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CREATION OF INDICATORS FOR CLASSIFICATION OF BUSINESS MODELS AND BUSINESS STRATEGIES IN PRODUCTION SYSTEMS

Gomes J.G.C., Okano M.T., Otola I.*

Abstract: The objective of this paper is to create indicators to classify the relationship between business model and business strategy in productive systems and to develop a table as an artifact for automatic classification. A literature review of "business models", "business strategies" and "value" was used to legitimize pertinent questions about the terms. To conduct this research, a qualitative descriptive exploratory approach with content analysis was used, through interviews with semi-structured script conducted with executives of companies in Brazil and Poland. The multiple case study was applied to identify similarities and dissimilarities in the way companies relate their business models and their business strategies, in order to build the indicators and use the table, which analyses each company's business model. and identify which business blocks the strategies are applied to. Among the results, it can be highlighted that the unification of the individual strategies of each pillar of the Business Model Canvas, when grouped together, represent the relationships between business models and business strategies of various production systems, besides analyzing the relationship between theory and business practice.

Key words: Business Models, Value, Business Strategies, Productive Systems.

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Introduction

During several years, many premises and business practices were previously taken as certain, they began to undo, and replaced new concepts which are used more and more daily. The world and rapidly changing markets force companies to constantly progress if they want to keep their prosperity. The focus on the product has changed to the market and to the customer. It stopped being domestic and started being global (Kotler, 1999).

The business model extends the core ideas in the business strategy and its associated theoretical traditions. The business model is debated by academics, it can be a source of competitive advantage, which is distinct from the market position regarding the company's product (Christensen, 2001; Bednar and Salanci, 2016). Equally, Teece (2010) considers that tracking strategy and business model

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analysis are necessaries for ensuring that a competitive advantage derives of a new formulation of a model.

The relation between business models and business strategies is not completely clear in the scientific literature as well as in practice (Rusnajak, 2012). According to Vukanovic' (2016), the business model theme has been debated over the years. The period between 1998 and 2002 had the largest increase in peer-reviewed or peer-reviewed articles, followed by the sharp increase in published master's theses and dissertations. Through these notes, the research question that this paper intends to answer is:

How do companies relate their business models and business strategies on many productive systems in Brazil and Poland?

The main objective of this research is to create indicators to classify the relation between business model and business strategy in productive systems.

A bibliographical review on 'business models' and 'business strategies' were used for permitting the questions regarding those terms. The bibliographical review allowed the choice of the theoretical lenses by Osterwalder et al. (2005) regarding the construction of the business model pillars, Osterwalder and Pigneur (2011) regarding the Business Models Canvas and by Seddon and Lewis (2003) regarding the business models and business strategies. Research follows qualitative approach based on descriptive exploratory with content analysis, through semi-structured interviews, applied to executives of Brazilian and Polish companies. The multiple-case study was applied to identify similarities and dissimilarities as companies relate their business models and business strategies in order to developing the concept of the strategic table, which analyzes each company's business model and simultaneously identifies which business blocks the strategies are applied to.

The great innovation potential of this work is to analyze the relation between the theory and the business practice of terms.

Literature Review

Business models

In the context of business model, the 'model' is abstraction of how an organization's business activities run. While business can be understood as the structured transformation of input factors into products and services. Thus, a business model provides a simplified representation of value creation processes, functions, and interactions for generating value to the customer by guaranteeing competitive advantage and generating revenue, through enlargement and aggregated image of reality which can integrating the political and legal aspects, economic, socio-cultural, technological and ecological conditions in the transparent architecture needed for managing complexity (Doleski, 2015).

Many definitions of the business model concept highlight the fragmentation of the nature of existing conceptualizations. A wide variety of approaches, points of view and different and multidisciplinary questions regarding the application concept of

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business models keep and probably add to the indefinite, uncertain, and inarticulate view by keeping domain knowledge fragmented. This suggests the domain is confusing and vague and it is in the process of conceptualization, yet. Often, the term business model is confused with a set of undefined methodological discrepancies (Vukanovic', 2016).

Business models are concerned with manner, as company defines its competitive strategy by designing the product or service. It offers the market how much it charges, how much it costs to produce, how it differs from other companies by value proposition, and how the company integrates its own value chain with other companies in a value network (Rasmussen, 2007).

Business models reflect a hypothesis about what customers wish and as company can best meet these necessities (Teece, 2007). In other words, the business model reflects as value is produced and delivered to customers by becoming a dynamic representation of organizational operational logic and an objective representation of the reality of the company and its markets (Mason and Spring, 2011).

Even with countless research about business model in the last two decades, structured research on the subject is rare. Much of the research on the topic was carried out in a start-up, therefore, as they are new companies it is not possible to know how their business models change over time (Demil, et al. 2015).

Conceptual model

A business model is defined by three main elements: value proposition, value creation and delivery, and value capture. Value creation is on the core of any business model. Companies capture value many times by taking advantage of new business opportunities, new markets, and new sources of revenue (Beltramello et al., 2013, Teece, 2010).

The conceptual approach to business models is presented in different ways in the literature on the subject, however, three main elements based on value can be distinguished: value proposition, value creation and delivery, and value capture (Figure 1). These three elements dominating in business models play significant role in the value composition process (Otola et. al., 2020).



Figure 1: Conceptual business model (Source: Adapted from Richardson (2008); Osterwalder e Pigneur (2005)

The conceptual model contains a set of elements and their respective relations that allow expressing the logic of the researched business. It describes the value which one company offers to customers and their network of partners in creating, selling, and delivering this value to generate profitable revenue flow (Osterwalder et al., 2005; Osterwalder and Pigneur, 2011). Table 1 presents the construction of the blocks.

Table 1. Nine building blocks of the business model

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Pillar	Business Model Building Block Description					
Product	Value Proposition	Gives an overall view of a company's bundle of products and services				
Customer Interface	Customer segment	Describes the segments of customers a company wants to offer value to.				
	Customer relationship	Describes the various means of the company to get in touch with its customers.				
	Channels	Explains the kind of links a company establishes between itself and its different customer segments.				
Infrastructure Management	Key resources	Describes the arrangement of activities and resources.				
	Key activities	Outlines the competencies necessary to execute the company's business model.				
	Key partners	Portrays the network of cooperative agreements with other companies necessary to efficiently offer and commercialize value.				
Financial Aspects	Cost structure	Sums up the monetary consequences of the means employed in the business model.				
	Revenue stream	Describes the way a company makes money through a variety of revenue stream.				

Source: Adapted from Osterwalder, et al. (2005); Osterwalder and Pigneur (2011)

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The study of business models is an important item to the research of a strategic company because business models impact the value prospects of creating and capturing business value (Amit and Zott, 2001).

Business Model Canvas

Osterwalder (2004) developed a study which evaluated and compared the most common building models in the literature and from that identified the most frequently mentioned components. The result of this research consists of a synthesis with nine building blocks, covering all components of the business models mentioned by at least two authors, excluding the elements related to competitors.

The authors' goal in developing the Business Model **Canvas** was to enable anyone interested to create or modify a business model, since the business model screen presents clear language, allowing for the exchange of ideas among those involved in the business process business modelling (Orofino, 2011).

Five from nine blocks of business model refer to external aspects, i.e.: value proposition, customer relationships, customer segments, channels, and revenue, while the others refer to the internal aspects: key activities, key partners, costs, and resources.

The process of building a business model is the start for a company. However, each organization can customize the method to suit their reality. (Osterwalder and Pigneur, 2011).

Before, customers were just passive consumers of companies' products and services. However, in today's connected world, customers are increasingly involved in the companies' value proposition, that is, in the generation and delivery of the same products and services that are intended for their consumption (Demil, et al. 2005).

Business models and business strategies

The business model allows the approach of the entrepreneurial vision of the strategy, which in turn is less concerned with the usual business and more with the renewal of the business, through the creation of opportunities, development, and exploration (Demil, et al. 2005).

The business model refers to the business operation, through the creation of value for all business stakeholders, while the strategy refers to the choice of a business model that can be used by the company for competing in the market and therefore formulate a strategy with a business model. The business model and business strategy are tools for strategic planning, and both represent a set of decisions which are essential aspects to the running of the business, because the business model is appointed firstly to the creation value to the customer, while the focus of the strategy is in value for all stakeholders. The business model is turned on creating value for customers and businesses, while the strategy is motivated by competition and the value generated by sales. Thus, the concepts are concluded as they implement the strategic goals (Grabowskaet. al., 2015, Mihardjo et. al., 2018).

One of the problems that companies currently face in relation to the business model and strategy is the lack of a process that allows companies to present entirely new and viable alternative business models (Osterwalder and Pigneur, 2013).

There is no unanimity in the scientific literature neither in the practice of how business models and strategy are sorted. However, academics of business models and strategies agree that business models mainly describe the company's logic and the strategies act predominantly in the company's success and competitive situation (Rusnajak, 2012).

Seddon and Lewis (2003) identified through a literature review the following overlays in the use of both terms, as shown in Figure 2.

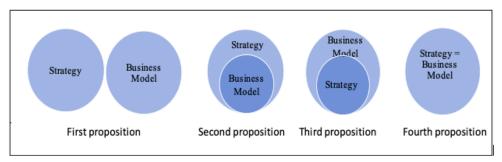


Figure 2: Relation between business model and business strategy. Source: Adapted from Seddon and Lewis (2003)

In the first view, there is no relation between the strategy and business model, in the second view, the business model is part of the strategy, in the third view, the strategy is part of the business model and in the fourth view, the strategy and the business model are equals.

A business strategy is the result of changing the dominant logic in business, that's, changes in business models. On the other hand, a business model is always changing. The business model of a company is never complete, as well as the process of making strategic choices and testing business models must be continuous and iterative (Shafer et al., 2005).

The business model emphasizes how the value proposition is brought to the market, connecting the formulation of the strategy and its implementation. These two propositions happen simultaneously in a convergent way (Demil, et al. 2005).

Research Methodology

It was performed a descriptive exploratory research, with a qualitative approach for the development of the dissertation. The descriptive exploratory research was chosen because this type of research aims to develop ideas to provide hypotheses in conditions to be tested with the aim at describing phenomena (Gil and Carlos 2002).

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As the bibliographic review makes clear the theoretical assumptions which underlie the research and the contributions offered by previous researches Gil and Carlos (2002), the bibliographic review on 'business models', 'business Strategies' and 'value' was used for justifying the pertinent issues about the topics and allowed the choice of the theoretical lenses by Osterwalder et al. (2005), Osterwalder and Pigneur (2011) on business models and Seddon and Lewis (2003) for the relations between business models and business strategies.

Content analysis was carried out through open conversations with specialists in the business and strategy areas of three small, medium and large companies, which provide multidisciplinary consultancy services, vehicle management and outsourcing and the healthcare operator.

Preliminarily, pilot interviews were conducted on three small, medium, and large companies, that's, multidisciplinary consultancy services, management and outsourcing of vehicles and health operator for assessing whether the theoretical concepts reflected the interviewees 'experiences. After transcribing the interviews, a word cloud was created. The most cited words were: better, attention, services, care and focus. The final script of the interview was elaborated, which was based on the three phases of the elaboration of the content analysis and with the final script of the interview drawn up, field research began. In addition to the content of the interviews, direct observations were documented during the field study, which helped with data triangulation.

Eight Brazilian and four Polish companies were interviewed. For reasons of confidentiality the companies were named A, B, C, D, E, F, G, H, I, J, K and L. The details of the interviews are shown in the Table 2.

Table 2. Details of the interviews

Company	Date	Duration	Locality
A	12/06/2019	30m09s	São Paulo - Brazil
В	22/04/2019	26m13s	São Paulo - Brazil
С	18/06/2019	28m30s	São Paulo - Brazil
D	17/06/2019	30m18s	Fortaleza - Brazil
Е	25/06/2019	25m31s	São Paulo - Brazil
F	08/05/2019	57m00s	São Paulo - Brazil
G	09/07/2019	33m04s	São Paulo - Brazil

Н	13/05/2019	28m27s	São Paulo - Brazil
I	31/05/2019	41m18s	Warsaw - Poland
J	24/05/2019	33m32s	Katowice - Poland
K	29/05/2019	51m22s	Krakow - Poland
L	31/05/2019	37m23s	Warsaw - Poland

The interviews were carried out through a semi-structured questionnaire, containing 24 questions so that the interviewees were free to answer them. After the end of the interviews, all of them were transcribed and passed the trustworthiness conference, the recordings were heard, and the texts were transcribed accompanying and checking each sentence.

The analysis of the companies took place, using the intra-case model and the intercase model established by Miles and Huberman (1994). The intra-case analysis promotes familiarity and data generation through a preliminary theory, whereas the inter-case analysis allows the researcher to see more than one evidence case, since it allows different perspectives (Eisenhardt, 1989). The convergence of intra-case and inter-case analyzes led to the multiple case study. Finally, the conclusion was drawn.

Results Presentations

The understanding of the business of the companies was accomplished through intra-case analysis. Sequentially, through the inter-case analysis, the identification of which business blocks the companies applied their business strategies to achieve the expected objectives was performed. From the inter-case analyzes, it was possible to elaborate the indicators and consequently identify the overlaps in the use of the business model and business strategy of the companies.

The business model of each company was mapped through intra-case analysis. Using the Business Model Canvas, it was possible to analyze each of the nine blocks of each company and thus understand its value propositions, customer segments, customer relationship, channels, key resources, key activities, key partners, cost structures and revenue streams. The inter-case analysis was applied proposing to find, in which parts of the business models companies concentrate their business strategies. Thus, it was possible to find the regularities among the nine companies, even though they are from different production systems. The analyzes were performed by comparing them by summarizing the information of the interviewees. A more comprehensive analysis was performed, in which the

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interviews were analyzed so that the common and distinct points gave rise to the indicators.

To elaborate the correlation, the theoretical lens of Osterwalder et al. (2005), Osterwalder and Pigneur (2011) on business models were detailed to identify the business strategies of each of the nine blocks of the model. Thus, it was possible to make an inter-case analysis, allowing the comparison of business strategies between companies and create a score for each block.

To prepare the score, the four pillars with their respective building blocks were considered, as shown in Table 1.

Looking at Table 3, it's possible to verify the score given the existence of business strategies in each of the four pillars of the nine building blocks of the business model.

Table 3. Business strategy score in the business model

Pillar	Business model building blocks	Indicators	Score	
Product	Value proposition	10,000	10,000	
G .	Customer segments	1,000		
Customer Interface	Customer relationship	1,000		
	Channels	1,000	3,000	
	Key resources	100		
Infrastructure Management	Key activities	100	=	
Wanagement	Key partners	100	300	
Financial Aspects	Cost structure	10		
Timanetai Tispeets	Revenue stream	10	20	
Strategy - Macroeconomic Analysis		1	1	
	Total	13,321	13,321	

The indicators created for each of the blocks, followed the sequence of the four pillars of the business model. A fifth pillar, called a strategy, was created. It was possible to point out the existence of business strategies in each of the following blocks. Analysing at Table 3, it is possible to verify the indicators given to the

existence of business strategies in each of the four pillars of the nine building blocks of the business model, as well as the fifth pillar.

After the inter-cases analysis, the consolidated company scores are shown, as shown in Table 4..

Table 4. Companies score against business strategies in their business models

COMPANIES	INTERVIEWS	STRATEGIC INDICATORS							SCORE			
		Value	Customer	Customer	Channels	Key	Key	Key	Cost	Revenue	Macroeconomic	
		propositions	Segment	relationship	CHAIRCE	resources	activities	partners	structure	stream	strategy	
	A	10,000	0	1,000	1,000	100	100	100	10	10	1	12,321
	В	10,000	1,000	1,000	0	100	100	100	10	10	1	12,321
	C	10,000	1,000	0	0	100	0	100	10	10	0	11,220
Brazilian	D	10,000	0	1,000	0	0	0	0	0	0	0	11,000
Brazillan	E	10,000	1,000	1,000	1,000	100	100	100	10	10	1	13,321
	F	10,000	1,000	1,000	0	100	100	100	10	10	1	12,321
	G	10,000	1,000	1,000	0	100	100	100	0	0	1	12,301
	Н	10,000	0	1,000	0	100	100	100	0	0	0	11,300
Polish	I	10,000	0	1,000	0	100	100	100	10	0	1	11,311
	J	10,000	0	1,000	0	100	100	0	0	0	0	11,200
	K	10,000	0	1,000	0	100	100	0	0	0	0	11,200
	L	10,000	1,000	0	0	0	100	100	10	10	0	11,220

According to Table 4, it is possible to observe in which blocks of the business models the companies concentrate their business strategies. The order of scoring of the blocks was: value proposal, relationship with customers, key resources, key activities, key partners, customer segment, cost structure, revenue flow, macroeconomic strategy, and channels.

The total points of the companies were staggered, representing the relationships between business models and business strategies by Seddon and Lewis (2003). The scale of the overlays is shown in Figure 3.

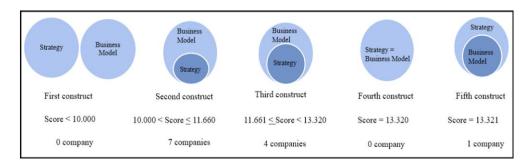


Figure 3: Scaling of overlaps between business models and business strategies.

For the definitions of each logical proposition between the constructs, the following definitions by the authors were considered.

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- 1. The first proposition adopts strategy and the business model as totally different constructs;
- 2. The second construct adopts strategy as a small part of the business model construct;
- 3. The third construct adopts strategy as most of the business model construct;
- 4. The fourth proposition adopts strategy and business model as totally identical construct:
- 5. The fifth construct adopts the business model as a construct fully contained in the strategy construct.

Results Discussion

According Table 4 the highest scoring blocks in a row were: value proposition, customer relationships, key resources, key activities, key partners, cost structure, customer segment, and revenue stream.

Half of Brazilian companies are in the third construct, and most of the strategy is contained in the business model construct, whose score is in the range of 11,661 to 13,320 points.

The four Polish companies are in the second construct, and only part of the strategy is contained in the business model.

In the individual score by block of the business model, it is possible to identify the following similarities and dissimilarities, shown in Table 5.

Table 5. Individual strategic score per business model block

Country	Number of companies					
Strategy for	Brazil	Poland	Total			
Value propositions	8	4	12			
Customer segment	5	1	6			
Customer relationship	7	3	10			
Channels	2	0	2			
Key resources	7	3	10			
Key activies	6	4	10			
Key partners	6	2	8			
Cost structure	5	2	7			
Revenue stream	5	1	6			
Strategy macroeconomic	5	1	6			

The main similarities pointed out are:

- Value proposition: all companies have strategies for their value propositions;
- Customers relationship: more than half of companies have customer relationship strategies;

- Channels: less than half of Brazilian companies and no Polish companies present strategies for their communication channels;
- Key resources: more than half of Brazilian and Polish companies present strategies for their main resources;
- Key activities: more than half of Brazilian companies and all Polish companies present strategies for their main activities;
- Macroeconomic strategy: less than half of Brazilian companies and only one Polish company have macroeconomic strategies.
- The main dissimilarities pointed out are:
- Customer Segment: more than half of Brazilian companies have strategies for customer segmentation, while only a third of Polish companies have strategies for this model block.
- Key partners: more than half of Brazilian companies have strategies for their main partnerships, while only half of Polish companies have strategies for this block of the model.
- Cost structure: more than half of Brazilian companies have strategies for their cost structures, while only half of Polish companies have strategies for this block of the model.
- Revenue stream: more than half of Brazilian companies have strategies for their revenue streams, while only a third of Polish companies have strategies for this block of the model.

Only the blocks: customer segmentation, key partners and revenue flow show the greatest deviations when comparing the strategies adopted by the two countries. This means that out of the nine blocks of the models, countries focus their strategies on the same blocks.

The result of the research reveals that the discussion between the terms business models and business strategy is not clear in practice, and that the terms are related in a complementary way to guide strategic management in a real way in companies.

The relationship between business model and business strategy by Seddon and Lewis (2003) allowed to compare the relationship of the two terms between companies, since the constructs received scores derived from the occurrence of strategies in the blocks of the Business Model Canvas.

There is no unanimity in the scientific literature or in the practice of how business models and strategy are organized. However, business model and strategy scholars agree that business models primarily describe the logic of the company and strategies predominantly act on the company's success and competitive situation (Rusnajak, 2012). Therefore, the indicators allow you to examine the business model and business strategy simultaneously, and to analyze the considerable and substantial overlaps between the terms.

It is important to highlight that research were carried out, finding similar studies, but no research has been found nationally and internationally.

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Managerial Implication and Conclusion

The main objective of this dissertation in the creation of indicators to classify the relationship between strategy and business model in productive systems, besides developing an electronic table as an artifact for automatic classification. it was achieved. Through the table it is possible to analyse the business models of companies and to point out the strategies of each block of the model, pointing out in which parts of the business model companies concentrate their strategies.

The building block pillars of the Business Model Canvas allowed the intra-case analysis of the companies and through the questions that characterize the strategy it was possible to elaborate the indicators of each pillar block and thus understand the alignment of terms.

For the companies interviewed, the blocks: relationship with customers, key resources and key activities are strategically more important, as they scored higher. The blocks: key partners, customer segment, cost structure, revenue flow and macroeconomic analysis finalize the sequence of strategic use to obtain competitive.

Through descriptive exploratory research with a qualitative approach and field research, it can be concluded that the business model is never complete, as internal and external analysis are needed to assess the strengths, weaknesses, opportunities and threats of the business. The result of the analysis leads to strategic changes that are tested and implemented, to result in logical changes in the model. This cycle will repeat itself until there is no more reason for the value proposal to exist and a new business model is created.

For future work, an analysis of more companies from different productive systems is proposed, so that the indicators have greater validations, and the table can be used as a stress test between business theory and practice. Another proposal is that the table be tested in several companies in the same market category, as there will be the possibility of restrictively analysing the indicators and possibly having a table for each type of production system.

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TWORZENIE WSKAŹNIKÓW KLASYFIKACJI MODELI BIZNESOWYCH I STRATEGII BIZNESOWYCH W SYSTEMACH PRODUKCYJNYCH

Streszczenie: Celem tego artykułu jest stworzenie wskaźników do klasyfikacji relacji między modelem biznesowym a strategią biznesową w systemach produkcyjnych oraz opracowanie tabeli jako artefaktu do automatycznej klasyfikacji. Przegląd literatury dotyczący "modeli biznesowych", "strategii biznesowych" i "wartości" posłużył do uzasadnienia istotnych pytań dotyczących terminów. Do przeprowadzenia tego badania zastosowano jakościowe, opisowe podejście eksploracyjne z analizą treści, poprzez wywiady z częściowo ustrukturyzowanym skryptem przeprowadzone z kadrą kierowniczą firm w Brazylii i Polsce. Wielokrotne studium przypadku zostało zastosowane do zidentyfikowania podobieństw i odmienności w sposobie, w jaki firmy odnoszą się do swoich modeli biznesowych i strategii biznesowych, w celu zbudowania wskaźników i wykorzystania tabeli, która analizuje model biznesowy każdej firmy. i określić, do których bloków biznesowych stosowane są strategie. Wśród wyników można podkreślić, że ujednolicenie poszczególnych strategii każdego z filarów kanwy modelu biznesowego, gdy są zgrupowane razem, reprezentuje relacje między modelami biznesowymi i strategiami biznesowymi różnych systemów produkcyjnych, oprócz analizy relacji między teorią a biznesem. ćwiczyć.

Słowa kluczowe: modele biznesowe, wartość, strategie biznesowe, systemy produkcyjne.

在生产系统中创建用于分类业务模式和业务策略的指标

摘要:本文的目的是创建指标以对生产系统中的业务模型和业务策略之间的关系进行分类,并开发一个表作为自动分类的工件。对"商业模式","商业策略"和"价值"的文献综述使有关术语的相关问题合法化。为了进行这项研究,通过对巴西和波兰公司高管进行的半结构化脚本访谈,使用了具有内容分析的定性描述性探索性方法。应用多案例研究来确定公司关联其业务模型和业务策略的方式中的异同,以建立指标并使用表来分析每个公司的业务模型。并确定将策略应用于哪个业务部门。在结果中,可以强调的是,将业务模型画布的每个支柱的单个策略组合在一起时,除了分析理论与业务之间的关系外,还代表了业务模型与各种生产系统的业务策略之间的关系。实践。

关键词:商业模型,价值,商业策略,生产系统。