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Performance measurement: structuring the performance wheel in a micro-company in the furniture industry sector

Medición del desempeño: estructuración de la rueda del desempeño en una microempresa del sector de la industria del mueble

Mensuração de desempenho: estruturação da *performance wheel* em uma microempresa do setor industrial de movelaria

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Abstract

Purpose: Develop the *Performance Wheel* performance measurement model for a micro-enterprise in the furniture sector.

Methodology: Case study that uses semi-structured interviews and focus groups as data collection strategies, carrying out triangulation with document analysis and observation. The interview and focus group were carried out with partners of a furniture manufacturing microcompany. The analysis technique adopted was discourse analysis through categorization and coding of data.

Results: The main findings demonstrated that the company faces difficulties in effectively managing its stocks and the production process, as well as measuring essential strategic aspects, such as time, innovation and financial performance. Given this scenario, the *Performance Wheel* performance measurement model was developed with strategic indicators aligned with the company's mission, vision and strategy, with the objective of boosting its growth. The selected indicators were: customer satisfaction, marketing, accounts payable, inventory control, delivery and assembly time, labor hours, contribution margin, profit and financial cycle days.

Contributions of the Study: This study highlights the feasibility of applying a structured performance measurement model for small businesses, contributing to the evaluation of strategic areas through indicators aligned with the organization's dimensions, vision, and mission. This approach supports the sustainability and longevity of small businesses, helping them overcome challenges, particularly in performance measurement within a cost-effective structure.

Keywords: Small companies; Performance wheel; Performance measurement.

Resumen

Objetivo: Desarrollar el modelo de medición de desempeño *Performance Wheel* para una microempresa del sector mueblero.

Metodología: Estudio de caso que utiliza como estrategias de recolección de datos la entrevista semiestructurada y el grupo focal, realizando una triangulación con análisis documental y observación. La entrevista y el grupo focal fueron realizados con socios de una microempresa de fabricación de muebles. La técnica de análisis adoptada fue el análisis del discurso, mediante la categorización y codificación de los datos.

Resultados: Los principales hallazgos demostraron que la empresa enfrenta dificultades para gestionar eficazmente su inventario y proceso productivo, así como para medir aspectos estratégicos clave como el tiempo, la innovación y el desempeño financiero. Ante este escenario, se desarrolló el modelo de medición de desempeño *Performance Wheel* con indicadores estratégicos alineados con la misión, visión y estrategia de la empresa, con el

objetivo de impulsar su crecimiento. Los indicadores seleccionados fueron: satisfacción del cliente, marketing, cuentas por pagar, control de inventario, tiempo de entrega y montaje, horas de mano de obra, margen de contribución, beneficio y días del ciclo financiero.

Contribuciones del Estudio: Este estudio destaca la viabilidad de aplicar un modelo estructurado de medición del desempeño para pequeñas empresas, contribuyendo a la evaluación de áreas estratégicas a través de indicadores alineados con las dimensiones, visión y misión de la organización. Este enfoque favorece la sostenibilidad y longevidad de las pequeñas empresas, ayudándolas a superar desafíos, especialmente en la medición del desempeño dentro de una estructura que equilibra costos y beneficios.

Palabras clave: Pequeñas empresas; Rueda de desempeño; Medición del desempeño.

Resumo

Objetivo: Elaborar o modelo de medição de desempenho *Performance Wheel* para uma microempresa do setor de movelaria.

Metodologia: Estudo de caso que tem como estratégias de coleta de dados a entrevista semiestruturada e o grupo focal, realizando uma triangulação com análise documental e observação. A entrevista e o grupo focal foram realizados com sócios de uma microempresa de fabricação de móveis. A técnica de análise foi a análise do discurso por meio de categorização e codificação dos dados.

Resultados: Os principais achados demonstraram que a empresa enfrenta dificuldades na gestão eficaz de seus estoques e do processo produtivo, bem como na mensuração de aspectos estratégicos essenciais, como tempo, inovação e desempenho financeiro. Diante desse cenário, o modelo de medição de desempenho *Performance Wheel* foi desenvolvido com indicadores estratégicos alinhados à missão, visão e estratégia da empresa, com o objetivo de impulsionar seu crescimento. Os indicadores selecionados foram: satisfação do cliente, marketing, contas a pagar, controle de estoque, tempo de entrega e montagem, horas de mão de obra, margem de contribuição, lucro e dias do ciclo financeiro.

Contribuições do Estudo: O estudo destaca a viabilidade da aplicação de um modelo estruturado de mensuração de desempenho para pequenas empresas, contribuindo para a avaliação de áreas estratégicas por meio de indicadores alinhados às dimensões, visão e missão organizacional. Essa abordagem favorece a sustentabilidade e longevidade das pequenas empresas, auxiliando na superação de desafios, especialmente na medição de desempenho dentro de uma estrutura que equilibra custo e benefício.

Palavras-chave: Pequenas empresas; *Performance Wheel*; Medição de desempenho.

1 Introduction

The performance measurement is essential for organizational management to implement more effective strategies, improve results and demonstrate value to stakeholders through data-based decisions (Valmorbida, Ensslin & Ensslin, 2018; Durst, Hinteregger & Zieba, 2019). However, strategy monitoring can be compromised when there is an overload of technical indicators that do not have a database or are not properly monitored, making performance

management difficult (Ge *et al.*, 2023). Furthermore, a large number of indicators require the collection and analysis of significant volumes of data, which demands sophisticated algorithms and systems, as well as professionals dedicated to these activities (Wakiru, Pintelon, Muchiri & Chemweno, 2022; Ge *et al.*, 2023).

The performance measurement systems play a crucial role in allowing organizations to monitor their strategies more efficiently (Cabral, Horz & Lunardi, 2024). When these systems integrate comprehensive metrics, which consider multiple dimensions and combine financial and non-financial indicators, the results tend to be significantly more effective (Bubeck & Lunard, 2024). Kaplan and Norton (1992) introduced the *Balanced Scorecard* (BSC), a flexible *framework* that covers the dimensions of customers, learning and growth, financial and internal processes, integrating financial and non-financial metrics. This approach, according to Kaplan and Norton (1996), allows for more efficient monitoring of the strategy, providing a broad view of internal processes and other critical aspects of the organization.

The *Balanced Scorecard* (BSC) has become widely known and adopted by organizations around the world, also gaining the attention of academics who have carried out several studies on its applicability and efficiency (Bubeck & Lunard, 2024; Ribeiro, 2024; Folan & Browne, 2005). Despite its popularity, criticism points to problems such as the ambiguity in the definition and weighting of dimensions, the unidirectional relationships between indicators and the emphasis on excessive simplifications (Dias, Tartarotti, Tondolo & Toni, 2023). The concept of causality between dimensions, defended by Kaplan and Norton (1992), is also the target of questioning, as the suggested relationships often seem to be more logical than true cause-and-effect relationships (Lima, Almeida, Maciel & Callado, 2023; Watts & McNair-Connolly, 2012).

In this context, the BSC faces difficulties in monitoring whether operational actions are effectively aligned with the established strategy, due to limitations in managing operations (Hristov, Cristofaro, Camilli & Leoni, 2024). Although the BSC has undergone adaptations, adopting a more dynamic approach through systems and strategic maps, it still presents challenges in considering the dynamic relationships between its four perspectives, especially when the focus is on operational management (Oladimeji, Cross & Keathley-Herring, 2021; Tawse & Tabesh, 2022).

In addition to the limitations related to the dynamic relationships between BSC perspectives, aspects such as the ability to clearly communicate the strategy to managerial and operational levels, as well as the definition of measures that flow appropriately from strategic to lower hierarchical levels, can compromise the effectiveness of strategic implementation (Lima *et al.*, 2023). According to a study conducted by Ekantika (2024), more than 40% of strategic projects fail during their execution. Among the main reasons for these failures are the lack of focus on priority activities, internal conflicts between managers and management teams, and difficulties in translating strategic planning into practical and concrete actions.

The limitations of the *Balanced Scorecard* motivated Watts and McNair-Connolly to develop a new performance measurement system model that seeks to solve some of the problems identified in the BSC. The proposed model, called the *Performance Wheel*, is presented as an approach that can be adapted to the reality of different companies, aiming to offer a more comprehensive measurement of performance and a clearer relationship between the selected measures (McNair & Watts, 2010; Silva & Callado, 2020; Awadallah, 2015). Its structure allows you to connect the measures directly to the strategy, in addition to establishing interrelationships between them, making the connections and the way in which performance will be evaluated more evident, considering both internal and external measures, covering the three levels of management.

In the context of micro and small companies (MSEs), a study developed by SEBRAE (2024) reveals that the lack of strategic planning is one of the main reasons for the closure of activities in the first years. This factor, combined with management problems, high competition, scarcity of investment resources, difficulties with working capital and attracting customers, makes the survival of these companies a major challenge. Therefore, it is essential that management tools are applied in micro and small companies, taking their context into account, with the objective of establishing efficient strategies that contribute to improving organizational performance (Dias *et al.*, 2023).

Given this context, the research problem of this study is: **How can micro and small companies adopt the *Performance Wheel* performance measurement model?** The general objective is to develop the *Performance Wheel* performance measurement model for a micro-enterprise in the furniture sector. The specific objectives are: (i) to discuss the business strategy, mission and vision; (ii) to select the dimensions and measures of performance measurement; (iii) to examine the chosen dimensions and measures.

Historically, there has been a gap in management accounting regarding tools that can be adapted to the realities of small companies (Kruger, 2022; McNair & Watts, 2010). Therefore, this study chose to select a recently started micro-enterprise to apply the *Performance Wheel* model. Considering the need for studies and tools that meet the demands of small organizations, the choice of a micro-enterprise reflects the idea that applying a performance measurement model in this context can bring several valuable contributions.

There is a misconception that performance measurement models developed for large organizations can be applied to small companies with only minimal changes. However, small organizations are significantly different, which prevents aspects of management, structures, and systems from being widely used (Dias *et al.*, 2023). In this context, the *Performance Wheel* model presents a structure specifically aimed at micro and small companies, being adaptable and flexible, allowing their particularities to be considered in the measurement dimensions.

The contributions of this study to accounting practice are in helping micro and small companies to remain competitive and sustainable, improving their processes and monitoring performance, which can contribute to the continuity of these organizations (Dias *et al.*, 2023). Considering the relevance of micro and small businesses from an economic and social perspective, studies that support their management bring direct benefits to society. From a theoretical perspective, this study fills gaps highlighted in the literature on performance measurement in small organizations by analyzing a measurement system that is rarely addressed in the existing literature (Bubeck & Lunard, 2024).

Furthermore, the literature in the area has sought explanations about the factors that lead some companies to perform better than others (Barakat & Wada, 2021), as well as variations in organizational performance and strategies to improve it (Durst, Hinteregger & Zieba, 2019; Palacios-Marqués, García, Sánchez & Mari, 2019). Thus, the implementation of performance measurement systems becomes increasingly relevant, especially for micro and small companies that do not yet follow this management process.

2 Literature review

2.1 Performance measurement for micro and small companies

Performance measurement corresponds to the act of measuring, evaluating and generating important feedback to management on the performance achieved, which is a major challenge for organizations. This is because organizational performance is linked to organizational effectiveness, which is understood as the degree to which organizations are achieving all their intended purposes. Organizational effectiveness uses a set of performance constructs that covers, at least, corporate social performance, operational performance and organizational performance (Richard *et al.*, 2009)

Due to this complexity, performance measurement systems allow, based on a set of financial and non-financial metrics, to evaluate and monitor performance, enabling better alignment between strategy and metrics (Neely, Gregory & Platts, 1995). The more dynamic and adaptable the changes are, allowing continuous adjustments to be made — aligned with organizational strategies —, the better the support for decision-making (Richard *et al.*, 2009).

Despite allowing the organization's strategy and performance to be monitored, performance measurement systems, as well as management accounting, are not part of the daily life of all micro and small companies (Ylä-Kujala, 2023). Due to limited financial resources, adequate technology and qualified personnel to operate them, they limit the use and range of potential that could be offered by the systems. Furthermore, in the process of implementing these systems, some necessary investments are not possible in the reality of these SMEs, resulting in ineffective or incomplete application (Bushe, 2019; Mabesele, 2020).

The lack of specialized knowledge on how to adapt measurement systems to the specific needs of MSEs can hinder their adoption and effectiveness (Diabate *et al.*, 2019; Mabesele, 2020). Resulting in a low perception of the added value that these systems can offer to the business and increased complexity. Furthermore, resistance to change and innovation can also be significant barriers to implementing these systems (Rajagopaul *et al.*, 2020).

Despite these challenges, performance measurement systems can offer important support to MSEs, as they allow the definition of objectives and goals, evaluation of progress and more strategic decision-making. Provided better competitiveness, growth and survival (Molemi & Takawira, 2024). It is possible, therefore, that performance measurement systems can contribute to improving the results of micro and small companies, which, according to SEBRAE (2023), face major challenges related to mortality: around 23% of Brazilian MSEs close their activities in the first two years of operation, a number that can reach approximately 50% by the fifth year.

Even with this reality, empirical studies on performance measurement that consider the challenges faced by these organizations still do not receive due attention from the academic community (Ylä-Kujala, 2022). However, according to data from the General Registry of Employed and Unemployed Persons (CAGED), 2023, these organizations were responsible for creating around 710 thousand jobs. Thus contributing economically with 30% of the Gross Domestic Product - GDP (SEBRAE, 2023), and studies are therefore needed to support their managerial demands.

This study, therefore, seeks to contribute to the development of strategies, the understanding of the organizational environment and the development of the performance measurement model — the *performance wheel* — for a micro-enterprise, serving as a model for application in other companies and to overcome challenges inherent to performance

measurement systems regarding adaptability for MSEs. The following topic discusses these choices.

2.2 Performance wheel - performance evaluation model

The *performance wheel framework* was created by Watts and McNair-Connolly (2012) by identifying weaknesses in previous performance measurement models, such as the *Balanced Scorecard* and *Performance Prism*, proposing an approach that is more adaptable to any and all companies (Silva & Callado, 2020). The new measurement model suggests an aggregation of previous models into a single model that is capable of unifying complex models, enabling adaptation to the reality of different companies, in which *top-down* and *bottom-up* metrics connect decision-makers and employees responsible for executing the service/product, helping to overcome possible deficiencies and integrating internal and external perspectives (Awadallah, 2015).

The proposed model is able to clearly demonstrate the components that constitute it, and emphasize the vision, mission, and strategy of organizations, along with their main indicators and critical success factors (McNair & Watts, 2010). The performance measurement model proposed by Watts and McNair-Connolly (2012) integrates traditional and modern control perspectives, combining perspectives from the various *stakeholders* of organizations and bringing a greater differential to organizations (*locus of control*) with incentives considered useful to promote the organization's sustainable performance.

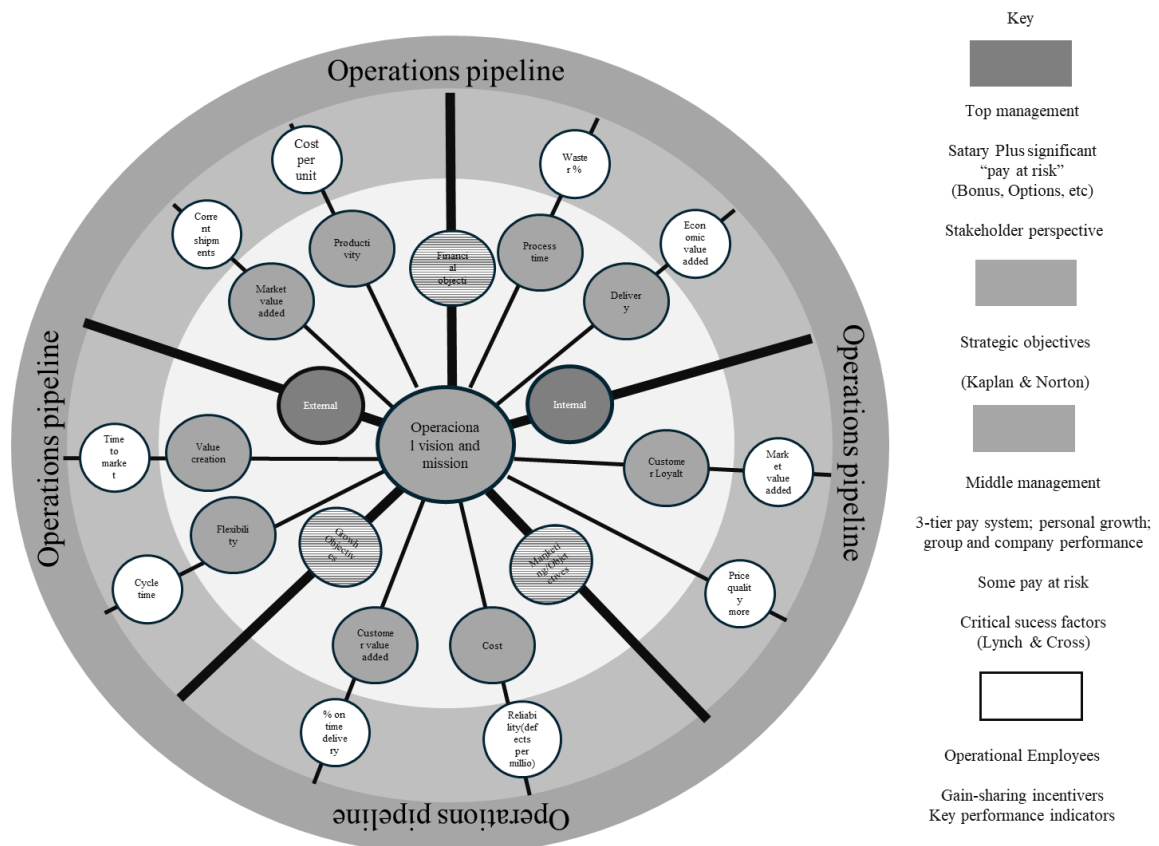


Figure 1 *Performance Wheel*

Source: Adapted from McNair and Watts (2010).

Through the ability to integrate different models, the *performance wheel* can identify the weaknesses of each model and provide solutions for each of them, becoming, as the literature proposes, a more comprehensive model (Mohammed *et al.*, 2020). As shown in Figure 1, with its complete model, it is possible to incorporate internal and external metrics, including financial and non-financial aspects, all aligned with the mission and vision defined by the company.

At first, the design of the *performance wheel* may seem a little complex (Figure 1), but due to its adaptive flexibility, it can be easily adjusted and fragmented by organizations, being considered effective for both large and small entities (McNair & Watts 2010, Awadallah, 2015). When arranged differently, the main components of the *performance wheel* are visualized, with lines capable of discussing the measurements incorporated at each level, as can be seen in Figure 2.

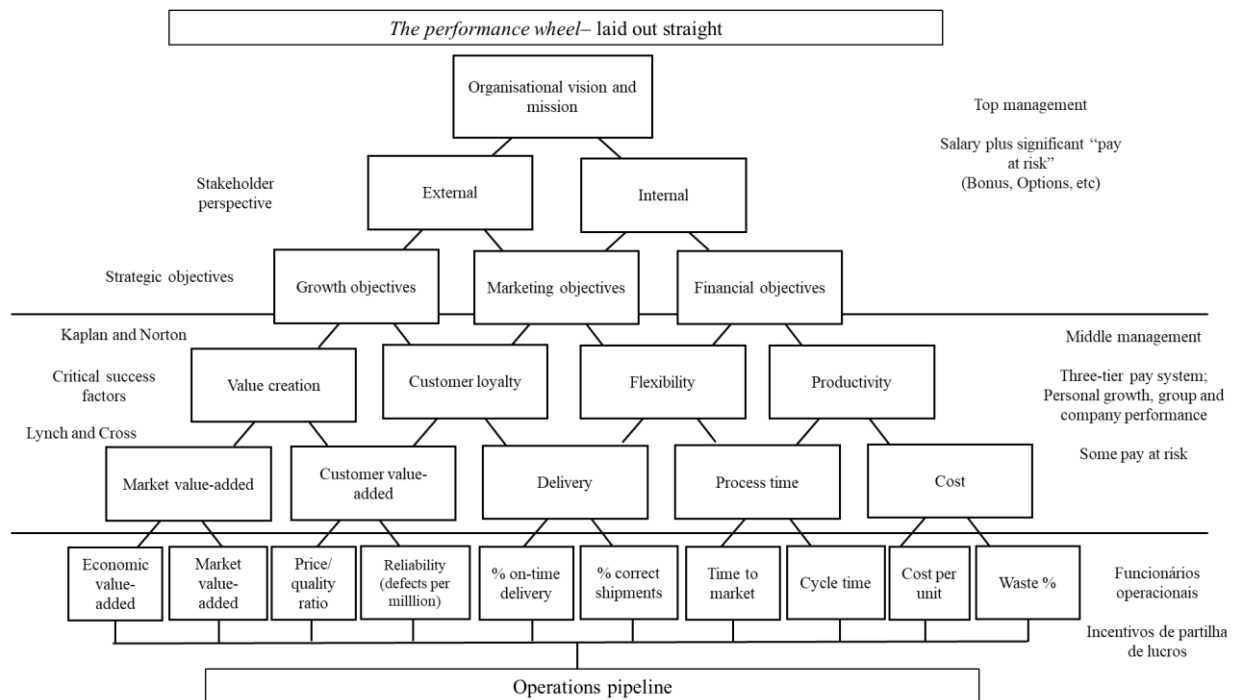


Figure 2 Performance wheel laid out straight

Source: Adapted from McNair and Watts (2010).

The *performance wheel* operations map proposed by McNair and Watts shows the vision, mission and values of the organizations, followed by the perspectives of internal and external *stakeholders*, strategic objectives, including growth objectives, marketing objectives and financial objectives (Figures 1 and 2). This structure directs or brings out the performance indicators of each dimension. In addition, it becomes clear how the metrics and dimensions are connected, enabling a greater understanding and logical considerations between them and even cause and effect relationships.

Through the mapping, the proposed critical success factors can be seen, which would be: value creation, customer loyalty, flexibility and productivity, and one level below, added market value, added customer value, delivery, processing time and cost (Figure 2). Regarding key performance indicators, we have economic value added, market value added, price/quality

ratio, reliability, on-time delivery percentage, correct shipment percentage, time to market, cycle time, cost per unit and waste percentage.

The *performance wheel* is a combination of tested methods, which emphasizes critical success factors and *Key Performance Indicators* (KPIs). For Awadallah (2015), the main KPIs include the metrics considered necessary to measure the effectiveness of companies, being able to help the company define goals and determine the objectives of its business. KPIs, key indicators, are able to track and measure progress towards organizational goals.

KPIs help managers to clearly define their business objectives, providing tools for senior management to shape their operations, and also providing means for the use of profit-sharing incentive systems, which have proven to be a powerful ally in motivating operational performance in organizations (McNair & Watts 2010). In his study, Prey (2016) identified that it is very important for a company to link KPIs to its results and define the right links to support the execution of the strategy.

An advantage, considered by Silva and Callado (2020) is that the development of the *performance wheel* did not occur from scratch, as it is a result of part of the measurement systems, based on more than half a century of academic research and professional dedication of different people who discussed the subject.

In this way, the performance wheel is able to provide, for various entities, a performance management model considered comprehensive, which was produced based on correcting the weaknesses of previous models, and can be adaptable to most organizations and conducted based on their needs (Watts & McNair-Connolly, 2012).

Yet, with a referencing based on ensuring that the technical and functional dimensions of a service are improved, with the purpose of achieving the best possible levels of that service (Richardson & Grant Robinson, 1986). In this context, for application in small companies, the middle level of management is removed, considering that in the context of these companies, in most cases, it does not exist. In this way, the *framework* is simplified and allows application in these companies, as shown in Figure 3.

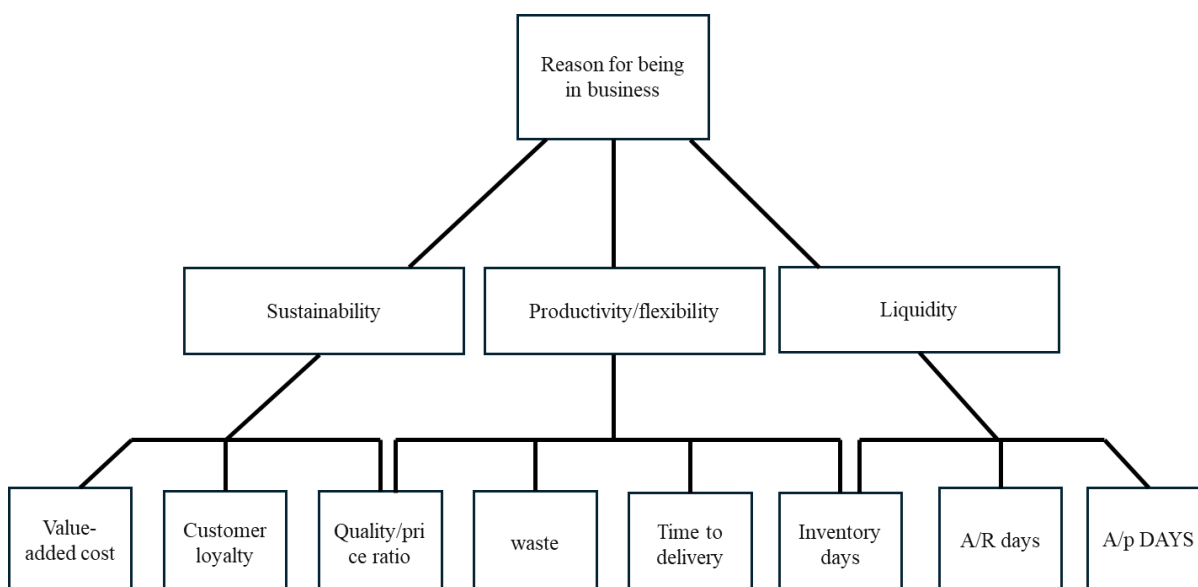


Figure 3 Performance wheel for small companies

Source: Adapted from Watts and McNair-Connolly (2012).

As shown in figure 3, the model is simplified to enable its application in small companies, maintaining the dimensions of sustainability, processes and liquidity, linked to the mission, vision and strategy that generate performance indicators. At this point, large investments are not necessary, as the indicators used in the three dimensions are linked to the company's objectives and do not derive from standardization. The structure used in this study is the simplified model indicated for micro and small companies.

3 Methodological Procedures

3.1 Strategy and research method

This study is characterized as descriptive, as descriptive research seeks to describe or portray a particular phenomenon or situation through the collection and analysis of data. The approach adopted is qualitative, as it meets the proposed objective of understanding the complexity of the topic in depth, taking into account the subjectivity involved. Furthermore, it allows the identification of relevant *insights* and meanings regarding performance measurement (Sampieri, Collado & Lucio, 2013), allowing new aspects to be addressed and subsequently investigated.

The case study was adopted due to its exhaustive nature, which allows the detailed analysis of one or more objects, allowing the researcher to gain in-depth and comprehensive knowledge (Yin, 2010). Focusing on a single entity enabled close examination and in-depth analysis of the data.

Semi-structured interviews and focus groups were used to collect the data. The semi-structured interview, due to its flexibility, allows aspects not foreseen in the theory or in the script planning to emerge during the investigation. The focus group, in turn, allows capturing different perceptions about the social contexts and the phenomenon evaluated (Tanaka & Melo, 2004).

The research analysis unit was a small company (micro-enterprise), with 6 employees, classified as a manufacturer of furniture and other materials, according to the code and description of the main economic activity. The company is located in the municipality of Esperança, Paraíba, and was founded in 2022. Its focus is the manufacture of furniture for planned environments, in addition to providing furniture design, assembly, and installation services. The main raw material used is MDF (*Medium Density Fibreboard*), acquired from local suppliers. The company's corporate structure includes two partners, while its production line is made up of four employees.

The choice of the case is related to factors such as the organization's life cycle, considering that there is a relationship between the company's life cycle phase and the adoption of management practices, including the adoption of performance measurement systems. Specifically, in the growth phase, the aim is to formalize these systems to support growth (Moores & Yven, 2001; Silvola, 2008; Da Cunha *et al.*, 2013; Philypis Junior, 2021). From this perspective, the selected company is in the growth cycle phase, and although its partners use some indicators, this occurs in an unstructured way.

The participants in this study are the two partners of the company, considering that they are the main decision makers. The selection of interviewees is justified by the fact that the partners assume the management of the company in a strategic and tacit way, being responsible for defining the future of the company. Thus, they are also the main stakeholders and indicated

to establish the form of performance measurement and the appropriate indicators. Table 1 shows the profile of the partners.

Table 1

Corporate composition

Partners	Formation	Developed activities
Partner I	Carpenter	Furniture manufacturing and production management
Partner II	Civil engineer	Development and administration of the project

Source: Research data.

Partner I is responsible for the production, including the purchase of raw materials, monitoring the entire production process and delivering products. Partner II is dedicated to preparing projects and organizing the company's administration, performing activities such as budgeting, managing the delivery schedule, preparing the final price, preparing cost spreadsheets, among others. In this way, the research makes it possible to capture both the perception of production and the company's management, enabling the integration of these two views for a more accurate and comprehensive performance measurement.

A methodological triangulation was performed to analyze the data. The concept of triangulation refers to the use of multiple methods to understand a phenomenon with greater precision (Patton, 1999). Additionally, triangulation contributes to the robustness of the methodology, as it validates the information collected through different sources. The strategies used in triangulation are presented in **Table 2**.

Table 2

Data triangulation procedures

Data collection procedures	Main collected data	Data analysis procedure	Triangulation
Interview	During the interview, data were collected about the history, structure and management of the organization, according to the research protocol.	For data analysis, the interviews were transcribed in full, enabling the search for patterns, based on the literature, but also emerging perspectives, which would make it possible to structure the performance measurement model.	Observation and analysis of internal documents were carried out, such as the budget, cost and expense spreadsheets provided.
Focus group	During the focus group, material was presented to participants clarifying the vision, mission of companies and indicators used.	Notes were taken during the focus group, which were later analyzed, seeking to understand the context in which the definitions of mission and vision were made, as well as the key indicators.	Focus group work, company context presented in the interviews and indicators used in the spreadsheets provided.
Observation	Observation during the interviews and focus group.	The partners' perspectives were analyzed, in relation to disagreements on the aspects covered for	Interview and analysis of internal documents.

		performance measurement.	
Analysis of internal documents	Spreadsheets used for managing operations and projects were analyzed	Analysis of the demands and perspectives for performance measurement versus spreadsheets, and indicators used.	Interview, focus group and meeting observation.

Source: research data.

Triangulation then allowed us to understand the company's context and perspectives, in terms of production and customer contact. In addition, it allowed us to identify the necessary indicators through various sources, seeking greater assertiveness in measuring performance and monitoring the strategy.

3.2 Collection and processing of data

The interview applied was semi-structured, as it allows the researcher to conduct the questions according to the needs of the study, favoring a deeper understanding of the context and the exploration of the guiding questions (Santos, Kienen & Castiñeira, 2015). As an analysis technique, discourse analysis was used, allowing for a broader interpretation of the collected material, seeking to understand the text beyond what was explicitly said, in order to understand underlying meanings. This is necessary to define the structure of the *performance wheel* (Michel, 2015). In the case of this study, which seeks to build a performance measurement model, the flexibility provided by the semi-structured interview makes it possible to deepen certain topics. This contributes to the adequacy of the *Performance Wheel* items, since the reflections emerging during the interview allow adjustments that are more aligned with the reality of the company analyzed.

The interview lasted 40 minutes, while the focus group for the development of the model lasted approximately two hours. During these moments, notes were taken on the interviewees' voice intonation and the way they expressed their ideas. According to Dempsey, Gatti, Grinnell and Cats-Baril (1997), notes from observation allow us to describe what is being seen, heard and felt; understand the context and units of observation, perceive facts (meanings, emotions, interactions and reactions) and record data about the researcher's own feelings and sensations. In the context of this study, these notes helped to understand the company's dynamics and contributed to the execution of the focus group workshop aimed at developing the *performance wheel*.

The documents were requested from the company, including those related to formalization, as well as the contract model, cost spreadsheets, project spreadsheets, among others. The objective was to compare the information and evaluate the existing material for the company's management. During the first interview, the objectives and contributions of the study were presented and discussed with the participants, ensuring that the development carried out in the focus group was aligned with the company's needs. After this stage, guidance was provided and the interview was recorded to facilitate the transcription of the responses. Subsequently, signature on the consent form was required.

In the "Understanding the Context" stage (Table 2), questions were asked about business difficulties, internal processes and the role of each partner in the company. The objective was to understand the organizational context, its contingencies and management controls, so that, at

the end, the formulation of the *Performance Wheel* would be as aligned as possible with the company's reality.

The focus group (Table 2) was held with all participants. For this, support materials on performance, mission, vision, strategy and indicators were used in addition to the interaction between researcher and participants, to structure the *framework*. The research protocol used in the interview and focus group, containing the objectives, the data source and the guiding questions based on the *performance wheel* theory, is presented in **Table 2**.

Table 2

Axes of relevant information

Protocol	Objectives	Data source	Approach and references
Interview Understanding the context	Company objectives	Interview	McNair and Watts (2010) Q.1 What is the company's objective?
	Understanding of the developed activities	Documents + Interview	McNair and Watts (2010) Q.2 Tell a little about the activities carried out Gathering of documents such as: CNPJ, spreadsheets, contracts
	Understanding of the difficulties	Interview + documents	McNair and Watts (2010) Q.3 What are the main difficulties in managing the business?
	Performance measurement	Interview + documents	McNair and Watts (2010) Q.4 What are the requirements for measuring this performance?
Focus group	Aspects of the business mission	Workshop	McNair and Watts (2010) Presentation of material about what the mission is and examples
	Mission definition	Workshop	McNair and Watts (2010) Definition of key words and writing the company's mission
	Aspects of vision	Workshop	McNair and Watts (2010) Presentation of material about what vision is and examples
	Vision definition	Workshop	McNair and Watts (2010) Definition of key words and writing the company's vision
	Aspects of the strategy	Workshop	Porter (2004) Strategy definition according to Porter
	Definition of the strategy	Workshop	Porter (2004) Definition of strategic alignment
	Survey of indicators	Workshop + documents	Silva and Callado (2020) Presentation of a checklist of indicators
	Definition of indicators	Workshop	McNair and Watts (2010) Indicators defined according to the study
Implementation			

Source: Research data.

After the interview and focus group were carried out, the recordings were transcribed, and the workshop material was analyzed, including notes from researchers and participants, recordings, established definitions and emerging indicators. From this analysis, it was possible

to build the *framework* based on the *Performance Wheel* for the company, identifying the categories of discourse analysis.

The coding process included a preliminary reading of the data, coding of the items, grouping into categories and a interpretation of the information. The categories were defined with the aim of structuring the *Performance Wheel* in a way that was appropriate to the company's reality. As a result, the identified categories are presented in **Table 3**.

Table 3

Survey codes

Code	Description	Example
Business goals	Aspects present in the speech that demonstrate the objectives that the company wants to achieve	"I hope that in a few years the company will be recognized as a reference for quality" (Partner I)
Difficulties	Speeches that demonstrate difficulties in evaluating aspects of performance	"the cost budget often comes out wrong" (Partner I).
Mission attributes	Aspects that demonstrate elements that reflect the company's vision	"we always need to innovate" (Partner II).
Vision attributes	Aspects that demonstrate where the company intends to go	"I want to be remembered as a reference for designers" (Partner II).
Strategy	Aspects that demonstrate which business strategy the company follows	"When we make a budget and the price is too high for the client, and they ask for a price reduction, it is done, but there is a limit to changes; we don't like to reduce the quality too much" (Partner II).
Indicators	Aspects that demonstrate the need and interest in performance indicators	"Sometimes there are delays in deliveries" (Partner I).

Source: Research data.

The coding of interviews and observations allowed the understanding of relevant aspects of the company and its context, making it possible to propose indicators that structure the organization's *Performance Wheel*. The results are presented in the next topic.

4 Results and Analysis

4.1 Understanding the business context

The first moment of the interview aimed to explain that the objective of the study was to create a model based on the *performance wheel* to measure performance. The first question in the interview sought to identify, in the perception of each partner, the main difficulty in managing the business. Partner I responded that, in his view, the biggest challenge is time management. The researcher asked him to explain how time became a problem, and the partner reported, as shown in the excerpt below.

Many times, when I receive a project, I estimate X number of days to complete it, but I end up not being able to. This happens because the execution is more complex than expected or because the assembly on site presents problems, such as walls that are out of square, requiring small adjustments so that the pieces are well positioned. All of this delays the schedule and impacts the cost (Partner I).

In this context, it is clear that certain externalities in the assembly process extend the time needed to complete the project. Furthermore, there are challenges in the production processes, since the estimated time for manufacturing parts is often underestimated. As a consequence, the production and delivery schedule is not fulfilled. For a new company on the market, which is still seeking to consolidate itself, this factor becomes a significant problem, as one of the main demands from customers is compliance with established deadlines. In this way, meeting deadlines is directly related to both customer satisfaction and cost control.

In addition, there was a divergence between the partners regarding the organization of the schedule. Partner I, responsible for production, highlighted that the inclusion of small projects, included by Partner II, makes it even more difficult to meet the schedule. In the analysis of the speech, difficulty in estimating the time for delivering products was identified as a relevant category. This aspect highlights the need for indicators that monitor time management, since this factor directly impacts customer satisfaction.

For Partner II, the main difficulties are related to the creative process in developing projects. According to him, when a client requests the development of an environment, creating the project, considering the client's requirements, functionalities and aesthetics, is a time-consuming and challenging process. He recognizes that this difficulty impacts the fulfillment of the schedule and, although delays in delivery to the client are not frequent, the lack of a finalized project in a timely manner compromises production. As a result, an inaccurate estimate for the completion of the project occurs, which can generate additional unforeseen costs.

Partner II also emphasizes that the relationship with clients is a critical factor that can generate delays and waste of time. For example, there are cases in which clients request a project, ask for several changes and, in the end, do not close the contract. Partner I agrees with this view, highlighting that some excessive requests for modifications to the project end up delaying the start of production. Given the mention of challenges in relationships, the researcher asked about other aspects, such as relationships with suppliers and employees. Partner I stated that the relationship with suppliers is smooth and that there are no delays in deliveries. Likewise, the relationship with employees, who work in production and assembly, does not present significant problems.

Also regarding the challenges of the business, Partner I emphasizes the difficulties related to shipping both the raw material and the delivery of the furniture. According to him, the raw material (*MDF*) is purchased from the supplier, but transportation is the responsibility of the purchasing company. Likewise, the delivery of the finished projects to the customers is the company's own responsibility. These two shipping costs, in addition to representing an additional cost, generate dependence on third parties, which, in the partners' view, contributes to delays in the process.

To improve this aspect, the partners aim to invest in the purchase of their own vehicle to carry out the transportation. However, currently, the company does not have a line of credit or sufficient capital for this investment. Despite this, both partners state that they want to organize the company to achieve this goal. At this point, there is a divergence of opinions: while Partner I is reluctant to take out loans or financing, Partner II is more open to this possibility.

The analysis of the discourse shows that the lack of financing and structure for business development has harmed operations, thus becoming yet another challenge. This highlights the need to improve the structure related to freight as a business objective. In this context, the difficulty of accessing resources is a critical point for small companies (Dias *et al.*, 2023), highlighting the need for indicators that enable financial planning to achieve these improvements.

Regarding performance measurement, it was explained to the interviewees that measuring performance means ensuring that processes work well, in order to obtain good results and achieve objectives. At this moment, Partner I gives more space for Partner II to respond, adopting an attentive listening posture and complementing the answers. Partner II stated that it was necessary to attract more customers and that a factor that hindered this acquisition was the lack of marketing. According to him:

We need to attract more customers, but we do not advertise enough. “Keeping the customer is not a concern, but satisfaction is, which is why we offer repairs and additional services free of charge after the sale. (Partner II)

The partners explain that loyalty is not a focus, as environmental projects are durable in the long term and, therefore, there is no recurrence of orders from the same customer. However, customer satisfaction has resulted in new contracts. Therefore, they are concerned about meeting the agreed deadline and, if necessary, offering after-sales service, carrying out small repairs, even if the cause of the problem is not the company's direct responsibility. For example, some furniture may need subsequent adjustments to doors due to the leveling of the floor or walls. This is carried out at no cost to the customer.

The analysis of the discourse reveals a focus on production and less attention to the capture, dissemination and management of managerial aspects. These factors fall into the category of difficulties and indicate the need to monitor indicators related to customers and budgets. In this aspect, there is also a misalignment between management and production, evidenced by divergences in relation to delivery time and budget. This demonstrates the need for metrics that integrate these objectives, as pointed out by Silva and Callado (2020).

However, it is essential to consider the complexity of production and the difficulties faced by the company. As pointed out by Hristov *et al.* (2024) and Oladimeji *et al.* (2021) about the challenges of tracking operational aspects. Aspects related to product quality are also essential factors for customer satisfaction. This aspect was highlighted by interviewees as an important criterion for customers, but also as a focus for the company, fitting as one of its long-term objectives: to continually improve the quality offered.

In order to better understand these quality criteria and how project costs were managed, participants discussed how costs were raised and how the final value of the project was calculated. Partner I highlighted that the interior design project is not charged to the client; it is offered free of charge because this facilitates negotiation, as it pleases the client and the visualization of the environment favors the closing of the contract, as stated by Partner 1: “There is no charge for the project, as this way we satisfy the client. Furthermore, the client only receives the project if the contract is signed. The project is shown in person and printed”.

Regarding the budget presented to the client, the partners emphasize that the choice of each material, MDF color and features impacts the final value of the project. After the finalization and approval by the customer, the costs of each material are collected, to which manufacturing costs are added. As stated by Partner I in the following excerpts:

Based on each material chosen by the customer, we survey the value of each item: raw material (MDF colors impact the value), shipping, production time, employee labor time and tools (which are necessary for assembly), as well as energy, rent, water and gasoline costs. After that, I multiply the total amount by 1.7, which represents what we would gain in addition to the costs. Sometimes I add extra amounts to cover possible additional costs (Partner I).

When asked about how the employee's labor time is measured, the partners reported that the calculation is made as follows: the days that the employee dedicates to the production of the project are multiplied by the hourly rate paid. The partner's time in the production process is not considered. Regarding contracts, at the time of signing, the customer pays 60% of the value, and can choose to pay via credit card, in up to 12 installments, or in cash. In this context, it is observed that many costs are disregarded, such as the value and time spent on preparing the interior project, labor costs, among others. Furthermore, it is not clear from the partners' statements or the spreadsheets used that there is a structured calculation, with an appropriate methodology for estimating costs and profits.

The partners presented some Excel spreadsheets used for budgeting, cash flow and cost surveys. When calculating costs, it is clear that the organization is done by period (day, week and month) and that the costs monitored by this spreadsheet do not include production aspects, such as labor and raw material costs. These are the costs that the partners emphasize as most relevant, however, they are also the most difficult to measure, as they require specific measures and the monitoring of aspects such as the cost of raw materials, leftovers and waste, control of labor hours and other expenses linked to production. The spreadsheet used can be seen in Figure 4.

EXPENSES	Day	Week	Month
Rent	R\$ 12.50	R\$ 62.50	R\$ 250.00
Electricity	R\$ 5.00	R\$ 25.00	R\$ 100.00
Water	R\$ 1.20	R\$ 6.00	R\$ 24.00
Fuel	R\$ 20.00	R\$ 100.00	R\$ 400.00
Food	R\$ 3.50	R\$ 17.50	R\$ 70.00
Cleaning Supplies	R\$ 2.50	R\$ 12.50	R\$ 50.00
Pro-labore	R\$ 100.00	R\$ 500.00	R\$ 2,000.00
Employee 01	R\$ 50.00	R\$ 250.00	R\$ 1,000.00
Employee 02	R\$ 50.00	R\$ 250.00	R\$ 1,000.00
Depreciation	R\$ 15.00	R\$ 75.00	R\$ 300.00
Default Losses	R\$ 43.00	R\$ 215.00	R\$ 860.00

| **Total Expenses:** | **R\$ 252.70** | **R\$ 1,263.50** | **R\$ 5,054.00** |

Equipment to be Paid	Monthly Payment	Total Value	Outstanding Balance
Squaring Machine	R\$ 500.00		
Dust Extractor	R\$ 360.00	R\$ 3,600.00	R\$ 5,000.00

Figure 4 *Company cost control spreadsheet*

Source: *Company file, 2024.*

The partners point out that inventory control, especially of leftovers, needs to be better managed. This is because the remaining material from completed projects can be used in others, but there is no adequate monitoring. According to them, there is no control over this material and, therefore, they do not know exactly what they have available. As Partner II states: “the stock still needs to be better organized. We only know the material for each project, but we have no control over leftovers, waste, etc.” In summary, the partners emphasize that, in order to better measure performance, customer satisfaction, delivery schedule, cost survey, inventory

control, and improvements in manufacturing and assembly processes, these aspects need to be monitored.

In this sense, it is clear from the speech that these factors should be considered in the proposed *performance wheel framework*, taking into account the limitations related to measurement systems, the partners' time to collect data and monitor indicators, in addition to the cost restrictions inherent in detailing this information. An example of this is inventory monitoring, which needs to be improved, but the cost-benefit ratio must be considered when developing an appropriate indicator, as emphasized by Ge *et al.* (2023).

They were asked what the company's main objective was. Both responded that making a profit is the motivating factor, but becoming a reference and growing in the market are also relevant objectives. As Partner I points out: "Profit, as well as growth. To grow, I understand that it is necessary to invest in our own location, in transportation, as well as improving the machinery." Partner II adds: "Profit, becoming a reference in quality and deadlines. When someone thinks about making a piece of furniture, I want them to think of us first. To be like Coca-Cola."

When asked about the difficulties in achieving these objectives, they responded that seasonality in attracting customers is a problem in maintaining revenue. Furthermore, cost assessment is carried out with an excessive focus on the project itself, failing to consider, on some occasions, fixed costs and possible extra costs. This factor makes it difficult to generate cash for investments and maintain working capital, since incorrect calculations can result in a lower return than expected. These aspects reveal difficulties common to micro and small companies, in which poor management directly impacts the financial result (SEBRAE, 2024).

To ensure relationships with customers, the company opts for a detailed contract, specifying all items to be delivered. The contract model presents the parties involved and describes in detail the materials and items contracted. Figure 5 shows an example of a contract with a client who requested cabinets and other furniture for two bedrooms, a living room and a kitchen. The contract specifies everything from the quantity of items to the models of doors, handles and other details requested by the client, as well as the delivery date.

The total amount to be paid and the payment terms are also defined, as mentioned by the partners: 60% at the time of signing the contract and the remainder upon delivery and assembly. The contract also provides that, in the event of cancellation, the client will be required to pay the full amount. As reported in the interviews, the company does not have the financial conditions to bear the costs arising from cancellations (Figure 6).

1. SERVICES: THE CARPENTRY commits to:	
Manufacturing, assembling, and delivering the following services, listed below according to the project sent by the client in PDF, attached.	
Quantity	BEDROOMS
2 units	SLIDING DOORS IN BLACK ALUMINUM AND REFLECTA GLASS, HANDLE TYPE SLIM FLAP IN BLACK COLOR. (191 cm x 65 cm)
2 units	SLIDING DOORS IN BLACK ALUMINUM AND REFLECTA GLASS, HANDLE TYPE SLIM FLAP IN BLACK COLOR. (222 cm x 79 cm)
2 units	UPHOLSTERED HEADBOARD (QUEEN)
1 unit	UPHOLSTERED HEADBOARD (DOUBLE)
Quantity	LIVING ROOM
1 unit	PARTITION IN 15 MM MDF CUMARU RAIZ - DURATEX. SLATS FIXED TO THE FLOOR AND CEILING, ANGLED AT 45°, SPACED 20 cm APART. (287 cm x 232 cm x 12 cm)
Quantity	KITCHEN
1 unit	CABINET IN 15 MM MDF IN AURORA MATT COLOR IN A COLOR SIMILAR TO THE EXISTING ONE, WITH A TEA TOWEL HOLDER AND SPICE RACK DOOR
1 unit	SLATTED PANEL IN 15 MM MDF IN AURORA MATT COLOR IN A COLOR SIMILAR TO THE EXISTING ONE, WITH BUILT-IN SWING DOOR, LINEAR HANDLE IN BLACK COLOR (232 cm x 132 cm)
Delivery time: 20 days from the signing of this contract.	

Figure 5: Details of the items present in the contract

Source: Company file, 2024.

2. CLIENT'S DUTIES:
2.1 The client agrees to:
- Pay for the services mentioned above in the total amount of R\$ 10,880.00 (ten thousand eight hundred and eighty reais). Payment method: - In cash: 60% upon signing this contract (R\$ 6,528.00), 40% upon delivery and assembly of the furniture (R\$ 4,352.00).
2.2 PENALTIES FOR NON-COMPLIANCE WITH THE ABOVE OBLIGATIONS:
The client is subject to the following obligations in case of payment delays:
- If prior installments are late and the furniture has not yet been delivered, the delivery period will be extended by the number of days corresponding to the delay. - If payments are delayed after the delivery of the furniture, the CLIENT will be subject to a 2% fine, 1% monthly interest, monetary correction based on the highest index in effect in Brazil, legal costs, and collection fees, which will be set at 20% of the total amount due. - If the client cancels the contract, they must compensate for the losses incurred or, at the CARPENTRY'S discretion, pay the full price and collect the contracted furniture.

Figure 6: Details of customer obligations

Source: Company file, 2024.

The triangulation of interview data, documents provided and observations made by the researcher indicated the company's difficulties, made it possible to understand its market and highlighted possible indicators that can help in better managing its activities. Furthermore, it was possible to see that the company is seeking market consolidation and greater financial stability, so that this is reflected in more adequate working capital, allowing investments to be made in a sustainable manner.

4.2 Focus group to develop the *performance wheel*

4.2.1 Mission, vision and business strategy

According to the structure proposed by McNair and Watts (2010), the first step in structuring the *performance wheel* is to define the company's mission and vision. When asked about the existence of a formally established mission, the focus group participants stated that there was no clear definition for the company. To assist in this process, explanatory material was presented on the concept of business mission, including examples of missions from renowned companies, such as Coca-Cola, Google, Disney and Apple, with the aim of facilitating understanding and inspiring the formulation of the company's mission. It was also explained that the mission must be operationalized, that is, shared with all members of the organization, serving as a guide for actions and enabling the establishment of strategies to achieve it.

During the presentation, participants were invited to write down key words that could contribute to the formulation of the company's mission. In addition, it was clarified how the mission applied to the model that was being developed. Then, they were given time to consult the material and write down phrases and words that they considered relevant to the definition of the mission. After this moment of reflection, the group's conclusions were discussed with the researcher, and the company's mission was structured. The keywords listed were: dream, customer satisfaction, reputation, differentiation, innovation, quality and consolidation.

The defined mission was: Designing environments with comfort and quality to make people's dreams come true in an innovative way.

For the participants, innovation was the most important word to define the mission. As explained by Partner II: “innovation is important because other professionals, such as architects, engineers, etc., like to innovate and we need to keep up with demands”. Innovating is a challenge for companies of this size, considering the limitations of costs and physical, technological, human and financial resources (Aires, Arruda, Paiva & Souza, 2024) as well as resistance to change (Vieira, Moura & Gatto, 2024). Therefore, based on the participants' perception, the performance measurement system must include indicators that allow monitoring and stimulating innovation.

The participants were asked again about the existence of a vision for the company and stated that they did not have a clear definition. Thus, it was explained that the vision corresponds to the projected image of what the company wants to be in the future. To facilitate understanding, material containing the vision of companies such as: Apple, Coca-Cola, Disney, Mercedes-Benz, etc. was presented. In the same way, time was given for participants to write down the key words and discuss which elements should make up the company's vision.

Subsequently, with the assistance of the researcher, the vision was structured. The key words listed were: to be a reference in the region, quality, delivery time, innovation.

The defined vision was: To be a reference in satisfaction, on-time delivery and innovation.

During this process, Partner II coordinated the development of the mission and vision, explaining the reasons for the choices made. In addition, he sought to compare information with the researcher and report the company's needs. Meanwhile, Partner I emphasized aspects related to the development processes and explained how they occur. This perspective demonstrates a concern with satisfying customers and ensuring on-time delivery, indicating which indicators should monitor these aspects.

The third stage of the focus group aimed to define and consolidate the company's strategy, using Porter's approach. According to Porter (2004), there are three generic strategies that allow a company to outperform its competitors and gain market share: cost leadership, differentiation, and focus. Cost leadership is based on reducing expenses through low production costs, process efficiency, strict control, and assertive investments that enable greater returns. Differentiation consists of offering the market products with distinct characteristics, setting them apart from competitors. The focus involves the company's concentration on a specific market niche, customer group, segment or product line.

This material was presented and discussed with the interviewees. The three perceptions were explained in an accessible way to facilitate understanding of the concept of strategy and to define which one the company was following. Given this, Partner II stated: "The MDF used aims to meet this differentiation, as well as other components." Partner I added: "The finishing used also aims to differentiate the product." In addition, they explained that there is a limit determined by quality for reducing the value of the initial budget, as shown in the following excerpt.

When we make a quote and the value is too high for the client, and he requests a price reduction, we make adjustments, but with limits. We don't like to reduce quality too much. So, we suggest changes in the color of the material or aspects of the accessories, so that the quality of the product is not compromised. (Partner II)

We reduce functions and sophistication, but never the minimum quality. We always maintain, for example, the use of MDF and do not reduce the final quality. (Partner I)

Therefore, it can be concluded that the strategy is focused on differentiation, in line with its mission, which values comfort, quality and innovation, and its vision, which seeks customer satisfaction and recognition of the differentiation of the product and service offered. With the alignment of the mission, vision and strategy, it becomes possible to determine the indicators focused on the dimensions of sustainability, processes and liquidity, as proposed by the *Performance Wheel* for micro-enterprises.

After this stage, the simplified *Performance Wheel* model was presented, explaining the dimensions of sustainability, processes and finance. It was highlighted that the reflections carried out so far needed to be translated into measurable metrics, making it clear that the chosen indicators should be relevant and followable. A list with indicators of various dimensions was also presented, so that participants could reflect on which ones would be necessary and whether any of the list would be appropriate for the company.

The indicators cited were: **Financial cycle days, Profit, Robust cost survey (need), Contribution margin, Reputation and indication (marketing), Employee working time,**

Accounts up to date, Inventory control, Delivery time, and Employee improvement. At the end of the focus group, Partner II designed a structure of the indicators that he considered most relevant, taking into account the entire context presented.

4.3 Structure for implementation

The provisional structure for implementation established the company's mission and vision, and, based on them, some indicators were raised. At this point, the indicators identified in the interview were compared with the spreadsheets and documents already used by the company, which were made available to the researchers. The main documents analyzed were Excel spreadsheets, used to measure costs, revenues, contribution margin, and process organization. These spreadsheets were obtained from the internet and followed a standard model intended for furniture companies. However, the partners reported difficulties both in filling out the forms and in understanding what should be done and how the indicators should be calculated. **Figure 7** shows the layout of the budget spreadsheet

In addition, the company used a cost survey spreadsheet in conjunction with the budget spreadsheet (**Figure 8**). However, as with the spreadsheet in **Figure 6**, interviewees reported difficulty in identifying and measuring costs correctly. However, throughout the debate on the indicators and the structure for cost analysis, in line with the research proposal, it was possible to select relevant indicators and define the appropriate way of measuring each of them.

BUDGET			
CLIENT:	JOSÉ DA SILVA	ENVIRONMENT:	BEDROOM
LOCATION:	CONDOMINIUM MONTE CARLO	CLOSING DATE:	01/01/2020
BUDGET NO.:	001/2020	DELIVERY / INVOICE DATE:	01/01/2020
PAYMENT METHOD			
TOTAL INSTALLMENTS (DOWN PAYMENT + INSTALLMENTS): 3			
SERVICE DETAILS			
HOW MANY DAYS TO COMPLETE THE SERVICE?		CARPENTRY EXPENSES	PAYMENT DATE
1.0		R\$ 0.05	01/01/20 (2.3%)
TAXES	PAYMENT DATE		
1.0%	R\$ 0.02 (01/01/20)		
SERVICE SIZE (m²)		SERVICE VALUE (R\$)	
1.0		R\$ 2.00	
CARPENTER COMMISSION		PAYMENT DATE	INSTALLMENTS
1.0%		01/01/20	1
TOTAL MATERIAL COST (R\$)		PAYMENT DATE	INSTALLMENTS
R\$ 1.00		01/01/20 (50.0%)	3
ARCHITECT RT	PAYMENT DATE	INSTALLMENTS	
1.0%	01/01/20	1	
PAYMENT DETAILS			
CHARGE TYPE	DUE DATE		
Check No. 001	01/01/20		
Check No. 002	02/01/20		
Check No. 003	02/01/20		
Check No. 004	02/01/20		
Check No. 005	06/01/20		
Check No. 006	06/01/20		
Check No. 007	06/01/20		
Check No. 008	--		
Check No. 009	--		
Check No. 010	--		
Check No. 011	--		
Check No. 012	--		

Figure 7 Budget spreadsheet used by the company

Source: Company file, 2024

FIXED COST

EXPENSES	VALUE	EXPENSES
Food		Owner's Salary - Pro Labore
Rent		Security
Medical Assistance		Insurance
Fuel		Telephone
Accounting		Uniforms
Depreciation		Meal Voucher
Financial Expenses		Transport Voucher
Charges		Travel
Electricity		13th Salary
Vacation		Others
Payroll		
Freight		
Default		
Property Tax (IPTU)		
Maintenance		
Consumable Material		
Stock Losses		

TOTAL EXPENSES**Figure 8** Cost spreadsheet used by the company

Source: Company file, 2024

The integration of information obtained through interviews, workshops and document analysis served as a basis for selecting the indicators. In the sustainability dimension, the following indicators were established: customer satisfaction, marketing and accounts payable. The methodology for measuring these indicators is presented in **Table 4**.

Table 4*Sustainability indicators*

Sustainability	Data source	Responsible	Assessment
Customer satisfaction	Remote survey	Partner II	Check customer relationship and experience
Marketing	Social media and partnerships	To be defined	Number of people who signed a contract based on marketing
Accounts payable	Account control	Partner II	Bills paid on time

Source: Research data.

The customer satisfaction indicator aims to improve relationships with consumers. To measure it, it is recommended to apply a structured questionnaire, containing objective questions about service, delivery and quality of the service provided. This questionnaire must be made available to the client after the project is completed, allowing for a subsequent evaluation of the experience. The analysis of this indicator should consider the cross-referencing of the responses obtained with the experience observed throughout the contract.

In addition, partners must reflect on aspects that facilitated the work process, such as materials used to help understand the request and methodologies that optimized project preparation, in order to standardize good practices and reduce the time spent at this stage. Another relevant point is the assessment of the probability of the customer recommending the service. This indicator has a qualitative and subjective nature, functioning as a signal of customer perception, without the need for a specific quantitative result.

Among the perspectives analyzed in customer satisfaction, the three aspects proposed by Horazy (2023) can be considered: waiting time for a complete quote, after-sales assistance and contacts, and method of negotiating projects. These factors include customer relationships and experience, which are key elements for customer satisfaction. In line with this study, it is recommended to continue offering visual projects that allow customers to visualize the results of the environment. This strategy has proven to be a determining factor for customer satisfaction.

A study conducted by Amarilla (2023), involving 52 microentrepreneurs and 50 customers, showed that microenterprises, in general, do not have technical knowledge about the application of the marketing mix and do not establish pricing policies adapted to the economic situation, which leads to difficulties in managing the business. However, the use of promotions and creative strategies through social media has proven effective in increasing the visibility and competitiveness of microenterprises.

Currently, the company analyzed carries out its marketing actions exclusively through Instagram. However, it is suggested to form partnerships with local influencers, who can promote the brand at a reduced cost and reach a greater number of potential customers. This strategy aims to expand the reach of disclosure, reducing variation in revenue and promoting greater financial stability. This indicator is particularly relevant for micro-enterprises, since most of them do not apply marketing strategies in a structured and effective way.

Regarding accounts payable, it is recommended to record them in organized spreadsheets, containing amounts, due dates and flags for deadline alerts. This control allows not only to verify compliance with financial obligations, but also to identify the need for longer deadlines and to monitor the composition of these expenses. This indicator represents a fundamental metric for monitoring the company's working capital, cash flow and solvency, contributing to more efficient and strategic financial management.

Table 5
Process indicators

Process	Data source	Responsible	Assessment
Stock control - Quantity of cut pieces; - Use of material;	Measurement through spreadsheets	Partner I	Reduction of waste and improvements in production
Lead time by manufacturing order - Days to sign the contract; - Days to deliver the project; - Rework rate; - Efficiency of cuts;	Measurement through spreadsheets	Partners	Estimates to ensure deadlines can be met
Assembly time - Assembly efficiency; - Rework; - Breaks in assembly;	Measurement through spreadsheets	Partner I	Estimates to ensure deadlines can be met

Labor hours - Manufacturing; - Assembly;	Measurement through spreadsheets	Partner I	Evaluated together with financial indicators to estimate the cost
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Source: Research data.

Process indicators are the most challenging to establish, requiring applicability and measurement tests (**Table 5**). Regarding inventory control, the selected indicators aim to measure the volume of stocks of products in progress and the stock of materials, including raw materials and leftovers. These indicators are in line with the study by Griss, Bueno and Soares (2023), which analyzed a furniture factory and concluded that process indicators, especially inventory control, are essential to improve the production process and optimize the company's performance.

Time indicators are not only essential, but also complex. The project delivery time indicator must consider three stages: days to sign the contract, days to prepare the project and days for production. With regard to production, rework and cutting efficiency emerge as critical factors, as partners report limitations in the cutting machine. In cases of errors, it becomes necessary to rework parts, directly impacting the project time and cost. These indicators were also used in the study by Griss *et al.* (2023), with a recommendation for measurement using spreadsheets. The proposal is that the estimated production time will serve, in the future, as a basis for predicting deadlines and costs with greater precision, since time directly influences the final cost of the project.

The assembly time should consider the days required for the complete installation of the project at the customer's residence. In this context, it is essential to evaluate the efficiency of the assembly, comparing estimated days versus days actually used. In addition, it must be analyzed whether there was a need for rework to adjust parts and whether breakages occurred during assembly. These factors directly impact the delivery time, customer satisfaction, and the final cost of the project, since labor is paid per day worked, and waste and rework are the company's responsibility.

Finally, in close relation with cost estimates, the labor time used in production and assembly must be surveyed. It is recommended to calculate this indicator by multiplying the hourly rate by the hours worked, integrating it into the total cost of the product. In addition to contributing to more accurate pricing, this indicator can signal opportunities for improvement to speed up the project. Its analysis should be done in conjunction with customer satisfaction, allowing for strategic adjustments to optimize processes.

Table 6

Financial indicators

Liquidity	Data source	Responsible	Assessment
Contribution margin	Project value – costs	Partners	The contribution of each project to assess adequacy with costs and the Market
Profit	Revenue – costs + expenses	Partner II	Check if the company is profitable
Financial cycle days	Days of the operating cycle – payment term	Partner II	Identify the need for working capital

Source: Research data.

Finally, the financial indicators (**Table 6**) selected were: contribution margin, profit and financial cycle days. The contribution margin is a fundamental indicator, as the company works

with personalized projects, and understanding how much each project contributes to profit is essential for the sustainability of the business. Profit is a standard financial indicator, which makes it possible to estimate, for example, when it will be viable to make investments, such as the acquisition of a vehicle for the company. The days of financial cycle indicator allows to calculate the demand for working capital necessary to keep the company in operation, ensuring better control over financial resources.

The framework developed for this company is presented in **Figure 9**. With this model, the next step will be to test the effectiveness of the indicators and evaluate whether the application of the *performance wheel* contributes to the improvement of organizational performance.

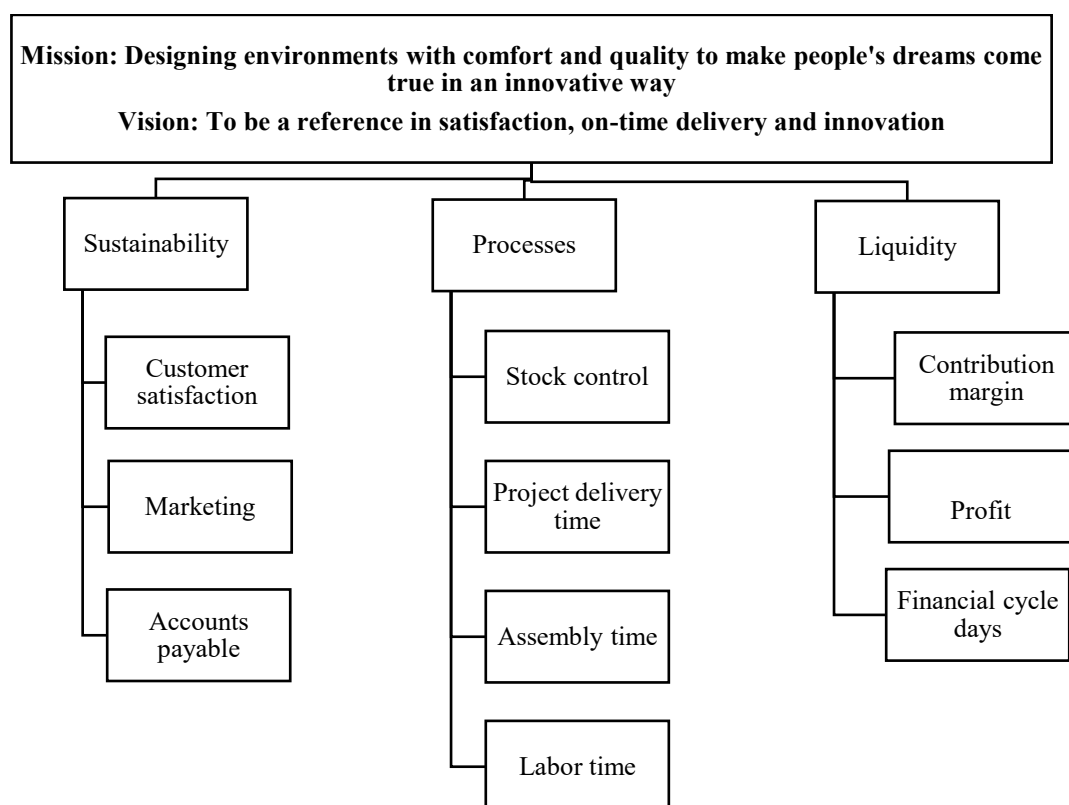


Figure 9 Framework performance wheel – furniture company

Source: Research data.

In the sustainability dimension, the indicators are linked to the reputation and viability of the business in the long term. The balance between customer satisfaction and marketing can boost sales, while good control of accounts payable avoids financial problems. In the processes dimension, the focus is on optimizing operations. Effective inventory control prevents unnecessary costs, while shorter delivery and assembly times improve the customer experience. Labor management directly impacts the efficiency of processes. Regarding liquidity, a healthy contribution margin ensures that sales cover operating costs, while a short financial cycle reduces the need for working capital.

The *framework* presented allows for strategic alignment, considering the operational, financial and market dimensions. The interaction between the three areas allows for integrated management, where process improvements impact customer satisfaction and the company's

liquidity. One aspect that was not defined in the *framework* was indicators linked to innovation, considering limitations that the company faces in its growth phase, linked to resources, availability of measurement systems and labor.

5 Final considerations

Microenterprises face common challenges, such as lack of access to resources and investments in machinery and management software, which compromises administrative efficiency. However, the solutions to these difficulties vary depending on the market in which it operates, the profile of the partners and the strategy adopted by the company. In the case analyzed in this study, such difficulties were also highlighted, but the solutions identified through the performance measurement process are aligned with the company's differentiation strategy and its market perspectives.

In this context, the *Performance Wheel* performance measurement structure, by integrating the sustainability, processes and financial dimensions, allows strategic indicators to be linked to the company's mission and vision, enabling more effective monitoring. Furthermore, its simplified structure facilitates integrated visualization of performance, contributing to more cohesive management and to a fast identification of problems.

In the case of the furniture studied, the *Performance Wheel* makes it possible to evaluate both the reputation and the viability of the company. Customer satisfaction, marketing and accounts payable indicators help to analyze the company's ability to generate revenue and meet its obligations, i.e., to maintain its long-term sustainability. Process indicators help to identify potential problems, costs and correction needs. Inventory control, for example, makes it possible to accurately monitor available raw materials, avoiding waste and additional costs. Furthermore, delivery time and assembly time indicators are directly related to customer satisfaction and the company's ability to plan its operational cycle.

The financial dimension, represented by the indicators contribution margin, profit and days of financial cycle, allows essential analyses, such as the profitability of projects, the company's net profit and the time required to generate financial resources. With this information, the company can plan investments and calculate its working capital needs more efficiently.

Therefore, this study demonstrates how the *Performance Wheel* model can be applied to micro-enterprises, enhancing their capabilities and helping to overcome specific challenges. Efficient performance measurement can help to reduce the mortality of micro and small companies, promote sustainable growth and minimize the most common difficulties faced by this business profile.

As limitations, this study highlights the difficulty of defining viable methodologies to measure certain indicators. For example, due to the lack of software, aspects such as innovation could not be measured directly. Additionally, the model was not evaluated after its implementation, which would be essential to validate its acceptance and effectiveness in these companies. For future research, it is recommended that post-implementation tests of the model be carried out in order to expand discussions and validate the proposed structure.

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