high-tech projects using competence approach.

The decision of indicated problem is impossible without objective accounting of different points of view of specialists-experts, whose knowledge and experience were formed by long-terms work on organization and realization high-tech projects on the aviation profile enterprises. Several last years there were published science works, so like as [4–6], which describe ways of construction of special theory of multicriteria decision making in conditions of uncertainty based on the utility theory. Application of this approach defines of necessity of addition of existent methodic by special stages for the forming of executors' team of high-tech projects. On these stages it will be collection of experts' information, it analyses and processing with purpose of improve efficacy of decision objectivity which are made about pretenders' selection on including to the team of high-tech project and also formation of executors' team [7].

FORMATION OF A TEAM OF PROJECT EXECUTORS IN THE AREA OF CREATION AVIATION TECHNIQUES

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Abstract: In the article there is analyzed the present condition of the problem of high-tech project management to develop the new objects by the aviation profile enterprises. The analyses showed that for improvement of the efficiency of portfolio management it should be developed special methodic tools of decision support system by HR and Project managers about executors' composition forming of high-tech projects taking into account number of indicators of different character and first of all employee competence.

Based on the analyzed results the integrated process model was developed which described the main stages of team formation of high-tech projects executors. There is formation of expert committee of employees of aviation profile enterprises for the choice of rational variant of team composition from the several alternatives; estimation of the candidates' competencies level for the including to the high-tech project team, the communication level assessment of the future team participants, selection by the collective expert estimation, united variant of executive team of high-tech project. This model provides increasing of the level of objectivity of finally decision about composition of team executors of high-tech project unlike other famous models. Practical value of proposed model is in decreasing of the risks of incorrect decision making by HRs and project managers during the process of formation of team executors of high-tech project.

Based on developed methodical tools, in the article there is described process of formation of team executors of high-tech project on the typical aviation profile enterprises PF "Space". This company is specialized on development of airdrome techniques in particular self-propelled passenger ladder. Also in this article there are described methods and computation effect from integration of theoretical results into the practice of management by the high-tech projects on the aviation profile enterprises.

Practice value of received results is in creation of science methodic basis in aggregate models view and methods of decision making support of HR and project managers for the formation of team executors' composition of high-tech projects. These results can be used in portfolio management not only on the aviation profile enterprises but in any other innovation companies.

Keywords: aviation profile enterprises, high-tech project, competency-oriented assessment, complex process model.

So, development of the methodic tools complex which will provide improvement of reliability of management of high-tech projects on aviation profile enterprises [8–10] as the part of human resource management by reduction of the level of uncertainty actual is a scientific problem. The decision of this problem will improve efficacy of process of formation of team composition of executors of high-tech projects during objects creation of new technique at the expense of using of the internal reserve of the aviation profile enterprise.

2. Methods

During the research it was proposed integrated process model for regulation of process of formation of team executors of high-tech projects on aviation profile enterprise. At the beginning of the process there are lists of pretenders on including to the project team and as the output is formed project team. The process of team formation is intend of realization of the next stages: formation of the requirements to pretenders; formation of the base of pretenders; estimation of personal qualities and level of competences of pretenders based on the competency approach; estimation of communication opportunities of pretenders on including in team of high-tech project with using of fuzzy logic by the way of pair wise comparison of cooperation opportunity by pretenders within the framework of one team; formation of alternative variants of project team composition from selected candidates; receiving of individual experts evaluations by alternatives; estimation of the extent consistency of results of collective expert review and according of level of consensus of experts evaluation is apply method by Dempster-Shafer (in case of absolutely original alternatives) or method of Dezert-Smarandache (in case of single identity of different alternatives). The process argumentations base foundation with using of rough set theory about changes in experts' commission composition if the results of their activity will be negative.

In the result of experts' interview were found groups of alternative $X_k \subseteq K$ from the set K and it was defined level of privileges found groups of alternative (Table 1).

mate of experts were found similar and agreed and that's why the most reliable. The results were received by the ranking and clustering of the expert's estimations.

Table 1

The value of the measures of the average level of assessments of the options for the composition of the mooring complex equipment of development team considered by the expert committee

Index of expert's estimation	Alternative variants of the team composition											
	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇	A ₈	A ₉	A ₁₀	A ₁₁	A ₁₂
α - truncated mean	37	50,8	56,2	40,4	42,8	52,3	81,9	64,1	50,1	50,5	57,2	42,8

The value of α - truncated mean which described in the Table 1 gave opportunity to define the variant of team A₃ such as most advisable, because only of this cluster inside the esti-

the final team composition of developers of mooring complex equipment due to consecutive reduce of the level of uncertainty in the aspects of imperfection, fuzziness and inaccuracy.

4. Discussion

The calculation of efficiency of developed methods was realized on the example of creation of mooring complex equipment for the SPT-154, at the same time was used the method of α - truncated mean. Calculation gave opportunity to choose variant of team composition developers of mooring complex equipment from 12 alternative variants with the biggest value of reliability function. Applying of designed results had improved of reliability of evidence base for person, which makes decision about the ratification of

References

1. Sobchak, A., Shostak, E., Tseplyaeva, T., Popova, O., Firsova, A. (2016). Designing an approach to building the teams of high technological projects performers at virtual instrument-making enterprises. *Eastern-European Journal of Enterprise Technologies*, 3 (2 (81)), 47–54. doi: <https://doi.org/10.15587/1729-4061.2016.71493>
2. Zimnyaya, I. A. (2003). Klyuchevye kompetencii – novaya paradigma rezul'tata obrazovaniya. *Vyshee obrazovanie segodnya*, 5, 34–42.
3. Kibanov, A. Ya. et. al. (2014). *Koncepciya kompetentnostnogo podhoda v upravlenii personalom*. Moscow: NIC INFRA-M, 156.
4. Archibal'd, R.; Bazhenov, A. D., Aref'ev, A. O. (Eds.) (2004). *Upravlenie vysokotekhnologichnymi programmami i proektami*. Moscow: Kompaniya AyTi; DMK Press, 472.
5. Gavva, V. N. (2004). *Ocenka potenciala predpriyatiya i otrasli*. Kharkiv: KhAI, 287.
6. Rovinska, N. Yu., Vykhodets, Yu. S. (2016). Method of decision making in project scope management. *Systemy upravlinnia, navihatsiyi ta zviazku*, 4 (40), 108–113.
7. Shostak, E. I. (2015). Forming teams of performers on innovative high-tech projects enterprises using expert assessment scenarios. *Visnyk Natsionalnoho tekhnichnoho universytetu «KhPI»*. Seriya: Mekhaniko-tekhnolohichni systemy ta kompleksy, 36 (1145), 57–63.
8. Il'ina, E. P. (2007). Ocenka i ispol'zovanie pokazately kachestva ekspertnogo resheniya problemy. *Problemy programmirovaniya*, 1, 38–49.
9. Beshelev, S. D., Gurvich, F. G. (1974). *Matematiko-statisticheskie metody ekspertnyh ocenok*. Moscow: Statistika, 159.
10. Margolin, E. (2006). Metodika obrabotki dannyh ekspertnogo oprosa. *Poligrafiya*, 5, 14–16.