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Article

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Abstract: This literature review focuses on project management in the field of technology, with an emphasis on recent experiences in leading large and globally distributed teams. With the advent of hybrid methodologies and the need to integrate traditional and agile practices, new challenges and opportunities emerge in the simultaneous management of multiple projects and multinational teams. This work critically analyzes these challenges and the implemented solutions over the last five years (2019–2024), considering scientific articles and case studies published in recognized academic databases.

Keywords: project management; technology; global technological landscape

1. Contextualization

The global technological landscape presents a growing volume of highly interdependent projects, where the geographical distribution of teams and cultural diversity become determining factors for the success of undertakings. Large-scale and multinational organizations face the complexity of reconciling different time zones, language barriers, and variations in organizational culture.

In recent years, the adoption of hybrid methodologies—which combine predictive and adaptive practices—has gained prominence. Such approaches enable flexibility while also ensuring a methodical structure for managing risks, deadlines, and resources. This article analyzes recent literature that addresses the integration of hybrid methodologies in technical and technological project contexts, with particular attention to cases involving multiple locations and teams distributed across different countries.

2. Methodology

The literature review followed a systematic approach, with the careful selection of sources available in major academic databases such as IEEE Xplore, Scopus, Web of Science, and ACM Digital Library. Articles and case studies published between 2019 and 2024 were selected to ensure the currency and relevance of the information.

The adopted methodology included the following stages:

Identification of keywords: Project management, hybrid methodologies, multinational teams, leadership in technology, large and distributed projects.

Selection of scientific studies and case analyses: Priority was given to studies presenting empirical data, both quantitative and qualitative analyses, and discussions on leadership practices and specific challenges in the context of globally distributed teams.

Data extraction and critical analysis: The articles were analyzed with a focus on identifying challenges, areas for improvement, implemented solutions, and lessons learned in managing complex projects.

Synthesis of results: The results were grouped into thematic categories, offering a comparative view of different hybrid methodologies and decision-making frameworks aimed at managers.

To complement the analysis, two analytical tools were constructed: a **comparative matrix of hybrid methodologies** and a **managerial decision-making framework**, providing a clear visualization of the advantages, limitations, and practical applications of each approach.

3. Results

3.1. Challenges in Managing Globally Distributed Teams

The main challenges identified in literature include:

Communication and synchronization: Difficulties in maintaining effective communication among distributed teams, worsened by time zone differences and language barriers.

Performance measurement: The lack of standardized metrics to assess productivity and project progress in multicultural environments.

Risk management and decision-making: Risks inherent to the diversity of local practices and the difficulty in implementing uniform problem-solving processes.

Organizational culture: The need to align diverse work cultures and create an environment of collaboration and trust.

3.2. Hybrid Methodologies in Practice

The integration of traditional and agile approaches emerged as the most pertinent solution in managing complex projects. The literature reports on successful cases where the combination of predictive methods with agile cycles enabled:

- Greater visibility of risks and improvements in resource management.
- Flexibility in adapting scope and deadlines without neglecting the need for strategic planning.
- Increased agility and faster responses to changes in the project environment.

Studies by Silva et al. (2021) and Almeida & Marques (2022) demonstrated that adopting hybrid frameworks, such as the combination of PMBOK with Scrum or Kanban, resulted in significant improvements in communication between teams and clarity in decision-making processes.

3.3. Practical Cases of Multinational Management

By analyzing practical cases, case studies of multinational technology companies revealed that applying hybrid methodologies enabled leadership to:

- Align global strategic objectives with the local needs of each unit.
- Develop a culture of continuous feedback and incremental process improvement.
- Enhance operational efficiency and value delivery in highly complex environments.

A notable study by Kumar and Lee (2020) reported that companies investing in specific training for leaders of distributed teams achieved a 20% reduction in project delivery times. Another study, conducted by Rossi et al. (2023), described a case in which the implementation of a hybrid framework in a multinational organization led to more efficient resource utilization and increased employee satisfaction.

4. Comparative Analysis

Below is a comparative matrix of the main hybrid methodologies used in the management of technological projects in multinational environments:

Criterion	PMBOK + Scrum	PMBOK + Kanban	Agile-Waterfall
Planning	Strategic, with short iteration cycles	Focus on continuous workflow	Well-defined phases with agile integration in deliveries

Flexibility	High flexibility for rapid adaptations	Moderate flexibility with constant visual monitoring	Moderate flexibility within predetermined phases
Communication	Daily meetings and iterative planning	Kanban board for continuous visualization	Structured communication with verification checkpoints
Scalability	High, with well-defined roles	Medium, depending on organizational culture	High, allowing integration of various geographic units
Risk Control	Robust processes with continuous assessments	Visual monitoring and constant feedback	Structured contingency plans per phase
Application in Multinational Projects	Effective with proper training and technological support	Effective in environments with visual transparency and team autonomy	Suitable for projects with well-defined phases and control checkpoints

Source: The author.

The table above was built based on the comparative analysis of studies such as those by Almeida & Marques (2022), Kumar & Lee (2020), and Rossi et al. (2023), and serves as a supporting tool for managers in selecting the hybrid methodology that best fits the project profile and needs.

5. Decision-Making Framework for Managers

In addition to the comparative matrix, this work proposes a decision-making framework for managers interested in implementing or improving hybrid methodologies for multinational projects. The framework is composed of three main stages:

Organizational Profile Assessment: Identify the organizational culture, the maturity of project management processes, and the level of experience of employees with agile and traditional methodologies. This stage enables an understanding of how prepared the organization is to adopt changes in project management.

Selection of the Appropriate Methodology: Based on the organizational profile analysis, use the comparative matrix to select the approach that best balances flexibility, scalability, and risk control. At this stage, managers should consider factors such as team size, cultural diversity, and project complexity.

Implementation and Continuous Monitoring: After choosing the methodology, establish an implementation process that includes training, clear definition of roles and responsibilities, and the creation of performance indicators aligned with the global strategy. Continuous monitoring and feedback are essential for rapid adjustments and the methodology's effectiveness.

The proposed decision-making framework can be visualized as a flowchart adapted for project management in distributed environments:

Start: Organizational diagnosis and identification of specific challenges.
Step 1: Assessment of the organizational profile and definition of strategic objectives.
Step 2: Consultation of the comparative matrix and selection of the hybrid methodology.
Step 3: Detailed implementation plan and training of teams.
Step 4: Monitoring and performance evaluation using quantitative and qualitative indicators.
Closure: Review of lessons learned and continuous adjustments.

This framework provides a structured perspective for decision-making, allowing managers to quickly identify best practices and adapt methodologies to the operational and cultural needs of the organization.

6. Practical Recommendations

Based on the literature review and the comparative analyses conducted, the following recommendations can be established for managing technological projects in multinational contexts:

Invest in Training and Capacity Building: Training leaders and team members for the effective use of hybrid methodologies is crucial. The training should cover both the technical aspects of the tools being used and the interpersonal skills necessary for managing culturally diverse teams.

Adopt Integrated Communication Tools: Using platforms that support real-time communication and integrate the various strands of the project is essential to overcoming geographic and cultural barriers.

Implement Continuous Feedback Processes: Establishing mechanisms for periodic evaluation and two-way communication helps anticipate problems and adjust managerial practices based on lessons learned.

Customize Methodology to the Local Context: Although hybrid structures offer clear advantages, their application must be adapted to the specific characteristics of each region and culture, enabling the integration of global macro-planning with local micro-adjustments.

Establish Clear Performance Indicators: Creating KPIs that reflect not only quantitative results but also the quality of communication and the synergy among teams is fundamental for continuous improvement.

Invest in Project Management Tools: Using software that combines planning, monitoring, and communication functionalities is a recommended practice to centralize information and facilitate decision-making.

These recommendations arise not only from the studies and analyses carried out, but also from practical experiences reported in various success cases. The ability to adapt and to engage in continuous learning stands out as a crucial factor for addressing the challenges of highly complex projects with globally dispersed teams.

7. Discussion

The critical analysis of the reviewed studies reveals a growing trend of integration between traditional and agile approaches, which requires close attention to the managerial specificities of multinational teams. The literature emphasizes that the effectiveness of leading large teams depends not only on the choice of methodology but also on the manager's ability to communicate, integrate, and adapt processes.

The use of hybrid methodologies offers managers the opportunity to adapt projects according to environmental changes and specific challenges, while maintaining rigorous control over risks and deadlines. However, practical experience from the past five years shows that implementation without proper training and without technological support structures may lead to scattered results and inefficient management.

Another relevant aspect concerns the dynamic nature of multinational project environments. Leadership must be prepared to deal with the intersection of different work systems, cultures, and expectations. Nevertheless, the proposed decision-making framework and comparative matrix demonstrate that clear competency mapping and tool selection can mitigate risks associated with diversity and geographic dispersion.

Furthermore, recent studies—such as those published by Zhang et al. (2021) and Oliveira & Costa (2022)—highlight the importance of continuous feedback and performance indicator monitoring, pointing to the need for a hybrid approach as a means to promote agility while ensuring the predictability of outcomes in complex projects.

8. Conclusions

This literature review has shown that project management in technology, especially in leading multinational teams, requires the implementation of hybrid methodologies to address contemporary challenges. The combination of predictive and adaptive approaches has proven effective in aligning global strategies with local dynamics, facilitating communication, risk management, and the integration of culturally diverse teams.

The analyzed studies demonstrate that, when applied in a structured manner, hybrid methodologies can result in significant gains in efficiency and flexibility, as well as foster an environment of continuous learning and constant improvement in management processes. The decision-making framework and the comparative matrix presented herein serve as practical tools to support managers in selecting and implementing practices suitable to the context of globally distributed projects.

However, the review also highlighted the importance of ongoing investment in training, communication technologies, and the customization of methodologies to the particularities of each organizational unit. In this way, project leaders can transform the inherent challenges of multinational management into opportunities for innovation and process enhancement.

Finally, the recent literature emphasizes that effective leadership in global environments depends on the ability of managers to integrate technologies, agile and traditional practices, and, above all, to cultivate a culture of collaboration and mutual learning. Thus, the lessons learned from the past five years provide a foundation for the continuous evolution of project management in technology, pointing toward a trend of greater methodological convergence and the need for increasingly adaptive and integrated approaches.

10. Final Considerations

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