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AREAS OF PROGRAM SUCCESS: HOW TO SUCCESSFULLY CONDUCT TRANSFORMATION

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Purpose: The purpose of the article is to explore the areas of program management success and provide both theoretical and empirical insights into these areas and key factors in the context of successfully conducting a transformation.
Design/methodology/approach: The article presents the results of quantitative research conducted among 578 program management experts in 67 countries. Additionally, to achieve the assumed goal, a factor analysis was conducted, based on which the operationalization of success areas in program management in the context of transformation was carried out.
Findings: Thirteen success areas in program management in the context of transformation have been identified. Furthermore, they illustrate 73.08% of all significant variables that may occur and significantly impact its success.
Research limitations/implications: The perceived research limitations result from the chosen the methodological approach and the measurement tool, which, although was distributed in 7 languages, may not be able to reflect the subtleties of individual languages. Further research is recommended to test the defined success areas of the program through cross-sectional case studies.
Originality/value: The article identified 76 significant factors influencing the success of a program based on a literature review. Secondly, it defined 13 areas that determine the success of the program. Thirdly, the article responds to the call of Shao et al. (2012) and Wen et al. (2018) regarding the aggregation of success factors in program management.

Keywords: Transformation success, success areas, program context, program management.

Category of the paper: General review.

1. Introduction

In today's dynamic and constantly changing business environment, organizations face the challenge of continuously adapting to new conditions (Poi, Sorbarikor, 2022) to maintain their competitiveness and achieve long-term success (Saihi et al., 2023). As technologies, market

trends, regulations, and customer preferences evolve rapidly (Ibujés-Villacís, Franco-Crespo, 2022), companies must take strategic actions and implement transformations to stay ahead and meet the expectations of their stakeholders (Kafetzopoulos, Katou, 2023).

However, transformational processes within organizations can be complex, time-consuming, and highly risky. Implementing new strategies, technologies, or organizational culture requires profound changes at multiple levels (Park et al., 2021), which can encounter resistance, difficulties, and uncertainty (Cherian et al., 2021). Some transformation initiatives may fail or not deliver the expected benefits if not appropriately designed and managed (O'Hara, et al., 2022).

In this context, effective program management becomes of crucial importance. Program management allows for a cohesive approach to managing various projects and actions that constitute the entire transformation (Vuorinen and Martinsuo, 2018). By integrating these projects and coordinating their efforts, organizations avoid fragmentation and ensure consistency in achieving transformational goals (Gularso et al., 2023). Effective program management requires setting clear objectives (Miterev et al., 2020), proper planning, resource allocation (Martinsuo, Hoverfält, 2018), rigorous progress monitoring, and continuous adaptation of actions in response to changing circumstances (Trzeciak, Jonek-Kowalska, 2021).

Advances in program management research have led to a growing need to understand the conditions that contribute to program success. While research on project management success has been conducted for many years, covering critical success factors (Schopp et al., 2019), the role of the project manager (Mubarak et al., 2022), context (Trzeciak, 2022), and leadership competencies (Imam, Zaheer, 2021), these findings do not fully translate to the program level. Based on the suggestions of Shao (2018) and Rijke et al. (2014), the authors identified a knowledge gap and proposed defining and evaluating program success areas that would build awareness among program managers of stakeholder expectations and the value that results from meeting those expectations.

The theoretical contribution of this paper is the identification of universal program success areas, not specific to a particular program context. The findings serve as the basis for future research on program success measurement, the creation of a model, and outlining useful implications for managers to understand the importance of the identified success areas.

2. Theoretical background

2.1. Organizational transformation process and program management

In the field of program management, there is a rich literature focusing on theoretical models and practices aimed at conducting organizational transformations. Program management is

a strategy of a comprehensive approach to achieving set goals through the coordination of integrated projects and actions (Frederiksen et al., 2021). In the context of organizational transformations, effective program management becomes a key element in achieving desired outcomes (Martinsuo, Hoverfält, 2018). Taking this into consideration, the process of organizational transformation should be conducted as a program of strategic initiatives rather than as a single project.

Firstly, transformation processes are typically complex and encompass a wide range of changes within an organization (Hoback, 2018). They touch upon various areas such as organizational structure (Cherian et al., 2021), culture (Park et al., 2021), processes, technologies, and business strategy (O'Hara et al., 2022). Managing individual projects in isolation can lead to fragmentation and lack of coherence in achieving transformation goals. Managing them as a program allows for efficient coordination and harmonization of activities, ensuring that all projects collaborate towards a common goal.

Secondly, the process of transformation may involve multiple projects and initiatives managed by different teams (Kashan et al., 2021). Managing them as a program enables coherence and consolidation of actions, eliminating conflicts and duplications of efforts. Joint planning, monitoring, and reporting progress help ensure that all projects align with the defined objectives and organizational strategy (Trzeciak, 2023).

Thirdly, organizational transformations require significant resources, including human, financial, and technological (Martins et al., 2018). Managing them as a program allows for effective resource management and allocation to different projects, minimizing waste and ensuring efficient utilization (Vuorinen, Martinsuo, 2018).

Fourthly, organizational transformations impact various stakeholders, including employees, management, customers, suppliers, and investors (Lang et al., 2018). Managing them as a program facilitates engaging and involving these stakeholders at every stage of the transformation (Martins et al., 2018). Collaboration and communication with stakeholders contribute to their support and acceptance of changes, which are crucial for the success of the transformation (Liu et al., 2019).

In conclusion, conducting organizational transformation as a program of strategic initiatives allows for a holistic approach that considers various aspects of the organization. Managing it as a program provides a systematic and coordinated framework to tackle the complexities and challenges of transformations, increasing the likelihood of successful outcomes.

2.2. Research trends on the success of the program

The analysis of the effectiveness of centralization and decentralization of programs became the subject of research presented by Yu and Kittler (2012). The authors pointed out that the decision on how to manage the program should result from the strategic needs of the organization itself. Ritson et al. (2012) presented a slightly different issue of the balance between defining and implementing the program strategy, which is necessary for the success of

the program, The authors stated that these elements are equally important. In addition, programs often result from incomplete, intricate strategic scenes, making it difficult to control and ensure the balance between vision and execution, which is essential for program success.

Another trend related to the issue of program success involves researching the relationship between the customer and value suppliers. For example, Liu et al., (2019) presented the behavior of program stakeholders in terms of obtaining and delivering the expected values of the program: commercial, intellectual and program cooperation. Moreover, it was emphasized that there is a need to involve the client and other program participants, which results in creating real value (Brownson, Fowler, 2020).

Similar conclusions were proposed by Laursen and Killen (2019) who revealed three sets of value creation (collaboration, coordination and perception). It is therefore essential for proper program management to balance the dilemmas of multiple stakeholders and maintain control while allowing ideas to emerge.

Another research trend draws attention to the importance of knowledge transfer and organizational culture, which positively modify educational behavior (Dutton et al., 2014; Pellegrinelli et al., 2015). It is emphasized that where the program is not only a coordinating mechanism, but an organizational mechanism for achieving a major strategic goal or for change, its component projects should be managed as well as possible to achieve efficiency in implementation and use of existing knowledge. However, beyond the importance of knowledge management, which should be seen as the ability to manage a program, there is a need for holistic management, economic rationale, leadership and sound management processes with the simultaneous role of vertical and horizontal communication in hierarchical structures (Duryan, Smyth, 2019).

Shehu and Akinotoye (2010), when examining people involved in the implementation of construction programmes in the United Kingdom, identified challenges and factors that organizations may face in practice of program management (i.e., program control, human and political aspects).

The aspect of program supervision was also highlighted by Eweje et al. (2012) who pointed out that decisions made by project managers influence the strategic value of the assets provided by the program. Moreover, the extent to which managers felt being under supervision has influenced the scope and quality of information they provided (Eweje, Turner, Müller, 2012).

Literature on the subject, proposing the mechanisms of integration (Turkulainen et al., 2015), also points to the coherence of the program and its projects. Program integrity management focuses on the processes and activities that align and coordinate processes and project management within the group of program management processes. Vuorinen and Martinsuo (2018) indicate that the effectiveness of a change program is generated through five integration tasks (i.e., creating and communicating a vision for change, monitoring program progress, exchanging information in the program-parent interface, coordinating work in a multi-project program, coordinating and supporting individual projects and project managers).

Moreover, a structured framework supporting the management of benefits in programs also requires the integration of actions to be performed with a clear set of controls, inputs, outputs and resources (Fernandes, O'Sullivan, 2021).

3. Methodology

The aim of this article is to explore the areas of program management success and provide both theoretical and empirical insights into these areas and key factors in the context of successfully conducting a transformation. Preliminary literature analysis led the research team to identify research gap and allowed to state the following research questions:

RQ1. What are the specific areas that contribute to the success of program management in the context of effectively conducting a transformation, based on empirical evidence?

RQ2. What implications do research findings provide for the theory and practice of program management?

For the purpose of achieving the assumed goal and answering the research questions, the authors developed research methodology consisting of the following steps:

1. Performing systematic analysis of the literature on program management in order to find out what factors influence its success.
2. Developing research survey to collect empirical assessment of those factors from the point of view of program management practicians.
3. Performing statistical analysis (i.e., PCA) in order to aggregate possibly vast number of factors into fewer and wider categories allowing more flexible and context-oriented use in theory and practice of program management.

3.1. Systematic Literature Review

The study comprises a systematic literature review that examines published research on program management practices. Unlike conventional reviews, the systematic review method involves meticulously documenting and adhering to well-defined standards throughout the process of acquiring, evaluating, and combining literature (Tranfield et al., 2003).

To begin the study, the research team compiled a list of well-known scientific journals in the area of project management. Then, they searched journals databases using the keyword "program" in the title, abstract, or keywords of the articles. It was important that the articles were published after 2010. This initial step enabled the team to collect preliminary literature for further analysis, and the detailed information about the publications analysed is presented in Table 1.

Table 1.
Systematic Literature Review process employed in the study

Step	Actions taken in the research process	The result of the actions performed
1	Searching databases of journals in accordance with the adopted criteria	The number of matches found during journals inquery: (*n=261*) Built Environment Project and Asset Management (*n = 21*) Impact Assessment and Project Appraisal (*n = 30*) International Journal of Managing Projects in Business (*n = 49*) International Journal of Project Management (*n = 118*) Project Management Journal (*n = 43*)
2	Verification of titles and abstracts in terms of eligibility (do they meet the inclusion criteria)	Number of articles qualified based on title and abstract analysis (*n = 56*)
3	Evaluation of full texts for eligibility (do they meet the inclusion criteria). First iteration.	Number of articles accepted for further analysis after the first iteration: (*n = 32)* Number of articles rejected (did not meet inclusion criteria) (*n = 24*): Review of the literature *(n = 12)* The term of the program only mentioned *(n = 7)* Government project, mega project, etc. *(n = 5)*
4	Supplementing the preliminary database with additional articles identified in the full-text review in step 3.	The number of matches found during subsidiary journals inquery: (*n'=39*) International Journal of Information Systems and Project Management *(n = 8)* International Journal of Information Technology Project Management *(n = 4)* International Journal of Project Organisation and Management *(n = 10)* Journal of Modern Project Management *(n = 17)*
5	Pre-screening of additional articles for eligibility (do they meet the inclusion criteria)	Number of additional articles qualified based on title and abstract analysis (*n'=7*)
6	Evaluation of full texts for eligibility (do they meet the inclusion criteria). Second iteration	Number of articles accepted for further analysis after the second iteration: (*n'=7*) Number of articles rejected (did not meet inclusion criteria) (*n'=0*)
7	Analysis of the collected literature in terms of important factors affecting the success of the program	Number of articles analyzed: n = 39 (32+7)

Source: Own work.

After an initial search, 261 papers relevant to the team's interests were identified and subjected to further evaluation based on their titles and abstracts. Papers that did not specify the program type or methodology were subjected to a full text analysis, and those that did not relate to program management were excluded. The research team intentionally excluded papers that focused on IT software programming, a specific program such as development, training, government, or research programs, or those that only referred to program management in general terms. Following the standard practices of systematic literature reviews (Booth et al., 2012), the research team took additional steps to ensure a comprehensive list of program management research papers. In addition to searching for papers that directly addressed program management, they also examined other project management publications that discussed the use of program management. This approach resulted in the identification of seven additional papers that met the selection criteria.

As a result of the selection process (full-text analysis), the final set of papers for literature analysis consisted of a total of number of 39 publications on context, processes, organization, competencies, life cycle and program values and integration. In addition, through a systematic review of the literature, the team identified 76 important factors influencing the success of the program, which are presented in Appendix 1.

3.2. Research survey

After completing the systematic literature review, the researchers were able to move on to the next phase of the study, which involved constructing a survey questionnaire. A total of 76 program factors were identified through the literature analysis and were included in the questionnaire. The survey questionnaire was divided into three sections: the first section focused on the characteristics of the respondents, while the second and third sections assessed the degree of use and influence of the identified factors on program management success. To ensure a higher response rate, the questionnaire was created in electronic form and made available in seven languages, namely English, French, Spanish, Japanese, German, Polish and Russian.

The quantitative research was conducted with a specific group of professionals involved in program implementation, who are members of international organizations for project management such as the International Project Management Association (IPMA) and the Project Management Institute (PMI). To ensure the representativeness of the study, the researchers determined the required sample size based on specific assumptions. They assumed a p fraction index of 50%, an error size of 5%, and a statistical significance of $\alpha = 0.05$. After performing the necessary calculations, they determined that a minimum sample size of 385 was needed. The researchers received 578 correctly completed questionnaires from 67 countries, thanks to the collaboration established with IPMA and PMI, exceeding the minimum required sample size.

4. Results

In accordance with methodological recommendations, factor analysis is performed according to a specific procedure (Field, 2005). First, the collinearity of the questions being analysed (Gress et al., 2018) was tested using the correlation matrix and variance inflation factor (VIF). As a result of the 15 iterations conducted, 15 questions with a high collinearity coefficient (above 10) were removed from further analysis. In addition, it was also noted that the excluded questions with collinearity were related to similar issues, which confirms the high reliability of the research carried out.

According to the methodological assumptions concerning the fulfilment of the basic requirements for factor analysis, the following verifications should be made:

- The number of respondents relative to the analysed variables should be at least five times larger (Mishra et al., 2017). The number of variables included in the analysis is 61. However, the number of respondents is 578, which exceeds the required value.
- Verification of the Kaiser-Meyer-Olkin (KMO) value (Field, 2005). The Kaiser-Meyer-Olkin (KMO) value is 0.838 (with a significance of $p < 0.001$), which is well above the minimum of 0.60 for exploratory factor analysis.
- Conducting the Bartlett's test of sphericity (Field, 2005). In the analysed example, the empirical Chi2 value is 31639.552. Based on the obtained result regarding degrees of freedom (1830), the theoretical Chi2 value was also calculated assuming $p = 0.95$; $df = 1830$. The obtained value was 1930.634. Furthermore, the ratio of empirical to theoretical Chi2 value is more than sixteen times higher. Considering the above, it can be stated that the probability of obtaining the result assuming that the correlation matrix is an identity matrix is close to zero.

Factor analysis was performed using Statistica 13.1 software under the following assumptions:

- The number of extracted factors was chosen using the Kaiser criterion (eigenvalue of the factor is greater than 1.0).
- Varimax factor rotation was performed, as it facilitates factor interpretation by minimizing the number of variables with high loadings on each factor (Gress et al., 2018). The results of the analysis are presented in Table 2.

Table 2.
Percentage of variance explained by individual factors after rotation

Component	Eigenvalues Extraction: main components			
	Eigenvalues	**% of Variance**	**Cumulative Eigenvalue**	**Cumulative % of Variance**
1	18,89623	30,97743	18,89623	30,97743
2	4,25170	6,97001	23,14793	37,94743
3	3,95909	6,49031	27,10702	44,43774
4	2,91503	4,77874	30,02206	49,21649
5	2,43712	3,99528	32,45918	53,21177
6	2,06882	3,39150	34,52799	56,60327
7	1,87881	3,08002	36,40681	59,68329
8	1,61219	2,64294	38,01900	62,32623
9	1,51202	2,47873	39,53102	64,80495
10	1,46802	2,40660	40,99904	67,21155
11	1,24863	2,04693	42,24767	69,25848
12	1,22348	2,00570	43,47115	71,26419
13	1,10905	1,81812	44,58021	**73,08231**

Source: Own work.

- Factor loadings of > 0.40 were considered, assuming statistical significance for the sample above 500.

The results obtained indicate that the selected factors explain 73.08% of all variables. Furthermore, the aim of the factor analysis was to identify areas of success by evaluating the impact of the identified factors on the program's success. Based on the results, it can be concluded that the success areas isolated through factor analysis comprise 73.08% of all critical factors that can have a significant impact on program success during implementation. Furthermore, the impact of each area on program success is equivalent to the percentage of total variance explained by the 13 selected factors in the analysis (Table 3).

Table 3.
Areas of program success

Factors	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
Development and execution of a strategic program management plan	0,59												
Economic justification for the program				0,41				0,60					
Supervision over the program					0,44								
Resource allocation								0,47					
Procedures for granting legal approvals								0,56					
Risk management related to the relationship with stakeholders									0,60				
Recognition of stakeholder attributes					0,43								
Supplier relationship management			0,60										
Stakeholder management					0,52								
Support from top management													
Satisfaction of key stakeholders					0,50								
Focus on the customer		0,43						0,44					
Staff of the office technically/ substantively competent with regard to the program								0,48					
Involvement of the program management team							0,40			0,52			
Teamwork			0,45				0,42						
Stable, qualified program staff							0,62						
Qualified and charismatic program manager	0,45					0,57							
Organization support for the program	0,47						0,47						
Program manager leadership	0,73												
Clearly defined and coherent vision of the program		0,75											
Clearly defined and stable program requirements		0,47											0,54
Clear and realistic program objectives		0,52				0,48							
Program planning		0,67											
Planning the program definition phase		0,58											
Transparency of the program scope				0,70									
Approval of the program plan and its evaluation									0,71				
Understandable purpose of the benefits of the program		0,61			0,47								
Incremental delivery of program benefits					0,70								
Passing on business benefits	0,48		0,61										
Project maturity of the organization			0,67										
Holistic view of the program organization			0,56										
Program management infrastructure (e.g., resources, processes)			0,71										
Organization of program management before its implementation					0,47					0,47			
Simplicity of program management			0,63										
Delegation of powers and responsibilities			0,81										
Internal corporate mechanisms						0,56							
User involvement										0,83			
Ensuring continuity of financing												0,46	
Appropriate program risk allocation						0,73							
Budgeting the program													
Vertical and horizontal communication							0,60						
Appropriateness of the selection of methods, techniques, and tools to the level of complexity of the program							0,65						

Cont. table 3.

Effective and timely decision making		**0,52**					**0,50**						
Permanent reviews (monitoring and control) of the program				0,50								0,64	
Decision making process				0,78									
Change management process				0,69									
Strategic program management													0,48
Establishing program priorities		0,42									0,52		
Support for innovation		0,54						0,44					
Program cost management						0,44	0,62						
Management of issues						0,68							
Resource allocation between projects						0,51							
Integrated management of program change		0,48											
External program monitoring and control processes implemented			0,40	0,40									
Program resource management											0,75		
Knowledge management - measurement and analysis of knowledge									0,51				
Awareness and compliance with laws and regulations		0,78											
Focus on processes											0,61		
Information management		0,43				0,53							
Accurate documentation of the program			0,50	0,51									
Program management standard					0,41								0,42
Output variances	3,44	5,78	5,48	4,21	3,29	4,63	3,76	2,45	2,36	2,44	2,66	2,02	2,06
Content	,056	,095	,090	,069	,054	,076	,062	,040	,039	,040	,044	,033	,034

Source: Own work.

5. Discussion

The following discussion presents answers to the research questions and indicates the theoretical and practical implications of the research and analysis.

RQ1. What are the specific areas that contribute to the success of program management in the context of effectively conducting a transformation, based on empirical evidence?

Program Strategy and Vision (C1) – Implementing the program effectively requires organized and well-planned activities within the organization (Näsänen, Vanharanta, 2016). It is important that the principles used to manage the organization align with the program's objectives (Vuorinen, Martinsuo, 2018). The program management team can achieve this by linking the program strategy to its vision and goals, which helps guide stakeholders involved in the program. Additionally, the program manager should obtain support from the organization (Näsholm, Blomquist, 2015) to increase the program's chances of success.

The controlled delivery of results (C2) must be orderly (Teubner, 2018). Without comprehensive planning and clear, realistic goals that link projects to expectations and needs (Fortune et al., 2015; McGrath, Whitty, 2019), program failure is likely. A well-implemented processes system (Dutton et al., 2014) overseen by the supporting organization (Miterev et al., 2016; Turkulainen et al., 2015) will ensure program efficiency. This creates the capability to monitor and control the program based on the availability, consistency, and reliability of program data and documentation.

The area of preparing an organization for program management (C3) includes factors at formal (Miterev et al., 2020), descriptive (Breese, 2012), and operational levels (Pellegrinelli et al., 2015). These elements can be summed up in the phrase "program and organizational order," which refers to the awareness, ordering, and adoption of coherent principles to facilitate effective program implementation (Frederiksen et al., 2021). High-level activities are supported by operational-level activities (Turkulainen et al., 2015).

Program governance (C4) requires a structured and strategic approach, informed by adopted principles and supported by appropriate resources (Ritson et al., 2012), to ensure the acquisition of necessary information for informed decision-making (Miterev et al., 2016). Just as organizations developing a project management system require the application of standard program management (Liu et al., 2019), regardless of whether it is an independent or existing solution. Implementation of a system demands proper information-gathering from the program's construction phase through to closure, along with the necessary supervision and monitoring processes (Görög, 2011).

The involvement of stakeholders in program implementation (C5) is a complex activity. Managing stakeholders in a program does not require different tools from managing stakeholders in projects (Trzeciak, Jonek-Kowalska 2021), but managing a larger number of stakeholders with varying attitudes (Fortune et al., 2015) can be challenging. Therefore, stakeholder management should be integrated into the program management system (Dingsøyr et al., 2018), allowing for effective identification of stakeholder expectations (Angus, Kittler, 2012) and enabling the delivery of business benefits while minimizing risks.

Business change management (C6) guides stakeholders, teams, and organizations through changes (Martinsuo, Hoverfält, 2018). User involvement, program budgeting, and resource allocation are critical components (Fortune et al., 2015), showing the strategic role of decisions in the program (Miterev et al. 2016). The user's involvement is crucial in identifying where and why resources should be allocated to bring expected benefits (Fernandes, O'Sullivan, 2021), and the effective management of business change is essential for achieving these goals.

The program manager's competencies (C7) are crucial to the program's success. The manager must possess the required qualifications (Pollack, 2012), charisma, and issue management skills (Shi et al., 2014), select appropriate methods and tools (Dingsøyr et al., 2018), and demonstrate both hard and soft skills (Shao, 2018). While soft skills such as teamwork and collaboration are important, the team's work quality and stability are more significant (Jia et al., 2011). Regular monitoring and control of program implementation (Trzeciak, Jonek-Kowalska, 2021) is also essential.

To better meet the needs of large-scale programs, which can affect many stakeholders and generate vast amounts of information, it is essential to establish a program office (C8) as the primary control and information centre for the program. The most critical factors in achieving the expected results of the program with regards to the program office are the implementation of legal approval procedures (Aritua et al., 2011) and the active involvement of the program

management team (Vuorinen, Martinsuo, 2018). This highlights the importance of supporting the program management process through the formalization of management activities.

To ensure effective compliance and benefit management (C9), it is crucial to describe them in a clear and coherent manner (Fernandes, O'Sullivan, 2021), while considering the needs and expectations of individual program stakeholders (Dutton et al., 2014) and the associated risk (Angus, Kittler, 2012). Furthermore, it is important to consider the factors that contribute to successful benefits realization (van Buuren et al., 2010), as well as awareness and compliance with laws and regulations (Miterev et al., 2020). These aspects are essential for establishing a strong relationship between the organization and the program.

Program sustainability and financial management (C10) involves structured planning and control to achieve business benefits (Rijke et al., 2014). Its impact on program success is related to financing, ensuring financial liquidity and optimal allocation of resources (Smits, van Marrewijk, 2012). Some programs do not have a budget and each project must find its own funding source, which is supported by the program's complexity and specificity (Laine et al., 2016). Programs can be financed through budgeting within consortia with financial support from government or research funds.

The significance of knowledge and innovation management (C11) has been highlighted by several authors (Rijke et al., 2014; Laursen, Killen, 2019). Pellegrinelli et al. (2015) observed that when a program is not only a coordinating tool for independent projects, but also an organizational mechanism for achieving the main strategic goal or change, its component projects should be managed with utmost care to ensure efficient implementation and utilization of existing knowledge.

The goal of risk management (C12) is to enhance effective decision-making by comprehending risk factors and their impact on program delivery. According to Aritua et al. (2011), the skills required to structure risk in a way that informs decision-making must differ from the skills required to deal with the risk of a single project. Breese (2012) further emphasizes that the more uncertain and ambiguous the benefits, the more crucial it is to focus attention on them and confront the risk factors that may influence their delivery.

The final area is the purposefulness of the program (C13). Programs are conducted to achieve business benefits (Fernandes, O'Sullivan, 2021), which are realized through the results of individual projects (Vuorinen, Martinsuo, 2018). Therefore, at the program level, it is crucial to prioritize projects based on their contribution to achieving the intended benefits (Fernandes, O'Sullivan, 2021). Consequently, the program's desirability must be evaluated by assessing whether the activities align with the specified goals, if the optimal methods and resources were employed to achieve the goals, and most importantly, if the goals were achieved.

RQ2. What implications do research findings provide for the theory and practice of program management?

The research has two main theoretical implications. Firstly, it addresses the knowledge gap identified by Shao et al. (2012) and Wen et al. (2018) by defining the areas of program success. It highlights the insufficiency of quantitative research on international samples in this area. Secondly, the identified areas of program success can serve as a foundation for the development of a model and measurable success.

The practical implications focus on the operationalization of the results of the statistical analysis. More specifically, the attention is drawn to measurable aspects that can be used to evaluate the success of the program within the dimensioned areas of success. This is addressed to program managers.

6. Conclusion

The aim of this article is to explore the areas of program management success and provide both theoretical and empirical insights into these areas and key factors in the context of successfully conducting a transformation. To achieve the research objective, we employed principal component analysis (PCA) using data gathered from 578 questionnaires assessing the impact of 76 key factors in program management, which were identified based on a review of the literature on program success.

The conducted research has enabled us to answer the research questions posed. In connection with the above, it should be stated that the following areas have the main influence on the program success level: program strategy and vision, controlled delivery of results, the preparation of an organization for the program management, program governance, the involvement of stakeholders in the implementation of the program, business change management, competencies of the program manager, program management office, compliance and benefit management, program sustainability and financial management, knowledge and innovation management, program risk management, purposefulness of the program.

Additionally, there is a statistical basis for defining the main areas of program success. The literature review also found that program context positively impacts the identified areas of program success, shaping and adapting them to the organization's evolving needs while protecting the program's projects from the turbulent and uncertain external environment.

The research results confirm the importance of the areas of success that were studied individually by many authors, as presented in more detail in the literature review section. Additionally, it should be noted that successful program management entails ensuring that the program is implemented in the most appropriate and effective manner to fulfil its purpose and objectives.

The reliability of the research builds on the use of well-established concepts and measurement structures to obtain credible results. In addition, the results are in line with other related studies that were used as a theoretical support in the research design process. The perceived research limitations result from the chosen the methodological approach and the measurement tool, which, although was distributed in 7 languages, may not be able to reflect the subtleties of individual languages. Further research is recommended to test the defined success areas of the program through cross-sectional case studies.

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