

A Case Study on the Optimization of Enterprise Project Management—Taking Huawei's Projects as an Example

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Abstract—Against the backdrop of deepening economic globalization and the rapid ICT industry upgrades, project management is vital for tech enterprises to enhance their global operational capabilities and market competitiveness. ICT projects are characterized by global distribution, high technical complexity and cross-regional collaboration. Taking Huawei as a case, this paper analyzes its early management problems and corresponding optimization measures in progress control, resource allocation and team collaboration. The study finds that Huawei's project management optimization, based on digital technology and combined with the characteristics of the ICT industry, forms a systematic management system through hierarchical progress control, global resource scheduling and standardized collaboration mechanisms. This system effectively solves the pain points of traditional project management, shortens the project delivery cycle, improves resource utilization efficiency and enhances cross-regional team collaboration capabilities. Huawei's practice provides practical reference for the project management optimization of similar global tech enterprises, and also enriches the practical application of project management theory in the ICT industry.

Keywords—Huawei, Project Management, Progress Control, Resource Allocation, Team Collaboration

I. INTRODUCTION

Driven by the digital economy, the ICT industry has become a key engine for global economic development, and the project layout of enterprises in this industry is increasingly globalized and diversified (Ding & Sun, 2006). From the construction of 5G base stations and the deployment of overseas communication networks to the R&D of smart terminals and the construction of cloud computing centers, the implementation of ICT projects involves multiple links such as technology R&D, engineering construction and market operation, and has high requirements for the refinement and systematization of project management. Project management, as a key link connecting enterprise R&D and market delivery, directly affects the delivery efficiency, cost control and technical achievement transformation of projects, and thus has become a core issue that ICT enterprises must focus on in their global development.

Current research on project management mostly focuses on the construction of general management models and the optimization of a single management link, with relatively insufficient research on the particularity of global ICT projects, especially the lack of in-depth analysis combined with the practical experience of leading enterprises (Qi, 2008).

This paper takes Huawei as the research object, focuses on its project management optimization practice, studies the

core problems in the initial stage of its project management, analyzes the specific optimization measures and implementation effects, and extracts the experience that can be used for reference by similar enterprises. It aims to help enterprises build a project management system adapted to their own development needs, and improve their global project operation capabilities.

II. INITIAL STATUS AND PROBLEMS OF PROJECT MANAGEMENT

A. Overall Development of Huawei's Global Projects

Huawei's business covers more than 170 countries and regions around the world, with its global projects involving telecommunication operator solutions, enterprise digital transformation, smart terminal R&D and other multiple fields (Huawei Technologies Co., Ltd., 2024). With the continuous expansion of the global market, the number and scale of Huawei's projects have grown rapidly, and the project types have gradually diversified from the initial single communication network construction to a combination of engineering construction, technological R&D and market operation. The global project layout has become an important support for Huawei to expand its international market share and enhance its industrial influence, but it also puts forward higher requirements for the construction of the enterprise's project management system. In the initial stage of global project expansion, Huawei's traditional project management model was difficult to adapt to the characteristics of high efficiency, cross-regional and multi-type project operation, and a series of core problems gradually emerged, which restricted the efficient delivery of global projects.

B. Core Problems in the Initial Stage

In its early global project operations, Huawei applied a one-size-fits-all progress plan to all projects, regardless of project types, regional policies and supply chain conditions (Wang & Li, 2019). Without full-process dynamic monitoring, emerging issues could not be detected timely, causing cascading delays to overseas projects. Fragmented progress data also prevented the headquarters from conducting overall coordination.

The company also suffered from unbalanced resource distribution (Liu & Zhang, 2020). Premium talents and equipment clustered in domestic core projects, leaving emerging markets and small R&D projects under-resourced. Cumbersome approval procedures and poor integration between global and local resources further hampered project delivery. Besides, R&D outputs failed to align with market demands.

Moreover, cross-border team collaboration was hindered by geographical, cultural and language gaps (Chen & Liu, 2017). Isolated information systems and inconsistent working concepts lowered communication efficiency. Lacking unified workflows and joint assessment rules, teams showed weak collaboration willingness, accompanied by buck-passing and poor coordination that held back project progress.

III. SPECIFIC MEASURES AND EFFECTS OF OPTIMIZATION

A. Progress Control Optimization

Aiming at the problems of unbalanced progress control and low milestone achievement rate, Huawei built a hierarchical and classified project progress control system combined with the characteristics of ICT projects, focusing on differentiated planning, full-process monitoring and dynamic adjustment (Zhou, 2018). First of all, establish a classified and graded progress planning standard for projects. According to the project attributes, divide the projects into engineering construction, technological R&D and market deployment, and formulate scientific progress planning schemes by combining the project's difficulty, scale, priority and the regional policy environment and supply chain conditions. For engineering construction projects, focus on formulating precise time nodes for construction, equipment delivery and on-site commissioning; for technological R&D projects, adopt the Scrum + Kanban mixed model, decompose the overall R&D progress into multiple short-term iterative goals, and improve the flexibility of progress planning. In the progress planning stage, multi-field experts such as technology, market and supply chain are invited to conduct review to ensure the rationality of the progress plan.

Secondly, build a global real-time project progress monitoring platform relying on cloud computing and big data technology. The platform is connected with the enterprise's internal project management tools, and can real-time capture the project implementation data such as task completion and defect repair, and automatically generate a visual project dashboard (Zhang & Wang, 2021). The platform sets up early warning indicators such as progress lag and node delay, and automatically issues early warnings for abnormal project progress, pushing the early warning information to the project person in charge and the headquarters management team to realize the timely identification of progress problems. At the same time, a rapid response mechanism for progress problems is established. For the early warning progress problems, special meetings are organized with multiple subjects such as technical teams, supply chain teams and local project teams to analyze the causes of the problems and formulate targeted rectification measures, clarifying the rectification responsibilities and completion time.

Finally, implement a dynamic progress adjustment mechanism. Abandon the rigid progress planning model, and scientifically adjust the project progress according to the actual situation in the project implementation process, such as technological breakthroughs, policy changes and customer demand adjustments. At the same time, do a good job in the re-matching of resources and the arrangement of

team work after the progress adjustment to ensure that the overall project goals are not affected. Through the implementation of the above measures, the refinement and scientific level of Huawei's project progress control have been significantly improved. The average delivery cycle of various projects has been shortened by more than 20%, the milestone achievement rate of engineering construction projects has increased to more than 95%, and the iteration efficiency of technological R&D projects has been greatly improved, effectively solving the problem of progress delay caused by unreasonable planning.

B. Resource Allocation Optimization

Taking global overall planning, precise matching and efficient circulation as the core, Huawei built a global digital project resource allocation system, breaking the barriers of resource mismatch and slow circulation (Li & Zhao, 2020). First of all, build a global resource sharing and management platform, conduct a comprehensive combing and digital filing of the enterprise's human resources, equipment resources, technical resources and supply chain resources, and realize the information visualization, real-time inventory and convenient allocation of various resources. The platform integrates the information of global resource reserves, resource use status and resource demand, and the headquarters management team can grasp the global resource dynamics in real time through the platform, providing data support for cross-regional and cross-project resource allocation.

Secondly, establish a standardized resource demand evaluation and allocation process. Before the project starts, each project team formulates a detailed resource demand plan according to the project objectives and progress plan, and submits it to the resource management department for evaluation. The resource management department formulates a precise resource allocation plan combined with the global resource layout and project priority. Simplify the cross-regional resource allocation process, set up regional resource allocation centers to be responsible for the overall resource scheduling work in the region, and improve the response speed of resource allocation. For overseas projects, implement the integration model of "global resources + local resources". While making full use of Huawei's global high-quality resources, actively explore the local resources in the project location, and establish long-term cooperative relations with local high-quality suppliers and talent institutions to realize the local adaptation of resources and reduce the cost of resource transportation and allocation.

In addition, establish a resource utilization efficiency assessment mechanism, incorporate the resource utilization rate into the assessment index system of each project team and department, and strictly assess the situation of resource idleness and waste. At the same time, encourage the sharing and reuse of resources across projects and departments, and realize the maximum utilization of resources through the resource heat map to display the load of each team. For R&D resources, establish a linkage mechanism between R&D resources and market project demand, and adjust the investment direction of R&D resources according to the actual demand of market projects to ensure that the investment of R&D resources can be quickly transformed

into project implementation capabilities. The optimization of the resource allocation system has completely solved Huawei's resource mismatch problem. The overall planning and utilization efficiency of global resources has increased by more than 30%, the local resource adaptation rate of overseas projects has reached more than 80%, and the linkage between R&D resources and market demand has been significantly improved.

C. Team Collaboration Mechanism Improvement

Focusing on breaking the communication and information barriers in global team collaboration, Huawei built a standardized and collaborative global team collaboration mechanism combined with the characteristics of cross-cultural and cross-regional collaboration (Yang & Jing, 2018). First of all, establish a standardized global communication system, formulate unified communication processes, communication formats and communication frequency requirements. Combine the cultural and language characteristics of different countries, equip with professional translators and cross-cultural communication specialists, and set up a multi-language communication interface to eliminate language and cultural communication barriers. For global cross-regional projects, establish a communication mechanism of daily online brief communication, weekly project progress meetings and monthly cross-departmental coordination meetings to ensure the timely and accurate transmission of information between various teams. At the same time, introduce digital communication tools such as cloud conference and enterprise collaboration platform to realize real-time online communication, file sharing and collaborative work of global teams, and improve communication efficiency.

Secondly, build an enterprise-level integrated information sharing platform to break the information silos between various departments and project teams (Huang & Fang, 2016). Collect all kinds of information such as market demand, policy information, technological R&D achievements, project implementation progress and customer feedback into the platform to realize the global sharing and real-time update of information. Each team can access the relevant information at any time according to the work authority. The R&D team can grasp the customer demand and local policy information collected by the market department through the platform, and the engineering team can understand the R&D achievements and equipment supply status in real time, ensuring that the work direction of each team is consistent with the overall project objectives. Establish an information update and maintenance mechanism, clarify the information entry and update responsibilities of each department, and ensure the timeliness and accuracy of platform information.

Finally, establish a collaborative assessment and incentive mechanism, break the independent assessment model of each team, and incorporate the completion of the overall project objectives into the assessment index system of each participating department and team. Set up cross-departmental and cross-team collaboration rewards, and give key rewards to teams and individuals with outstanding performance in project collaboration to stimulate the motivation of each team to jointly promote the

project. Establish a cross-team responsibility traceability mechanism, clarify the work responsibilities of each team in each link of the project by using the RACI matrix, and strictly trace and assess the problems such as shirking responsibilities and poor work connection in the collaboration process. In addition, Huawei regularly organizes global cross-team training and cultural exchange activities to improve the cross-cultural collaboration ability and team cohesion of team members, and create a collaborative work atmosphere. The improvement of the team collaboration mechanism has greatly improved the communication and collaboration efficiency of Huawei's global team. The error rate of decision transmission of cross-regional and cross-departmental projects has dropped to less than 5%, and the matching degree between project design and actual market demand has increased to more than 90%.

IV. ENLIGHTENMENTS FOR SIMILAR ENTERPRISES

ICT and global tech enterprises need differentiated progress control by classifying projects and adopting targeted schedules and digital monitoring systems to prevent schedule delays (Wu & Lu, 2020). They should also build global digital resource platforms with standardized allocation procedures, combine global and local resources for overseas projects, and introduce assessment mechanisms to boost resource utilization (Chen & Wu, 2022). Unified communication systems and information sharing platforms help break cross-cultural and regional barriers, while clear responsibility division and incentive rules strengthen team collaboration (Hofstede, 2019). Digital tools including cloud computing and big data should be applied across project links to enable intelligent and remote management (Qi & Yang, 2023). Furthermore, sound institutional rules, collaborative culture, professional talent training and experience summarization mechanisms are essential to sustain optimized project management (Zhang & Wu, 2021).

V. CONCLUSION

This paper takes Huawei's global project management optimization as the research object, uses the case study method and literature research method to systematically analyze the initial status and core problems of Huawei's project management, and deeply discusses the specific optimization measures and actual implementation effects in the three core dimensions of progress control, resource allocation and team collaboration mechanism. The research shows that in the initial stage of global project expansion, Huawei's project management faced prominent problems such as unbalanced progress control, low efficiency of resource allocation and imperfect team collaboration mechanism, which restricted the efficient delivery of global projects and the sustainable expansion of the enterprise's global business. In response to these problems, Huawei has carried out systematic and targeted optimization of the project management system combined with the characteristics of ICT projects and the needs of global operation.

However, this study still has certain limitations. This study does not carry out in-depth case analysis of a specific

project of Huawei, such as overseas 5G network construction projects or high-end chip R&D projects. The research on the landing details and effect verification of optimization measures in specific projects is insufficient, and the research conclusions lack more detailed case support. In addition, the research conclusions are mainly applicable to the ICT industry and tech enterprises, and the applicability to enterprises in other industries needs to be further verified.

Future research may conduct in-depth analysis on specific Huawei projects and cross-industry comparative studies to refine practical optimization experience. It can also explore digital and intelligent project management trends, and develop new management systems to address emerging challenges for global enterprises.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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