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Method for identifying strategic objectives in strategy maps

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ABSTRACT

This paper describes a simple tool for identifying strategic objectives as part of the design of strategy maps, based on the balanced scorecard, and meant to be used in organisations to establish performance indicators. To design the tool, a number of companies that implemented the balanced scorecard were analysed, in order to obtain their methodologies to create strategy maps. Three types of methods were found, different from each other in the way the strategic objectives are defined. By studying the benefits and drawbacks of the three methods, a simple, method was obtained. Basically, the method identifies general and specific strategic objectives and uses a modified SWOT (strengths, weaknesses, opportunities, threats) analysis. This paper also makes an analysis of the type of strategic objectives that the studied companies defined as part of the balanced scorecard implementation process.

1. Introduction

The subject of performance measurement has attracted a lot of attention in the literature of business and operations strategy (Neely, 1999; Avella et al., 2001; Unahabhokha et al., 2006). Neely (1999) states that only between 1994 and 1996, around 3615 articles on the subject were published. He argues that there are four basic questions that business performance research seeks to answer: (1) Which are the determinants of business performance? (2) How can business performance be measured? (3) How to decide which performance measures to adopt? And (4) How can the performance measurement system be managed?

As cited by Neely et al. (1995) "when you can measure what you are speaking about, and express it in numbers, you know something about it… (Lord Kelvin, 1824–1907)". They also state that "Performance measurement is a topic which is often discussed but rarely defined". They analyse performance measures in manufacture related to cost, quality, flexibility and time. However, the purpose of this literature review is not to actually present specific performance measures, but to give some guides to the process of designing a measurement system. What is surprising is that for managers it is easy to decide what should be measured, but is difficult for them to reduce the number of measures to a set that is manageable and useful. It is very easy to decide which measures of performance to use, but this does not mean that they are the right ones. One relevant aspect for this project is that these authors emphasise the need to do more research in small and medium sized companies, where performance measurement systems are considered a luxury. A large number of studies, such as those undertaken by Blenkinsop and Burns (1992), Dumond (1994) and Evans (2004) attempt to relate external and internal variables with the management control system, but they do not study the generation of performance indices in the manufacturing industry.

In spite of the importance given to the measurement of the performance in companies, Melnyck et al. (2004) admits that performance measurement continues being a challenge both for practitioners and academics. A number of approaches have been developed to measure and

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improve performance (Yurdakul, 2003), some of them are the strategy measurement analysis and reporting technique, developed by Wang Laboratories (Lynch and Cross, 1991), the performance measurement questionnaire (PMQ) (Dixon et al., 1990), the integrated dynamic performance measurement system (Bititci et al., 1997; Ghalayini et al., 1997) and the balanced scorecard (BSC) developed by Kaplan and Norton (1992, 1996a, 1996b). Among them, the most popular is the balanced scorecard. During the last decade, the BSC has been applied in many companies and has been matter of discussion in the academia. It was created as an alternative to the traditional way of measuring the value of companies in terms of their assets and market shares (Kaplan and Norton, 2001a, 2001b). Lately, it has become to be addresses by wireless community, perhaps by the opportunities that mobility generates for the implementation of this technology (Componovo et al., 2005; Berler et al., 2005; Van Grembergen and Amelinckx, 2002).

The main contribution of the BSC is that it does not use only financial information as measurement indicators. Kaplan and Norton propose a management control system that identifies four perspectives, (a) financial, (b) internal processes, (c) clients and (d) innovation and learning. This approach helps identifying the indicators aligned with the vision, mission and strategies of the firm. The importance of this alignment has been studied by other authors such as Miller and Roth (1994), Noble (1995), Kathuria (2000) and Kaplan and Norton (2006). The BSC establishes cause–effect relationships among strategic objectives, even though they do not state the way to establish and quantify those relationships. The relationships are represented in what the authors called strategy map, which is the main subject in this work. There has been a debate, between those who state that BSC is the most innovative strategic tool in the recent years (Calabro and Lori, 2001) and those who argue that it is an inflexible tool, incapable of facing the changes in the environment and the changes of the behaviour of individuals within an organisation (Arapé, 1999). In their literature review, Gomes et al. (2004) found that the BSC appears to be the most cited performance measurement system, and that perhaps is an indication of the BSC's wide acceptance among scholars and practitioners. While the BSC is the most cited in the literature in terms of implementations, it has been criticised on the ground of being too simple. Sinclair and Zairi (1995) argues that it merely provides senior managers with a tool to monitor performance against strategic and operational objectives. In this context, even Kaplan and Norton agreed that BSC is more like a strategy management tool, than like a full performance management system. Gomes et al. (2004) also points out that perhaps, focusing too much on the intrinsic characteristics of each organisation, some authors tended to stress the design and implementation aspects of a performance measurement system, rather than the general utility of a given performance measurement system across organisations, using a case by case orientation rather than an uniform theory driven from a framework approach.

Neely (2005) in his analysis of the literature, also emphasises the dominance of the balanced scorecard. However, he points out that the research community must take the research agenda forward, in order to not be trapped by solutions proposed for problems of the past. In the same way, some authors have criticised the balanced scorecard. Abrain and Buglioni (2003) point out that BSC does not include techniques for consolidating individual perspectives, so it has to be done subjectively. Bessire and Baker (2005) argue that the BSC has weaknesses especially in terms of theoretical conceptualisation.

The objective of this paper is to present a simple tool for identifying strategic objectives in order to build a strategy map. A strategy map is a component of a balanced scorecard that represents the cause–effect relationships among strategic objectives. Performance measurements are defined for each strategic objective.

This work proposes the use of multicriteria analysis, which has been used as a supporting tool for the generation of performance indicators. The analytic network process (ANP), developed by Saaty (2001) and the data envelopment analysis (DEA) are appropriate for better judging a firm's performance (Yurdakul, 2003). Although they have been used for various purposes in the literature, their use in performance measurement has been rather limited. Valiris et al. (2005) proposes the use of the simple multi-attribute rating technique to select performance measures from a large number of them. They argue that the smart technique is better than the analytic hierarchy process (AHP) because of its simplicity. This may be true when selecting indicators, but not necessarily when developing the indices. Bititci et al. (2001), proposes a conceptual model for establishing relationships in a performance measurement system. However, his conclusions are based on a very simple illustration, which reduces its generalisation possibilities. Perhaps the most relevant work was carried out by Yurdakul (2003), who proposed a model using ANP to measure the long term performance of a manufacturing firm.

2. The concept of strategy map

The balanced scorecard is a strategic management control system that was proposed by Kaplan and Norton. In the BSC, strategic objectives are derived from the vision and strategy of the organisation and then, are classified into the following perspectives:

- Financial.
- Clients.
- Internal processes.
- Learning and growth.

The objectives are then connected according to a cause–effect relationship, leading to what Kaplan and Norton call a *Strategy Map* (2004). Fig. 1 illustrates a strategy map.

Finally, performance indicators for each strategic objective are defined, along with all their characteristics, such as current values and targets. The literature states that the strategic map is derived from the vision and strategy of the organisation. This work proposes a way of doing it.

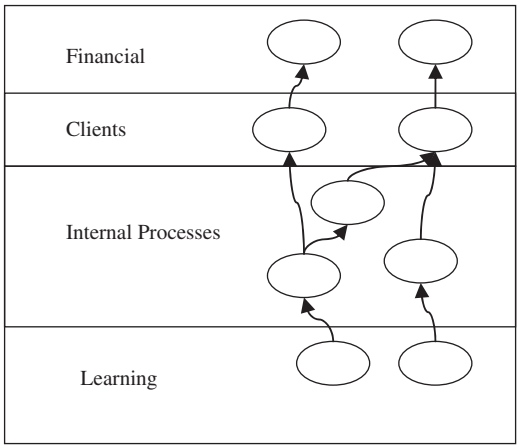

Fig. 1. Strategy map.

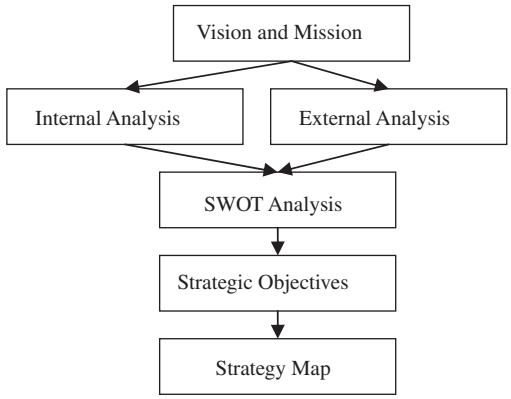

Fig. 2. Method 1 for identifying strategy maps.

3. Investigation methodology

The investigation methodology is based on a study of 12 organisations that have implemented a balanced scorecard according to Kaplan and Norton's methodology. Managers and consultants in charge of the process were asked about the way they created the strategy map. They were also asked about the advantages and drawbacks they found during the process, as well as for any recommendations they may give. Taking their observations into account, the new tool was proposed. The interviews also included the performance indicators that were defined as part of the process.

The companies studied belong to a variety of economic sectors, which include both manufacturing and service firms of different sizes.

Here a brief presentation of the companies is given:

Company A: It manufactures metalworking pieces and parts for a variety of industries.
Company B: It is dedicated to research and development in the energy sector.
Company C: It supplies buses and associated services to the transportation system.
Company D: It imports and delivers a variety of meat products.
Company E: It is a copper mining company.
Company F: It is a company in charge of newspapers delivery.
Company G: It is an insurance company.
Company H: It is a company dedicated to the production of thermal and acoustic isolation.
Company I: It is a consulting company (engineering).
Company J: It manufactures products made of copper.
Company K: It manufactures steel products for piping.
Company L: It is a hospital.

4. Results

The methods used by the companies were classified into three types. In this section the advantages and disadvantages of each one of the methods are presented and analysed. They were obtained by asking the managers and consultants for the reasons why they used the selected method and for their experiences with the use of the balanced scorecard in every company.

Method 1 carries out a strategic process, including the definition of a vision and mission, internal and external analysis from which a SWOT (strengths, weaknesses, opportunities, threats) analysis is undertaken. The strategic objectives are defined from the SWOT analysis. Fig. 2 depicts the process. This method has the following advantages:

- It simplifies the diagnosis for the definition of strategies by identifying the current position and the response capacity of the firm.
- The SWOT analysis has many benefits. It is easy to use, it is proposition oriented and it is integrative.
- This method requires the use of information that makes the definition and selection of strategies possible.
- The SWOT analysis can be used for generating both the strategies and the strategic objectives in a consistent way.

The main disadvantage is that the SWOT analysis may not represent the actual strengths, weaknesses, opportunities and threats, but only the manager's concerns Stevenson (1995).

Method 2 is similar to method 1, but the difference is that two types of objectives are defined: global and specific. Global objectives are defined directly from the vision and mission, while specific objectives are defined from the SWOT analysis. This method has an advantage over method 1; it translates the vision and mission into general objectives, helping the organisation to identify the strategic directions within the strategy map. It has the same disadvantage of method 1. Fig. 3 shows the method 2 for defining strategic objectives.

Method 3 identifies strategic themes from the organisation's vision and mission, which are the basis for defining the strategic objectives. The advantage of this

method is that it reinforces the declaration of vision and mission. Fig. 4 shows the process for defining strategic objectives according to the method 3.

The main disadvantage of this method is that the vision and mission declaration establishes the general paths of the organisation, so they may be too vague to create a strategy map that actually leads to the achievement of the company's strategy.

Table 1 presents the type of method used by each one of the organisations.

5. The proposed tool

5.1. Introduction

The methods described have similarities that will be included in the methodology proposed. It is intended to take the advantage of the positive aspects of every one of them.

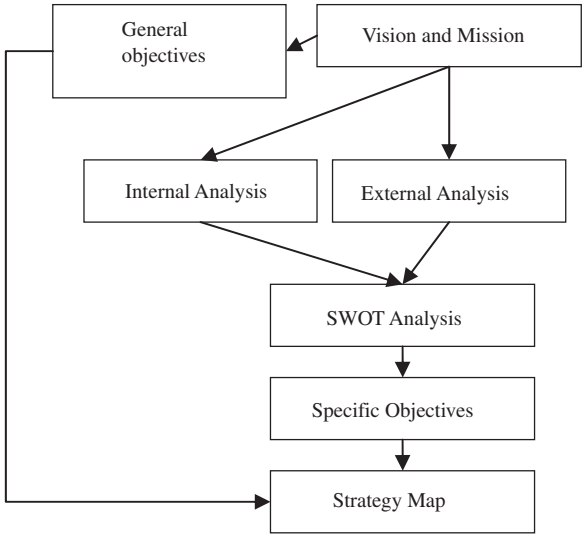

Fig. 3. Method 2 for defining strategic objectives.

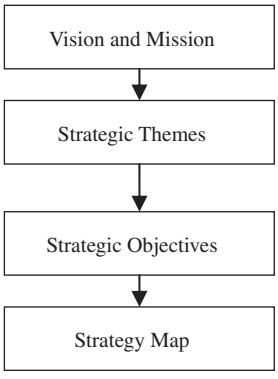

Fig. 4. Method 3 for defining strategic objectives.

Table 1
Classification of companies.

	Method 1	Method 2	Method 3
Companies	B	A	E
	C	K	F
	D		I
	H		L
	J		
	G		

5.2. The methodology

The methodology used is composed of the following steps:

1. *Definition of vision and mission*: in this step the company establishes the organisational identity (vision) and where it wants to go (mission).
2. *Identification of strategic themes*: they provide vertical links through the four dimensions of the BSC, seeing the strategy as a parallel and complimentary theme (Kaplan and Norton, 2006).
3. *Definition of general objectives*: they are generated from the vision and mission of the company. A method to select the most important objectives is presented later.
4. *Internal and external analysis*: strategic internal and external analyses are carried out, through a SWOT analysis.
5. *Generation of specific objectives*: specific objectives are derived form a modified SWOT matrix. The consistency between the specific strategic objectives with the organisational strategy and the general objectives derived from the vision and mission should be revised.
6. *Generation of the strategy map*: the strategy map is generated by establishing the cause–effect relationship among general and specific objectives.
7. *Generation of performance indicators*: performance indicators are obtained for each strategic objective.

The process is depicted in Fig. 5.

5.3. Selection of strategic objectives

According to the tool described above, once the strategic themes by perspective are defined, critical success factors are established in order to select the most important ones. The critical success factors are organised according to their importance, so that it is possible to easily identify which are the general objectives to be considered. It is necessary to have a small number of strategic themes in order to reduce the chance of losing the focus pursued by the company.

A simple technique to reduce the number of strategic objectives is the "multi-attribute rating technique" (SMART) proposed by Valiris et al. (2005). In this case, the alternatives are the strategic themes and the criteria are the critical success factors. Alternatively, the Saaty's

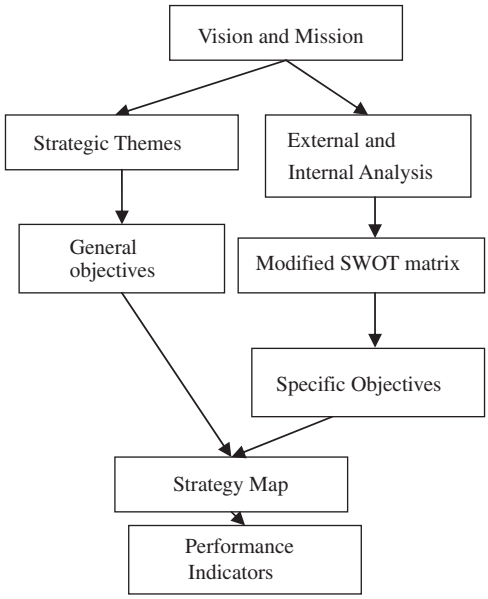

Fig. 5. Generation of strategic objectives.

	Strengths	Weaknesses
Opportunities	SO objectives	WO objectives
Threats	ST objectives	WT objectives

Fig. 6. Modified SWOT matrix.

analytic hierarchical process developed by Saaty (1994) could be used.

SMART can be also used to select performance indicators as suggested by Valiris et al. (2005).

5.4. SWOT/perspective analysis

It is suggested that once the strengths, opportunities, weaknesses and threats are identified, they should be used to generate strategic objectives using a SWOT matrix. Normally the entries of the SWOT matrix correspond to the strategies of the organisation, but in this case, the entries are the strategic objectives, as shown in Fig. 6.

6. Strategic objectives of the companies

An analysis of the strategic objectives and performance measurements obtained during the construction of the balanced scorecard of each company was made. They were classified into the categories presented by Kaplan and Norton (2004) and are shown next (Tables 2–5).

It can be seen that the companies establish more than one strategic objective in each perspective. In the financial perspective, the studied companies focus mainly in the reduction of costs (67%), increase of sales (57%) and increase the return on investment and use of existing assets (50%). On the other hand, to increase sales to current clients, to increase return on investment of R&D

Table 2
Strategic objectives in financial perspective.

Strategic objective category	Number of companies
Reduce costs	8
Use of assets	6
Increase income per new clients	
Create new sources of incomes	2
Productivity of sales	1
Return on investment on R&D	
Management of costs of life cycle	
Increase sales	7
Control of margins	1
Increase return on investment	6
Reduce financial expenditures	1
Capture new clients	2
Keeping clients	1
Market share	2
Financial risks	2
Operational income	2

Table 3
Strategic objectives in clients perspective.

Strategic objective category	Number of companies
Reduce costs for clients	2
Deliver products and services with zero defects	4
Deliver products on time	6
Offer excellent selection of products	0
Increase customer satisfaction	10
Increase loyalty of customers	4

Table 4
Strategic objectives in processes perspective.

Process	Strategic objective category	Number of companies
Operations management	Relationship with suppliers	4
	Production of goods and services	10
	Distribution to clients	5
	Risk management	4
Clients management	Selection of clients	3
	Capture of new clients	2
	Keeping clients	4
	Increasing number of clients	2
Innovation	Opportunities identification	3
	Management of portfolio R&D	1
	Design and development	1
	Launching new products	1
Regulatory and social	Environment	3
	Safety	0
	Employment practices	0
	Investment in the community	0

Table 5
Strategic objectives in learning and growth perspective.

Strategic objective category	Number of companies
Human capital	12
Information capital	6
Organisational capital	12

Table 6
General objectives.

Elements of vision and mission	General strategic objectives
To offer the best support for a flexible service to identify and develop new unique services	• To strengthen the critical success factors • To identify new market niches • To segment the market according to customers characteristics
We will gain value to our clients	• To satisfy our clients with a unique service and post-sales support
We will gain value to our employees	• To integrate employees through information • To improve employee's competencies
We will gain value to the shareholders	• To increase return on investment • To reduce operational costs • To reduce total costs
To become the best choice within the Chilean metalworking industry in the production on demand	• To strengthen the critical success factors
Our commitment is to understand and satisfy the needs of our clients with a unique and quality service, based on efficient processes, technology and continuous improvement strategy	• To satisfy our clients continuously • To strengthen the critical success factors

Table 7
Classification of general objectives.

Perspective	General strategic objectives
Financial	
F1	Increase return on investment
F2	Reduce operational costs
F3	Reduce total costs
Clients	
C1	Satisfy our clients with a unique service and post-sales support
C2	Segment the market according to customers characteristics
C3	Identify new market niches supporting critical success factors
Processes	
P1	Strengthen the critical success factors
P2	Improve lead times
Learning & development	
L1	Integrate employees
L2	Improve employee's competencies

and costs management of the product cycle are not considered.

The more important objectives for the companies in the perspective of clients are to increase customer satisfaction (83%), to deliver products on time (50%) and to offer products/services to new market segments (42%). It is surprising that maintaining clients is not important for any of the studied companies

In the processes perspective, the area of operation management is the most important (100%), while innovation and regulatory and social processes are less considered. The client management area is also important (50%). Within the operation management area, the most important objective is the goods and services production process (83%). Something surprising is that for the 33% of the companies the process of keeping clients is important, which contradicts the fact that keeping clients is not an important objective.

In the perspective of learning and growth, the organisational and human capitals are present in all companies. It should be mentioned that the development of employees' abilities and their satisfaction are the more relevant items.

With the limited number of companies it is difficult to arrive to a general conclusion. However, it should be remembered that most of the companies (8 out of 12) used a SWOT analysis for building the BSC, which may indicate that the strategic objectives are mainly managers' concern, more than actual objectives. The proposed method combines the SWOT analysis with the mission and vision to avoid this problem. However, further research is required.

7. An illustration of the method

7.1. The company

The company is a metalworking firm that manufactures a variety of products for various markets: mining, steel industry, industry in general and construction. It is a medium sized company with 120 employees.

The vision of the company is "To offer the best support for a flexible service and to identify and develop new unique services". The mission is "We will gain value to our clients, employees and shareholders in order to become the best choice within the Chilean metalworking industry in the production on demand area. Our commitment is to understand and satisfy the needs of our clients with a unique and quality service, based on efficient processes, technology and continuous improvement strategy".

Table 8
Modified SWOT matrix for company.

	Strengths	Weaknesses
	Variety of resources available	Lack of knowledge of strategic information by employees
	Monitoring and control of activities in manufacturing	Lack of strategic management control system
	Availability of an ERP system	High level of manufacturing costs
	Know-how in the engineering process of the target markets	High level of stocks
	Information management system for all areas of the organization	Lack of focus in marketing
	Quality assurance system	Lack of criteria for selecting customers orders
		Poor mechanism for evaluating personnel
		Poor production planning and control
		High short term debt
		Low concern on competition
		Long lead times
Opportunities		
High market growth	Reduce failure costs	Increase margins control
Presence of other markets where the company may compete	Increase sales	Improve financial management on short term debt
Existence of alternatives of new sources of raw materials and services	Increase relationships with important clients	Reduce inventory costs
	Improve market segmentation	Increase coordination among functions
	Increase and improve use of management information system	Improve machine utilization
	Improve technical competencies	Reduce lead time
		Improve strategic management control
		Improve personnel evaluation system
Threats		
Distributors of machinery and equipment entering the industry	Reduce failure costs	Increase margins control
Competitors becoming more aggressive	Improve market segmentation	Improve financial management on short term debt
Entrance of more specialised competitors	Improve maintenance system	Reduce labour cost
	Improve technical competencies	Increase control and management of prices
	Improve communication with employees	Improve strategic management control
		Improve personnel evaluation system

7.2. The strategic objectives

The purpose of this section is not to illustrate the complete process, but to emphasise the use of the SWOT/perspective matrix and modified SWOT matrix. In this case, strategic objectives were derived from the mission/vision and the SWOT analysis (Table 6).

These objectives are then classified according to the BSC perspectives, as presented in Table 7.

Then, the modified SWOT matrix is built. The entries of the matrix are the specific strategic objectives, as presented in Table 8.

Finally, specific strategic objectives are aligned with the general strategic objectives, as presented in Table 9. All of them are then connected according to a cause–effect relationship to finally produce a strategy map for the company.

8. Conclusions

The importance of measuring the performance from a strategic perspective has motivated the improvement of the process of implementing a balanced scorecard. The significance of this work is that it proposes a simple tool that helps the creation a strategy map.

The tool was created by studying the processes used by 12 companies to implement a balanced scorecard. Three types of methods were found, and their advantages and disadvantages were considered in the proposed tool.

The tool starts with the definition of the vision and mission of the organisation, then it continues with the identification of strategic themes, and finally general objectives are defined. At the same time internal and external analysis are carried out, in order to arrive to a SWOT analysis. The strength, weaknesses, opportunities and threats are identified and classified into the four perspectives of the balanced scorecard. Through the use a modified SWOT matrix, specific objectives are defined. Then, a strategy map is generated by establishing the cause–effect relationship among general and specific objectives. Finally, performance indicators are defined for each objective.

An analysis of the strategic objectives defined by the studied companies was also carried out. It showed that companies focus mainly in the reduction of costs (67%), increase of sales (57%), increase return on investment and use of existing assets (50%), operations management process (100%) and the organisational and human capital.

The limited number of companies did not allow analysing whether there was a relationship between the type of strategic objectives identified and the type of method used. This is matter of other investigations.

Acknowledgements

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Table 9
Alignment of general and specific strategic objectives.

General strategic objectives		Specific strategic objectives	
F1	Increase return on investment	F1.1	Increase control of margins
		F1.2	Increase sales
F2	Reduce operational costs	F2.1	Reduce labour cost
		F2.2	Reduce failure costs
F3	Reduce total costs	F3.1	Improve financial management on short term debt
		F3.2	Reduce inventory costs
C1	Satisfy our clients with a unique service and post-sales support	C1.1	Increase relationships with important clients
C2	Segment the market according to customers characteristics	C2.1	Increase control and management of prices
C3	Identify new market niches supporting critical success factors		
P1	Strengthen the critical success factors	P1.1	Improve maintenance system
		P1.2	Increase and improve use of management information system
P2	Reduce late orders	P1.1	Increase coordination among functions
		P1.2	Reduce production lead time
		P1.3	Improve machine utilization
L1	Integrate employees	L1.1	Improve communication with employees
		L1.2	Improve personnel evaluation system
L2	Improve employees' competencies	L2.1	Improve technical competencies

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