

**Ecole des Hautes Etudes Commerciales
d'Alger**

EHEC

**This dissertation is submitted in partial fulfillment
of the requirements for master's degree in commercial sciences**

Major: Distribution & Supply chain management

Topic:

**The BSC as strategic planning
and management tool**

Case study: Millennium Medic

Submitted by :

Miss BENOUIS Chahinaz

Supervised by :

Mr. BOUBAKOUR Farés

Professor at EHEC Alger

9th Promotion

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Dedication:

I dedicate this humble work to my father, mother, my big sister Hanane and my little sister Faten who always supported, encouraged and loved me.

To my friends, who made this experience memorable.

And to all the people that contributed to my success.

It was a passionate adventure and an amazing journey

Thank you.

Chahinaz

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And for last and not least, I would like to express my deepest regards to my family and friends, for their understanding and constant help throughout this research work.

Abstract:

Strategy is the pillar that any business needs to keep going strong in the midst of crises and adapt rapidly to the changing environment, as the key to enhancing performance and therefore securing competitive advantages is to align the desired objectives with the company's strategy.

The difficulty of this task is what pushed Robert Kaplan and David Norton to develop a tool that guarantees this alignment, which is the BSC.

This thesis was made to learn and study the concepts of strategy, strategic management, the BSC and the relationship between these concepts and performance measurement.

The objective of our research is to study the impact of implementing a BSC on a warehouse performance.

This thesis project examines the performance state of millennium medic's warehouse a company that specialize in distributing pharmaceutical and parapharmaceutical products.

We used the platform BSC Designer to implement the proposed scorecard and measure the warehouse performance.

Key words: Balanced scorecard, strategic management, warehousing, BSC Designer.

Résumé:

La stratégie est le pilier dont toute entreprise a besoin pour rester solide face aux crises et s'adapter rapidement à l'environnement changeant, car la clé pour obtenir un avantage concurrentiel réside dans l'amélioration continue de la performance, que ne peut être garantie que par l'alignement des objectifs avec la stratégie globale de l'entreprise.

La difficulté de cette tâche a poussé Robert Kaplan et David Norton à développer un outil qui assure cet alignement, qui est le tableau de bord prospectif (BSC).

Ce mémoire a été conçu pour apprendre et étudier les concepts de stratégie, le management stratégique, le tableau de bord prospectif et la relation entre ces concepts et la mesure de la performance.

L'objectif de notre recherche est d'étudier l'impact de la mise en œuvre d'un tableau de bord prospectif sur la performance d'un entrepôt.

Ce projet examine l'état de performance de l'entrepôt de Millennium Medic, une entreprise spécialisée dans la distribution de produits pharmaceutiques et parapharmaceutiques.

Nous avons utilisé la plateforme BSC Designer pour implémenter le tableau de bord construit et mesurer la performance de l'entrepôt.

Mots clés : La stratégie, le management stratégique, le tableau de bord prospectif, entrepôt,
BSC Designer

ملخص:

تعتبر الاستراتيجية من اهم الدعائم التي يجب ان تمتلكها الشركة , حيث يعتبر توظيفها بالشكل الصحيح اضافة الى اختيار اهداف استراتيجية تتلاءم مع هذه الأخيرة هو المفتاح لكسب مميزات تنافسية, لذلك تم تطوير منهجية تهدف لتحقيق هاذو التلاؤم تدعى بطاقة الاداء المتوازن.

قمنا من خلال هذه الاطروحة بدراسة المفاهيم المتعلقة بالاستراتيجية , الادارة الاستراتيجية و بطاقة الاداء المتوازن اضافة الى محاولة فهم العلاقة بين هذه المفاهيم و قياس الاداء لدى الشركات.

هدفنا من هذه الاطروحة هو معرفة تأثير بطاقة الاداء المتوازن على اداء المخازن , ولقد قمنا بتطبيق هذه الطريقة على شركة تخصص في توزيع الادوية الصيدلانية.

قمنا باستخدام منصة BSC Designer لتنفيذ البطاقة التي قمنا بتأسيسها للمخزن للحصول على النتائج.

الكلمات المفتاحية: الاستراتيجية, الادارة الاستراتيجية, بطاقة الاداء المتوازن , منصة BSC Desiger .

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List of abbreviation:

BSC: balanced scorecard.
CSFs: Critical success factors.
PESTEL: Political, Economic, Socio-cultural, Technological , Environmental and Legal
SWOT: Strengths, Weaknesses, Opportunities and Threats
CEO: chief executive officer.
F&A: Finance and accounting.
IT: Information technology.
HR: Human resources.
CNAS: Caisse nationale des assurances sociales.
QMS: quality management system.
TD: Technical director.
H&S: Health and safety.
OPA: order picking accuracy.
WMS: warehouse management system.
SGS: Société générale de surveillance

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General introduction

General introduction:

In this new era, most of businesses are struggling to keep afloat due to the constant change of environment and the uncertainty of supply and demand that comes with it, the only thing that can shield them from the ups and downs of the market is to have a robust strategy that protect them and keep them going forward.

We all agree that building a strategy is a huge task, resources and time consuming, but it is definitely not a waste, for strategy is the foundation of successful businesses and what differentiate them from failures ones.

The second most challenging task after building a strategy is to align objectives with the strategy, only by guaranteeing the alignment; processes will be managed efficiently leading the company to gaining competitive advantages over its competitors and therefore securing its place in the market.

But this challenge could be made easier if we apply the appropriate tool, and what better approach to use other than the Balanced Scorecard developed by Robert Kaplan and David Norton.

Many companies overlook the importance of exploring new approaches to evaluate and manage their management system, in this matter we were interested in: **“learning about the balanced scorecard as strategic planning and management tool”**

As supply chain major we had many courses related to storage, warehousing, e-commerce, preparing orders...etc. and we were always told that what we learned is easy in theory but difficult in practice, so our main reason for choosing this topic is to put into practice the different knowledge that we learned through the past years, and challenge ourselves with new tasks.

We chose our case study to be millennium medic, a distributor of pharmaceutical and parapharmaceutical products, a scorecard tailored to the company's warehouse will be built to

see “**what will be the impact of applying the BSC as strategic planning and management tool on warehouse performance?**”

In order for this central question to be answered, we found it necessary to ask these secondary questions to guide us in our research:

Q1: How can the BSC contribute to the improvement a warehouse performance?

Q2: How can the BSC help achieve the goals from the different levels?

After studies and researches done on the topic, and personal perceptions, we based our research on the following hypothesis which can be denied or confirmed at the end of our work:

H1: The BSC helps improve the overall performance of the warehouse by focusing on strategic objectives and providing updates on their state helping the manger make accurate and effective decisions.

H2: The BSC will ensure better consistency in achieving the objectives through the involvement of all decision-making scales.

Our research was conducted using different approaches; we used a theoretical approach in the first two chapters to explain the importance of strategy and strategic management, and to introduce the BSC and explain in details its aspects and how to use it, a descriptive approach in the third chapter to describe the different stages of building a scorecard, and an analytical approach in the fourth chapter to analyze the results generated by the model.

Then, this thesis consists of four chapters:

The first one provides a literature review about the strategy and strategic management.

The second one is also a literature review but about the BSC.

The third one describes in details the process of building a scorecard.

The fourth one is an analysis of the results generated by the model on the warehouse performance.

Chapter 1:
Fundamentals of
Strategic management

Introduction of chapter one:

Strategy is used by all people in different ages and levels, they may not give it the proper naming, but the fact to fixate a goal, make plans, organize resources to achieve it, it is called a strategy.

But for managers strategy has more profound meaning and needs more detailed process. For them building a strategy is primordial to the survival of the company.

Especially in recent times where the environment is unstable and in constant change, a company needs to have competitive advantages over its competitors to face the intense rivalry.

The process of building strategies is called strategic management. It is an approach a company undertake set direction, renew itself and, adjust its capacities to its soundings and put more emphasis on internal capabilities and market demand rather than external influence.

Strategic management makes the company consider more options, identify opportunities, size them and turn threats into challenges to overcome.

In this chapter we will be examining the different phases used in strategic management.

We will define Strategy and its levels, strategic management, its process, benefits and tools.

Section 1: Strategy

1.1.Strategy definition:

“Strategy can be defined as the determination of the basic long-term goals and objectives of the enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals—Alfred Chandler.

Competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value—Michael Porter.

Strategy is the result of choices executives make, on where to play and how to win, to maximize long-term value—Ken Favaro, Kasturi Rangan, and Evan Hirsh.”¹

Strategy is the grand plan generated from the choices made by the executives to secure competitive advantages and sustain success over a long time.

This plan integrates the major goals of the organization and defines the approaches necessary and the resources needed to achieve them.

1.2.Levels of strategy:

Strategy operates at different levels in the company:

1.2.1. Corporate level strategy:

Corporate level strategy is formulated by the top management, it answers the questions related to which business the company should pursue, which market the company should operate and the lines of products that she should produce.

It also describes the company’s overall direction, mission, vision and purpose; defines the long term goals, the policy and the resources necessary to achieve them.

Corporate strategy is clear, focused and reality based and its aim is to create value by securing competitive advantages and building synergy at all the corporate level. ²

¹ BESANKO, (D) et coll: *Economics of strategy*, WILEY edition, 7th edition, USA, 2013, p.23

1.2.2. Business level strategy:

Business level strategy is formulated by senior managers of the units, it is an action plan the company establish to describe how it will compete in a specific market segment, the approaches used, the resources, the competences needed and the ways management should address various strategic issues, all aligned with the corporate strategy.

Business level strategy helps the company focuses its effort on satisfying the target customer and creates a defensible competitive advantage in the market allowing her to gain corporate advantage and create value through performances characteristics or price. ³

1.2.3. Functional level strategy:

Is a set of decisions and actions managers make and take to attain superior competency in the company's functions in accordance with corporate and business strategies.

Functional level strategies are formulated after corporate and business strategies are established, they are implemented in each functional area of the company to achieve its own goals, enhance operation effectiveness within departments and support the business strategy. ⁴

Section 2: Strategic management

2.1. Strategic management definition:

Strategic management is a process that the company undertakes to create and sustain a competitive advantage.

This process consists of three steps: analysis, decisions and actions.

² FURRER, (O): *Corporate level strategy theory and application*, ROUTLEDGE edition, 2nd edition, London and New York, 2016, p.1-2

³ IRELAND, (R.D), HOSKISSON, (R.E) and HITT (M.A): *Understanding business level strategy concepts plus.3E*, South-Western Cengage Learning edition, USA, 2011, p.98

⁴ SENGUPTA(N), CHANDAN(J.S): *Strategic management* , VIKAS edition,1st edition, New Delhi, 2011, p.162

- Analyzing the strategic mission, vision, goals, the internal and the external environment.
- Making decisions to how to gain competitive advantages the best way possible.
- Translate the decisions into actions that sustain the competitive advantages.

According to porter sustainable advantages can be achieved either by performing different activities as compared to the rivals or by performing similar activities but in a different way. ⁵

2.2.Process:

The process of strategic management can be broken into 3 principal components:⁶

2.2.1. Formulation:

2.2.1.1. *Definition of vision, mission and goals:*

Vision: is a desired picture of the company's position in a distant future, it helps the company indicate its ultimate destination, unify forces, foster long time thinking, encourage risk taking and initiatives and build an environment full of motivation.

For a vision to work its magic, it needs to be realistic, credible, attractive, unique, appropriate, motivational and well-articulated.⁷

Mission: is the reason why the company exists and its unique and fundamental purpose.

It provides direction, clarifies aspirations, guides stakeholder relations, improves public image, and conveys the company's philosophy and goals.

The mission needs to be clear, feasible, precise, inspiring, and distinctive.⁸

Goals: are the end result that needed to be achieved, they are multiple and form a hierarchy.

They define relationships, operationalism missions, basis for decision making, motivate and provide standards for control.

⁵ Ibid, p.4

⁶ Ibid, p.8-10

⁷ GUPTA, (C.B): *Strategic management text and cases*, S.CHAND, edition, 1st th edition, Ram Nagar New Delhi, 2014, p.51

⁸ Ibid, p.55

Goals need to be specific, measurable, attainable, realistic and time bound.⁹

2.2.1.2. A strategic analysis for both the internal and external environment:

strategic analysis consists of analyzing the external environment for opportunities and threats and the internal environment for resources.

The results of this phase help the company choose the adequate strategy to be developed.

2.2.1.3. Development of strategies:

Developing long term strategies to accomplish the goals and objectives established by the company.

The strategy is formulated at 4 levels: corporate, business, operational or functional and international.

2.2.2. Implementation:

Strategy implementation is putting the company's various strategies into action to reach the fixed goals and objectives.

For the strategy to be implemented effectively and successfully, it needs the full support of each member of the company, alongside with the proper coordination of efforts, the integration of the company's internal activities and the interaction with the external environment.

Coordination is the responsibility of leaders who work on multiple fronts to ensure that the structural design is consistent with the company's strategy, and most importantly to build a learning culture that copes with the constant changing environment.

2.2.3. Evaluation:

Strategy evaluation is the process of monitoring its implementation, judging its performance and evaluating its outcome.

For the strategy to be carried out successful and reach the desired results a control mechanism should be established, the later will help the company analyze and evaluate the feedback from each step of implementation, identify, analyze and investigate any occurred deviation and take the proper measures to correct them.

⁹ Ibid, p.64

Section 3: Strategic planning:

3.1.Strategic planning definition:

Strategic planning is an approach used by the company to focus its effort on establishing the company's purpose, mission, objectives, policies and strategies, and in developing detailed plans as how to implement and achieve them.

Strategic planning also helps the company identify the opportunities that should be sized, the threats that have to be dealt with, the results and the consequences of decisions made and the possible alternatives.¹⁰

3.2.Importance and benefits of strategic management:

- Strategic management provides the company with clear goals and direction, and guides its effort and resources toward achieving them.
- Strategic management helps the company to be more aware of external threats, have better understanding of their competitors' strategy and build a culture that does not resist change.
- Strategic management allows the company to be more proactive in their planning of the future by taking into consideration the different variables that change value due to constant change of environment and make provision to cope with these changing situations.
- Strategic management helps the company build a morals and motivation among employees as they have a clear vision on what they need to achieve.
- Strategic management allows the company to execute its strategy at different levels which lead to accurate results and better communication between departments.¹¹

¹⁰ STEINER (G.A): *Strategic planning what every manager must know* , THE FREE PRESS edition, USA, 1979, p.13

¹¹ GUPTA, (C.B): Op.cit. p.68-70.

3.3.Strategic management tools and approaches:

A variety of analytical tools and approaches are used during strategic management process, different tools are used in different steps, and in this section we will be reviewing few of them:

3.3.1. The Balanced scorecard:

BSC is a performance management tool that helps the company link its long term goals to its daily activities and gives a comprehensive view of the strategies used by the company from multiple key performance indicators that measure the company's aim.

BSC guides the company in realizing its goals through four perspectives:

- **Financial perspective:** what are the expectations of our stakeholders?
- **People perspective:** including customers, partners, and shareholders. To achieve their objectives, how must the business be perceived?
- **Internal business processes:** what business process must we put in place in order to satisfy our people's needs and meet financial goals?
- **Learning and growth perspective:** how must the company learn and improve in order to achieve its vision?¹²

3.3.2. Critical success factors:

CSFs were defined by Rockart (1979, p.85) as "The limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization. They are the few key areas where things must go right for the business to flourish. If results in

¹² SANNA, (A), QUATREBARBES, (A): *The balanced scorecard*, translated by PROBERT,(C), 50 minutes edition, 978-2-8062-6937-9, 2016, p.5

these areas are not adequate, the organization's efforts for the period will be less than desired."

13

Rockart identified 4 main areas that a company must consider when choosing its CSFs:

- **Industry characteristics:** the nature of the industry makes up its own CSFs, and they vary from industry to industry, these factors are the things that a company must do to gain competitive advantages over its rivals. E.g.: in a tech industry, innovation is CSF.
- **Strategy factors:** the CSFs of this area result from the company competitive strategy and its position in the market.
- **Environment:** from different environmental factors like: population growth, economic position, government regulation...etc. the company must choose the ones that have the most influence on its development as its CSFs.
- **Temporal factors:** they result from the company internal change and development like short term situations or crises. E.g. the death of a chief executive requires a critical success factor of choosing his replacement.¹⁴

3.3.3. PESTEL:

PESTEL is a tool used for analyzing the external environment of a company, it was given the acronym PESTLE in reference to the six categories of macroeconomic variables: Political (conflict, political instability, war, corruption, the level of government intervention...etc.) , Economic (business cycle, growth rate, interest rate, inflation, taxation, unemployment...etc.) , Socio-cultural (demographic, history, religion, distribution of income, age distribution, health, education...etc.), Technological (innovation, investment in R&D, energy cost, new scientific discoveries, technical cycle...etc.), Environmental (environmental standards, renewable energy, climate change, awareness transport impact, recycling incentives...etc.). and Legal (country legislation, jurisdiction, tax, social security, legal security, regulation...etc.) and

¹³ https://www.mindtools.com/pages/article/newLDR_80.htm, accessed on 20 Mars 2022, at 11:00

¹⁴ GUPTA (C.B): Op.cit, p 70-71

The model primary aim is to help the company identify unavoidable macroeconomic changes that may have a significant impact on its development.¹⁵

3.3.4. SWOT:

The acronym SWOT stands for Strengths, Weaknesses, Opportunities and Threats, it is a multidimensional tool used for strategic analysis.

This tool is used to identify the company's internal factors (Strengths, Weaknesses) and the external factors related to the environment (Opportunities and Threats).

It also guides the managers in decision making and facilitates the development of strategic plans.¹⁶

3.3.5. Porter's 5 forces:

Porter's 5 forces is a crucial tool used to understand the competitive structure of an industry.

It enables the company to understand the industry and the nature of relations between the various participants in the market in which the company operates, evaluate how changes within an industry can affect its profitability, identify the performance and influence factors of the sector, and also help to understand how it can reduce its ability to generate profit.

The company must examine 5 forces:

1. Customer bargaining power.
2. Supplier bargaining power.
3. The threats of substitute products.
4. The threat of new entrants.
5. Intra industry competition.¹⁷

¹⁵ MARMOL, (T), FREYS,(B): *PESTLE Analysis* ,translated by PROBERT,(C), 50 minutes edition, 978-2-8062-7067-2, 2016, p.6

¹⁶ SPETH, (C): *The SWOT Analysis*, translated by PROBERT, (C), 50 minutes edition, 978-2-8062-6932-4, 2016, p.4

¹⁷ MICHAUX, (S),CADIAT,(A.C): *PORTER's five forces* ,translated by PROBERT,(C), 50 minutes edition, 978-2-8062-7062-7, 2016, p.5

3.3.6. Value chain:

“A value chain is a series of actions which are carried out in order to deliver a valuable product or service to the market.

Any company, association or organization that creates value and wants to improve its competitiveness can use the value chain to achieve its goals. The model allows businesses to analyze each of their activities in order to improve each step as much as possible, in this way maximizing their competitive advantage.

The value chain is a valuable tool in strategic management, as it works on the positioning of a product or service on the market.

The value chain has three main objectives:

- Improve services.
- Reduce costs.
- Create value.”¹⁸

Conclusion of chapter one:

In this chapter, we got to have a better understanding of the term strategy and how it is implemented through the different levels of a company.

We also learned the concept of strategic management, why it is used and how it should be executed to help the company gain competitive advantages over its competitors, its benefits and the different tools used by it.

In the next chapter, we will be explaining in details a tool that was briefly introduced in this chapter, which is the balanced scorecard.

¹⁸ ROBBEN, (X),QUATREBARBES,(A): *MICHAEL PORTER'S value chain* ,translated by PROBERT,(C), 50 minutes edition, 978-2-8062-7006-1, 2016, p.10

**Chapter 2: The
Balanced Scorecard
Theoretical Framework**

Introduction of chapter two:

Every day we read and hear about companies' news, they either good talking about their success or bad talking about their failure and it makes us wonder what makes these big companies so successful?. What differentiate them from other?

The answer lies in their clear vision, strategy and how they implement it.

Implementing a strategy is considered the most difficult task for any company, most of them fail to harness its power and thus lose opportunities to their rivals.

Robert Kaplan and David Norton came up an approach to overcome the challenge of implementing a strategy, which is the BSC.

The Balanced Scorecard is ideally created through a shared understanding and translation of the company's strategy into objectives, measures, targets, and initiatives in each of the four Scorecard perspectives, leading the company towards its vision.

In this chapter, we will introduce in details the balance scorecard, starting by historical facts, what inspired this approach to be created, its definition, how to implement it and finish by the advantages and disadvantages of the BSC.

Section 1: the BSC Basic Concepts

1.1.BSC history:

The BSC was invented by Robert Kaplan and David Norton, it was introduced in a 1992 Harvard business review article 'The BSC- measures that drive performance'.

The article was based on research project conducted by Norton's consulting firm which studies performances measurement in companies whose value creation was highly dependent on intangible assets.

Kaplan and Norton main idea was: if the company were to drive the maximum value from its intangible assets, these latter needs to be added to the measurement system, but the problem was: even if the companies collect data on intangible assets, quality and efficiency along with financial metrics, they had difficulty linking these different measurements together into one entity, and here comes the innovation of Kaplan and Norton.

Kaplan and Norton gave a solution that gets implemented in two steps:

1. They codified the collection of metrics calling it the BSC and created the four perspectives framework: financial, customer, internal processes and learning and growth.
2. The measurements needed to populate each perspective are not random but are driven from the company's strategy.

This seemingly simple yet innovative pronouncement was the break through that gave the BSC huge success.

Now the BSC is the world's most popular management framework.

1.2.BSC inspiration:

As time changed, competition became fiercer than before, success became more difficult to achieve, and only hard work without proper measurement tool, will not add to the company's value.

There are 3 fundamental factors that affect every company:

- Reliance on financial measures of performance to gauge success,
- The rise of value-creating intangible assets,
- The difficulty of executing strategy.

While separate and distinct factors, the trio is bound together by the inspiring ability of the BSC to overcome and maximize them to their fullest potential.

1.2.1. Reliance on financial measures of performance to gauge success:

As long as business organization have existed, the only method of measurement have been financial, but relying on only these metrics did not give the company an overall view of its capacity and problems, as the value creating activities are not captured in the tangible assets but in the ideas of the people within the company.

The main limits of financial metrics are that they can only provide a review of past performance and cannot predict the future, and their primary focus is on short term targets.

Financial measurement is essential to the company as it help in decision making, but alone is not enough, it need to be combined with other metrics to capture the company full capacity.²

¹ NIVEN,(P.R), *Balanced scorecard step by step*, WILEY edition, second edition, USA, 2006, p.17-19

² Ibid, p.20-23.

1.2.2. The rise of value-creating intangible assets:

In the past, companies put a lot of emphasis on physical assets, as machines helped them accomplish more work than the work force, and employees were only an extra that guide the machines to do all the work, they were exploited and given little value if not value at all.

But in this new economy era, creating value resides in people.

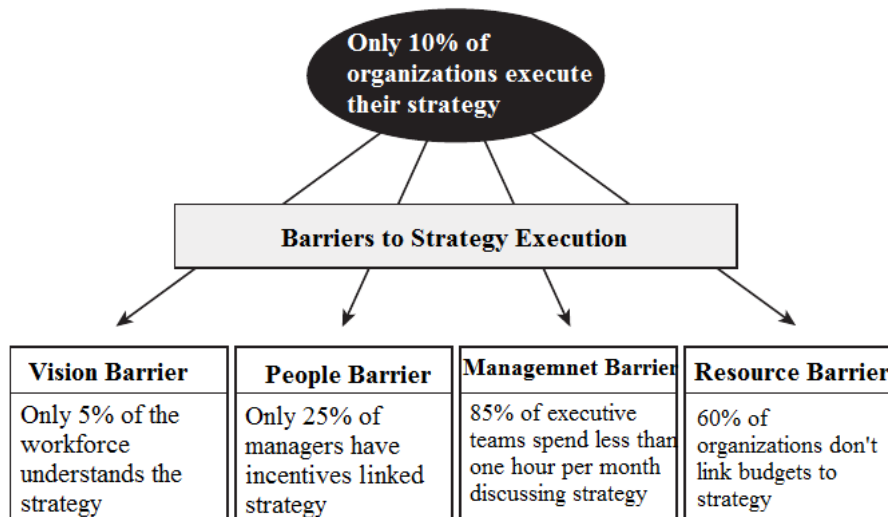
For a company to secure its position in the market and advance to different levels, it needs to build a culture capable of innovation and quality, and only humans are capable of achieving that.³

1.2.3. The difficulty of executing strategy:

Scorecard architects Robert S. Kaplan and David P. Norton believe the difficulty of executing a strategy lies in four barriers that must be surmounted before any strategy can be effectively executed, the figure below summarizes the barriers, and each one will be explained in details.

³ Ibid, p.23-24.

Figure 2-1: Barriers to Implementing Strategy



Source: NIVEN,(P.R), Balanced scorecard step by step, WILEY edition, second edition, USA, 2006, p.28

- ✓ **Vision barrier:** the vast majority of employees do not understand their company's vision. This was not a problem when creating value was driven from efficient use of physical assets.
But in this knowledge age where value is created by the intangible assets, it is a big problem.
If the most important asset of the company do not understand the company's vision and cannot act on it, how can they be expected to make effective decisions and lead the company into achieving its goals?
- ✓ **People barrier:** there is a practice that all the companies use, which is linking incentive compensation to short term financial targets, causing the limitation of their employees focus and hindering their capabilities of making greater achievements.

The company should develop incentive plans that align with the company overall strategy and not limit them to short term financial targets.

- ✓ **Resources barrier:** many companies do not link budgets to strategy; they have separate process for budgeting and for strategic planning.

The problem with this approach is that human and financial resources are tied to short term financial targets and not long term strategy.

- ✓ **Management barrier:** the nature of most management meetings drive of employees and kill the spirit of motivation within them, as they are considered boring, dull and undoubtedly inaccurate, it is a huge lost opportunity .

The management meetings should be a place to discuss strategy, stimulate debates and discussions on the factors that drive the company forward.

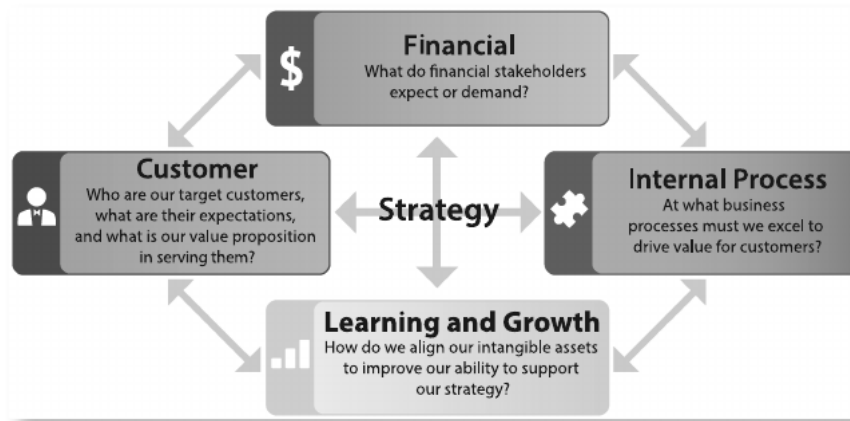
the 3 factors mentioned above are every company obstacles to success, but at the same time they are opportunities if used correctly, will help the company build a measurement system that combine the accuracy of financial metrics, harness the power of intangible assets along with implementing the company's strategy effectively, and the BSC is the tool that answer this triad of challenges.⁴

1.3.The BSC definition:

The BSC is a performance management tool that helps the company link its long term goals to its daily activities and gives a comprehensive view of the strategies used by the company from multiple key performance indicators that measure the company's aim.

⁴ Ibid, p.28-30.

Figure 2-2: The balanced scorecard perspectives



Source: NIVEN,(P.R), Balanced scorecard Evolution, WILEY edition, first edition, USA, 2014, p.24

BSC guides the company in realizing its goals through four perspectives:

- **Financial perspective:** what are the expectations of our stakeholders?
- **People perspective:** including customers, partners, and shareholders. To achieve their objectives, how must the business be perceived?
- **Internal business processes:** what business process must we put in place in order to satisfy our people's needs and meet financial goals?
- **Learning and growth perspective:** how must the company learn and improve in order to achieve its vision?⁵

⁵ SANNA, (A), QUATREBARBES, (A): *The balanced scorecard*, translated by PROBERT,(C), 50 minutes edition, 978-2-8062-6937-9, 2016, p.5

2.1.1. Mission, values, vision and strategy:

2.1.1.1. Mission:

Mission statement defines the core purpose of the company, its raison d'être and why it exists, it is a compass that guides it forward.

Building mission statement is a process that should involve not only the CEO of the company but high level thinking executive to consider the spectrum of alternatives facing the company, and reviewed by employees at every level to guide them towards the existing future and capture their heart and mind.

The most effective method to build a mission statement is the 5 whys developed by Collins and Porras, it should be started with a descriptive statement " we make product X or deliver service Y", then ask "why is this important?" five times, and with each answer the true mission becomes more clear. ⁶

Why mission statement important to BSC?

BSC is a tool designed to offer faithful translation, it decodes the company's mission, values, vision and strategy into performance objectives and measures in each of the 4 perspectives.

The mission is the start point of translating efforts.

Translating mission with BSC ensures that all employees are aligned with and work towards the mission.

Mission statement is needed to guide the development of objectives on strategy map and performances measurements.⁷

2.1.1.2. Values:

"Values are the timeless principles that guide an organization. They represent the deeply held beliefs within the organization and are

⁶ NIVEN, (P.R),Op.cit, p.91.

⁷ Ibid , p.93

demonstrated through the day-to-day behaviors of all employees. An organization's values make an open proclamation about how it expects everyone to behave.”⁸

Values are created to help the company achieve the desired results, and guide it as it reacts to the world around it.

A company must have ethical values that can be relied on in guiding business decisions.

BSC and values:

BSC is the best solution to broadcast values, review them; and create alignment from top to bottom.

BSC make employees see how day to day actions are consistent with the company's value and how living those values contribute to overall success.

Measures must be aligned with the values of the company to ensure that everyone is headed to the same direction.

BSC helps track down to which extant values are being held by employees.⁹

2.1.1.3. Vision:

Vision is the desired future that the company wants to make into a reality; it is created based on the company's mission and values.

Vision statement must be concrete, pictures the image wanted to be received by stakeholders, displays distinctive competence and strongly held values, and also needs to provide the basis for formulating strategies and objective.

Vision is primordial to the success of any company because it sets direction for a change and motivates employees to take actions towards

⁸ Ibid, p.95

⁹ Ibid, p.99

that direction; it also guides the coordination of different departments in a fast and efficient way.¹⁰

Vision Statements and the Balanced Scorecard:

- The BSC helps track the achievement of the vision's goal which is balancing the interests of stakeholders and portraying a future that will lead to wins for everyone involved.
- The BSC provides measurements that capture the correct balance of skills, processes, and customer needs that lead to the desired future.
- The BSC translates vision into reality through the articulation of vision and strategy.¹¹

2.1.1.4. Strategy:

Strategy is about the choice of activities a company must make to have the opportunity to create unique value propositions for its customers and thus separate itself from competitors.

There is one fundamental issue that most of businesses suffer from when implementing their strategy which is: HOW to translate the strategy into terms that everyone understands and thereby bringing focus to their day-to-day actions.

Strategy and BSC:

- The BSC provides the framework for a company to move from deciding to live its strategy to doing it.
- The BSC drive the strategy by linking measures through the four perspectives.

¹⁰ Ibid, p.100

¹¹ Ibid, p.106

- The BSC provides the means to describe and articulate the activities separating the company from its competitors.¹²

2.1.2. Build a strategy map:

Strategy map is a graphical representation of the 4 perspectives and what a company must do in the form of objectives linked together by arrows to depict patterns of cause and effect to execute its strategy successfully.

Strategy map is considered the most powerful aspect of the scorecard because of its ability to communicate strategy clearly and succinctly to all stakeholders.

It also helps the company to act rapidly when their strategy is facing setbacks, as it shows in the state of the indicators.¹³

2.1.2.1. Developing strategy map:

Two steps are needed to develop a strategy map, first the company needs to identify the perspectives and then choose objectives for each one.

2.1.2.1.1. Identify perspectives:

As previously noted, there were 4 perspectives in the original model of Kaplan & Norton: the financial, customer, internal process and learning and growth perspectives. However, companies can choose from the existing ones or add another perspective if they see it is needed to tell the story of their strategy and help them gain competitive advantages.¹⁴

¹² NIVEN,(P.R), *The balanced scorecard Step by step*, Op.cit, p.108

¹³ Ibid, p.115

¹⁴ Ibid p.115-120

2.1.2.1.2. *Choose objectives for each perspective:*

Performance objectives are concise statements that describe the specific areas the company must perform well at in order to implement its strategy successfully. In the upcoming paragraphs we will be explaining how to develop objectives for each perspective.

❖ **Developing objectives for financial perspective:**

as mentioned before, companies only reliance on financial measurements of performance hindered them from achieving success, but that does not mean that financial measuring should be neglected, despite their apparent shortcomings, a well-constructed Strategy Maps and Balanced Scorecards are not complete without financial objectives and measures of performance.

With countless business around the world and different business models, the common thread they share is the knowledge that the two critical levers of success are: the ability to sell more and spend less. And the ones who can balance the two, will secure competitive advantages over their rivals.

So, when developing objectives for the financial perspective of the strategy map, revenue growth and productivity, should be both pursued in an effort to ultimately drive greater value for shareholders.

1. Revenue growth: is accomplished by either selling entirely new products and services to the market or by deepening relationships with existing customers, thereby enhancing the value offered and generating additional profitability.

Example: sell new products or services to the market, deepen relationships with current customers.

2. Enhancing productivity is achieved by using a two pronged approach: reducing current costs, and improving asset utilization. For example, utilizing techniques such as just-in-time provides companies the opportunity to support greater sales with less inventory

Example: reduce costs, improve asset utilization.

An appropriate balance should be established between revenue growth and productivity objectives in order to drive shareholder value.¹⁵

❖ **Developing objectives for customer perspective:**

When developing objectives for the Customer perspective of the Strategy Map, two questions must be answered:

Who are our target customers? And what is our value proposition in serving them?

1. Who are our target customers?

The answer to this question is to determine which groups constitute the best market for the company's particular offerings, in light of its strategy.

And the objectives of the Strategy Map should be focused on that subset of customers.

2. What is our value proposition in serving our target customers?

The customer value proposition describes how a company will differentiate itself and, consequently, what markets it will serve.

To develop a customer value proposition, many organizations will choose one of three "disciplines" articulated by Treacy and Wiersema in "The Discipline of Market Leaders":

- ❖ Operational excellence: this discipline focus on low price, convenience, and often "no frills." E.g. offering or providing only the essentials : not fancy, elaborate, or luxurious

Example: minimize stock outs, eliminate service errors.

- ❖ Product leadership: this discipline focus on developing a company's products. They focus on creating an endless flow of innovative products that offer customers unmatched functionality.

Example: build brand awareness; provide the best product in the market.

- ❖ Customer intimacy: this discipline focus on long-term relationship building through their deep knowledge of customer needs.¹⁶

¹⁵ Ibid, p.130-131

Example: maximize customers loyalty, increase training on key products offered.

- **Developing objectives for internal process perspective:**

Internal process perspective focuses on the means to fulfill the company's value proposition displays in customer perspective, and ultimately achieve the lofty objectives set forth in the financial perspective.

The company needs to limit itself to the processes that are vital to its strategy success, the ones that are critical in driving value for customers and allow it to reach the desired financial results.

In their extensive research on the topic, Kaplan and Norton have identified four clusters of processes that are applicable to virtually any business venture: Operations Management processes, Customer Management processes, Innovation processes, and Regulatory and Social Processes.

Operations Management processes: Are the day-to-day routine processes necessary to produce and deliver a product or service to the market.

This cluster include: sourcing, manufacturing or production of the product or service, distribution and risk management. Therefore, we may expect to see objectives sourcing- or purchasing-related, and other objectives like "Increase throughput," "Maximize yield," "Attract channel partners "and" Minimize risk" appearing on the Internal Process perspective of the Strategy Map.

Example: optimize supply chain, align resources with strategic goals.

Customer Management processes:

Thanks to the flood of innovations the emerging of the Internet, the balance of power has swung dramatically from supplier to customers, which is why customer management processes became a must for any company to keep up with its rivals.

This cluster has two phases, first: acquiring the target customer group through the communication of the company's value proposition to them, understanding

¹⁶ Ibid, p.132-133

their requirements and pitching the perfect solution, and second: retaining clients and deepening the relationship with them.¹⁷

Example: understand customers' needs, strength the sales process.

Innovation processes:

The innovation process describes the path of translating new and/or existing knowledge into marketable solutions; it gets implemented through four sub processes:

- ❖ Identifying opportunities within the company, inside and outside the industry.
- ❖ Determining the type of funding the company needs (fund internally, work with joint ventures, or outsource entirely)
- ❖ Developing the product or service, which may be marked with objectives relating to time, quality, yield, and acceptance
- ❖ Delivering the product or service, which will often result in objectives regarding distribution channel options and effectiveness.¹⁸

Example: develop innovative market leading solutions, lower product development cycle time.

Regulatory and Social Processes:

Are the processes needed to maintain positive relationships with regulators and other governmental officials, and adhere to a number of environmental regulations.¹⁹

Example: ensure full compliance with regulations, build lasting community partnerships.

- **Developing objectives for learning and growth perspective**

In today's organization, employees are the primary assets that create value, and the challenge for every company is to align their human capital with the

¹⁷ NIVEN,(P.R), *the balanced scorecard Step by step*, Op.cit, p.137.139.

¹⁸ NIVEN,(P.R), *the balanced scorecard evolution*, Op.cit, p.207-208

¹⁹ Ibid, p.209

execution of their strategy, that is why concise objectives needs to be developed for this perspective to move the company forward.

There are 3 areas that compromise the objectives setting for this perspective:

1. Human capital: any company can't improve and progress with unimproved employees.

And it is impossible to execution any strategy, without the right people, armed with the skills and knowledge required to make decisions and allocate resources in alignment with the company's chosen direction.

That is why it is essential to recruit the right people, train skillful employees and engage the team on the tasks that produce desired result.²⁰

Example: retain high quality performers, align training with strategy.

2. Informational capital:

Given the great influence of technology in nowadays society, developing information capital objectives when forming the Learning and Growth perspective is a must for any company.

First it needs have the physical tools (mainframes, etc.) necessary to deliver information to users, and then gather stored information, sharing it widely, and having employees harness it in their day-to-day actions.²¹

Example: transfer information into a competitive advantage, optimize information management through information technology.

3. Organizational capital:

Organizational capital objectives aim is to exploit the infinite resources of human strength and capture both the hearts and minds of the employees, in an effort to make sustainable growth and prosperity a literal reality.

There are two elements that must be considered when drafting the objectives: culture and alignment.

²⁰ NIVEN,(P.R), *the balanced scorecard Step by step*, Op.cit, p.144-147

²¹ Ibid, p.147

“Culture is a pattern of beliefs and expectations shared by an organization’s members. These beliefs and expectations produce norms that can powerfully shape how people and groups behave”, a culture that aligns with strategy is considered a source of competitive advantages for accompany.

Employee actions must be aligned with mission, values, vision, and, most important, strategy, and only through proper understanding will actions be effective.²²

Example: build high performing disciplined teams, clearly communicate expectations and achievements.

2.1.3. Creating performances measurements:

Performance measures are quantifiable standards used to evaluate and communicate performance against expected results; they determine whether we are meeting our objectives and moving toward the successful implementation of the company’s strategy.

The number of measurements varies from company to company; there is not a specific number that needs to be respected, as long as it tells the story of the company’s strategy, that number is enough.

There are two types of measurements: lagging measurements and leading measurements.²³

²² Ibid, p.148

²³ Ibid, p.161-162

2.1.3.1. Lagging and Leading Measures of Performance:

Leading and lagging indicators are metrics that help the company's leaders understand business conditions and trends by informing them of the areas they need to track in order to meet their company's goals and objectives.

The key distinction between the two is that lagging indicators tells about past performance, are easy to capture, and impossible to change, they represent the consequences of actions previously taken, in the other hand leading indicators helps predict future success by measuring actions that generate desired result achieved in the lagging indicators, they are easy to influence but harder to capture.²⁴

2.1.3.2. Measure Characteristics:

Performances measurements need to be defined in many aspects:

- ❖ **Lag/Lead:** Outline whether the measure is a core outcome indicator or a performance driver.
- ❖ **Frequency:** How often does the measure needs to be reported to evaluate performance?
- ❖ **Unit Type:** identify how the measure will be expressed (numbers, dollars, and percentages...etc.)
- ❖ **Polarity:** answer the question whether high values reflect good or bad performance and assess the performance of a measure with the right value.²⁵

This matrix will have few commonly used performances measurements.

²⁴ <https://www.bmc.com/blogs/leading-vs-lagging-indicators/#:~:text=If%20a%20leading%20indicator%20informs,measure%20but%20hard%20to%20change.>, accessed on 06/04/2022 at 14:20

²⁵ NIVEN,(P.R), *the balanced scorecard Step by step*, Op.cit, p.187-188

Table 2-1 : Performances measurements

Financial measurements	Customer Measures	Internal Process Measures	Learning and Growth Measures
Total assets/employee	Customer satisfaction	On-time delivery	Absenteeism
Return on net assets	Customer complaints	Average cost per transaction	Turnover rate
Net income	Customers lost	Cycle time improvement	Value added per employee
Return on investment (ROI)	Customer service expense per customer	Space utilization	Employee productivity
Economic value added (EVA)	Response rate	Defect percentage	Training hours
Inventory turnover ratio	Brand recognition	Response time to customer requests	Reportable accidents

Source: adapted from NIVEN,(P.R), Balanced scorecard Evolution, WILEY edition, first edition, USA, 2014.

2.1.4. Initiatives and targets:

We reached the final pieces required to create a Balanced Scorecard which is setting targets and prioritizing initiatives.

2.1.4.1. Setting targets:

A target is defined as a company's desired future level of performance. It works as inspiration and motivation to breakthrough performance; it helps the company evaluate its effort and get meaningful feedback.

It also frames the company's focus on the problems that stands in the way of meeting and even exceeding its targets.

There are 3 types of targets:

- 1) Long-term Targets: are targets that act as compelling mechanisms used to guide organizations toward tremendous breakthroughs; they take between 10 to 30 years to accomplish.
- 2) Stretch targets: are targets that promote discontinuous operations but on a short time frame, normally 3 to 5 years.
- 3) Incremental targets: are the targets if achieved, will lead to the fulfillment of stretch targets, usually they are annual.²⁶

2.1.4.2. Prioritizing initiatives:

The last step in building a Balanced Scorecard is the development and prioritization of initiatives.

Initiatives are the specific programs, activities, projects, or actions a company will embark onto to make sure that its performances targets are met.

Initiatives vary in nature that is why probably each one will be sponsored by a different manager or executive and executed within dependent human and financial resources to pilot their influence on the different disciplines and processes.

Initiatives main purpose is to drive local improvements in the area it is focused on improving, and lead to the fulfillment of the company's strategy; that is why only strategic ones must be kept, ranked given the company's unique priorities, in order to make resource allocation decisions.²⁷

²⁶ Ibid, p. 198-201

²⁷ Ibid, p. 205-207

2.2. Advantages and disadvantages of BSC

2.2.1. Advantages:

- It Provides a Visual Picture of Strategy through one page strategy map.
- It Works as a Base for the Discussion.
- It Works on Three Levels of Abstraction making it easier for the company to reach its goals, first it defines the strategy attributes (mission, vision and values), second it formulate and describes the strategy (objectives, strategy map, KPI...etc.) and finally execute the strategy.
- The BSC framework simplifies data collection, as the data scientists know what data the company needs and the reasons behind.
- The top-level strategy can be cascaded to the lower levels. The departments and business units can have their own strategy scorecards aligned with overall strategy.²⁸

2.2.2. Disadvantages:

1. The BSC framework focuses extensively on the internal factors but misses the external environment.
2. Lack of Risk Analysis.
3. Expensive and Time Consuming²⁹

²⁸ <https://bscdesigner.com/bsc-framework-advantages.htm> ,accessed on 04/04/2022 at 15:12

²⁹ <https://greengarageblog.org/6-pros-and-cons-of-balanced-scorecard>, accessed on 04/04/2022 at 15:12

Conclusion of chapter 2:

Securing competitive advantages is the key to success for any company, and the BSC is a tool that can help achieved.

In this chapter we got to know profoundly this tool, and we learned the basics needed for building any scorecard.

In the next chapter we will be building a scorecard for millennium medic's warehouse using the knowledge introduced in this chapter.

**Chapter 3: Building a
Balanced Scorecard for
Millennium Medic's
Warehouse**

Introduction of chapter three:

The ultimate goal for any company is to gain competitive advantages over its competitors and secure its place in the market, distributor of pharmaceutical products are no exception, but considering the sensitivity of the industry and the break of the pandemic, the task became more challenging than ever.

Having an efficient warehousing system that executes the company strategy is the key to having that competitive advantage.

In this chapter we will propose a BSC that aligns the company's strategy with its objectives to help measure the performance of the warehousing system.

First, we will introduce the company, its mission, vision, values and objectives, then we will have an insight on their supply chain, after; we will build a BSC tailored to the company's warehouse, and end the chapter with a strategy map and a conclusion.

Section 1: The Company's profile:

1.1. Millennium medic:

Millennium medic is a distributor company with limited liability; it was founded in 2002 by its CEO Mr. KHATTAB TAOUFIK, it specializes in distributing pharmaceutical and parapharmaceutical products.

Millennium medic is responsible for distributing 1400 medicinal products; they deal with originator medicinal products, genetic medicinal products and food supplements.

They deliver to different regions: Annaba, El Tarf, Souk-Ahras... etc. but their primary region is Annaba. They were certified ISO 9001 in early 2022 by SGS.

1.2. Millennium medic vision:

To be one of the top 20 distributors in Algeria.

1.3. Millennium medic mission:

Provide our clients with compliant products and high quality service.

1.4. Millennium medic values:

- High quality service.
- Commitment.
- Integrity.
- Work ethic.
- Passion.

1.5. Millennium medic objectives:

- Compliance with national regulations and the practices of storage and distribution.
- Satisfy regional market's demand.
- Ensure continuous improvement in all aspects of the company.
- Build a culture flexible to change.
- Make good use of our intangible assets.
- No lost sales.

1.6. The company's strategic choices:

- Inventory: keep large inventory for all products.
- Shipping: have multiple lines of delivery.

1.7. Millennium medic's supply chain:

We will start the explanation of the company's supply chain from decisions made by the CEO until the process of delivering orders in the warehouse, while explaining the tasks of each department.

1.7.1. Headquarters:

1.7.1.1. The CEO:

The CEO is the one who makes strategic decisions; he is the one responsible for fixing financial objective taking into account the contracts with his partners.

For example : with laboratory X, if the company spends 1000000 DA before the end of the year, it will be accorded a 7% discount , and if it spends the amount in just 6 months, it will be accorded a 8% discount.

The amount of purchasing will be divided among the commercial agents.

1.7.1.2. Commercial department:

Each commercial agent has an amount of sales that he needs to achieve to reach the financial objective fixed by the CEO.

They are responsible for many tasks:

- They communicate to the clients the medicinal products release list and the special offers sent by suppliers.
- Take orders, and ensure that the orders arrive at the right time to the right customer.

- Exchange information with supply department concerning products with high demand,
- Manage the relationship with their clients (prospect new clients, handle customers' complains ...etc.).

1.7.1.3. Supply department:

Purchasing agents are the heart of this department; they are responsible for many tasks:

- They monitor the inventory of each product, and make orders when the amount decline, keeping two months' worth of inventory.
- Communicate information sent by suppliers to the commercial department like: the medicinal products release list and the special offers, for example a discount on specific products...etc.
- Coordinate the reception of products ordered with the inventory manager.
- Handle the return of expired products.
- Manage the relationship with their suppliers.

1.7.1.4. Finance and accounting department:

The F&A department is responsible for:

- Paying suppliers.
- Oversee debt collection from clients.
- Payroll management and all the financial structure of the company.

1.7.1.5. Information technology department:

The IT department is responsible for:

- Ensuring the proper functioning of the information system.
- Managing internal requests (employees' needs).

1.7.1.6. Human resources department:

The HR department is responsible for:

- Establishing and implementing recruitment plans.
- Establishing and implementing training plans.
- Ensuring staff awareness is achieved.
- Skills management.
- Monitoring contracts and social declarations (CNAS).
- Oversee staff satisfaction.

1.7.1.7. Quality manager:

The quality manager is responsible for:

- Ensuring the sustainability of the QMS.
- Monitoring the satisfaction of the clients and interested parties.
- Managing risks and opportunities.

1.7.2. Warehouse:

In the warehouse there is:

1.7.2.1. Technical director:

The TD is responsible for:

- Validating the reception of medicinal products especially psychotropic ones.
- Inspecting and controlling storage areas.
- Ensuring regulatory compliance with the management of expired medicinal products.
- Managing psychotropic medicinal products.
- Representing the company to the authorities.

1.7.2.2. Health & Safety manager:

The H&S manager is responsible for:

- Ensuring the implementation of occupational health and safety measures to prevent accidents.
- Improving the work environment.

1.7.2.3. Inventory manger:

He is responsible for:

- Managing orders.
- Arranging inventory in the warehouse.
- Optimizing warehouse processes.
- Receiving and validating shipments.
- Managing return products.
- Evaluating the team performance.

1.7.2.4. Expedition manager:

He is responsible for:

- Delivering orders to clients.
- Maintaining transportation equipment.

Two important processes unfold in the warehouse, which are:

1. Take in shipments:

When shipments are delivered, the inventory manager and the technical director receive and examine them, to make sure they are consistent in quantity and quality, after, they will be sorted and stored in their rightful place.

In case of a damaged or missed product, a report will be made and depending on the result of this report, the product will be either returned to the supplier or stay at the warehouse.

2. Take in orders:

When orders are sent from commercial department, the inventory manager takes them and assigns them to pickers.

Orders from ANNABA are prepared first because they have a schedule of deliveries, and orders from other regions will be delivered the next morning. The inventory manager is the one responsible for managing orders preparation.

When orders are prepared, they are examined, packed then delivered.

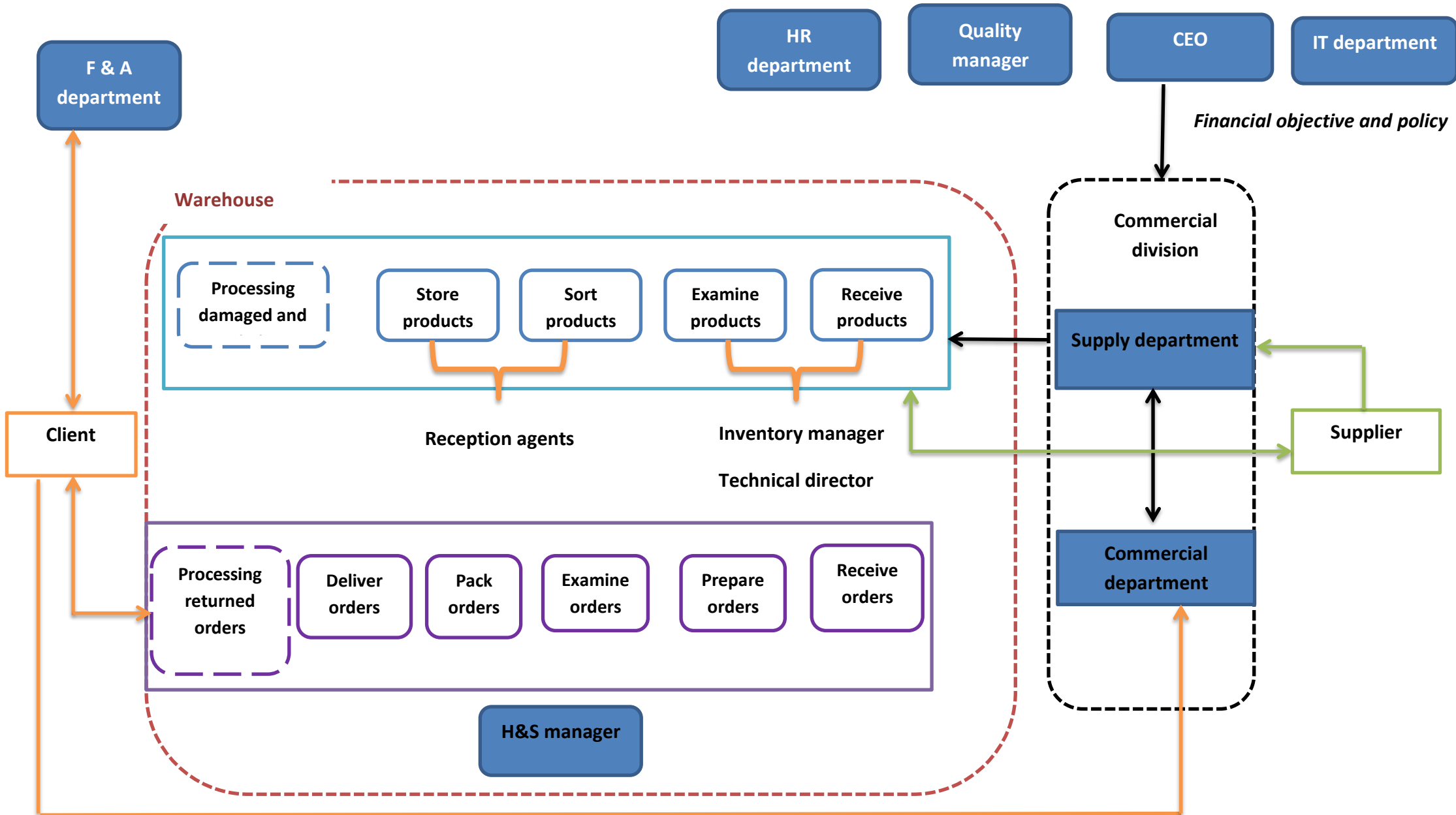
If orders are returned for any reason, a credit note is issued and the products are returned to their rightful place.

The execution of each step of the processes is supervised by the H&S manager.

Millennium medic's supply chain will be summarized in the following figure:

Figure 3-1 : Millennium medic's supply chain

Chapter 3: Building a Balanced Scorecard for Millennium Medic's Warehouse



Section 2: The proposed scorecard:

The BSC is a tool that conveys the company's vision, mission, values, goals and strategy.

The vision, mission, values, and goals we explained in the beginning of this chapter, but the missing part is the company's strategy.

The company does not have a strategy therefore hindering the quality of any scorecard constructed.

Thus, we followed the approach proposed in the book "The balanced scorecard evolution" written by Paul R. Niven, to co create a strategy and develop a scorecard simultaneously by answering specific questions related to each of the four scorecard perspectives, the company's implicit strategy will emerge and be translated by the objectives, measures, and strategic initiatives present in the BSC.

2.1.Co creating strategy and BSC:

For each perspective we will be asking questions, and with every response appropriate objectives, measures, and strategic initiatives if necessary will be chosen to populate the different dimensions of the BSC.

2.1.1. The financial perspective:

For the financial perspective the questions that must be answered are:

1. Who are our stakeholders?
2. What will be the outcome of implementing the strategy on our stakeholders?

The stakeholders of our BSC are: the CEO, the employees and the clients.

But only the CEO is concerned by the financial perspective, by implementing the strategy the warehouse running cost will be optimized and profit are gained.

So the objective of or financial perspective will be: **optimizing the warehouse's running costs.**

To be able to measure the degree of optimization of running cost, we chose 3 metrics that align with the company's objectives: No lost sales, compliance with national regulations and satisfying regional market.

- **Cost of backorders:** this metric measures how much the company loses for being unable to fulfill the demand of their customers.
Ultimate goal: 0 DZ
- **Cost of returns:** this metric measures how much does it cost the company to reprocess returned orders. Being able to reduce this cost will help the company reduce the warehouse running cost.
We excluded the cost of shipping and transportation because items are returned when the next order is delivered.
Ultimate goal: 0 DZ
- **Cost of non-compliance products:** this metric aligns with the company second goal which is compliance with national regulation; it measures how much the company loses for not respecting the law.
The return policy is explained in appendix 1.
Ultimate goal: 0 DZ

The financial perspective's KPIs are summarized in the table below:

Table 3-1 : The financial perspective’s KPIs

KPI Formula
Cost of backorders= profit margin of cancelled orders+ expedited shipping+ cost of overtime work+ intangible cost: cost of losing a client
Cost of returns= profit margin of returned products + cost of overtime work+ intangible cost: client irritation.
Cost of non-compliant product= the cost of non-refundable items.

Source: Made by us

2.1.2. The customer perspective:

For the customer perspective the questions that must be answered are:

1. Who are our target customers?
2. What products and services we will offer them? and
3. What value proposition (why the customer should buy from them) we will provide?

The answers to these questions will be summarized in the table below:

Table 0-2 : Customer perspective stakeholders

	Internal customer	External customer
Target customer	employees	clients
Service offered	employment	Delivery of medicinal products
Value proposition	Safety & self-improvement	Deliver the right product at the right time

Source: Made by us

Chapter 3: Building a Balanced Scorecard for Millennium Medic's Warehouse 48

The company has two customers, internal customers which are the employees and external ones which are the clients.

For the clients, it offers them the service of delivering medicinal products, the right orders at the right time.

For the employees, it offers them the service of employment, in a safe environment that stimulates personnel growth.

The answers of the previous questions lead us to two objectives for the customers' perspective, which are:

- I. Improve clients' satisfaction.
- II. Improve employees' safety.

I. **Improve clients' satisfaction:** we have to secure the famous three: cost, quality and time, but because national regulation fixate the price of the medication and the service for delivery is free, we are left with two indicators, which are quality and time represented by these two metrics:

✚ **Lead time:** it is crucial to any business to deliver the right product at the right time, this metric will measure the time needed to deliver an order to a client.

Ultimate goal: for the region of ANNABA, orders are delivered within 3 hours, and for the other regions, orders are delivered within 24 hours.

✚ **Percentage of return:** this metric will measure how many orders are returned due to missing products or wrong ones.

Ultimate goal: 0% return rate.

Initiatives:

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- Digitize order making: instead of making orders by phone or Viber, orders must be made and confirmed by clients using a platform or an App.

II. **Improve employees' safety:** we choose two metrics to measure it, which are:

- ✚ **Accident per year:** this metric will tell how many accidents accrue in a year due to the lack of safety measures.

Ultimate goal: zero accident.

- ✚ **Time lost due to injury:** Injuries sustained on the job can have a serious impact on workplace productivity and overall costs.

Any time an employee misses work due to injury, warehouse managers need to draw on supplementary resources and even offer other employees overtime to make up the difference. As a result, time lost due to injury is a valuable metric to monitor because it can help warehouse managers identify preventative measures they can take to ensure workplace safety in the future.¹

Ultimate goal: zero time lost.

The customer's perspective KPIs will be summarized in the table below:

¹ <https://legacyscs.com/warehouse-kpis-to-measure/#:~:text=Put%20Away%20KPIs,-15.&text=Accuracy%20rate%20refers%20to%20the,a%20100%25%20put%20away%20rate>, accessed 01/05/2022 at 08:45

Table 3-3 : The customer's perspective KPIs

KPI Formula
Lead time = ANNABA region [1H-3H], other regions within 24 hours.
Percentage of return= (total of returned orders/ total orders delivered) ×100
Accident per year= number of occurred accidents
Time lost due to injury = (Lost Time in Hours Due to Accidents) / (Total Number of Hours Worked) = Time Lost Due to Injury

Source: Made by us

2.1.3. The internal process perspective:

For the internal process perspective the question that must be answered is:

1. What areas create value the most in the warehouse?

For a warehouse to create value for the company is: to deliver the right product to the right customer while guaranteeing the safety of its workers and clients.

For this perspective we choose 3 objectives which are:

- I. Optimizing warehouse processes.
- II. Compliance with regulations.
- III. Effective and safe layout.

I. **Optimizing warehouse processes:**

Any warehouse has 5 processes which are: Receiving, Put away, Storage, Preparation and Shipping.

For each process we chose the most adequate metric:

- ✚ **Receiving accuracy:** receiving accuracy helps measure warehouse receiving performance, as it evaluate the accuracy of orders received from suppliers and the accuracy of booking made by employees.

The process of receiving helps identify wrong products and detect damaged and expired products.

A poor receiving accuracy means that the company is left with erroneous inventory that can't move or a shortage of needed products which can lead to customer service issues. For example the company will need more time to deliver orders to its client which will result in reducing reduce customer satisfaction and in the worst case scenario lose the client.²

The ultimate goal: 100% receiving accuracy.

✚ **Put away cycle time:** Put away cycle time measures the total amount of time it takes to put away items. A short put away cycle time is an indicator of an efficient process, whereas a long put away cycle time signifies that there's room for improvement either in the structure of the warehouse by rearrangement and making more space or in the work force by training or assigning more employees for the task.³

The ultimate goal: 1 hour.

✚ **Put away accuracy:** An effective and efficient put away process is one of the most critical components of good warehouse management because it has direct effect on picking accuracy rate.

Put away accuracy rate refers to the percentage of items put away correctly the first time; the higher the warehouse's put away accuracy rate, the more efficient the other processes will be.⁴

² <https://balloonone.com/blog/2022/02/07/kpis-for-measuring-warehouse-performance/#spaceu> , accessed 01/05/2022 at 10:00

³ <https://legacyscs.com/warehouse-kpis-to-measure/#:~:text=Put%20Away%20KPIs,-15.&text=Accuracy%20rate%20refers%20to%20the,a%20100%25%20put%20away%20rate.>, accessed 01/05/2022 at 08:45

⁴ <https://legacyscs.com/warehouse-kpis-to-measure/#:~:text=Put%20Away%20KPIs,-15.&text=Accuracy%20rate%20refers%20to%20the,a%20100%25%20put%20away%20rate.>, accessed 01/05/2022 at 08:45

The ultimate goal is a 100% put away rate.

- ✚ **Space utilization:** The most challenging task for any warehouse is to efficiently use the space available for storage while guaranteeing the safety and the productivity of their employees.

Many falls in the trap of reducing cost by using the space reserved for movement, therefore, they end up with high utilization rates that result in higher costs due to the negative impacts of high utilization on employee productivity.⁵

Hence, this metric will help the company evaluate the state of its warehouse.

The ultimate goal is to have a space utilization rate between 22% and 27%.

- ✚ **Order picking accuracy:** Order accuracy is the percentage of the orders that are fulfilled and delivered to their final destination without errors. A high order accuracy rate means that the customers almost always receive the exact items they order in the proper condition. Knowing the order picking accuracy (OPA) allows businesses to identify error-prone processes and take corrective actions to improve picking accuracy; because poor order accuracy costs the company time, money, and negative customer perceptions.⁶

The ultimate goal is a 100% accuracy rate.

- ✚ **Shipping accuracy:** Shipping accuracy is the consistency between a customer's order and what is delivered.

⁵ <https://www.ioptimizerealty.com/blog/measuring-the-utilization-of-your-warehouse#:~:text=To%20do%20this%2C%20add%20up,utilization%2C%20which%20is%20relatively%20healthy> , accessed 02/05/2022 at 14:09

⁶ <https://optimoroute.com/order-accuracy/#what-is-it>, accessed 02/05/2022 at 14:15

Keeping this metric high, helps the company minimize costs related to returned orders like fuel costs and required working hours and minimize the risk of losing clients.⁷

The ultimate goal is a 100% shipping accuracy.

If the warehouse manager can optimize each process, it will lead to the optimization of the whole warehouse.

Initiatives:

- Recruit supply chain manager
- Use a more accurate forecasting model.

II. Compliance with regulations:

Compliance with national regulation is a must of any company if it wants to stay in business, and considering the sensitivity of this industry, this objective is the priority of the company.

To measure the degree of compliance we choose metrics related to warehousing based on the regulation published in the official newspaper N8 on January 31, 2022.

✚ **Medication compliance percentage:** this metric will tell how many medicinal products are compliant with regulation.

The criteria for compliance medicinal products are explained in details in the Art 4, 5 and 6 of the official newspaper.

Because it's a time consuming to verify all items, the warehouse employees prioritize only 3 types of medications, which are: expensive ones like SUTENT 50MG GLES. B/30 that is used in cancer treatments, psychotropic ones that are listed to be dangerous and needs

⁷ <https://optimoroute.com/shipping-accuracy/>, accessed 01/05/2022 at 08:45

prescription like TRAMADOL and temperature sensitive ones like INSULIN.

The ultimate goal: 100% medication compliance percentage.

✚ **Warehouse compliance percentage:** this metric will tell how many regulation of storage and distribution are been respected.

The criteria for warehouse compliance include resident, environment, temperature, supply, reception, storage, order preparation and expedition...etc., are explained in details from Art 4 to 30 of the official newspaper.

The ultimate goal: 100% warehouse compliance percentage.

III. Effective and safe layout:

The layout of the warehouse needs to be safe in order to achieve the goal improve safety in the customer’s perspective.

The metric used to measure layout safety is:

✚ **layout evaluation:** Each area of the warehouse will be evaluated by the director of hygiene and security.

The criteria used to evaluate the layout are summarized in Appendix 2.

The ultimate goal: 100% safe layout.

The internal process perspective’s KPIs are summarized in the following table:

Table 3-4 : the internal process perspective’s KPIs

KPI Formula
Receiving accuracy= (total numbers of orders received correctly and in full)/ (total number orders accepted) ×100.
Put away cycle time = (Total Time for Put Away) / (Total Time) = Put Away Cycle Time
Put away accuracy rate= (Inventory put away correctly/ total inventory put away) ×100.
Space utilization= (inventory cube size/ the warehouse's storage capacity) ×100.

<p>Inventory cube size= (total floor area of the warehouse – non storage related areas) × the building's clear height.</p> <p>Warehouse's storage capacity= the volume of all of the products stored in the warehouse.</p>
<p>Order picking accuracy = (Total orders-returned due wrong item)/total orders ×100.</p>
<p>Shipping accuracy= (total accurately delivered orders/ total delivered orders)×100</p>
<p>medication compliance percentage= (The total number of compliant products/the total number of products)×100</p>
<p>Warehouse compliance percentage= (\sum compliance percentage of each criteria/ total number of criteria)×100.</p>
<p>Layout evaluation= (the number of compliant criteria/ total number of criteria)×100.</p>

Source: Made by us

2.1.4. The learning and growth perspective:

For the learning and growth perspective the question that must be answered is:

1. How can we enable the previous processes and align them with the desired outcomes?

For the warehouse to be able to execute efficiently the previous processes it needs to invest in people, equipped and technology, therefor we choose 5 objectives:

- I. Build a culture of improvement.
- II. Culture of safety.
- III. Hire new talents.
- IV. Train employees.
- V. Better use of technology.

I. Build a culture of improvement:

is one of the most challenging goals fixed by the company, we choose 2 metrics to help measure the this objective:

- ✚ Employees' engagement rate: employees' engagement is vital to building a culture where each employee seek to improve himself every day, thus this metric will give an insight of the degree of commitment the employees have; it tends to be high if the company has created a positive environment where people want to come to work every day and thus motivates them to improve themselves.

The value of this metric is the result of a survey done by the company.

The ultimate goal: [90-100%] engagement rate.

- ✚ Number of innovative ideas: when employees begin to improve themselves by learning how to do things right, great ideas begin to blossom, therefore this metric will tell how many ideas are been presented by employees that contributed to problem solving.

The ultimate goal: 10 ideas per employee per a year.

Initiatives:

- Make employees suggestion box: A suggestion box encourages employees to submit suggestions, comments and complaints anonymously.

II. Culture of safety: only by having a culture of safety, employees safety will be achieved, 3 metrics are chosen to measure this objective:

- ✚ Safety equipment used: this metric will tell us if safety equipment are been used by employees or not.

This metric is binary, either the employees use safety equipment or not.

The ultimate goal: yes.

- ✚ Near miss reporting rate: “A Near Miss is an unplanned event that did not result in injury, illness, or damage – but had the potential to do

so. Only a fortunate break in the chain of events prevented an injury, fatality or damage; in other words, a miss that was nonetheless very near.”⁸

Near miss reporting rate will tell us how many near miss are been reported per year. Reporting near miss will prevent future accidents.

Ultimate goal: to have 10 reports for each employee per year.

✚ **Safety standards application percentage:** safety standards vary from industry to industry but their importance stays the same, therefore this metric will tell us the percentage of safety standards applied by employees.

The list of safety standards are summarized in Appendix 3.

Ultimate goal: 100% application percentage.

III. Hire new talents: hiring new talents is a must for a company to overcome her areas of weakness. It has to hire the rightful people for the areas that need to be improved.

✚ **Qualified candidates per opening:** This KPI tells what share of people applying for each open position are actually qualified for that role, tracking this KPI helps identify if the company is reaching the right people from the beginning. If this ratio is low, the company might want to think of ways to re-do the job ads and better target its target audience.⁹

The ultimate goal: 2 qualified candidates.

Initiatives:

- Internship programs for students.

IV. Train employees: “Employee training is a program that helps employees learn specific knowledge or skills to improve performance

⁸ <https://www.wolterskluwer.com/en/expert-insights/safetip-26-common-definition-of-a-near-miss> , accessed on 03/05/2022 at 11:00

⁹ <https://harver.com/blog/recruiting-kpis/> accessed on 03/05/2022 at 11:10

in their current roles. Employee development is more expansive and focuses on employee growth and future performance, rather than an immediate job role.”

Without proper identification of employees lacking areas and tracking of training process, the company could be spending money in wrong place.

Therefore we choose these metrics to measure the training process.¹⁰

✚ **Knowledge And Skill Retention:** this metric measures how much learners can retain the knowledge and skill they gain in training, it is a key indicator of how effective the training was. It is usually measured by gauging the difference between pre and post-training assessments.

The value of this metric will be based on a survey done by the company.

Ultimate goal: [90%-100%] knowledge and skill retention.

✚ **Transfer Of Training:** this metric tells whether employees are able to translate learned information to their jobs, is an important KPI to measure the effectiveness of training.¹¹

The value of this metric will be based on a survey done by the company.

Ultimate goal: [90%-100%] transfer of training.

✚ **Course Participation percentage:** It's important to track how many people finish the course. Knowing this will help identify whether learners are actively engaging with the content. A high fulfillment percentage usually denotes that people find the course useful.

¹⁰ <https://www.allencomm.com/what-is-employee-training-development/#:~:text=Employee%20training%20is%20a%20program,than%20an%20immediate%20job%20role> , accessed on 03/05/2022 at 11:20

¹¹ <https://elearningindustry.com/kpis-measure-training-effectiveness-learning-analytics> , accessed on 03/05/2022 at 14:10

Conversely, a low completion rate might sound the alarm that users are not impressed with the course and changes need to be made to motivate learners to stick with it.

The ultimate goal: 100% course participation percentage.

- ✚ **Employee Training Satisfaction Rate:** Asking the employees to evaluate the training course they are completing or have completed is always beneficial. Getting direct feedback from the people who are interacting with the employee training course is very helpful. Employees can pinpoint what is working and what's not working within the course structure, content, and delivery style.

The value of this metric will be based on a survey done by the company.

Ultimate goal: [90%-100%] employee training satisfaction rate.

- ✚ **Training Fulfillment Percentage:** It stands to reason that the more people who enroll in and complete the training course, the more effective the training course will prove to be. Course attendance alone is not a definitive course success metric, but it does confirm that you're doing something right.¹²

The ultimate goal: 100% training fulfillment.

- V. **Better use of technology:** in the recent decades technological advancements played a central role in improving warehouse management processes, it took operation's efficiency to the next level. Before only big and powerful companies had this advantage, but now it became a basic component in everyday life of any business. For a company to know how to use these technological advancement to its advantage is skill that must be learned.

¹² <https://elearningindustry.com/employee-training-kpis-track-learning-evaluation>, accessed on 03/05/2022 at 14:28

Technology is a vast word, in our case we aim for this objective to fully understand and learn how to operate with the upgraded version of the ERP acquired by the company, as a large number of features are still underexploited.

To measure the evolution of this objective, we chose two metrics:

✚ **Time needed for an operation:** this metric will tell the average time needed to complete an operation.

When all features are mastered, the time needed for any operation will be minimized.

Ultimate goal: the time needed varies from operation to another.

✚ **Operation accuracy:** this metric will tell us how many operations are done correctly without error.

Ultimate goal: 100% operation accuracy.

Initiatives:

- Use WMS.

The learning and growth perspective’s KPIs are summarized in the table below:

Table 3-5 : The learning and growth perspective’s KPIs

KPI Formula
Employees’ engagement rate: based on a survey
Number of innovative ideas
Safety equipment used: binary
Near miss reporting rate: number of bear miss reported
Safety standards application percentage= (the number of safety standards applied / total number of safety standards) ×100.
Qualified candidates per opening= the number of qualified candidates.
Knowledge And Skill Retention: based on a survey
Transfer Of Training: based on a survey

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Course Participation percentage= (number of present participates employees/ total number of participants employees)×100.
Employee Training Satisfaction Rate: based on a survey
Training Fulfillment Percentage= (number of employees who finished their training/ the total number of participants)×100.
Time needed for an operation
Operation accuracy= (total amount of operations-operations with error)/ total amount of operation ×100.

Source: Made by us

2.2.Strategy map:

In the strategy map when objectives from lower perspective contribute to achieving objectives of upper perspective, a connection between the two is established making the objectives of the lower perspective a leading indicators in the upper perspective.

In our case study: In order to achieve the objective optimizing cost in the financial perspective, we have to secure client's satisfaction and employees' safety from the customer perspective, therefore Improve client's satisfaction and improve safety becomes leading indicators in the objective optimize cost of the financial perspective.

Client's satisfaction can only be improved if all regulations are respected guaranteeing the safety of the customer, and the processes of the warehouse are optimized for the clients to experience the best services. The link between client's satisfaction with both compliance with regulations and optimizing warehouse processes of the internal processes perspective is what explains the two objectives becoming leading indicator in improve client's satisfaction.

And for the processes to be optimized, a culture of improvement is needed, because without employees' suggestions and ideas, the working processes will never evolve.

Making building a culture of improvements of the learning and growth perspective a leading indicator in the objective optimize warehouse processes.

The same goes for the objective improve employees' safety, for this latter to be achieved, two other objectives from different perspectives are needed.

A culture of safety needs to be present in order to grantee that the warehouse has a safe and effective layout, and by having a safe and effective layout, the safety of employees will be improved.

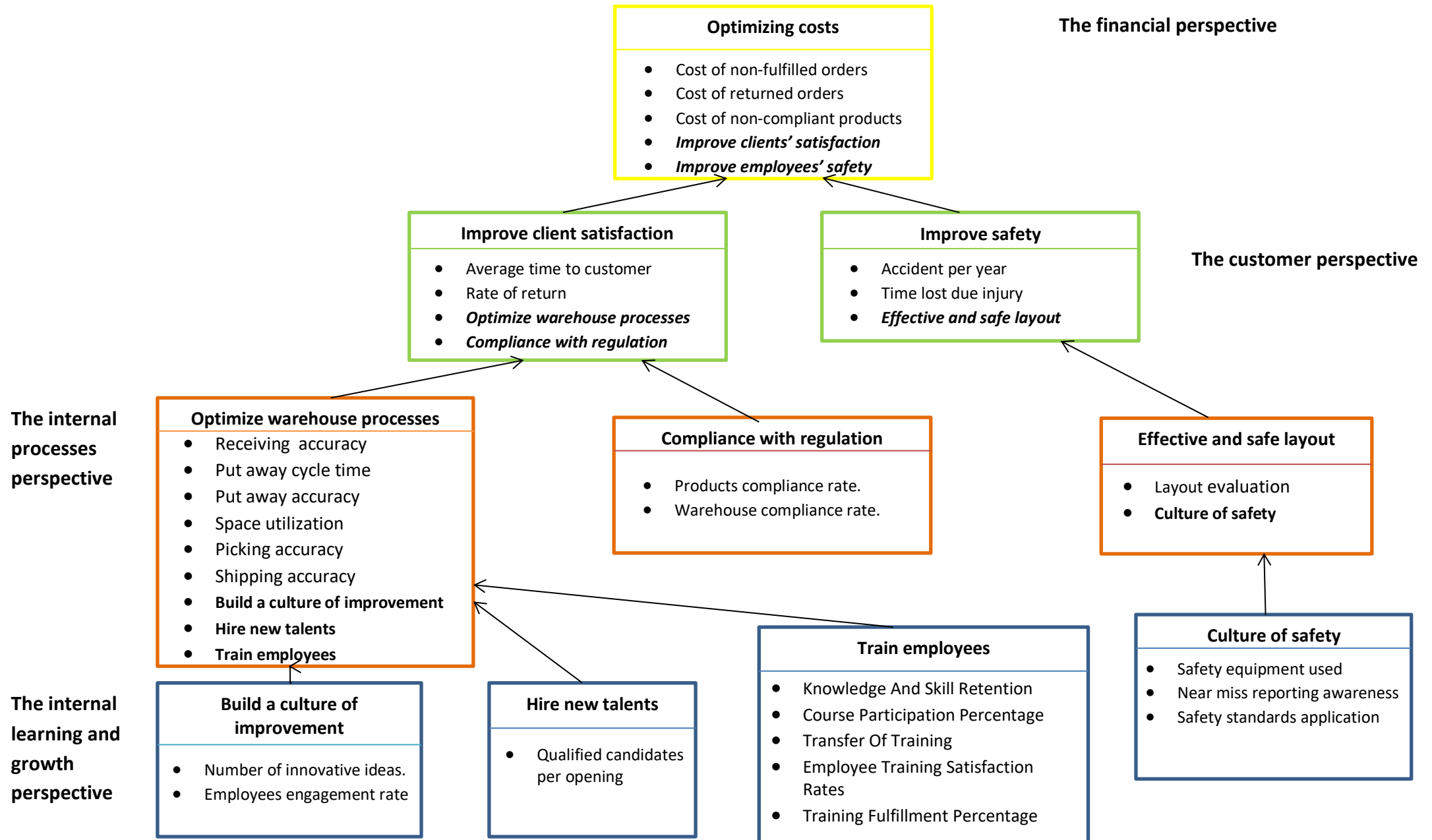
This link between the three objectives what makes culture of safety a leading indicator in effective and safe layout and effective and safe layout a leading indicator in improve employees' satisfaction.

The strategy map that summarizes the BSC will be presented in the following figure:

Figure 3-1 : Strategy map

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Conclusion of chapter three:

in the previous chapters we laid the foundation of this one, we got to understand strategy and its importance to any company's success, then we got to know in details one of the most powerful tools to manage and measure performance which is the BSC and how to build one, and in this chapter we were successful in establishing a BSC for millennium medic's warehouse.

In the next chapter we will implement the constructed BSC to have an overview of the company's warehousing system performance.

**Chapter 4:
implementing a
Balanced Scorecard at
Millennium Medic's
Warehouse**

Introduction of chapter four:

Data analysis is one of the most important topics researched in this era, considering the time and the amount of money these research need.

Companies spend an important part of their budget to collect, use and interpret data correctly, interpretation is the most challenging task because the researcher needs to see the relationship between the numbers, their cause and effect to be able to connect the dots between the different subjects and form a clear picture for executives to see.

This job in the past needed different specialist with different background to be able to interpret results accurately, when now only few clicks do the job, as many programs and platforms put to its users all the tools necessary to conduct their research efficiently and accurately.

We also used the power of technology to aide us in our research, as in this chapter we will be analyzing the result generated by BSC Designer a platform that we used to implement our scorecard previously explained in chapter three.

First we will start by introducing BSC Designer, what does it consist of and how to use it, after that we will move to our scorecard and comment on the performance state of each perspective, and finish the analysis section by commenting on the warehouse overall performance.

In the end of this chapter, we give few recommendations that we saw necessary to improve the warehouse performance, and a conclusion that summaries this chapter.

Section 1: Analysis of the impact of BSC on warehouse performance

1.1.BSC Designer:

“BSC Designer is platform developed by Kitonik s.r.o., a software development company, that focused on Strategy Execution solutions to helps top-managers and CEOs to formulate and execute their strategy using the Balanced Scorecard framework.

The goal of the product is to give executives a possibility for better decision making, while also measuring and improving business performance and productivity. BSC Designer is recognized by professionals all over the world as one of the most powerful and easy to use tools for the Balanced Scorecard.

One of the goals of the BSC Designer project is to provide relevant information for the Balanced Scorecard professionals in a form of various info-products. Also, those who want to learn more about the Balanced Scorecard framework can read articles written by the company's experts or pass training available online.”¹

The first thing a user should do is to create a free account that provides free templates for small projects, the possibility to build 5 scorecards, up to 36 indicators and free training videos.

After creating an account and choosing an existing template or build a new scorecard, the next step would be entering the business's mission, vision and values then the user starts to build his or her own scorecard by fixing objectives and creating indicators, the user needs to select the type of the metric: lagging or leading indicator, the measurement unit: hour, DZ, score, percentage...etc., the

¹ <https://bscdesigner.com/about-us> accessed on 27/05/2022 at 22:03

weight of the indicator, the optimization function: maximize/minimize value linearly, exponential decay, binary function...etc., and choose what to display on the strategy map: value, performance, target...etc.

The weights of the indicators are chosen by default unless the user modifies them, the 100% will be divided equitably between indicators.






The leading indicators represent 100% and the lagging indicators represent 100% too.

When entering data, the user needs to fix the target for the metric and the baseline which is the past results that provide a comparison for future performance.

BSC Designer offer the strategy map of the BSC, dashboard and reports contains that all the data used for every period.

To facilitate the integration of result to users, BSC Designer use different colors to differentiate perspectives and indicate performance state.

Table 4-1: Color palette for BSC Designer

Color					
Percentage	[0%-20%[[20%-40%[[40%-60%[[60%-80%[[80%-100%]
Performance state	Bad performance	Low performance	Medium performance	Good performance	High performance

Source: made by us

1.2. Analysis:

We implemented our balanced scorecard on BSC designer; we started by creating objectives for each perspective and then setting up the KPIs that shapes up the objective.

We inserted the data provided by the company and collect during the period of the internship into our model to measure the performance state of the company’s warehousing system.

The data inserted into the BSC is from the 1st of April until the 1st of May 2022. There were few exceptions for metrics that needs to be measured on a longer period of time, these metrics will be identified in their proper perspective.

The strategy map generated by BSC Designer will be presented at Appendix 4.

1.2.1. Financial perspective:

We summarized the data inserted into the financial perspective in a table below that shows the performance state of every objective and every indicator.

Table 4-2: The financial perspective dashboard

KPIs	Target	baseline	Weight	Leg/lead	Performance
Optimizing cost 54.44%					
Cost of backorders	0 DZ	[0-100k] DZ	33.333%	Leg	100%
Cost of returns	0 DZ	[0-100k] DZ	33.333%	Leg	confidential
Cost of non-compliant product	0 DZ	[0-450k] DZ	33.333%	Leg	8.89%
Improve client satisfaction	100%	[0-100]%	50%	Lead	66.67%
Improve employees safety	100%	[0-100]%	50%	Lead	100%

Source: Made by us

The financial perspective has one objective: optimizing cost with 3 lagging indicators: Cost of backorders, Cost of returns, Cost of non-compliant products, and 2 leading indicators: Improve client satisfaction and Improve employees' safety.

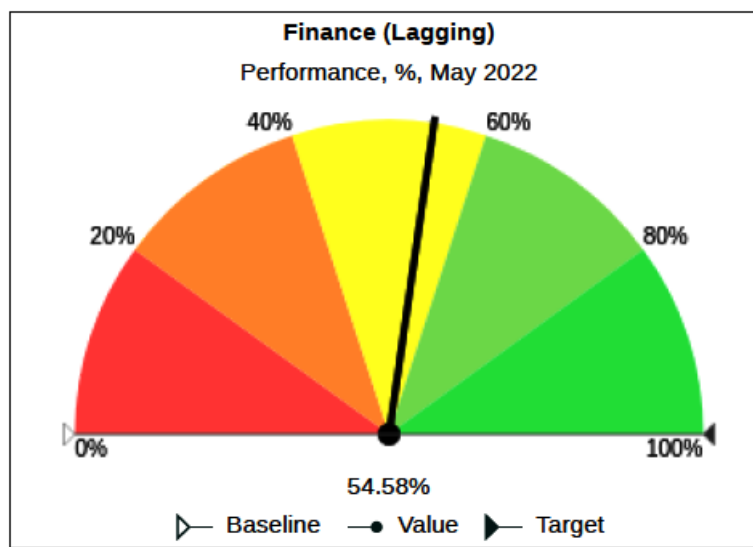
The cost of backorders and improve employees safety are in the dark green zone with 100% each; meaning that the company was able to satisfy all orders of their clients without any additional cost while guaranteeing the safety of their workers.

On the other hand the cost of non-compliant products is in the red zone with 8.89% which indicates that the company is not only losing the profit margin but also bearing the cost of the products that was damaged and broken by employees.

Improve clients satisfaction is in the light green zone with 66.67%, meaning that the clients are satisfied with the company's services, but this metric can be improved by minimizing the returns and optimizing warehouse process.

The cost of returns is left blank due to confidentiality.

Figure 4-1: The financial perspective performance



Source: BSC Designer

From the figure presented above, we see that the financial perspective performance is in the yellow zone with 54.44%, indicating that the warehouse is still the mid-way of achieving high financial performance; it needs to lower the cost of non-compliant products and improve client’s satisfaction, for it to move to the green zone.

1.2.2. Customer perspective:

We summarized the data inserted into the customer perspective in a table below that shows the performance state of every objective and every indicator.

Accident by year and time lost due to injury is one of the metrics that that needs to be measured of a longer period of time, in these two metric the period is a year “2022”, and because we are still in the first half of the year, they were measured from January 2022 to April 2022.

Table 4-3: customer’s perspective dashboard

KPIs	Target	baseline	Weight	Leg/lead	Performance
Improve client’s satisfaction 66.67%					
Lead time	2H	[2-8] H	50%	Leg	100%
Percentage of return	0 DZ	[0-1.8]%	50%	Leg	33.33%
Optimize warehouse process	100%	[0-100]%	50%	Lead	40.97%
Compliance with regulations	100%	[0-100]%	50%	Lead	100%
Improve employees safety 100%					

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Accident per year	0	[0-5]	50%	Leg	100%
Time lost due to injury	0	[1-7] days	50%	Led	100%
Effective and safe layout	100%	[0-100]%	100%	Lead	100%

Source: Made by us using BSC Designer materials

The customer perspective has two objectives which are: Improve client's satisfaction and Improve employees safety.

In the first objective we have 2 lagging indicators: Lead time, Percentage of return and 2 leading indicators: Optimize warehouse process, Compliance with regulations.

Lead time and compliance with regulation are in the dark green zone with 100% each, signifying that the company is respecting all the regulations imposed by the law and was successful in delivering all the orders in time.

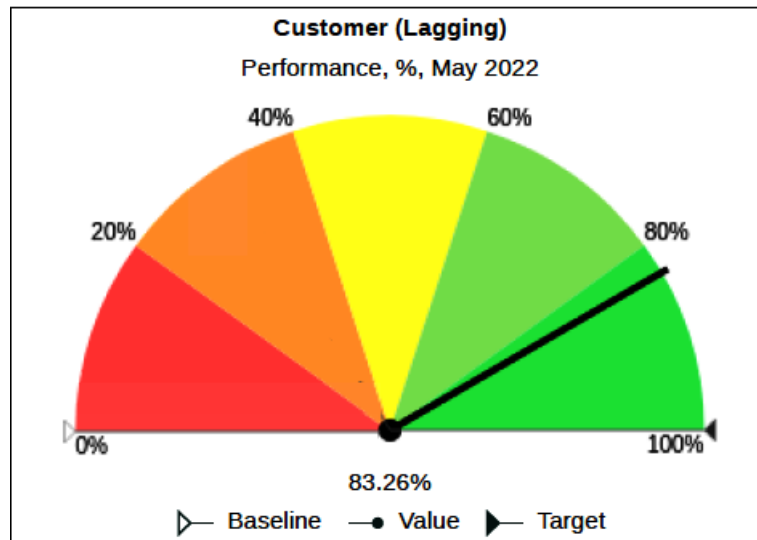
The percentage of return in the other hand is in the orange zone with 33.33%, indicating that the company is suffering from a large number of returned products due to mistakes done either by employees when entering orders or clients when ordering.

In the yellow zone we find Optimize warehouse process with 40.97% indicating that warehouse processes are in a poor state. To increase the percentage of this indicator, improvement must be made in the five process specially put away process, storage process and shipping process, further details will be provided in the next perspective.

In the second objective we have two lagging indicators: accident per year, time lost due injury and one leading indicator: effective and safe layout.

The three indicators of this objective are in the dark green zone with 100% each, highlighting the safety of the warehouse which lead to four months accident free, therefore no time has been lost.

Figure 4-2 : The customer perspective performance



Source: BSC Designer

From the figure presented above, we see that the customer perspective performance is in the dark green zone with 83.33%, indicating that in one hand their employees are always safe, and in the other hand their clients are satisfied with the provided service, but it can be improved by lowering the percentage of returned products and better mastering of warehouse processes.

1.2.3. Internal processes perspective:

We summarized the data inserted into the internal processes perspective in a table below that shows the performance state of every objective and every indicator.

Table 4-4: The internal processes perspective dashboard

KPIs	Target	baseline	Weight	Leg/lead	Performance
Optimize warehouse processes 40.97%					
Receiving accuracy	100 %	[90-100]%	16.67%	Leg	80%
Put away cycle time	2 Hours	[1.5-4] Hours	16.67%	Leg	33.33%
Put away accuracy	100 %	[92-100]%	16.67%	Leg	12.5%
Picking accuracy	100 %	[99-100]%	16.67%	Leg	80%
Shipping accuracy	100 %	[95-100]%	16.67%	Leg	60%
Space utilization	25%	[22-27]%	16.67%	Leg	-20%
Build a culture of improvement	100%	[0-100]%	100%	Lead	40%
Effective and safe layout 100%					
Layout evaluation	100%	[0-100]%	100%	Leg	100%
Culture of safety	100%	[0-100]%	100%	Lead	88.89%
Compliance with regulations 100%					
Product compliance percentage	100%	[99-100]%	50%	Leg	100%
Warehouse compliance percentage	100%	[98-100]%	50%	Leg	100%

Source: Made by us

The internal processes perspective has three objectives which are: optimize warehouse processes, effective and safe layout and compliance with regulations.

In the first objective, there are six lagging indicators: receiving accuracy, put away accuracy, put away cycle time, picking accuracy, shipping accuracy, space utilization and one leading indicator: build a culture of improvements.

Among the five indicators only receiving accuracy and picking accuracy are in the dark green zone with 80% for each, while put away cycle time and shipping accuracy are in the yellow zone with 33.33% and 60% respectively, and in the other hand space utilization is in the red zone with a negative value of -20%.

By explaining what happens in the warehouse in a daily basis we will know the reason behind these numbers.

When shipments arrive, the employees examine only three types of products: expensive ones, psychotropic ones and temperature sensitive ones and neglect the rest causing them to discover missing or defective products while preparing orders, and due to shortage of space in the warehouse, the process of putting away becomes difficult, as there is so little space to move between allies and the designated space for each product is always full either by the right product or another one, leaving employees with only one option which is to put the products in any space available and return to arrange them only after some space is liberated, causing them to spend twice the time needed if not more. All these tasks while preparing orders for clients simultaneously.

The pressure of multitasking, and the disorder in the storage zone caused by the lack of space make employees send orders with wrong products, missing ones or even additional ones.

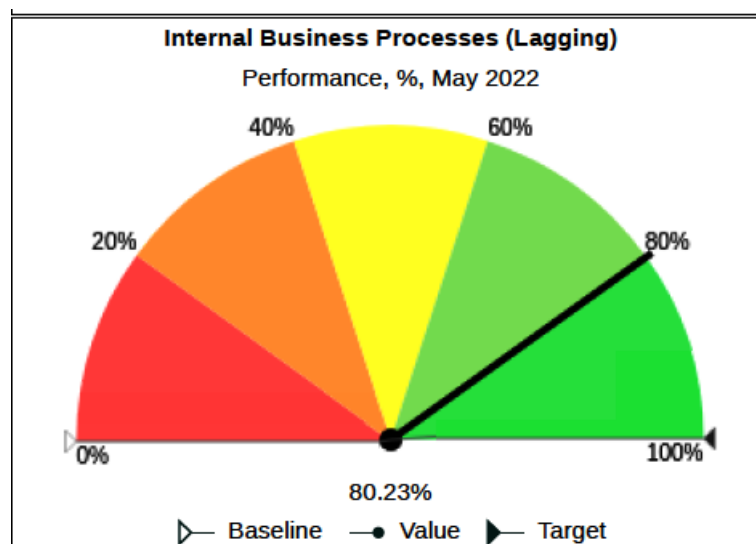
And for the reasons behind the unfavorably shipping accuracy are two: sometimes drivers make mistakes and deliver orders to the wrong client and sometimes the client is not available to receive orders when it arrives.

For the second objective effective and safe layout, we have a lagging indicator: layout evaluation and a leading indicator: culture of safety.

Both of the metrics are in the dark green zone with 100% and 88.89% respectively, highlighting that the warehouse is a safe workplace for employees, and safety is no longer a process to be checked on but an everyday practice.

For the last objective compliance with regulation, we have two lagging indicators: products compliance rate and warehouse compliance rate, both of them are in the dark green zone with 100%, indicating that millennium is a distinguished company with law-abiding values.

Figure 4-3 : The internal processes perspective performance



Source: BSC Designer

From the figure presented above, we see that the internal processes perspective performance is in the dark green zone with 80.32%, indicating that warehouse internal processes are well managed, as safety is secured and regulation are respected, the only setback for it the reach the full potential is in the process of put away, storage and shipping.

Working on improving these three will get the internal process perspective performance to the next level.

1.2.4. Learning and growth perspective:

We summarized the data inserted into the learning and growth perspective in a table below that shows the performance state of every objective and every indicator.

We did not implement the rest of the objectives: hire new talents, train employees and better use of technology because of the following reasons:

1. The company never made any training program for warehouse employees.
2. Form the period of January to April no recruitment have been made.
3. The update version of the ERP bought by the company is still been studied by the IT engineer of the company.

And for the metric employee’s engagement rate that supposed to be in the objective build a culture of improvement, we found difficulty measure it, it was time consuming and we lacked the technique.

Table 4-5: The learning and growth perspective dashboard

KPIs	Target	baseline	Weight	Leg/lead	Performance
Culture of safety 88.89%					
Near miss reporting awareness	10	[0-10] ideas	33.333%	Leg	66.67%
Safety standards application	100%	[80-100]%	33.333%	Leg	100%
Safety equipment used	Yes	[Yes-No]	33.333%	Leg	100%
Build a culture of improvement 40%					

Chapter 4: Implementing a Balanced Scorecard at Millennium Medic’s Warehouse

Number of innovative ideas	10 ideas	[0-10] ideas	100%	Leg	40%
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Source: Made by us using BSC Designer materials

The learning and growth perspective have two objectives: culture of safety and build a culture of improvement.

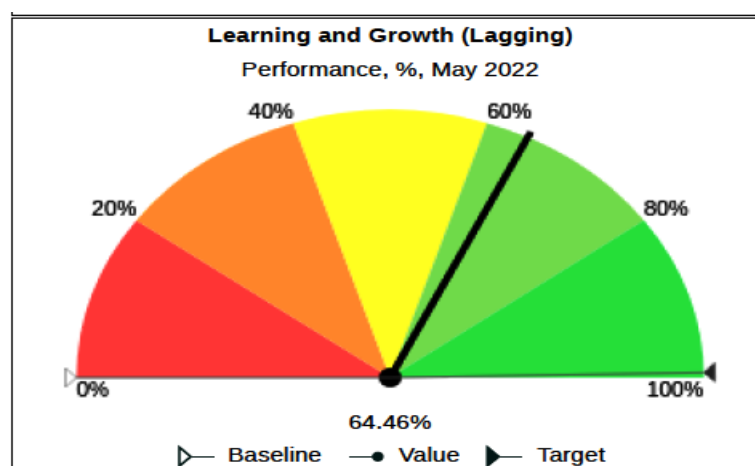
In first objective we have three lagging indicators: Near miss reporting awareness, Safety standards application and Safety equipment used.

All the metrics are in the dark green zone with 66.67%, 100%; 100% respectively, meaning that the employees always use safety equipment when handling inventory while applying the safety standards required, they also report any incident that could lead to a dangerous situation.

In the second objective we one lagging indicator which is the number of innovative ideas.

This metric is in the orange zone with 40%, indicating that employees still doesn't feel courageous enough to share their ideas.

Figure 4-4 : The learning and growth perspective performance

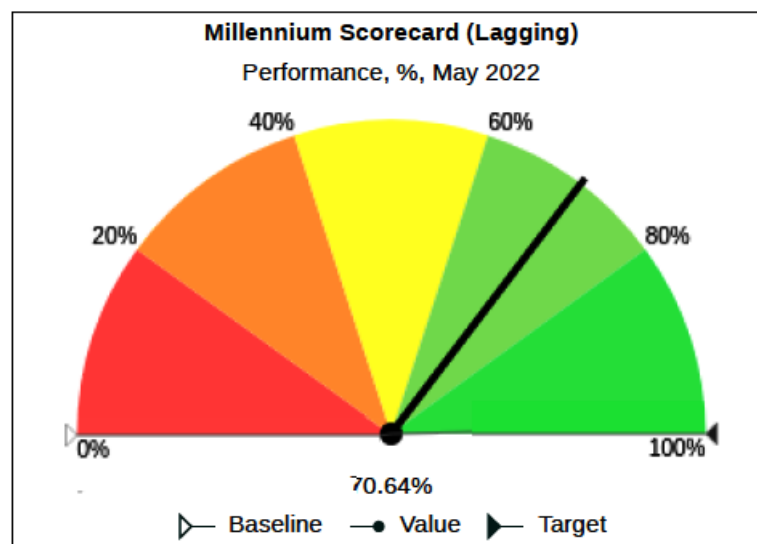


Source: BSC Designer

From the figure presented above, we see that the learning and growth perspective performance is in the light green zone with 64.44%, indicating that safety became a habit for employees and not actions forced by regulation, but the working environment is still lacking the spirit of improvement, as it is considered difficult and challenging to build a culture where everyone seek to improve himself voluntarily.

This perspective performance can be improved by encouraging employees to report more incidents they think it needs to be taken care of, and take the appropriate actions that help build a culture of improvements.

Figure 4-5 : millennium medic’s warehouse performance



Source: BSC Designer

After analyzing the performance state of each perspective, we can conclude that Millennium medic’s warehouse is highly favorable as shown in the figure above.

They mastered safety and regulation which are the core value of this industry, gained their client’s trust and employee’s dedication, but they are struggling with two things, the first is the storage process, as the company is growing in the market the current warehouse is unable to hold their entire inventory therefore effecting negatively the

other processes, and the second is how to make their employees less timid and share their ideas with them.

If the company focuses on these two problems while maintaining the highly favorable performance of the other processes, the warehouse performance will reach the highest performance.

1.3.Recommendation:

Based on the result we got from BSC Designer and our analysis of it, we came to recommend few actions that the company must take to improve the warehouse overall performance state:

1. Build a strategy.
2. Share the company's strategy, mission, vision, objectives with employees.
3. Hire a warehouse manager.
4. Use a powerful model for forecasting.
5. Invest in expending the warehouse.

Conclusion of chapter four:

In this chapter we took the last step in our research which is to implement our scorecard and generate results based a month's worth of data.

We were successful on achieving this goal and generate accurate result by using BSC Designer that aided us in our analysis by providing all the tools necessary.

After going through the different perspectives, the objectives and the KPIs one by one, we were able to conclude that the warehouse performance state is highly favorable, however there is still room for improvement by focusing on the weak areas explained before.

We were also able to confirm that the BSC is a powerful tool that helps any business builds its strategy, monitor it, and measure its performance.

General conclusion

General conclusion:

The ultimate goal of any business is to generate more profit, but this goal can't be achieved by one decision or two, it requires for all the divisions of the company to come together and work towards achieving this goal, each one in his domain, but most importantly in a cohesive way.

To be able to do that, a strategy must be established and objectives needed to be aligned with it.

A tool was made for this specific reason, which is the BSC developed by Robert Kaplan and David Norton.

In our research we will be learning this method for the purpose of studying the impact of applying the BSC on a warehouse performance.

To achieve our purpose; the research was conducted in two parts:

The first one was a literature overview on the importance of strategy and strategic management, and we gave a detailed explanation of the BSC and how to use it.

The second one was dedicated to the construction of a BSC for millennium medic's warehouse, our case study, and analyzing the results generated by the model on the later based on a month's worth of data.

The result generated by BSC Designer-a platform we used to implement our scorecard- made us see clearly the performance state of the warehouse through the different levels, and made it easier to identify the poorly managed processes, which will help the manager make fast and accurate decisions.

The results we obtained by our model, enabled us to either confirm or refute the following research hypotheses:

H1: The BSC helps improve the overall performance of the warehouse by focusing on strategic objectives and providing updates on their state helping the manger make accurate and effective decisions.

We confirm the first hypothesis, when we finished implementing our scorecard, we were able to track the performance state of our objectives easily; thanks to the presence of the KPIs that helped us identify the weak areas that were hindering the objectives from reach their optimal performance state, therefore we were able to suggest customized solutions for these problems, and for the business manager, he will be able to make clear and fast decisions concerning these obstacles.

Being able to make clear and fast decisions when a problem occurs is what we call effective management.

H2: The BSC will ensure better consistency in achieving the objectives through the involvement of all decision-making scales.

We confirm the second hypothesis, when we first identified all the objectives, we were not sure how to put it together, or who will be responsible for achieving them or what influence hey have on one another, but after putting every objective on its rightful place in the four perspectives: the financial perspective, the customer perspective, the internal processes perspective and the learning and growth, which represent all the decision making scales, everything came together to form one big picture, and we were able to see the effect of every objective have on the others, and that the achievement of one will lead to the achievement of the others.

We consider our model to be the stepping stone for the company to improve the performance of its warehouse, we were able to identify many necessary improvements in this research, but with the limited number of KPIs that we used, we are certain that we missed other areas that need to be improved.

A number of very powerful KPIs are available to help guide the manger on the necessary actions that needs to be taken, we were unable to use them for different

reasons: some required a specific type of data that was so difficult to measure, others we could not measure due to confidentiality issues and others we were unable to use because the data was unavailable like the KPIs related to the objective train employees in the learning and growth perspective.

The process on conducting this research was smooth, we got all the help and the documents we needed, all employees were flexible, helping and guiding, the only road block that we were faced with in our journey is the absence of strategy.

The company did not have a strategy, and as the strategy is considered the blue print of a BSC, we were lost for a period of time, unable to take any step forward in our research, in the contrary we took few steps backward, the objectives we first made were inconsistent with what the company wanted, but after using the approach proposed in the book “The balanced scorecard evolution” written by Paul R. Niven, to co create a strategy and develop a scorecard simultaneously, We were able to get back on track and finished our research smoothly, and the final objectives were approved by the company’s manager as she that it is exactly what they wanted to know about their warehouse.

Finally, we would like to say that this topic of research was enlightening for us, as it helped us put in practice all the knowledge we learned in the past five years, we also got to learn a new method that is highly used by successful businesses that can come in hand in the future.

We wish for our model to be the first of many to come that can help the company improve its performance and reach its goals.

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Glossary

psychotropic medicinal products : Any drug capable of affecting the mind, emotions, and behavior. Some legal drugs, such as lithium for bipolar disorder, are psychotropic. Many illicit drugs, such as cocaine, are also psychotropic. Also known as psychodynamic drug

¹.

Expedited shipping: is a method of shipping freight that ensures goods arrive faster than regular transit times.

A backorder: is an order for a good or service that cannot be filled at the current time due to a lack of available supply.

Lead time: measures how long it takes to complete a process from beginning to end.

¹ https://www.rxlist.com/psychotropic_drug/definition.htm , accessed on 06/06/2022 at 09:04

Appendices

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Appendix 1**Returns and refund policy (supplier) :**

The company can return a product to its supplier if there is problem with it, and ask for missing ones if there were any within a definite period of time, usually 48 hours.

If the company discovers a missing or damaged product after 48 hours, it will not be compensated.

The only case where products will be returned at any time is if the label of the medication is missing.

If the product is damaged by employees or went missing when making deliveries, the losses will be beard by the company.

In the case of natural disasters, the losses will be covered by the insurance company.

Appendix 2

Layout evaluation:

1. Reception safety equipment in place and emergency action plans in place and effective to protect workers.
2. General condition is good, tidy and free of slip or trip hazards.
3. Internal floor and wall surfaces in good order and undamaged.
4. Lighting is in good order and provides adequate levels for activities undertaken.
5. Fire extinguishers are in the correct position, suitable types and readily accessible
6. Fire route is clearly identified and kept clear of obstructions.
7. First Aid kits are readily available and maintained.
8. Electrical equipment is in good condition and there are no signs of overloading the circuits.
9. Goods storage is maintained in a safe and tidy condition.
10. Storage racking is in good order with no visible damage.
11. External work areas are free from waste.
12. The work environment is suitable with adequate control of temperature, ventilation and noise.
13. CCTV (Closed-Circuit TeleVision) is in working order and covering relevant points.
14. Storage area is free of pests.
15. Storage areas are kept free from accumulation of materials that could lead to tripping, fire, explosion or pest infestations.
16. Emergency evacuation routes and guidelines are posted.
17. emergency exits are clear of blockage and the exit signs are in good condition.
18. Floors and aisles are clear of clutter, electrical cords, hoses, spills and other hazards that could cause employees to slip, trip or fall.

19. The warehouse is well ventilated.
20. Pallets are in good condition and empty ones are be stored properly.
21. No broken or protruding wood or nails.
22. Overhead lighting, skylights, and roofs are in good condition.
23. No leaks, broken panels/light bulbs, and missing bulb shields.
24. Loose and unboxed materials are stacked properly.
25. Products and containers that are most frequently moved by hand are stored at rack heights that minimize bending / stooping or excess reach to pick up or place.
26. All exterior lights working properly.
27. Sufficient waste cans are labeled and emptied on a regular basis.
28. In general, floors, ceilings, and exhaust fans are clean and free of cobwebs and dust buildup.
29. All ladders and hand tools are in good condition.
30. All unsafe equipment are removed from service while awaiting repair.

Appendix 3

Safety standers application:

1. Fire extinguishers have been inspected within the last year and in good working order.
2. Monthly first aid inspections have been undertaken monthly.
3. Gas appliances have been inspected and serviced by a suitably qualified person.
4. Forklifts are being operated safely and inspected at the start of every shift.
5. Accidents, near misses and injuries being investigated and unsafe conditions are being corrected, reported/documentated in a timely manner.
6. Employees performing physical work have adequate periodic rest breaks to avoid fatigue levels that could result in greater risk of accidents and reduced quality of work
7. Employees use proper personal protective equipment when handling equipment.
8. Forklift operators are competent to operate a vehicle safely as demonstrated by successful completion of training and evaluation conducted and certified by persons with the knowledge, training and experience to train operators and evaluate their performance.
9. Personnel use proper lifting techniques.
10. Forklifts are properly positioned and brakes applied before workers start to change or charge batteries.
11. Loose/unboxed materials which might fall from a pile are properly stacked by blocking, interlocking or limiting the height of the pile to prevent falling hazards.
12. Visitors and drivers remaining in designated safe areas and walkways?

Appendix 4

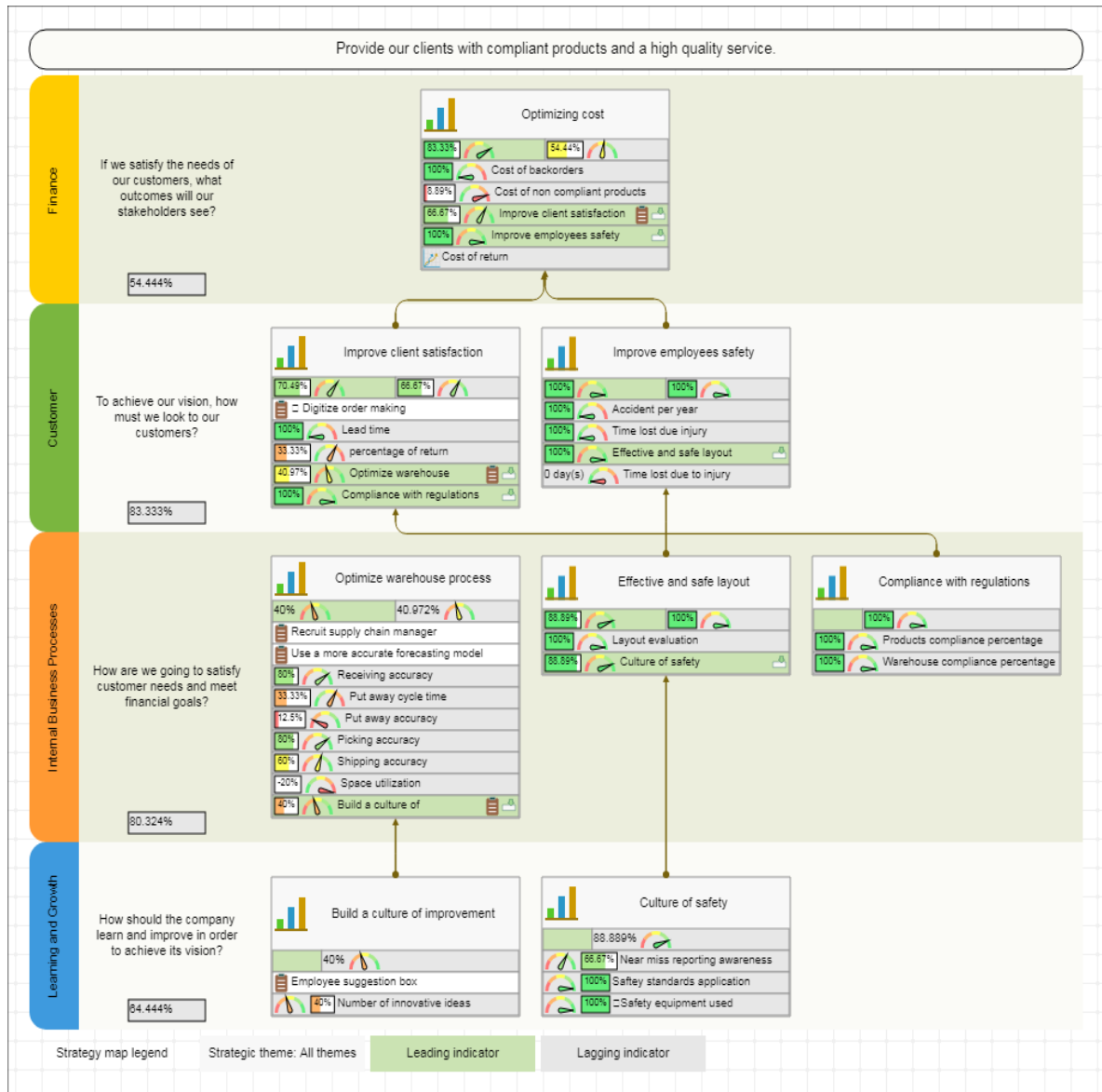


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