



COST ANALYSIS IN THE TRANSITION OF PROJECTS TO REMOTE WORK DURING THE COVID-19 PANDEMIC

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ABSTRACT

Theoretical Benchmark: The COVID-19 pandemic forced businesses to undergo unprecedented transformations. Projects emerged as key drivers of change, necessitating clear intentions and resource organization. Amid economic challenges, companies globally pivoted to remote work, leading to cost analysis implications. Delays and cost overruns persisted in project management, with factors like inadequate forecasting and unforeseen risks contributing. The study aimed to evaluate the expenses of three consulting projects transitioning from in-person to remote work due to the pandemic's impact.

Method: This study employs an exploratory case study methodology to examine the transformations undertaken by a private entity offering educational and technology services in response to the COVID-19 pandemic. The focus is on the technology and innovation sector, where services include metrology, technical services, product development, and consulting. Cost analysis is conducted, comparing in-person and remote project execution, with a fixed-price contract model, and profit margins are evaluated for each project mode.

Results and Conclusion: Adapting projects to remote work during the pandemic reduced costs and increased profit margins, with Project A achieving a 4.9% profit margin due to savings. Projects B and C saw significant cost reductions of 17% and 31%, respectively, when executed remotely, leading to higher profit margins. The study underscores the potential for remote consulting projects as a viable business opportunity and suggests further research into their impact on customer satisfaction and pricing competitiveness.

Research Implications: The study's findings recommend that consulting firms should adopt standardized cost estimation procedures and implement project-specific cost monitoring. These implications offer practical guidance to consulting firms aiming to excel in demanding situations and streamline their operations effectively.

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Originality/Value: This research explores how consulting firms can thrive during crises like COVID-19 by adopting remote work, which reduces costs and increases profitability. It suggests, as a topic for future research, a more detailed analysis of the correlation between project execution in-person and remotely, and how this directly affects the satisfaction and performance of client companies.

Keywords: COVID-19 Pandemic, Business Transformation, Project Adaptation, Remote Work, Cost Analysis.

ANÁLISE DE CUSTOS NA TRANSIÇÃO DE PROJETOS PARA O TRABALHO REMOTO DURANTE A PANDEMIA DE COVID-19

RESUMO

Referencial Teórico: A pandemia de COVID-19 forçou transformações sem precedentes nas empresas. Projetos se destacaram como impulsionadores de mudanças, exigindo clareza de intenções e organização de recursos. Empresas em todo o mundo adotaram o trabalho remoto, o que teve implicações na análise de custos. A gestão de projetos enfrentou desafios persistentes, como atrasos e estouros de orçamento, devido a previsões inadequadas e riscos imprevistos. O estudo avaliou os gastos de três projetos de consultoria que migraram do trabalho presencial para o remoto devido à pandemia.

Método: Este estudo utiliza uma metodologia de estudo de caso exploratório para examinar as transformações realizadas por uma entidade privada que oferece serviços educacionais e de tecnologia em resposta à pandemia de COVID-19. O foco está no setor de tecnologia e inovação, onde os serviços incluem metrologia, serviços técnicos, desenvolvimento de produtos e consultoria. É realizada uma análise de custos, comparando a execução de projetos presenciais e remotos, com um modelo de contrato de preço fixo, e são avaliadas as margens de lucro para cada modo de projeto.

Resultados e Conclusão: A adaptação dos projetos ao trabalho remoto durante a pandemia reduziu os custos e aumentou as margens de lucro, com o Projeto A alcançando uma margem de lucro de 4,9% devido a economias. Os Projetos B e C tiveram reduções significativas de custos de 17% e 31%, respectivamente, quando executados remotamente, resultando em margens de lucro mais altas. O estudo destaca o potencial dos projetos de consultoria remota como uma oportunidade de negócio viável e sugere pesquisas adicionais sobre seu impacto na satisfação do cliente e na competitividade de preços.

Implicações da Pesquisa: Os resultados sugerem que as empresas de consultoria devem considerar a implementação de procedimentos padronizados de estimativa de custos e monitoramento específico de custos de projetos para aprimorar seu desempenho financeiro durante crises. Essas implicações oferecem orientações práticas para empresas de consultoria que buscam navegar em situações desafiadoras e otimizar suas operações de forma eficaz.

Originalidade/Valor: Esta pesquisa explora como as empresas de consultoria podem prosperar durante crises como a COVID-19 ao adotar o trabalho remoto, o que reduz custos e aumenta a lucratividade. Ela sugere como tema de pesquisa futura uma análise mais detalhada da correlação entre a execução de projetos pessoalmente e remotamente, e como isso afeta diretamente a satisfação e o desempenho das empresas clientes.

Palavras-chave: Pandemia de COVID-19, Transformação de Negócios, Adaptação de Projetos, Trabalho Remoto, Análise de custos.

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1 INTRODUCTION

The COVID-19 pandemic has ignited a profound transformation within the business landscape, compelling organizations to adapt in ways never before witnessed. Throughout



history, businesses have demonstrated their ability to evolve and recalibrate in response to shifts in economic landscapes, which are often influenced by a multitude of factors (Akcigit & Ates, 2023). In their work, Lalmi et al. (2021) underscore the pivotal role of projects in driving change, emphasizing that both organizations and society at large rely on these endeavors. To initiate such transformative processes, the crucial first step is to cultivate a clear intention for change, followed by the meticulous organization of resources and efforts (Soliani et al., 2021). Fewings and Henjewe (2019) provide illuminating illustrations of how projects have catalyzed change within nations and international communities. These examples encompass post-World War II reconstruction, pioneering technological advancements, and collaborative responses to global crises, be they economic, ecological, or health-related.

Businesses across diverse sectors globally were compelled to innovate and adapt in response to the economic challenges brought on by the COVID-19 pandemic, in order to safeguard against financial and operational collapse (Amankwah-Amoah et al., 2021; Andrade et al., 2023; Soliani & Silva, 2023). Based on data provided by the National Confederation of Industry (CNI, 2020), the indicators for 2020 initially suggested a substantial resurgence in the Brazilian industrial sector, outpacing the 2.8% growth witnessed in 2019. However, following the pandemic, predictions pointed towards an unprecedented economic downturn.

In this context, a multitude of projects emerged across diverse sectors, aiming to alleviate the economic and social repercussions. Meredith (2017) underscores the noteworthy observation that all organizational strategies manifest themselves through projects. With the adoption of social distancing measures in various countries, numerous organizations embraced home office arrangements for their administrative functions (Kaushik & Guleria, 2020). Remarkably, this transition in the working model carries cost implications, as cost analysis entails identifying the resources required to meet deliverables, encompassing personnel, equipment, materials, tools, and software (Assaad & El-adaway, 2021).

Bjorvatn and Wald (2018) underscore that the findings of numerous studies, both on a national and international scale, consistently point to delays and costs exceeding the originally budgeted amounts as common challenges in project management. Furthermore, as reported by Venkataraman and Pinto (2023), even with meticulous cost planning and control measures in place, the persistent issue of expenses surpassing initial estimates remains. The authors identify various contributing factors to this problem, including inadequate forecasting of necessary activities, changes in project scope, lower-than-anticipated quality, underestimation of complexity and project duration, component acquisitions, team-related issues, and the realization of unforeseen risks.

The COVID-19 pandemic, a "risk" that became a reality, compelled organizations to make significant changes to adapt to a new scenario. Given this context, our research objective was to assess the impact on the expenses of three consulting projects previously conducted in-person by a private institution when converted to the remote working mode, known as "home office."

2 METHODOLOGY

The research methodology employed in this study is defined as an exploratory case study. This choice of methodology is well-founded, given the necessity to comprehend the adjustments undertaken by a private legal entity. This entity offers educational, technology, and innovation services to cater to the industrial sector within the state of Acre, responding to the challenges posed by the COVID-19 pandemic. The utilization of an exploratory case study is apt in this scenario, as it enables a comprehensive and contextually informed exploration of the changes that have transpired (Welch et al., 2020).



The private legal entity under consideration operates in two distinct business sectors: educational services and technology and innovation services. The former includes courses, training, and educational activities, while the latter involves project-related endeavors. The research predominantly centers on the latter sector, where consultancy services and innovation projects are cultivated.

Within the realm of technology and innovation, four service categories have been discerned:

- **Metrology:** This category encompasses laboratory testing services, which involve analyzing dimensional characteristics and the mechanical and physical resistance of products in compliance with current regulations. The organization operates three specialized testing laboratories, offering testing for wood and sheets, various types of furniture, as well as ceramic and concrete blocks.
- **Technical Services:** Within this category, you'll find specialized technical services tailored to the wood and furniture sector, including product prototyping, laser engraving, wood machining, tool sharpening, and wood drying.
- **Product Development:** This area is dedicated to executing design projects and creating innovative products for the furniture sector, with a particular focus on utilizing tropical wood in objects and furniture.
- **Consulting:** Geared towards delivering advisory and consultancy services to diverse industrial sectors.

To facilitate the research, three ongoing consulting service projects from the year 2020 were carefully chosen. These selections were made based on criteria centered on relevance and their capacity to represent the research effectively. The chosen projects are distinguished by their provision of well-structured consulting services, addressing the unique needs of diverse industrial sectors, encompassing areas such as red ceramics, food and beverage production, bakery, textiles, and the furniture industry.

Throughout the period under examination, from January to October 2020, the organization found itself compelled to transform its operational approach, traditionally rooted in on-site project execution, into a remote mode. This transition posed both a challenge and an imperative due to the onset of the COVID-19 pandemic. Neglecting this adaptation could have led to the forfeiture of previously secured contracts.

For enhanced clarity, we have designated the projects as Project A, Project B, and Project C. Detailed descriptions of each project's characteristics and the adaptations required due to the pandemic are provided in Table 1 below.

Table 1: Project Details Examined in The Study

Project identification	Project description	Impact on planning due to the pandemic
Project A	The objective was to assist 20 ceramic companies in various municipalities of Acre, aiming to train factory floor teams to improve processes and enhance product quality according to current technical standards. The project included consultancy and laboratory tests in all production stages: -Raw materials (clay composition). -Operational processes (clay preparation, shaping, drying, firing, storage, and shipping). -Production management. -Quality control.	The project was initiated before the pandemic, with costs projected for in-person execution. During the pandemic, it needed to be adapted for the remote mode. As a result, some activities took place in person, while others were conducted remotely.
Project B	Formatted to serve over 200 companies throughout the state of Acre, with the aim of	The project had originally been scheduled for execution prior to the pandemic.



	transferring floor-level knowledge to boost productivity in various sectors. The services were organized into teams of 3 collaborators for 5 to 8 companies simultaneously. This fostered an immersive and collaborative experience with company teams dedicated to productivity improvements through lean production mentoring.	However, in response to the pandemic, it underwent adaptation to facilitate remote delivery. To differentiate between the two approaches, we will designate the in-person project as 'B1' and the remote project as 'B2,' with the objective of comparing cost indicators in both modes.
Project C	Project created during the pandemic to provide specialized technical support to companies that needed to adapt their production processes or start manufacturing PPEs, such as masks, gowns, caps, faceshields, and 70% alcohol.	A project developed to meet the demands that arose during the pandemic, available in both in-person and remote modalities, in accordance with government decrees. The designations used will be C1 for in-person consultations and C2 for remote consultations.

Source: Authors (2023).

The adjustment of the projects in response to the COVID-19 pandemic undeniably played a crucial role in the organization's strategies. Each of the three chosen projects, with its distinct characteristics, faced comparable challenges while shifting from in-person execution to a remote mode. These modifications had a substantial impact on both project planning and costs, which will be explored extensively in the upcoming section.

2.1 Identification of The Project Cost Management Model

In the management of costs and revenues in businesses that offer project-based services, like consulting firms, two fundamental concepts are extensively employed. The first concept is net revenue, signifying the actual amount paid by the client. The second crucial concept is the total project cost, encompassing the sum of all expenses accrued during the project's execution (Zhang et al., 2021).

During the study period, the company employed the following approach for cost management:

- There was no established standard for cost estimation in projects, and in most cases, these estimates were simply not conducted.
- The company determined the value of services provided to the client based on consulting hours, multiplied by a pre-defined technical hourly rate. It's worth noting that in the three projects examined in this study, the company did not estimate execution costs and instead focused solely on the agreed selling price with the client.
- Cost management involved periodic budget monitoring, comparing revenues and expenses. Additionally, the company had performance indicators to evaluate the sustainability of its consulting business. However, it's important to highlight that this monitoring was not contract-specific, resulting in the inability to systematically track the costs associated with each project.

In the context of cost management in consulting firms, it is crucial to understand the lack of estimation standards and the emphasis on the selling price. The next section will delve into the process of cost estimation in detail.

2.2 Cost Estimation Methodology in Projects

In this study, we conducted cost estimate calculations for the three ongoing projects during the analysis period, spanning from January to October 2020. As highlighted by Vigneault et al. (2020), cost estimates in a project reflect the monetary values necessary for



carrying out its activities. These estimates are refined as the project unfolds, as certain details become clearer with the progression of development, ultimately leading to improved accuracy in these estimates.

In his work, Terribili Filho (2014) details eight techniques for project cost estimation. Figure 1 illustrates these techniques, underscoring their critical role in achieving precise cost estimates and establishing a robust foundation for efficient financial project management.

Expert Judgment	• This method involves input from specialists with experience in similar projects.
Historical Data Estimation	• It relies on the company's historical records related to specific activities.
Technical PERT Estimation	• This technique employs three distinct perspectives—optimistic, pessimistic, and realistic—commonly referred to as "three-point estimation".
Analogous Estimation	• Parameters from previously completed similar projects serve as a basis for this approach.
Price Surveys Estimation	• It entails obtaining quotations and conducting surveys with suppliers.
Estimation by Smaller Units	• This method involves a detailed breakdown of components to achieve the most precise estimate possible.
Estimation Aligned with Human Resource Policies	• It considers the organization's policies regarding human resource allocation.
Contingency Reserve	• This technique is designed to cover unforeseen events that may arise during project execution.

Figure 1: Eight Project Cost Estimation Techniques

Source: Adapted from Terribili Filho (2014).

To determine the cost estimates for Projects A, B, and C, we followed these procedures. Firstly, we conducted a detailed cost estimation for each project, known as 'estimation by smaller units.' Then, we implemented a human resource policy and conducted price surveys. These steps were necessitated after identifying cost elements, including personnel and materials.

The application of estimation by smaller units enabled us to identify the primary expenses in the projects. As highlighted by Wernke (2017), when examining the incurred costs, it becomes evident that some can be directly attributed to products or services, such as labor and materials consumed, and are classified as direct costs in cost accounting. In contrast, other costs lack an objective measure and require estimated allocation, classifying them as indirect costs. Pinto et al. (2018) emphasizes that the categorization of direct and indirect costs should be linked to the product or service provided.

Based on this breakdown, we identified that certain costs can be directly attributed to each project, thus classifying them as direct costs. These costs include:

- a) Technical hours of professionals involved in the project;
- b) Fuel for transportation;
- c) Daily allowances and travel expenses;
- d) Airline tickets;
- e) Laboratory tests;
- f) Materials and accessories.



The calculation of the cost for the team directly engaged in the project considered the total employee salary, including taxes, health insurance, meal allowance, and provisions for vacation and thirteenth salary. All this information was provided by the human resources department.

The fuel cost was estimated by calculating the distance traveled (in kilometers) for each project, divided by the average vehicle consumption (10 kilometers per liter of fuel), and then multiplied by the cost per liter of fuel. This information was obtained from the institution's administrative department, which tracks fuel consumption history, vehicle distances traveled, and fuel purchases.

Regarding travel expenses, daily allowances and travel expenses are based on standardized values as stipulated in the company's regulations. For overnight trips within the state of Acre, the daily allowance is set at R\$200.00, while for day trips within the state, the allowance corresponds to R\$70.00. It's important to note that the company does not cover lodging and meal expenses during the trips, and it is the responsibility of the employee to manage their expenses within the provided daily allowances.

As for airline tickets, the institution had a contract with a travel agency responsible for issuing and managing these tickets during the analyzed period. The cost estimation of airline tickets was based on an analysis of the price history for the routes.

Laboratory tests are priced based on the company's standard sales values, ensuring a consistent approach to these costs. Regarding materials and accessories, when included in the projects, their costs were determined through estimates provided by the respective suppliers.

In addition to the mentioned direct costs, there was a need to establish an allocation method for the indirect costs affecting all projects. To achieve this, a thorough review of the company's budget was conducted to identify costs requiring allocation. Table 2 presents the identified indirect costs over various periods.

Table 2: Indirect Costs in Consulting Projects

Telephony and internet
Office supplies
Foodstuffs
Building maintenance
Machine rental
Printing and graphic services
Educational materials and periodicals
Computer equipment and software
Clothing
Cleaning supplies
Electricity
Area management (indirect labor)

Source: Authors (2023).

As highlighted by Novák et al. (2017), indirect costs, by their very nature, can only be allocated indirectly to products. This means that their assignment occurs through estimates, allocation criteria, and cost behavior predictions. These distribution approaches may involve a certain degree of arbitrariness, as there are no more precise alternatives available. In the context of this study, the analysis of indirect costs was conducted based on revenues, following the steps represented in the scheme of Figure 2.

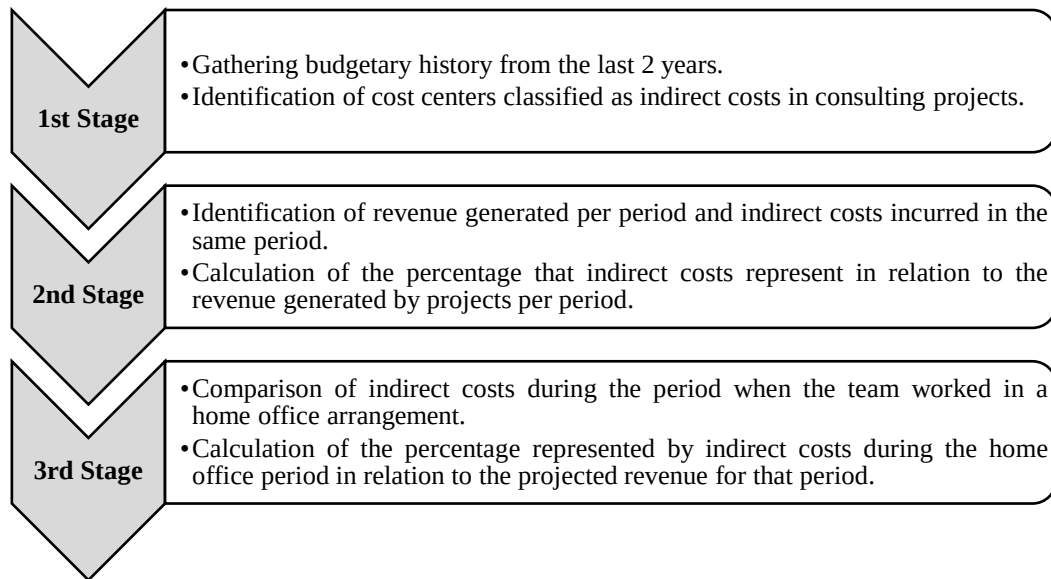


Figure 2: Stages in Defining Allocation Criteria for Indirect Costs

Source: Authors (2023).

As shown in Figure 2, after identifying and mapping indirect costs by period (1st Stage), we then mapped the corresponding revenues for the same periods. This aimed to establish a proportion of indirect costs to be allocated to each project through allocation. During this analysis, a pattern emerged in indirect costs concerning revenues generated per period.

When examining the history of indirect costs and the revenues earned, we found that in the years 2018 and 2019, indirect costs accounted for approximately 25% of the generated revenues. However, in 2020, in response to the pandemic, the planned budget was revised, reducing the projected proportion of indirect costs in relation to revenues, as illustrated in Figure 3.

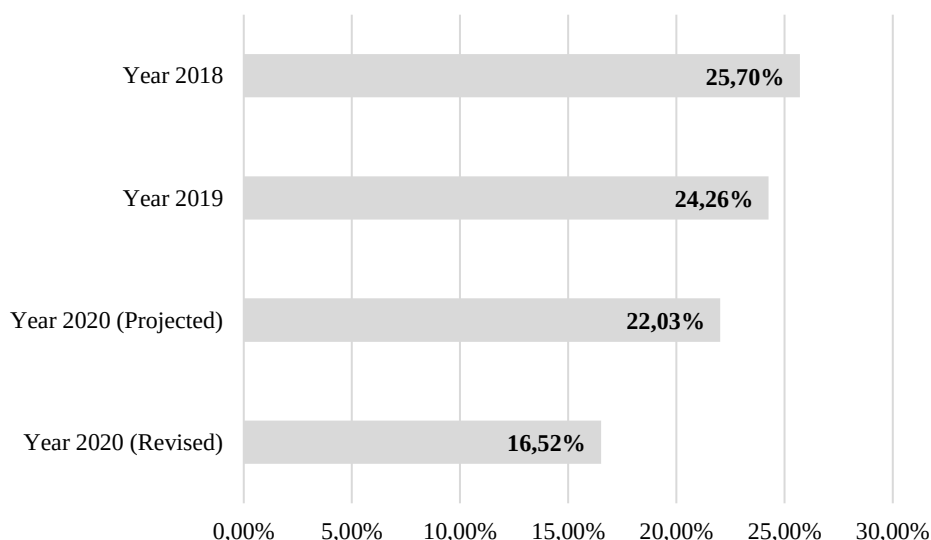


Figure 3: Indirect Costs as a Function of Revenue Generated per Analyzed Period

Source: Authors (2023).

Based on this information, we established specific criteria for estimating indirect costs. For projects executed in person, we adopted a fixed percentage of 25% of the revenue. However, for remote projects, we opted for a lower percentage, corresponding to 16.5% of the



generated revenue. This differentiation takes into account that remote consulting projects demonstrated lower indirect costs over the analyzed period.

In summary, with the aim of standardizing cost estimates for the projects under analysis, we will use the criteria outlined in Table 3 for direct costs and Table 4 for indirect costs.

Table 3: Breakdown of Direct Costs and Calculation Methods

Direct costs	Calculation method
Direct labor: Team of specialists involved in the project, driver, and project coordination	We calculate the cost per hour for each employee by multiplying their hourly rate by the projected project hours. The employee's hourly rate is determined by summing their salary, taxes, health insurance, meal allowance, vacation allowances, and thirteenth-month salary, as provided by the human resources team. This value is then divided by the monthly working hours.
Fuel for transportation	To estimate the distances to be traveled during the project, we take into account the number of in-person visits required at each company served by the consultancy. The calculated value for the journey is obtained by dividing the estimated distance by the observed average vehicle consumption (10 kilometers per liter of fuel) and multiplying it by the cost per liter of fuel. This information is available in the administrative unit of the institution, which maintains detailed records of both fuel consumption and vehicle mileage. Furthermore, we add a 30% margin to the result to cover vehicle maintenance expenses and provide a safety margin for additional trips.
Per diems and/or travel allowances	The company has a policy for per diem and allowances, with rates of R\$200.00 per diem and R\$70.00 for allowances within the state. We estimated the number of per diems to be paid to the team during the project's execution.
Laboratory tests	The cost per test conducted is determined based on the institution's established selling prices.
Airfare	The company maintains a contract with a travel agency, and the cost is determined based on the average historical purchases of airline tickets for the required route. We estimated the number of plane trips that would be necessary.

Source: Authors (2023).

The table of direct costs presents a comprehensive breakdown of expenditure components within the consulting company's projects. Moving forward, we shall direct our attention to Table 4, which outlines the criteria for apportioning indirect costs. This table provides a transparent and systematic methodology for the allocation of indirect costs to individual projects, all under clearly defined criteria. Collectively, these tables offer a comprehensive overview of the company's cost structure.

Table 4: Breakdown of Indirect Costs and Allocation Methods

Indirect costs	Calculation method
Budgeted costs for company infrastructure maintenance	Applying an allocation criterion based on the percentage of indirect costs relative to generated revenue: Divide the value of indirect costs by the total revenue as shown in the budget history.

Source: Authors (2023).

After detailing the methods for calculating direct costs and the criteria for allocating indirect costs, it is time to move on to the next stage, in which we will explore how the analysis of the results was conducted. This will allow us to obtain a comprehensive and detailed understanding of the costs involved in the company's operations.



2.3 Cost Analysis in Consulting Projects

Cost management in projects, especially in service-providing companies, often adopts the fixed-price model, meaning that an agreed-upon value is set at the time of contract signing and does not change throughout the project's execution. This approach, while common, can pose significant risks regarding cost escalation for the service-executing company, as highlighted by Turner (2017). In the context of this case study, the analyzed projects were contracted under this fixed-price model.

As mentioned earlier, the company kept track of revenues and expenses at the corporate level but did not extend this analysis to the individual scope of each project. This resulted in the inability to measure the financial sustainability of each project in isolation.

To assess the three ongoing projects and analyze the cost impact resulting from their adaptation to remote execution, detailed comparisons were conducted between the costs incurred in on-site consultations and remote consultations. Subsequently, a comparison was made between the cost of each consulting project and the revenue generated, enabling an analysis of the profit margin presented by each project and mode of execution.

3 RESULTS AND DISCUSSION

The projects selected for this study were chosen based on the need to adapt their execution to the remote mode. This was necessary because the teams were working from home, and it was essential to avoid delays in the projects that had already been contracted for the year 2020. These projects were named as follows:

- Project A: This project started in 2019, before the pandemic. Since the companies were already receiving services on-site, its execution was adapted to the remote mode. This was done to ensure that contractual deliveries were not compromised, especially because a financial partner had already provided funding.
- Project B: Initiated in March 2020, this project was conceived during the pandemic. It was designed to offer companies the choice between the in-person mode (B1) and the remote mode (B2). It's important to note that the revenue remained unchanged regardless of the chosen mode.
- Project C: Also developed during the pandemic, Project C was offered in both in-person mode (C1) and remote mode (C2), allowing the benefiting company to choose the execution method.

From calculating the costs of each project and their respective mode, we were able to make a comparison between these costs and the corresponding revenues.

3.1 Comparison Between Costs and Revenues

As previously mentioned, Project A was already in progress when it required a revision in its execution strategy. This revision was necessary to ensure the uninterrupted provision of services, even amidst the pandemic. Measures included transitioning to a home office setup, conducting virtual meetings, and maintaining constant communication with the involved companies.

The results of this change proved to be positive when analyzed from a cost perspective. Figure 4 illustrates that the total amount spent on project execution was 10.24% lower than planned.

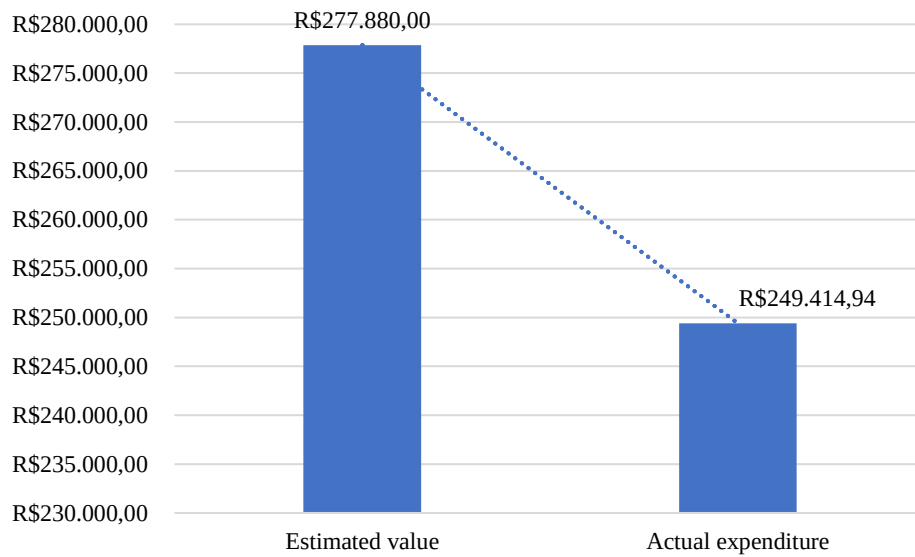


Figure 4: Cost Analysis of Project A: Estimates vs. Actual Costs
Source: Authors (2023).

However, as depicted in Figure 5, when we consider the revenue generated by Project A and compare it to the estimated value, we observe that the project incurred a 5.9% loss. This means that if the project were executed as planned, entirely in-person, it would result in a loss. On the other hand, analyzing the actual costs incurred, we find that the project achieved a 4.9% profit margin due to savings during the remote work period.

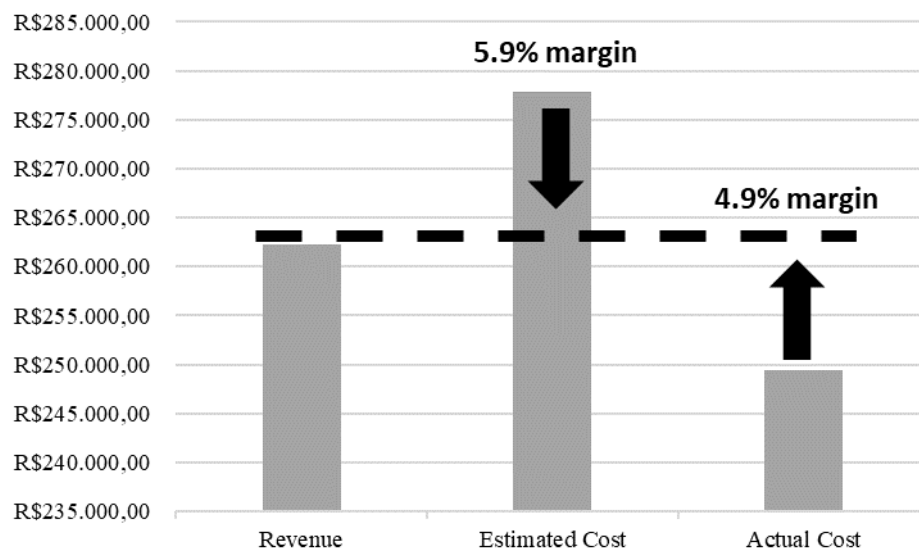


Figure 5: Comparative Analysis of Revenue, Estimated Cost, and Actual Cost of Project A
Source: Authors (2023).

In light of the evolving pandemic situation and ongoing negotiations with the companies we serve, Projects B and C, initially scheduled for the year 2020, required adaptation to accommodate two execution modalities: in-person and remote. This decision was driven by the need to remain flexible in response to changing circumstances.

Figures 6 and 7 provide a comparative cost analysis for the execution of both projects, with consistent objectives and deliverables. The key distinction lies in the cost estimation



approach: the first figure outlines the anticipated expenses associated with the in-person modality, while the second figure details the estimated costs for the remote execution option.

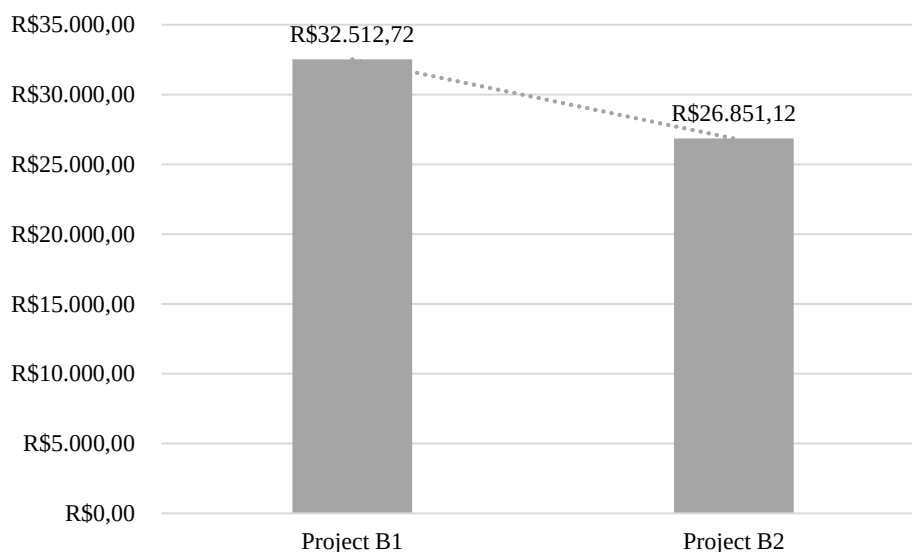


Figure 6: Estimated Costs for Project B1 (In-Person) and Project B2 (Remote)
Source: Authors (2023).

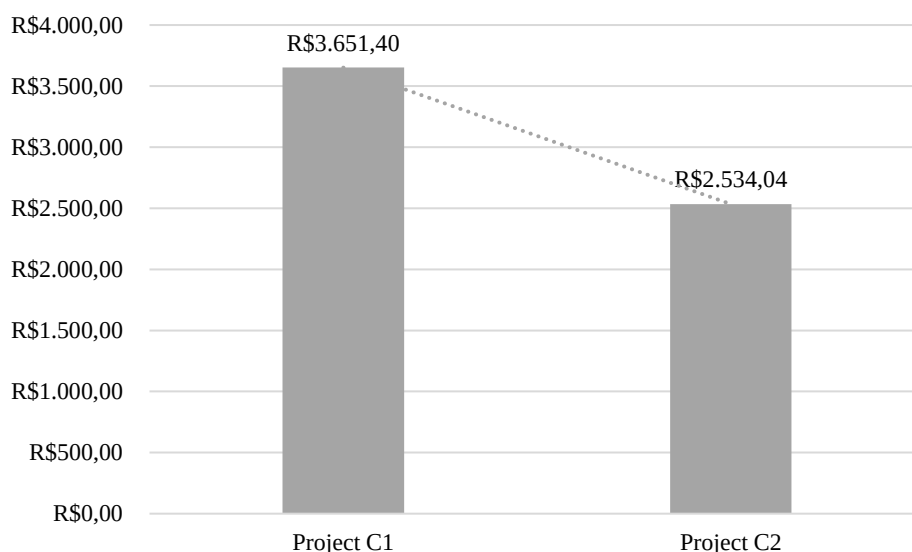


Figure 7: Estimated Costs for Project C1 (In-Person) and Project C2 (Remote)
Source: Authors (2023).

There was a noteworthy 17% reduction in the costs of Project B when executed remotely, and a significant 31% decrease in the costs of Project C when carried out in a remote setting. When comparing the estimated costs to the projected revenue, taking into account that the projects had already been contracted and the revenue per company served remained consistent, we were able to analyze the projected profit margins for each project.

In Figure 8 below, it becomes evident that Project B1, in the in-person mode, achieved a positive profit margin of 27%. Conversely, the same service conducted remotely as Project B2 yielded a significantly higher positive margin of 40%. This pattern indicates an opportunity to offer remote or semi-presential services at more competitive price points.

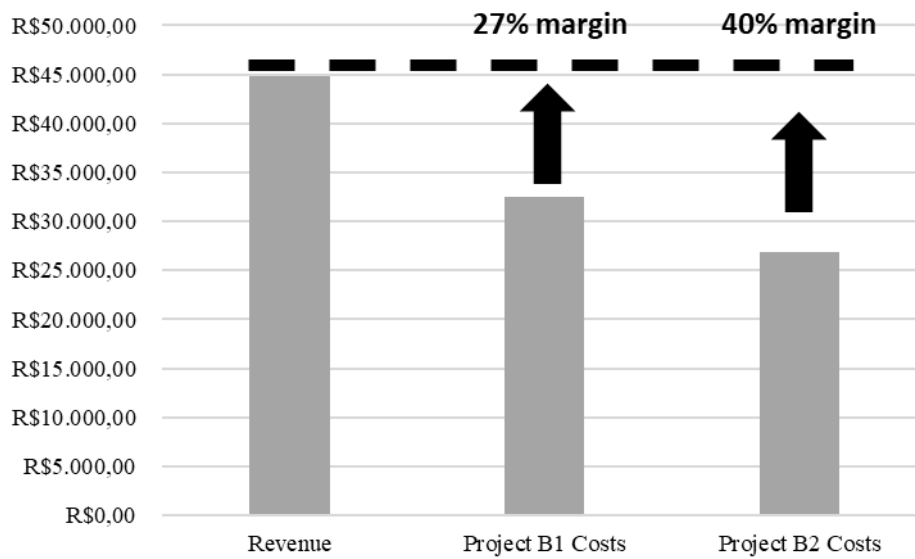


Figure 8: Comparison of Revenues and Estimated Costs between Projects B1 and B2

Source: Authors (2023).

Regarding Project C1, in the in-person modality, it recorded a negative margin of 14%, whereas the same service carried out remotely as Project C2 achieved a positive margin of 21%, as illustrated in Figure 9. These results highlight the lack of profitability for the project when executed in-person, emphasizing the need to prioritize the remote modality to ensure a satisfactory profit margin.

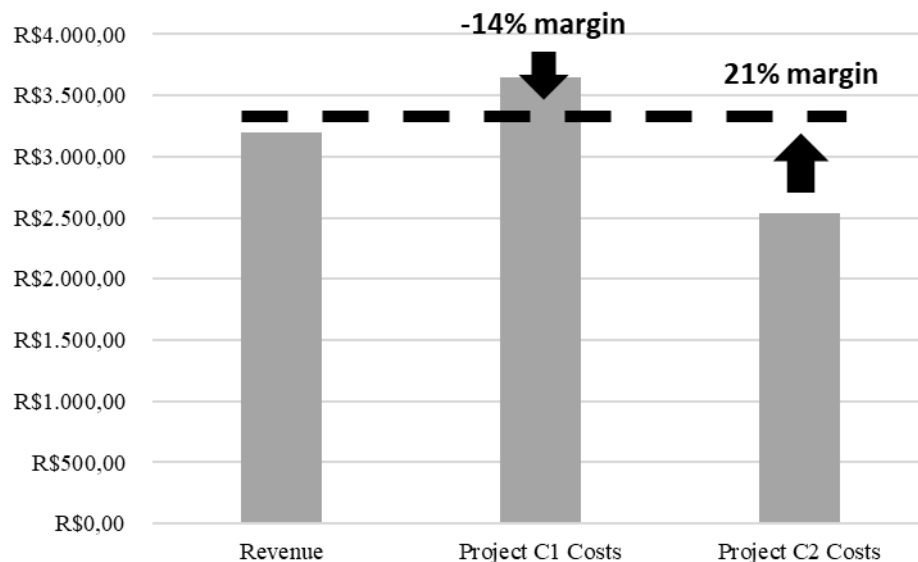


Figure 9: Comparative Analysis of Costs and Revenues between Projects C1 and C2

Source: Authors (2023).

Through this research, we have found that adapting projects to the remote modality not only ensured meeting deadlines but also increased the profit margin. This increase can be largely attributed to the execution of activities in a home office setting, which significantly reduced indirect costs, decreasing from 25% to 16%. Additionally, the transition eliminated certain direct costs, such as fuel expenses, travel, daily allowances, and meal subsidies.

It became evident that the absence of a project-specific revenue and cost management system was detrimental to the company. It was impossible to identify which projects were



incurring losses, as seen in the case of Project C1, executed in-person, or projects with reduced profit margins, like Project A. Implementing regular monitoring would provide the company with the opportunity to rectify any deviations during execution.

It is important to note that this research did not investigate the correlation between the execution of activities in in-person and remote modalities and the levels of satisfaction and performance achieved in the companies served. However, based on the results obtained, it becomes clear that remote consulting projects represent a viable business opportunity for the organization. Considering the observed increase in profit margins, it may be feasible to explore the option of reducing selling prices, making them more competitive in the market.

4 CONCLUSION

In this case study of an industrial consulting firm in Acre, the importance of project-specific cost and revenue management for business sustainability became evident. The COVID-19 pandemic significantly impacted operations, driving the adaptation of consulting services to the remote modality. This crisis presented an opportunity to streamline services, reduce logistical requirements, and increase profit margins in existing contracts.

During data collection, it became clear that the company lacked a standardized system for estimating project costs, necessitating the definition of cost assessment criteria. Additionally, the institution did not track costs per project, focusing solely on the overall analysis of costs and revenues in its project portfolio related to the core business. This gap presents an opportunity for improvement because, if adopted by the company, it will enable a better understanding of cost dynamics in each project, identification of the most profitable ones, and extraction of lessons learned for future project budgeting.

The implementation of cost estimates revealed a reduction in costs associated with remote work. Three projects were selected for monitoring:

- Project A, involving consultations with 20 ceramic sector companies in the state of Acre, was partially conducted in-person and partially remotely during the period of social distancing. The costs incurred in the project were 10.24% lower than initially estimated.
- Project B, focused on Lean Manufacturing methodology consulting throughout the state of Acre, originally planned for in-person execution but adapted to the remote modality. This change resulted in an estimated savings of 17% compared to in-person execution. When comparing costs with revenue, the projected margin for the in-person modality was 27%, while in the remote modality, it increased to 40%.
- Project C, aimed at assisting companies in adapting their production lines during the pandemic, was offered in both in-person and remote modalities. The remote modality had cost estimates 31% lower than the in-person modality. When compared with the generated revenue, the in-person modality resulted in a negative margin of 14%, indicating losses in its execution, while the remote modality achieved a positive margin of 21%.

The challenging crisis prompted the institution to seek reinvention, leading senior management to develop a cost reduction contingency plan. The adaptation to remote consulting streamlined service delivery, making the company more competitive in an unstable economic environment.

As a suggestion for future research, we recommend a more in-depth analysis of the correlation between project execution in in-person and remote modalities and how this directly impacts the satisfaction levels and performance of the companies served. This approach would provide a more comprehensive understanding of how the choice of modality not only affects



financial aspects such as costs and profit margins but also plays a crucial role in the quality and effectiveness of the consultations offered.

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