

Preface

In this study we will try to clarify the explanation of modeling and measuring “Business Values”, as it is defined in business context, in the business processes of a company and introduce different methods and select the one which is best for modeling the company’s business values. These methods have been used by researchers in business analytics and senior managers of many companies .

I have undertaken this research for my master thesis, as a master of management student at University of Hasselt during academic year 2013-2014. I used different literature and defined methods to introduce business values of a company active in car rental industry. This study can be used for young researchers and junior managements trying to apply “Balanced ScoreCard” method in order to build knowledge in business value modeling. I will be glad to get in touch with new research and to hear comments about my study.

Finally I would like to thank my master programme and thesis supervisor, Professor. Dr. Koen Vanhoof for all the support and good criticism he did. I would also like to dedicate my master thesis to my parents and my beloved Aziz for all of their patronage and kindness.

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Summary

The goal of this research is the modeling and measuring of business values that are created during the processes of a car rental company. Our thesis contains three parts. The first part as literature section of project explains the concept of business, business value and value modeling and measuring. In this part , we represent basic and advanced information about definition and types of value , business and business characters , network value and measurement of business value.

The second part begins with the introduction of a case study . We will illustrate the strategies , vision and objectives of the company .The policy of company in partnership selection and the most important processes will be demonstrated.

The last part is the representation of case study evaluation.We will discuss “Business Value detection” , “Business Process tracing” and “Processes and Values evaluation”. In this part, we use balanced scorecard method which is an analytical technique based on design method for tracking the activities and overall business strategy of company to extract the business values.

Then,we will explain the most important processes and specify the business values that are extractable from processes execution along with potential of the processes in generating those values. Finally , a map of relationship between business values and processes will be represented. Actually this map visualizes the company processes from the business values point of view.

Methodology

Thinking about how business process modeling can help us to measure and model the business values of any company is the basis of this research. Then we started with this question “How can we measure and model the business value of a company based on business process modeling?” .We needed to know about the concept of value, business, business values, network value and methods for measuring and modeling of business values. The explanation of these concepts will be brought in literature review.

In the next step, we will introduce the case study which will be analyzed on the basis of research approach .A car rental company was chosen as the case study.We will present information about overall strategy, vision, mission, goals and objectives, green initiative, partnership, car rental insurance and roles of company in chapter two.

In order to implement our measuring and modeling tool and after we define the mission and image of the company, we start the procedure of case analysis. The precise information about the analysis of case study will be mentioned in chapter three, choosing the modeling and measuring method, detecting the business values, tracing the business processes and evaluating the processes and values .

We will wind up this thesis by presenting the conclusion. We will discuss how we achieved the goals of this research , whether we have succeeded or not in implementing the desired method and what the advantages and disadvantages of this implementation are. In last part, we will introduce the references we used during this research.

Introduction

The focus in this project is business value detection and modeling. The basis of this research is on BPMN models which means that these models are used for business value modeling. As a further explanation, by tracing the process models the probable values can be generated during process execution are identified. They will be categorized according their characteristics and then we try to model these values.

“Heat map” representation helps us to have a better understanding of our value modeling. It is a visual colored representation of data. A heat map can represent all kinds of data. By this visualization , the relationship between business values and processes becomes more clear.

In fact , this proceeding helps the analyzers to identify the processes that generate their ideal business values and they can help companies to determine the priority of processes according to companies’ vision and mission. On the other hand, it will be possible to recognize the effect of each process on generating of each value.

This information provides situation that company has a better vision of the changes to be done for improving its processes. These changes encourage the company to improve their BPMN models . Actually all the steps were mentioned, point to a circle which exists always in a dynamic organization.

To reach project objectives systematically, we define problem statement of the thesis as below :

- “How can we measure and model the business value of a company based on the business processes modeling ?”

We must know about the company business processes, their characteristics and the condition that they make to create business values in detail. For finding precise answer for this question, it is better to break down it to more questions as research questions. Answering these questions help us achieve a proper response for problem statement.

1. “What kind of business values can be discovered by using BPMN models?” (Detailed information in “Business value detection” section in chapter three provides the answer to this question by introducing the extracted business values.)

2. “ Which method is proper for the case study?” (In the beginning of chapter three “ Business case analysis” section we will compare introduced methods in literature part and finally an appropriate conclusion will be reached.)

To make these research questions more clear, we defined more questions according the aspects of each above questions. These investigative questions are related to more details of project. By answering these questions, suitable answers to above questions will be reachable.

1.“ What kind of business values can be discovered by using BPMN models?”

a. Does the procedure of business process affect the value creation? (In “Business process tracing” section in chapter three , the impression of efficient parts of each business process in value creation will be explained .)

b. Is there any relationship between types of business process and values that are gained in the process? (Appropriate information for this question is presented in “Processes and values” part.)

2.“ Which method is proper for the company?”

a. Is it possible to specify value creation or consumption in all business processes in this method? (We will answer this question in“ Business processes tracing” section.)

b. Can we make heat maps of business processes and value modeling? (At the end of “Business case analysis” , this heat map will be represented.)

1 literature review

1.1 Value

1.1.1 Value definition

There are several definition for value and in all of them ,two main aspects are economic value and ethical/cultural value. According to the field of interest in certain study, there maybe several definition , for example these field can be : investment value, liquidation value, stakeholder value added, etc.

The institute of value management defines value as “ based on the relationship between satisfying needs and expectations and the resources required to achieve them “ and “ getting what you require for what you will pay”. To have better concept of value ,we can take into account the features of value.

Value is multidimensional. We can assess value from these two dimensions as well:

- Economic : It is worth for the customers from time and money aspect.
- Psychological : What customer can gain from product or service in sight of its emotional nature.

Value is vague. It is necessary to consider all factors of value which are important for customer in appraising the value.

Value is contextual. We cannot assess value separately from its circumstances.

Value is pertinent. Taking into consideration of the value without its alternatives will accompany by wrong results. Customers never consider any value in separate situations. They always evaluate in which conditions they will be used.

All of those we mentioned are from the side of products or services . From customer vision , we can say customers have various beliefs and depending on these ideas , they evaluate anything in a different method. For example , a product or service may can get high point from a customer but from sight of the other one will be worthless.

Economic value

The word “value” as a term refers to the concept of priority related to a comparison between products or services constructed in customer or organization mind. From this sight, it is important to know rationale of value and what is valuable or can be valuable.

According to above definition , we can say that economic value is the profit that people or company achieve from products or services. Economic value includes all production factors (land , labor and capital) and also knowledge.

Ethical and cultural values

The common concept of ethical value can be exploited easily from its name. What causes we can distinguish between right and wrong, moral and immoral. From social sight, these values are the bases for what is permitted and what is forbade. Usually ethical and cultural values of an organization are represented in its culture definition, and its codes of ethics.

1.1.2 Value flow

There are two categories of value agents, people and things. These agents participate in procedures or activities which make a value as an outcome . This outcome can be measured by value metrics. The worlds which a value agent may exist on it and causes an activity are :

- Real : The physical world
- Virtual : The online world
- Merged: Combination of two above worlds. It means that an activity of a value agent in one world affect another activity in the other world.

As we know by existing of any value, two concept are established in our minds . Who is the value sender and who will take the value (value recipient). With this concept, we can imagine a flow for each value and the parts of a value flow in general business – economic theories will be as follow :

1. Value creation: This definition discusses all the activities and tasks are designed to create a value.

2. Value capture: This explains how the created value can be improved by making innovations through all procedures and activities in value creation step. Through this step, company tries to optimize its assets.
3. Value distribution: The distribution ways of generated value is explained.
4. Value consumption : It is related to second side of value flow and explains how receivers of generated value consume that.

The output of value consumption can be input for the other value flow. The below diagram shows different value activities that occurred in a value flow.

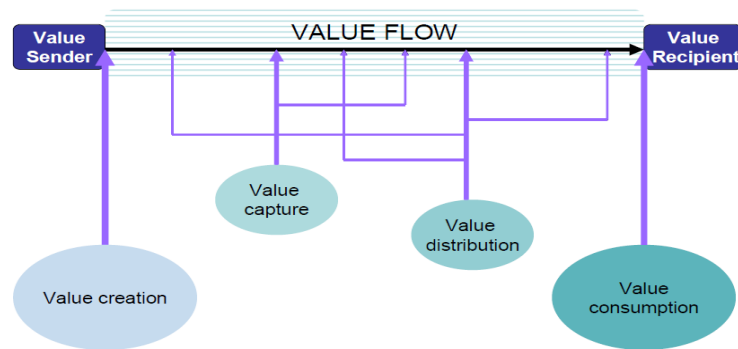


Figure 1. 1 : Value Flow and Value Activities

1.1.3 Value drivers

Value drivers specify the metrics of value and make situation in that we can evaluate every value.

- Culture and social criterions : These are the foundation for value metrics.
- Structures : A value activity may happen in any structure which have effect on the importance of value activity. These structures can be organizational based, community based, market based and etc.
- Settlement : This specify that any value activity must be occurred in what kind of situation .
- Technology : Technology makes easier the procedures of value activity. In some situation, there are some value activities that will be never happen without being of technology.

1.2 Business

1.2.1 Definition of business

We can imagine many definition for business and its aspects, what it really means, in which condition it will be occurred, what its goals and benefits. A simple definition for business is what is happened by someone to make profit. The profit encompass symbols of money such as credits, items and services that are transformable into money.

Lewis Henry defines business as “ Human activity directed toward producing or acquiring wealth through buying and selling of goods”. Stephenson defines it as “ The regular production or purchase and sale of goods undertaken with an objective of earning profit and acquiring wealth through the satisfaction of human wants .”

Regarding aforementioned information, the term business means persistent distribution and production of services and products under market conditions to make profit.

1.2.2 Character of business

Every business is defined with certain characteristics. These identify the business from non-profit activities or functionalities.

- Trade of a product or service

In every business exchange of goods or services has been occurred for achieving profit in any situation.

- Cost-benefit approach

Because of the main goal of each business (profit), estimation of cost and benefit in each step of all transaction is necessary.

- Risk factors

Risk and uncertainties are unavoidable parts of every business. Businessmen confront with two conditions . First one contains risks that can be insured such as theft .In this situation, they can reduce the loss of risks. But in other condition, the risks must be borne by the businessmen, such as change in demand or taste of customer, change in price, etc.

- Business and management knowledge

Having good business skills and knowledge is necessary for every businessman to start or continue a business.

- Two-sides in every transaction

From a general sight, we can say that business is nothing except an agreement between a buyer and a seller.

- Value chain existence

The flow of value from producer /service provider to customer and prerequisites for a clear and definite value delivery model is fundamental in business activities.

1.2.3 Business process

Business process is a set of activity groups and tasks that fulfill a practical organizational goal or generate a specific service or product.

Business process categories

Business processes can be categorized into two groups, functional processes and management processes .

- Functional processes : They consist of operational and supporting processes . The operational processes include the core business that create the primary value stream. The supporting processes are put in place to support the core processes.
- Management processes : They control the operations of a system such as “ corporate governance” and “ strategic management” . The most important section of these processes belongs to the management decisions.

1.3 Business value

1.3.1 Business value definition

Business value is a collection of terms or concepts that contain all forms of value which distinguish the condition of organization in the long run. The FLnES Research Roadmap [FLnES 2010] identifies the following tentative listing of business values :

- Revenue and profit
- Reputation
- Efficient use of physical resources, natural resources and raw material
- Environmental footprint
- Employee relationship
- Business partner relationships
- Customer relationships
- Exploitation and use of knowledge, especially in its tacit and implicit forms
- Business transparency and corporate governance
- Social responsibility

1.3.2 Business value categories

Tangible values

Business values can be categorized into two major groups, Tangible and Intangible values. Tangible values contain anything that receiver anticipates , authorizes or contracts it as section of delivery of product or service. They directly support production and delivery of goods, services and revenue or funding.

Tangible values include invoices, request of proposals, confirmations, payment and business transactions which are needed to execute goods and services. Also knowledge products or services which are able to produce revenue are parts of tangible value.

Intangible values

Intangible values have a different concept from tangible values . They provide situations that activities are done easily and help to build relation between parts of process. Here, we introduce three methods of definition and classification of intangible values.

Intangible capital

In new studies, the intangible values are more visualized as the term “Capital” . Intangible capital has a great potential to turn into tangible value. From this vision, the intangible capital is classified as :

- Human competence (human capital, social capital or emotional capital)

This is related to the employees of any organization . Actually, what a company has in its hand from the side of employees . Many companies dedicate some rules which barricade its employees moving to their competitors . Because these companies think their specialists are important assets that make advantage for them against their competitors and finding and training them need capitals and time .

- Internal structure

What is belong to the structure of organization such as patents, concepts, administrative systems and etc .

- External structure

This contains brand name, reputation , trade market. Actually, What an organization earns in doing its activities at the market because of its relationship with other companies.

The IFAC classification of intangible value

Because a group of management accountants (IFAC) prepares this classification in a long period of time, It becomes significant. According to this classification, intangible values are categorized into 4 groups as below:

- Human capital
- Relational (customer) capital

- Organizational (Structural) Capital
- Infrastructure assets

In the below figure, the details of each group will be clarified.

Human Capital <ul style="list-style-type: none"> * Know-how * Education * Vocational qualification * Work related knowledge * Occupational assessments * Work related competencies * Entrepreneurial élan, innovativeness, pro-active and reactive abilities, changeability's 	Relational (Customer) Capital <ul style="list-style-type: none"> * Brands * Customers * Customer loyalty * Company names * Backlog orders * Distribution channels * Business collaborations * Licensing agreements * Favorable contracts * Franchising agreements
Organizational (Structural) Capital Intellectual Property <ul style="list-style-type: none"> * Patents * Copyrights * Design rights * Trade secrets * Trademarks * Service marks 	Infrastructure assets <ul style="list-style-type: none"> * Management philosophy * Corporate culture * Management processes * Information systems * Networking systems * Financial relations

Figure 1.2 : Classification of Intellectual Capital [IFAC 1998]

This viewpoint essentially focuses on the customer, and does not adequately address for example business partners and other stakeholders in an enterprise network or ecosystem perspective.

Intangible as Deliverable

This vision looks into intangible values as deliverable. As all types of intellectual properties or informal knowledge which can be transferred from one person or group to another one.

1.3.3 Business value types

Business values are created through value inputs, which by definition must be assets based. For practical purposes, businesses are primarily interested in how a change in business values (identified through measurement) may relate to value inputs, leading to better value outputs as products or services. Seven types of business value are defined and presented in two categories (Tangible and Intangible values) by NEFFICS. The below table shows these types.

Tangibles	Intangibles
Financial	Negotiable form of intangible
	Resources
	Human capability
	Relationship
	Structural capability
	Regulatory

Table 1. 1 : Business Value Types

1.3.4 Set up time categorization of business values

We can evaluate business values from the achievement time point of view as long term values and short term values. Long term values are those ones that can be gained or built through time but the creation of short term values doesn't depend on time and they will be created immediately after task being done.

For example, “Brand image recognition” is a kind of value is not sensed quickly right after specified process is done and it needs more time but “ Availability of cars” can be recognized following by end of the exact proces.

1.3.5 Business value levels

We evaluated, described and categorized the business value and also arranged them in different levels. The outcome of each value activity depends on at which level we evaluated and analyzed it. this means that you'll have different results from the activity if you choose various visions. Here, we illustrate the concept of value levels and introduce them.

- Level one : Value at level of the person
It's related to a person involved directly in value activity.
- Level two : Value at level of individual process
It's obtained by an individual process within the business.
- Level tree : Value at level of individual business unit
It's correlated to a distinct component of business. Also, it includes people and processes.
- Level four : Value at level of the individual business
This relates to business as a whole range of activities to meet specific goal. Usually , it specified in the business model of company and expressed through value proposition.
- Level five : Value at level of the market
This value is sensed from the business market point of view.
- Level six : Value at level of the whole system
It's related to the whole ecosystem of business. In this vision, the focus is on a value in comparison with other values in same or relevant market.
- Level seven : Value at the societal level
The gamut of this level becomes wider and belongs to the broader societal value as specified by culture, social norms, structures, regulation, technology and volatility and risk.

1.4 Network value

1.4.1 Description of network value

In today's business model innovation, an important argument is about the communication of network participant and profit or value that is obtained from working together of participants. Actually the principle target of network is changing in the business model innovation faster by joining various partners to the network.

Evaluation of the value that flows between participants is always more challenging and attractive in comparison with a business value in an organization. But there is an issue about the leading of relationship between partners and how the business values with their capabilities will flow through them.

1.4.2 Communication network and network participant

With the expansion of communication tools by entrancing and developing of the internet, mobile wireless technology and satellite technology, network participants are connected easily in different ways without any worry about time and location. Because of the difference between participants in their language, more researches are needed to be done to provide situation that helps them communicate with same language.

Several ICT based and other network mapping tools provide situations that the network participant acquaintance and understanding from parts of network such as value and value deliverables, are improved. As a deeper investigation, better understanding of value bits and value network are available by using these tools.

Evaluation of a network determines that it contains diversity of participant with various businesses and business models, different configurations and different processes. Also it consists of substantial business model innovation resources and potential by virtue of the resources of each individual network participant.

1.4.3 Value in a network

Here, the word of network is defined as a combination of enterprises are located in an ecosystem and connected to other enterprises or organizations. Each organization names as a node of network. To measure the values in a network, we must evaluate the fundamental characteristics of the network .

Individual node

In the flow of value creation , people have the main role. Actually, they are the real value creators. Along the value creation process , the people use different framework for transferring and converting their competence internally and externally. When their activities are directed internally by the managers, tangible goods and intangible structures such as new design of products or better method will be produced . when the attention is outward , social capitals such as brand recognition, customer relationship and validity are produced beside the creation of goods and money.

Structural aspects

The important features in structural aspects of two nodes in which same value model flow , are the uniqueness of their organizational structure . As long as they have different organizational structure , there should be various negotiation on the key factors of value flow model used. For instance , whenever there is an open innovation manager in an organization and its partner lacks this key manager ,detail discussion would exist to make a deal on the detailed features of cooperation .

Reciprocity

As we know, the two important sides of every value flow are sender and receiver which are the nodes of network. In every value flow, there must be a high level of transparency between two nodes that causes each part trusts the other one to share its private knowledge in the first steps and assure that will receive what they mentioned in the contract.

In association with tangible dealings , control of relationship is easier in comparison with intangible transactions because the second one needs strong personal relationship and also must have high flexibility. Because achieving intangible assets is along with consuming time, money and experience,

these kinds of transaction are critical. Usually two sides of value flow observe what they agreed with in different levels of value and then some negotiations will be held in various levels .

Cooperative role

Distance is an important measure in specifying level of cooperation. Vesa Harmaakorpi [Eri 2009] said “Innovation in practical multi-actor contexts is nourished as much by distance as by proximity. Distance refers to different kinds of dimensions that have different types of impacts on innovation processes”. He illustrates this in a table as below:

<i>Distance</i>	<i>Source</i>	<i>Innovation potential</i>
1. Geographic	Physical distance between actors	Geographic proximity does not automatically lead to innovations, but it may, for instance, facilitate social proximity.
2. Cognitive	Differences in ways of thinking and knowledge bases	A certain degree of cognitive distance enables creation of new innovations.
3. Communicative	Differences in concepts and professional languages	When making a new idea understandable concepts from other fields or sciences, for instance, may be utilized.
4. Organisational	Differences in ways of coordinating the knowledge possessed by organizations and individuals	An organization should have both strong and weak links in its network.
5. Functional	Differences in expertise in different industries/clusters	It is useful to obtain novel information also from outside of one's own field of operations. In such cases, the information often needs to be adapted to the field of operations in question.
6. Cultural	Differences in (organizational) cultures, values etc.	The challenge is to get people working in different organizational cultures to collaborate.
7. Social	Social relationships and the amount of trust included in them	Innovations require interaction among different kind of actors. Trust helps in creation of radical ideas.

Table 1.2 : Cooperation and Innovation Potential [All 2012]

1.4.4 Quality aspects of business networks

The ratio of tangible to intangible transactions is a criterion of network resilience. Tangible values exist easier as negotiable value then this kind of transactions will be held in less unambiguous condition and more easily reach to the final step that is negotiation about conclusive price.

Intangible one depends more on human relationship and its circumstance. Trust plays an important role in every intangible. Because of these conditions of intangible transactions, the probability of broken situation will be much less than the tangible ones. An appropriate ratio indicates a balance in the network.

In evaluating of network resilience, “consistency” and “agility” are significant parameters. Actually, the consistency of a transaction in a network heavily pertains to the ratio. Verna Alle [All 2009] states that if there is a healthy ratio of tangible to intangible exchanges (at least 1:1) then two roles are more likely to work through a problem with the business transaction and keep the relationship. Agility is a metric of evaluating how collaboration is, that can measure the degree of difference between two sides of transaction in every levels .

1.4.5 Value proposition in network

The flow of value in a business network is the set of all collaboration between network nodes that results in a transmission of value from sender to receiver. A value proposition can apply to an entire organization or parts thereof, or customer accounts ,or product and services. The analysis shows that the offering value in each network hugely depends on the network participants. As they have different favorites, they will be satisfied by different values.

1.4.6 Various views related to network value

Value chain view

The value chain view is related to value creation chain point of view in all business operation that leads to the creation and deliverance of value from company to customer .

Process view – time view

Process view is defined as set of different activities, tasks and other subsets of the business process which cause the deliverance of value from start point to the end point.

Human resource

The human resource term usually used in introducing the work force of an organization in its business model and managing and hiring of individuals are the responsibilities of human resource management.

Human resource and network value consist of five potential capital as below :

- Human capital : employees of the individual network partner and related to the business and the business model.
- Knowledge capital : knowledge and potential of knowledge related to HR of the Business and the business model.
- Relationship capital : relational capital and potential relational capital related to the HR of the business and the business model.
- HR Technology : HR technology related to HR of the business and the business model.
- Change : Change capability and potential to shifting/transitioning individuals, teams, and network partners HR from a current state to a desired future state. It is a judgment of the potential of a process aimed at empowering employees to accept and embrace changes in their current business model environment.

In every network, estimation of current and future human resource play an essential role in value definition step.

1.4.7 Shared value in networks

As we mentioned before, the value of network may belong to the one part of organization and all the endeavors are done to prove this value. But a new perspective of network value proposition is the perspective of shared value and it means in every company a shared value that belongs to all part of it must be defined. In fact, it simulates situation of being innovative and makes unity through the whole company.

The concentration of this perspective is on growing techniques and making the network more strength to increase the effectiveness of network and improve the efficiency of business model innovation.

1.5 The economics and measurement of business value

1.5.1 Economic models

In economics, the significant aspect is the sides of economy. In appraising of every economy, supply and demand, what was happened between them and what kind of value flows between these two nodes are so important. Change in value and its effect on value flow help determine what to measure and how to measure in business value analysis.

The FP7/ICT COIN Project has provided detailed analysis of the following economic theories and models in assessing ICT based services for enterprises in relation to their utility and value add properties [COIN 2011]:

- The efficiency model: Efficiency driven competition and competitive markets to produce the “best” price through the market as an Invisible Hand
- The value chain model: “Margin” as the Competitive differentiator and competitive strategy
- The transaction costs model: Transaction as an organizational concept and cost as an economic friction.
- The resource-based view: Competency as the key resource and the application of a bundle of heterogeneous and not perfectly mobile resources for creating sustainable competitive advantage.
- The game theory model: Decision support to prevent lock-in situations; arguments for commonly defined solutions.
- The coordination model: Coordination of structures, resources and people for advancing economic welfare.
- The network economics model: Positive feed-back and critical mass as features of network economy; new notions of network externalities and demand side economies of scale.
- The new institutional economics model: “Institutions matter” – broadening the scope of economics from resource allocation to the broad context.
- The innovation economics model: Assessment of innovation uncertainty and success; argument for innovation as a growth driver.

Here, we’ll point two feature exporting methods that classify economic theories and models on the basis of value type and value level .

VALUE TYPE	ECONOMIC MODEL								
	efficiency	value chain	transaction costs	resource-based	game theory	coordination	network economics	new institutional economics	innovation economics
Financial improvement, being directly measurable	✓	✓	✓						
A change in a negotiable form of intangible								✓	✓
A change in resources	✓	✓	✓	✓					
A change in human capability				✓					
A change in relationship assets			✓	✓	✓		✓		
A change in structural capability				✓	✓	✓	✓	✓	✓
A change in regulatory requirement								✓	✓

Table 1.3 : The Value Types addressed by Economic Models

VALUE LEVEL	ECONOMIC MODEL								
	efficiency	value chain	transaction costs	resource-based	game theory	coordination	network economics	new institutional economics	innovation economics
L1 (Person)				√	√	√			√
L2 (Process)		√							
L3 (Business unit)		√	√	√		√			
L4 (Business/firm)	√	√	√	√		√	√	√	√
L5 (Market)	√	√	√	√			√	√	√
L6 (Ecosystem)							√	√	√
L7 (Societal)								√	√

Table 1.4 : The Value Levels of Economic Models

These methods help us define a specific set of business value and frame works that eventually create an image of value analysis in our minds .

1.5.2 Measurement approach

Methods for measuring intangibles

We introduce four categories of method for measuring the intangible values and define the circumstances of evaluation in each of them.

Direct intellectual capital methods (DIC)

This method estimates how many \$ value will entered by intangible asset to the company with evaluating its different components.

Market capitalization methods (MCM)

The intellectual capital is calculated by computing the difference between a company market capitalization and its stockholder's equity.

Return on asset methods (ROA)

The ratio which is gained by division of average pre-tax earning of a company for a period of time on the average tangible, is the company ROA. Then it will be compared with company industry average. If we multiply this result by the company's average tangible assets, an average of annual earning from the intangible will be obtained. Finally the result of the operation that is division of above average earning on company's average cost of capital or an interest rate, acquire an appraisalment of its intangible assets or intellectual capital value.

Scorecard methods (SC)

The various non \$value aspect of intangible assets are recognized and the measures or indicators will be mentioned in a score cards or graph .In the below graph, a list of different methods which are belong to the four categories, are classified according to organization level only or components identified and non \$ valuation or \$ valuation.

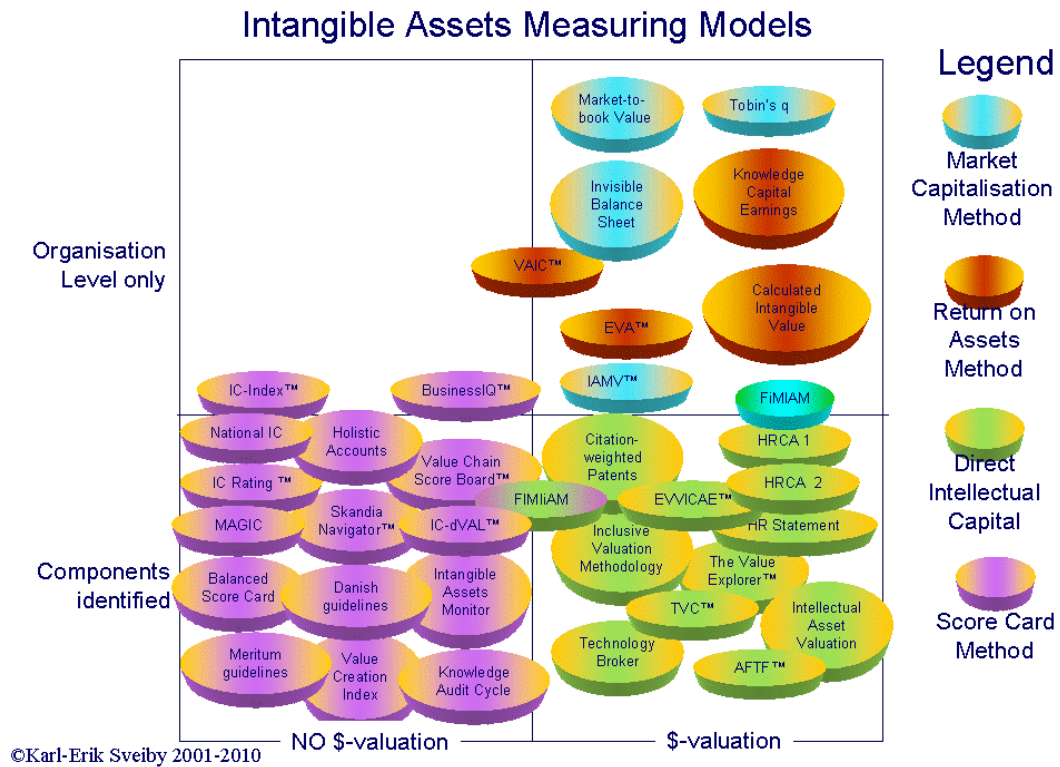


Figure 1.3 : Intangible Assets Measuring Models [Source: Sveiby]

1.5.3 Tools for business value modeling

The useful tool for modeling of business values network is the one that is approachable to multiple organizations. Then the number of organizations is an important aspect that we can discriminate between tools .

Balanced ScoreCard (BSC)

This method is so important due to the high percentage (50%) of large firms in developed economies used this one. The Balanced scorecard is an analytical technique supported by a design method to trace the performance of activities to monitor what rise from the activities . In fact, this is a translator that interpret the company overall business strategy and it's visions into perceptible business values by which the performance of company can be computable.

The BSC concept developed by Robert Kaplan and David Norton in 1992. This method evaluates the execution of the company in four areas to define the indicators or business values :

- Financial analysis : Persuade the identification of financial measures such as profit.
- Customer analysis : define indicators that are suitable for answering this question “ What do customer think about us ?” such as customer satisfaction.
- Internal business process analysis : measure the performance of company such as training and certification.
- Learning and growth analysis : Evaluate the process improvement and making innovation in the company such as technology leadership.

Lean

The basis of Lean model is on maximizing of customer value while the dissipation becomes minimize. In fact , the simple concept of this model is generating more customer values by using fewer resource.

Lean methodology tries to think of optimizing value streams horizontally. This procedure leaves the idea of determining the assets and technologies every company may think of during exploring the vertical streams. In other words, this technique concentrate on improving value flow rather than involving entities like departments, tools and technologies in every value flow model.

E3

As the business people and IT experts don't speak the same language , it is not simple to define exactly what business requirements mean in IT world and there is a need for methods to translate economic values into detailed business functionalities and services developed by a network. E3 model tries to design these definitions.

SCOR

The supply chain operations reference model (SCOR) is a management tool used to address, improve, and communicate supply chain management decisions within a company and with suppliers and customers of a company (SCOR Model, Supply Chain Council, October 7, 2004). The model describes the business processes required to satisfy a customer's demands. It also helps to explain the processes along the entire supply chain and provides a basis for how to improve those processes.

The model integrates business concepts of process re-engineering, benchmarking, and measurement into its framework (Huan, Samuel. Sheoran, Sunil. Wang, Ge., 2004) . This framework focuses on five areas of the supply chain: plan, source, make, deliver and return. These areas repeat again and again along the supply chain. (Supply Chain Operations Reference Model. Supply Chain Council. October 7, 2004)

- Plan : describes demand and supply planning
- Source : that sourcing infrastructure and material acquisition
- Make : Manufacturing and production are the emphasis of this step
- Deliver : Delivery includes order management, warehousing, transportation , receiving orders from customers and invoicing them once product has been received .
- Return : Companies must be prepared to handle the return of containers, packaging, or defective product.

Most tools support an organization or maximum a limited number of partners. In second condition, even limited intricacy of their relationship can be supported. In the below figure, aforementioned tools are evaluated from their features aspect that are good to do quantitative analysis or qualitative analysis and on the other hand , about their support from one or multiple organization.

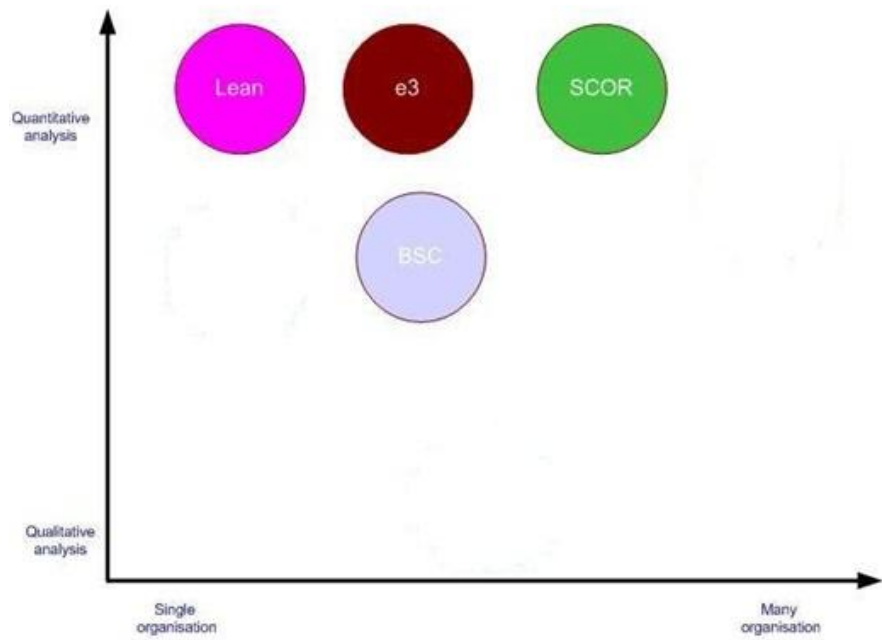


Figure 1.4 : Comparison of business/network value analysis tools

2 Case study

In this part of research, a case study about a car rental company will be explained. We will introduce all business sections of company, company's strategy, vision, mission, goals and objectives. The next step is the case study analysis.

The business processes will be introduced. We extracted the business values from whole of the case and next tried to find which of these values can be achievable in the whole processes. For this section, we chose the balanced scorecard method.

We worked in a case study about a car rental company that provides services for customers who want to rent a car from the main European airports and strategic points in big cities in different countries in Europe. By establishing different ways and facilities, It make easy for customer to use its services.

2.1 Basic description of Car rental company

CR is a car rental company operating all over Europe. It aims to be as accessible to customers as possible. It offers its services 24/7 to the most convenient places either for tourists, businessmen or just people that have the need of a car for a certain period of time. CR provides automobiles at the main European airports and strategic points in big cities in different countries in Europe.

The company has also developed a user-friendly web site where people can thoroughly examine the services and cars available. They can order a car online and if this is not possible for them to be at any CR's branch to get it – the car will be driven to the place and time they desire, with a 24/7 service. In order to fully satisfy the needs of the customers, to provide them with qualitative full services and to stick to their taste and specifications, CR is partnering with a bunch of airline companies, automobile manufacturers and tourist agencies all over the continent.

The HQ of the company is situated in Brussels, Belgium. This is the place where the management as well as the following departments are situated: marketing, HR, IT, Call Center, Branch Support. The below mentioned branch-related issues are registered in the HQ: organization of cars, maintenance, problems and relationship with partners. For this to be well managed, many procedures that have to be followed.

CR has outsourced the accounting of the company and is also using external lawyers for legal issues that appear.

2.2 Overall Strategy

The strategy of the company is to provide fast and qualitative services to its customers, gain stable market share and increase its profit. In completion to this the management strives to provide pleasant working environment and above-average social policy for the employees.

2.3 Vision

CR aims to be the most recognizable rent-a-car brand on the European market and respectively the most chosen among all competitors.

The company is regularly investing resources in PR and marketing campaigns in connection to the brand recognition all over Europe.

The Green initiative of CR takes important place (explained further).

2.4 Mission

The mission of CR is to offer best quality of services to clients in Europe by providing them fast with the most appropriate car for their needs, at the right time, on the right place, fast and convenient, 24/7. CR focuses on strategic locating of its branches so that clients are provided with fast and easy access to cars whenever they need.

CR has invested in well-developed information systems and technologies in order to be fast, easily accessible and high-qualitative in both its online services and in the offices. It has also developed an effective partnership network as a part of the strategic plan.

2.5 Goals and objectives

The main goals of the company are oriented to the following aspects:

- Market share
- Customer portfolio
- Fast and qualitative services
- Innovation and learning
- Revenue & profit

2.5.1 Increase Market Share

- Gain market share of 8-10 % the first 2 years of operating
- Increase market share up to 20 % until the 5th year

2.5.2 Customer Portfolio Retention and Extension

- Customer portfolio retention: the target of this objective is the % of repeating customers to be > 30 % (detected for 3 years); the following years the % is expected to grow more
- Customer portfolio extension: Retain the customer portfolio and increase it with up to 50 % every year until the 3rd year; for the following years, additional analysis will be performed based on history data of the metrics set
- The customer satisfaction is analyzed according to the monthly sales of CR; aiming high customer satisfaction, the monthly % of complaints is aimed to be less than 20 % from the customers that request a car; in addition, more than 90 % of the car requests, should be fulfilled (calculated and monitored on a monthly base)

2.5.3 Fast and Qualitative Services

- ✓ Provide fast rent-a-car services:

Office:

- New customers (enter customer details in database, prepare documents and provide a car for 15 minutes)
- Repeating customers (check profile, prepare documents and provide a car for 10 minutes)

Online:

- New customers (online application form to be able to be filled by a customer for 3-5 minutes => automatic documents' generation by the system; preparation of a car to be provided; overall time: 9-11 min)
- Repeating customers (no fill-in of profile data – already having a customer file and easy access to their own profile; requirements for the car to be specified => preparation of a car to be provided; overall time: 6-8 min)

- ✓ Fast Call Centre services

Another aspect of the provision of fast and qualitative services is the speed and quality of the call reactions in the Call Centre. The percentage of handled complaints is set to be 95 % and the percentage of overall calls handled -> 90 %. In support of this objective, there is a special 'Complains' branch of the Call Centre that deals only with the complaints as this requires specific actions, attitude and decision making.

The speed and quality of service depends a lot on the maintenance of the technology in the company. Measures and metrics for this are 'register request in database' and 'online request' cycle times.

The system errors are also part of the measures in reference with the system maintenance and their number has to be less than 140 per week. A system error is considered to be any of the following:

- Disconnect to the core system from a branch
- Disconnect to the core system from the HQ
- Non real-time system update on requests registered and respectively cars in use
- System error when entering customer data or request data in a branch (non-availability to connect to external database, non-availability to save customer's data, non-availability to extend drop menu, tables or identical objects, impossibility of showing current car availability, non-availability to proceed to next step, tab, menu, submenu or user interface screen, etc.)
- System error when using the core system functionality in the HQ (non-availability of extracting of reports, impossibility of reaching the customer data base, impossibility of communication between the different end users who use the system)
- Web site error when a customer fills in and saves personal or request data to rent a car, opens drop down menus, etc.

2.5.4 Innovation and learning objectives

In reference to the above mentioned, technology appears to definitely be one of the most important assets of CR, next to car and human resources. As CR counts on high speed when servicing a customer and promotes this as its unique value for the customers (cycle times no one else can achieve), technology leadership takes important place in the balance scorecard formation. System and technology updates and technology innovation are made quarterly so that the company can maintain its competitive advantage and follow its strategy and mission.

Training and certification are also important in CR regarding 2 fields. One is connected to the maintenance and use of the technology and the other to the driving skills of the drivers in the company. In reference with the technology, there should be 60 % IT personnel dedicated and responsible for the core system, its components, functionality and errors. In every branch there should be at least one core system certified person, i.e. being able to work with the core system (from branch perspective) and solve basic problems connected to it. Regarding the drivers training, it is absolutely every chauffeur hired in CR that passes through a special training to be able to qualitative serve the customers who use this complementary service.

2.5.5 Revenue and profit

- Profit gain: Reach break-even on the 3rd year (measures for this are net sales and reach of the break-even)

Main drivers of profit include:

- ✓ Local economy of countries and the global economy as a whole
 - ✓ Car rental days and volume of rental transactions
 - ✓ Revenue per day (according to the pricing)
 - ✓ Service quality
 - ✓ Brand presence
- Revenue growth is another financial objective, measured with the help of the calculation of the annual revenue, the cash flow, leasing prices, etc.

2.6 Green initiative

The Green initiative of CR makes the company very recognizable and well-accepted by Green companies and parties, non-profit organizations (in support of the reduction of gas emissions and protection of air pollution), regulatory entities, partners, customers, and the society as a whole. As a part of the Green initiative, CR encourages customers to rent electric cars by offering price reduction, bonus renting days, free complementary services and/or customer gifts and other benefits (respective to setting of various new or temporary partnerships or co-working with different enterprises as a part of the marketing events and brand recognition strategy).

2.7 Partnership

2.7.1 Partnership with airline companies and airports

CR has built stable international network by signing agreements with the main big airports in Europe as well as the main international airlines. The contacts with the airports were set in order to define the conditions for CR to build offices there and have the right to offer services directly to the clients. As a result of the agreements with the airlines, CR offers complementary services to people who travel with airplanes and have the necessity of a car to rent after. CR's services appear on the websites and some marketing materials of the airlines (differentiate according to the partnering airline and its policy).

Partnership value: CR's working policy includes direct offering of services at the main European airports. The agreement between CR and the main airports in the big European cities defines the conditions under which the enterprise can offer its services directly to customers at the airport and use open-space area (at around 70 airports) to keep cars at. The aim is to ensure easy and quick access to automobiles.

2.7.2 Partnership with car producers

CR has leased automobiles of different brands and models to be able to meet the requirements and fulfill the needs of people that need to rent a car. It has agreed with a few partners that in case of (estimated) lack of cars, the suppliers shall provide the company with additional automobiles under specific conditions (according to the partnership agreement).

CR offers cars of the following brands:

- BMW
- Volkswagen
- Opel
- Toyota
- Renault
- Mitsubishi
- Nissan

According to the types they are divided into:

- Automobile – big or small; powerful (above 150 HP), standard (50-150 HP), non-powerful (up to 50 HP)
- Jeep – big or small
- Van

According to the class they are grouped as follows:

- Luxury (include: air conditioning; electric windows, electric mirrors' regulation, electric lights' regulation; GPS; leather seats; ABS; seat heights and position regulation; seat warming and others)
- Non-luxury

According to the fuel consumption they are grouped into:

- Diesel
- Gasoline
- Gas
- EV (Electric Vehicles)

Partnership value: The best benefit of the partnership between CR and the car manufacturers is the 95 % availability of cars in case of lack. Respectively, the speed of services is not to be doubted by any of the stakeholders. Sometimes the automobiles are not enough to cover the constant customers' requests coming and CR has made sure that in case of need for a car, they can immediately receive some from the manufacturer's auto park. As already mentioned CR has branches in main cities all over the world which ensures that the distance to auto parks of partners is short, supply is quick and easy.

It is new cars that are serving the clients' needs in order to make them feel comfortable and safe on the road. The option for leasing through related banks brings CR a well-defined cost structure and diversification of the financial resources through the year which is a great relief having in mind the sufficient amounts of money that they need to invest in the fleet, its maintenance, storage and the business as a whole.

2.7.3 Partnership with insurance companies

It is sure that in business like this one of the most important aspects is the insurance of the automobiles and the road help. As a part of its partnership strategy, CR has decided to work with two insurance companies. As a result of the great amount of cars to be insured, the insuring firms have proposed favorable offers, service packages, competitive prices and reliable and stable relationship as well as great commitment to CR's needs and requests.

2.7.4 Partnership with tourist agencies as a broker

In order to gain popularity and become a well-known brand on the market, CR has directed its attention to tourist agencies, too. As a part of the overall strategy, the enterprise management has decided to set agreements with many agencies offering trips all over Europe and make the rent-a-car service complementary to their touristic packages. Organized communications and well-defined contracts are base of this strategic relationship. Still, high competition exists as CR is not the only rent-a-car company to be offered by most of the touristic offices. However, this is additional marketing channel that increases the customer portfolio and also serves as a part of the PR of the company.

2.7.5 Other external players

Banks

CR leases the cars through banks and uses those 3-5 years (depends on the car and its 'renting and accident history'). The management has decided to spread the cost for the cars over the years through leasing, as there are other aspects in the business that require a lot of investments, i.e. partners' services (flexible car provision, area renting, insurance, sales, information provision, etc.), car maintenance, social branding and Green initiative communication, etc.

Federal Mobility and Transport Administration / Traffic Police Register / Government transport Department

CR keeps in contact with the transport administration in every country to make sure the driving license of every coming customer is valid, i.e. authentic and up-to-date. Currently the access to the database is automated only in a few countries. Future automatization of the access in every country is

considered as a part of the strategic plan of the enterprise. The restrictions in some countries are caused either by legal issues in this region or because of current complexity of integration between the systems.

Civil register

When a customer requests a car from CR, his personal data and other details must be checked and confirmed. In order to validate personal and additional data, CR has agreed with local Civil Registers in the different cities that they give access to definite information in their database. The process of renting a car can continue after the customer data is checked. In some countries and cities, the access to such database is automatic but in others – CR's personnel has to contact the authorities through phone call or live chat in order to receive and validate this information.

Repair shops

In order to keep the cars in perfect condition and handle the repair, CR works with small local repair shops (different for every region), fully outsourcing this activity to them. The quality management is executed by a few experts to make sure that the cars are in perfect condition and safe to be provided to customers.

2.8 Additional information

- Branches

Except the airport positioning, CR has located around 100 offices in city centers of big European cities. The aim is offering rent-a-car services at reachable and well-known places for the customers. In order to keep the fleet for these offices, CR uses open spaces out of the city centers (less costly) and provides bus/van/car transfers (if necessary) for the customers to these spots.

2.9 Additional services

- Driving staff

In order to provide maximum comfort to the customer, CR has decided to offer a ‘drive-to-you’ complementary service to people. Many of the companies on the market engage their clients with going to the office/parking/renting spot to get their car and fill in the documents. Aiming to be flexible, CR has thought of the idea for a staff to be dedicated to the clients’ convenience by driving the automobile they need to any place, required by them as well as at any time they need it.

The driving staff is appointed and paid hourly and is also taking care of the transferring of the cars to repair shops, car wash, other company branches, etc.

- Drivers

Providing of drivers for a trip is another additional service that appears in the portfolio of the company. Professional drivers have passed through special exams proving their driving skills on various automobiles. They have also been chosen according to their personal characteristics and were trained on professional behavior. They have perfect orientation and knowledge of the region depending on the office they work at so that a customer can be sure to reach the location that he is going to with no risks of taking the wrong road.

2.10 The car rental industry

Some of the big regional players in the car-rental sector are Avis, Hertz, Budget and National Alamo. They occur to be direct competitors to CR keeping in mind its already mentioned aggressive strategy, goals and objectives. The below figure represents the market share of the big players where CR (as a new player) is included under the ‘Others’ label, aiming to grow fast and accomplish sufficient market share.

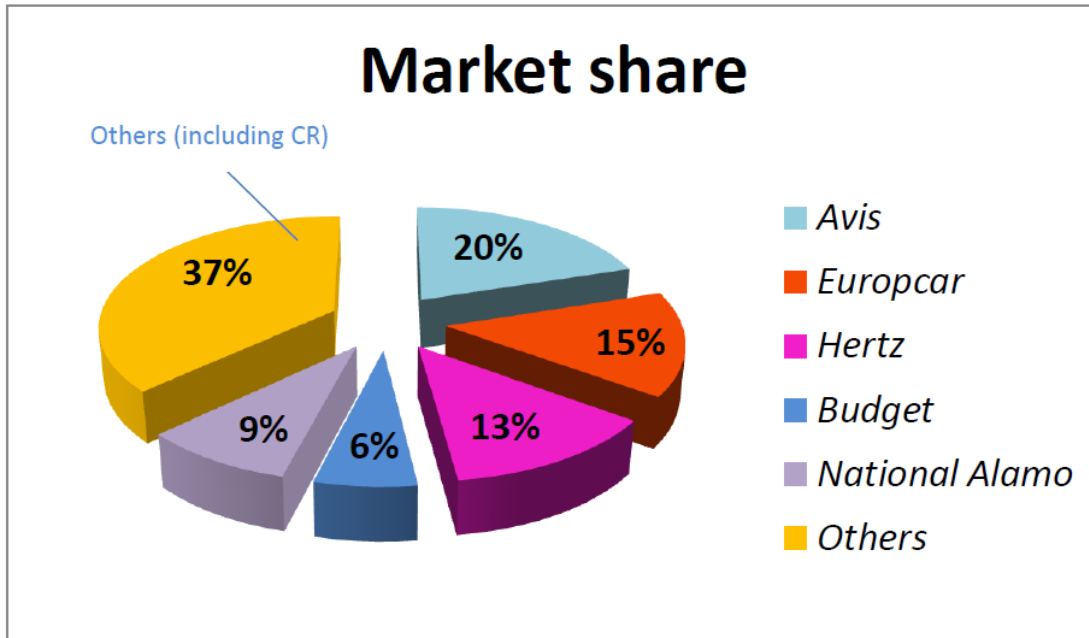


Figure 2. 1: Car rental company industry

Key drivers of growth in this industry include traffic of airline passengers, trends in leisure tourism and business travelling, demographic trends, legal requirements (restrictions, changes) in connection to the automobile and airline industry, the financial world, the field of insurance, etc.

2.10.1 Specifications of the industry

Something that positively impacts the car rental business is the increasing mobility of people and their ability to fly more. This allows the industry to grow in long-term perspective. Another feature is that the sector is subject to seasonal variations. The summer season is definitely the peak time for this kind of business. The sensitivity is also influenced by the interest rate environment and the inflation rate of a country.

2.11 Roles

- C-suite
 - CEO (Chief Executive Officer)
 - CFO (Chief Financial Officer)
 - CTO (Chief technology Officer)
 - CLO (Chief Legal Officer)

- Middle management
 - Branch Manager
 - Marketing Manager
 - HR Manager
 - IT Manager
 - Fleet Manager
 - Partnerships Manager
 - Customer Service Manager (Head of the Call Centre)

- Operational staff
 - Branch employee
 - Parking staff
 - Drivers
 - Lawyers & jurists (outsourced)
 - Accountants (outsourced)

- External participants (partners, institutions & others)
 - Airlines
 - Airports
 - Car manufacturers
 - Banks
 - Repair shops
 - Tourist agencies
 - Insurance companies Civil Register
 - Transport administration
 - Car wash

3 Business case analysis

This analysis consists of three sections , “Business value detection”, “Business process tracing” and “Process and value evaluation”.

- Business values detection : extract the most important business values from the case study.
- Business processes tracing : track all processes to find out which value can be gained in which part of process.
- Processes and values evaluation : discussion on the features of the values and processes then try to make a heat map of them.

In literature section, we introduced four methods for business value modeling “Lean”, “E3”, “SCOR” and “Balanced ScoreCard”. The lean method concentrates on customer value and tries to maximize this value along with minimizing wastes. We cannot analyze our case with this method because customer value is only one group of case’s values and evaluating will not bring us comprehensive results.

E3 method actually is developed to handle the gap between business and IT groups. It is more appropriate for analyzing IT cases. SCOR focuses on supply chain and how we can improve the processes along entire supply chain. Our case study discussed value chain more in comparison with supply chain.

The balanced scorecard method considers the most important aspects of our case “Financial”, “Customer”, “ Internal business processes” and “ learning and growth”. Actually, this method takes into account both qualitative and quantitative aspects of analysis. On the other hand, the car rental company also stays in touch with other companies as partnerships. Then according to these explanations, best method will be “Balanced ScoreCard”.

The balanced scorecard tries to examine a specific number of metrics in certain subunits of the company’s business activities and also is a strategic procedure that companies utilize to translate strategies, visions and mission into practice .

3.1 Business values detection

As we completely explained in literature section, The balanced scorecard evaluate the performance of processes in four areas “Financial”, “Customer”, “Internal business processes” and “learning and growth” analysis and each group has almost same features. For this section, we tracked the BPMN model of each process along with using the information of case study to extract the following business values and categorized them into four mentioned groups.

In the below table, we specify all groups of analytical values:

Financial	Customer	Internal business processes	Learning & growth
Financial values <ul style="list-style-type: none"> ▪ Revenue growth ▪ Gain profit 	Customer values <ul style="list-style-type: none"> ▪ Customer portfolio retention ▪ Customer portfolio extension ▪ Customer satisfaction 	Internal organization values <ul style="list-style-type: none"> ▪ Fast and qualitative services ▪ System maintenance Technology and learning values <ul style="list-style-type: none"> ▪ Technology leadership * ▪ Training and certification 	Partnership values <ul style="list-style-type: none"> ▪ Directly offering service ▪ Availability of cars ▪ Favorable offers and services ▪ Popularity Social values <ul style="list-style-type: none"> ▪ Brand image recognition ▪ Gain of market share Technology and learning values <ul style="list-style-type: none"> ▪ Technology leadership *

*Remark: Technology leadership belongs to both groups.

Table 3.1 : Business value groups in car rental company

3.1.1 Business values definition

Business values of financial analysis

Financial values :

- Revenue growth : This ratio measures the increase or decrease in the year's revenue of the company in comparison with previous year's. We measure this value by annual revenue, cash flow , car leasing price of the car company.
- Gain profit : Profit is the surplus of deducting total cost from total revenue. We evaluate this by using net sales of the company and how far it is from the break-even point. Reaching to the break-even point in the 3rd year is the best .

Business values of customer analysis

Customer values :

- Customer portfolio retention : Customer retention is effect of activities the company performs to retain customers. Customer retention statistics are typically expressed as a percentage of long term clients.
It is so important in every business because the satisfied customers try to use the products and services more and more and can be good references to new customers. The company wants to reach 30 % of repeating customers up to 3rd year. This percentage is expected to grow in the following years.
- Customer portfolio extension : The outcome of techniques that companies use to encourage new and retained customers to be in relationship with companies. This value is measured by percentage of customers that the company tries to retain and increase it up to 50% every year until 3rd year.
- Customer Satisfaction : Customer satisfaction is a measurement of how content customers are with the products or services of a company. This value is more complicated in comparison with other values. It has various aspects such as low monthly percentage of complaints , high percentage of response to the car requests, good conditions of the cars when customers rent them such technical condition and outward of the cars, extra facilities such as GPS, time that

the company consumes for their activities and replies to the customers, behavior of employees in the company branches with customers, performance of the company in different situation and etc.

Business values of Internal business process analysis

Internal organization values :

- Fast and qualitative services: It depends on how the company offers its services and performs its obligations and how many times will take that the company accomplishes its activities and responsibilities. The most important aspects of fast and qualitative services are Rent-a-car cycle time, percentage of handled complaints and overall calls. The customers have two options for renting a car , rent from a branch of the company or online. The target rent-a-car cycle times are 15 minutes for new customers, 10 minutes for repeating ones in the office and 9-11 minutes for new customers, 6-8 minutes in online renting.
The percentage of handled complaints is set to be 95 % and the percentage of overall calls handled has to be 90 % .
- System maintenance : The quality of this value depends on how the technologies of company works . The speed and quality of services pertain to the system maintenance. With this view, we consider the number of registering the customer requests, online request cycle time and the times of occurring system errors as its metrics. About system errors, the number of occurrences has to be less than 140 per week .

Technology and learning values :

- Technology leadership : This value is mostly obtained by the company if it updates its systems and technologies and try to innovates them.
- Training and certification : This value evaluates from two aspects. The first one belongs to the core system-certified team members and the other one is about driving skills of drivers in the company.

Business values of learning and growth analysis

Partnership values:

- Directly offering services (partnership with airports) : This means the location of company provides situation that company can offer their services directly to the customers. This value is gained because of the partnership with airports. This relation provides situations that customers access more easily the services and the car rental company achieves a channel to offer its services.
- Availability of cars (partnership with the car manufactures) : The partnership of car rental company and car manufactures makes it possible rental company to have access to any car at any time. This relation makes situation more comfortable for both sides of partnership. The manufactures provide what the company wants to offer to their customers . The target benefit of this partnership is 95% availability of cars in case of lack.
- Favorable offers and services (partnership with insurance company) :It's the most important and most effective value in this group. As a result of the great amount of cars to be insured, the insuring firm provides favorable offers, competitive prices and in some situations stable relationship.
- Popularity (partnership with tourist agencies) :This partnership helps the car rental company to be well-known brand on the market and gains popularity.This marketing channel provides situations that the company offers its services complementary to the agencies customers.

Social values :

- Brand image recognition: It is about the recognition of the company as a brand in all over the world. According to awareness of the company brand, maybe the company likes to be as a sponsorship for some groups such as charity groups, sport teams, matches and etc. It helps that company be more famous in its industry in the whole world. Another thing that makes the company very recognizable and well-accepted, is The Green initiative. With this view, the car company persuades customers to rent electric cars by offering price reduction, bonus renting days, free complementary services and/or customer gifts and other benefits.
- Gain of market share : It's specified by annual percentage of market share. The company try to gain 8-10 % of market up to the 2nd year and up to 20% until the 5th year.

3.2 Business processes tracing

The foundation of this section is BPMN models. These graphs are used to evaluate the processes. We followed all activities in each process and survey which values can be generated. Through these tracings, the potential of processes from value absorption point of view is also evaluated and its result will be used in next section of business case analysis “Values and processes evaluation”.

Here, we considered both customer and company perspective for our evaluation and tried to find that the specified value is consumed or created either by customer or company. Then we assess that value accompanies with cost for the company or not.

To show this concept in more clear way, we used shapes and connections to specify how the business values are interchanged during the processes. The below diagram is used in the explanation of all processes.

In each process , the name of activity that is the value generator has been written in the first rectangle and arrow symbol shows a creation or consumption event is happened. The second rectangle is filled by the name of partner side that consumed or created the value. About creation or consumption of value, there will be an explanation in business value evaluation in each process.

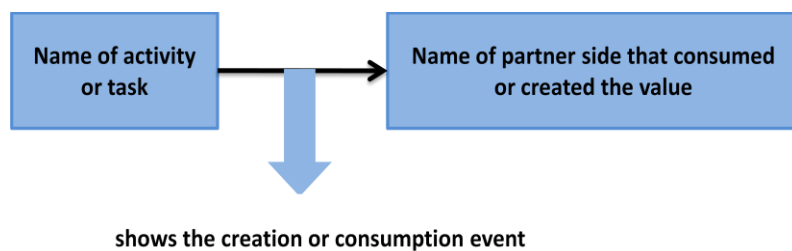


Figure 3.1 : Diagram of showing the value generation

3.2.1 Main processes

By reading the case study, the main business processes were extracted as below. We confronted with fifteen principal processes from when a customer decides to rent a car (“Rent a car”, “Rent a car online”) until he/she wants to bring back the car (“System error handling” and “Logistic”).

Also these processes include those ones that are “Preparation of car (before renting a car)”, “Handling of accidents (interruption of renting)”, “Complaint handling (after renting)”, “Recruitment (company preparation for business process)”, “Marketing campaign (improving the whole business process)”, “Tourist agent bonus calculation (after renting process)”, “Adjustment legal requirement (changing in the company)”, “Partnership selection and communication (relationship with other businesses)”, “Considering service quality from the customer point of view (after renting)”, “To maintain and update system (before and during the renting process)” and “Personnel surveillance (all the time)”.

Process 1 : Rent a car

The customer request task, is the first activity on customer level. The next task , according to company rent policy will be to provide required documents like driving license and identification card. The sales consultant is responsible to validate provided documents, so we put this activity in sales consultant lane. A decision event regarding the validation of the documents results in creating two paths. If the documents are valid, a sub process called ‘Arrange a car’ indicating the pick up procedure is created on the same lane followed by another sub process showing the car is provided and delivered. The customer finally returns the car and the process is then terminated. Returning to decision point, If the documents are not valid process would be terminated.

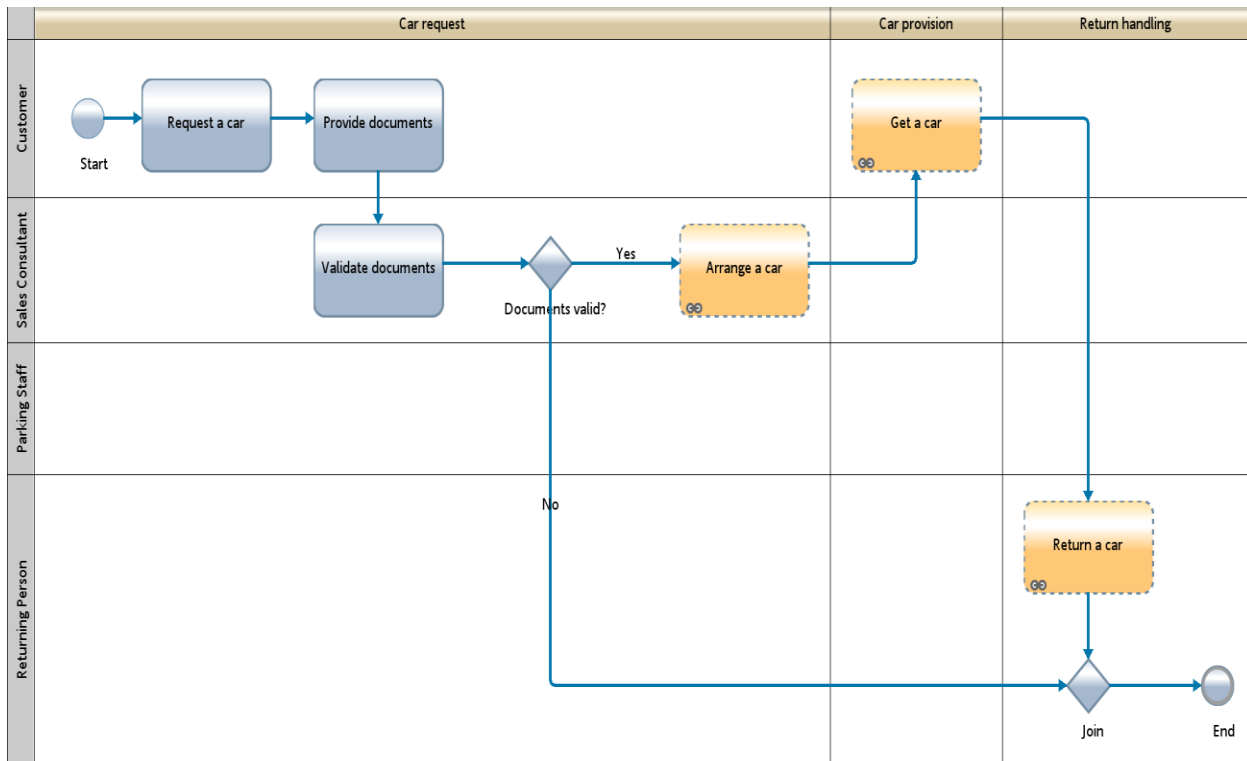
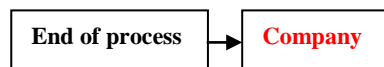
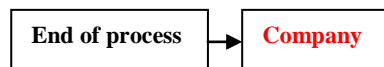


Figure 3. 2: “Rent a car” process, prepared by/made by/modelled by Veronika Boyanova, AGServ in IBM BlueworksLive

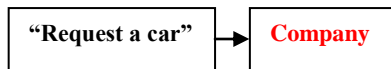
- **Revenue growth** : It is a kind of value that is achieved at the end of the process. The benefit of this value is gained by the car rental company. Then revenue growth is consumed by company at the end of process.



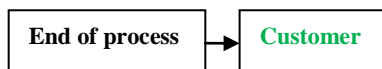
- **Gain profit** : This value likes the revenue growth from most of its aspects and same as that, it will be consumed by the company at the end of the process.



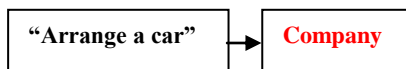
- Direct offering of service : This value is created in association with partnership with airports. At first, by requesting a car, the car rental company benefits from its own partnership and this value is created by company. On the other hand ,it causes costs for the company (cost of building partnership).



At the end of process, the customers drive a benefit that is availability of car rental service at the place and consumes the value.



- Availability of cars: The partnerships with the car manufactures provide situation that company gains availability of cars when they want to arrange a car.



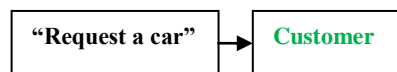
- Popularity : Because of this partnership ,surely the company have more customers and when a customer requests a car at the tourist agency, the company consumes this value at this moment and also at the end of process. The company must pay the tourist agency bonus and it accompanies with cost.



- Customer portfolio retention: When a customer decides to rent a car again from the company, this value is created by customer at the first step of decision and also end of the process.



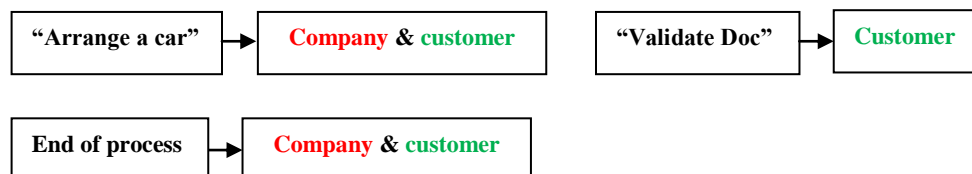
- Customer portfolio extension : When a customer requests a car, this value will be created by that customer.



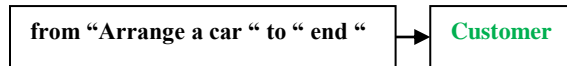
- Customer satisfaction :At the end of process, company consumes the customer satisfaction value.



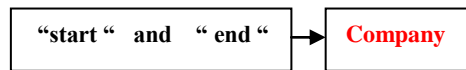
- Fast and qualitative service : In “Arrange a car” task, company creates the “fast and qualitative service” value and customer consumes it. By validating the document, the customer makes a profit from fast services and is the value consumer. At the end of the process, along causing cost for company, customer is the value consumer and company is the value creator.



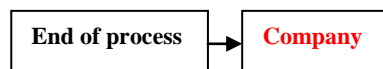
- Training and certification : If the customer requests a chauffeur in addition of the car then, he/she will consume the training and certification value from “arrange a car” task to the end of process. This value is along cost for company.



- Brand image recognition : This value is consumed by the company and is felt at the beginning and end of the process.



- Gain of market share :The car rental company reaches to a higher market share rate by happening of each rent. Then the company is the value consumer.



Process 2: Rent a car online

Actually this process is the online version of previous one. It is started when a request for renting a car is received. This is a task done by the customer. The customer registers his/her request and will be guided to the pay service. The customer is then required to provide documents. These activities are all done in customers pool. The sales consultant will validate the document in the case of an invalid document , the process is terminated . But if all documents are valid, the parking staff is responsible to prepare documents and keys. After that the customer gets the car and finally returns back the car. Then the process is terminated.

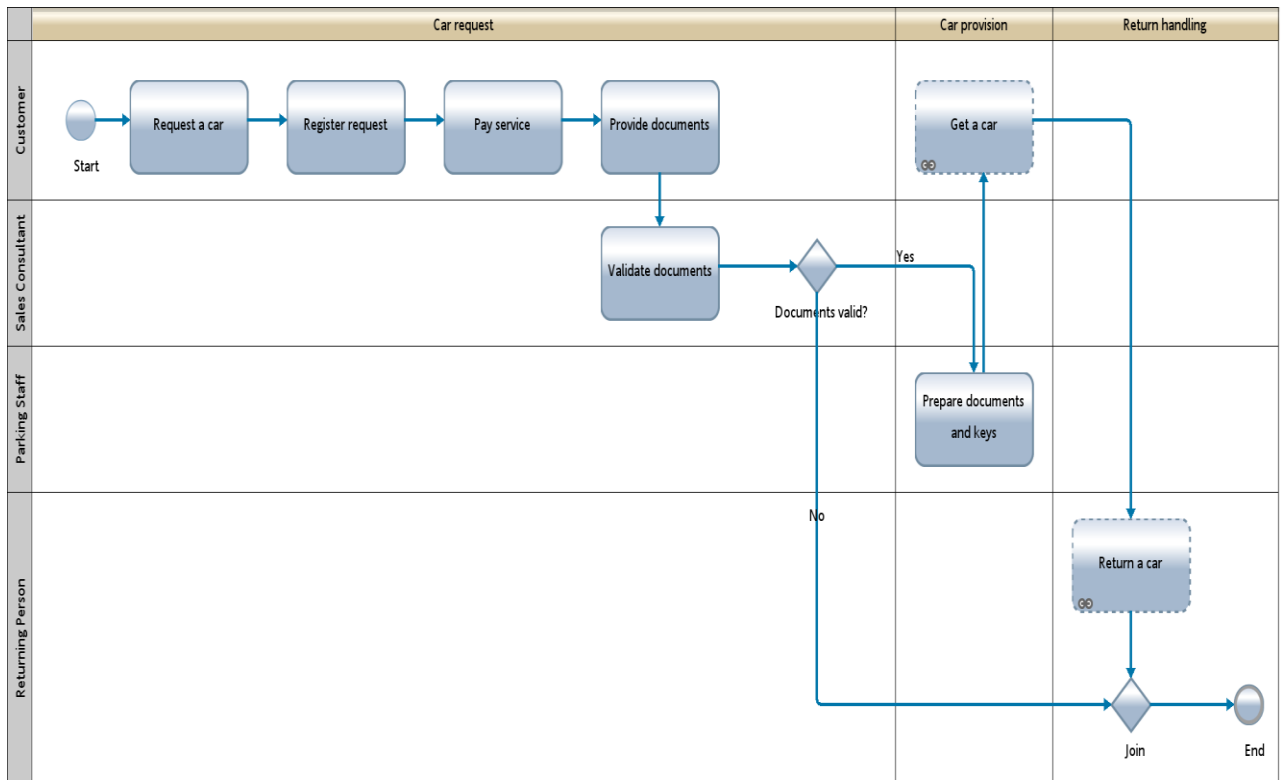
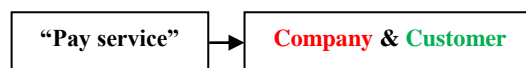
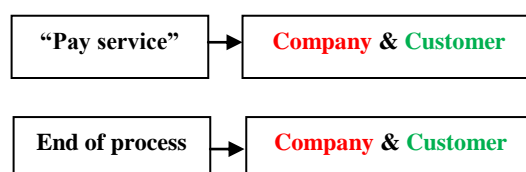


Figure 3. 3 : “Rent a car online” process, prepared by/made by/modelled by Veronika Boyanova, AGServ in IBM BlueworksLive

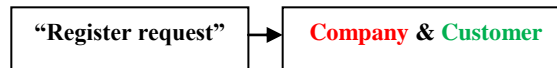
- Revenue growth : The company consumes this value when the customer wants to pay his/her service. Then the customer is the value creator.



- Gain profit :The “Gain profit” value in this process is more complicated. The company consumes this value when the customer wants to pay his/her service. Then the customer is the value creator. At the end of process, both company and customer are the value consumers. The customer saves his/her money by renting online a car and company pays less money for its service such as no rent payment for an office or office employee’s salary.



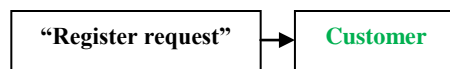
- Availability of cars : This value is felt when the request is registered. The customer is the value consumer. On the other hand , the company gains a benefit from availability of cars. It can offer any service that customer wants. Then the company also can be value consumer.



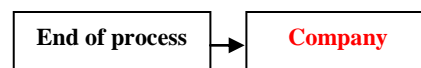
- Customer portfolio retention: When a customer decides to rent a car again from the company, this value is created by customer at the first step of decision and also end of the process.



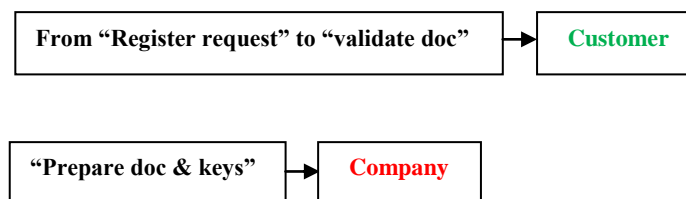
- Customer portfolio extension : When a customer requests a car, this value will be created by that customer.



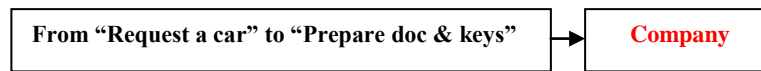
- Customer satisfaction : At the end of process, company consumes the customer satisfaction value.



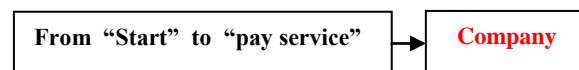
- Fast and qualitative service : From “ Register request” to “validate document” task , this value is consumed by the customer and during “Prepare document and keys” activity is created by company. In both situation, it causes cost for company.



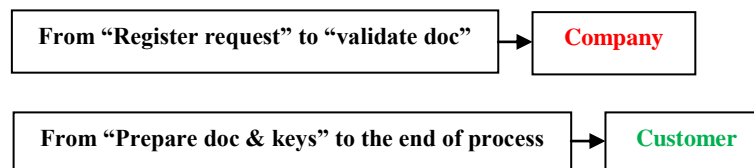
- System maintenance : Because the modality of this value depends on the how technologies work, it is obvious that this value is achieved from the technological parts of process. Then from “Request a car” to “ Prepare document and keys”, this value is created by company. The company will confront with cost by creating this value.



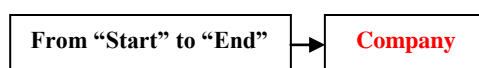
- Technology leadership : This value is consumed by company if it updates its own systems and technologies. This consumption is occurred in duration that is from “Start” event to “Pay service” activity. It obvious that achieving this value causes cost for the company.



- Training and certification : If the customer requests a chauffeur in addition of the car then, he/she will consume the training and certification value from “Prepare document and keys” task until the end of process. For other aspect of this value we can say that the system-certified members of company must observe always the tasks from “Register request” to “Validate document” and the company consumes this part of training and certification value. This value is along cost for company.



- Brand image recognition : The company is the consumer of this value during whole of the process.



- Gain of market share : The car rental company reaches to a higher market share rate by happening of each rent. Then the company is the value consumer.



Process 3 : Car logistic

Car logistic process is started by an estimation of car needs by the branch manager. Then the branch support department will be responsible to “check car availability in the region”. If the car is available, then this department activates the car arrangement provision and following the rest of the path, the process is terminated.

But if in the previous decision point, a car is not available, support department follows up to fleet manager and the fleet manager will define car supply action. Again here we need to identify if an intervention from partnership manager is needed. If yes, the partnership manager will contact manufacturers and they will provide cars and we reach the end of process. If there is no need of an intervention from partnership manager, the fleet manager him/herself will arrange a provision from manufacturers and again the manufacturer is responsible to provide cars.

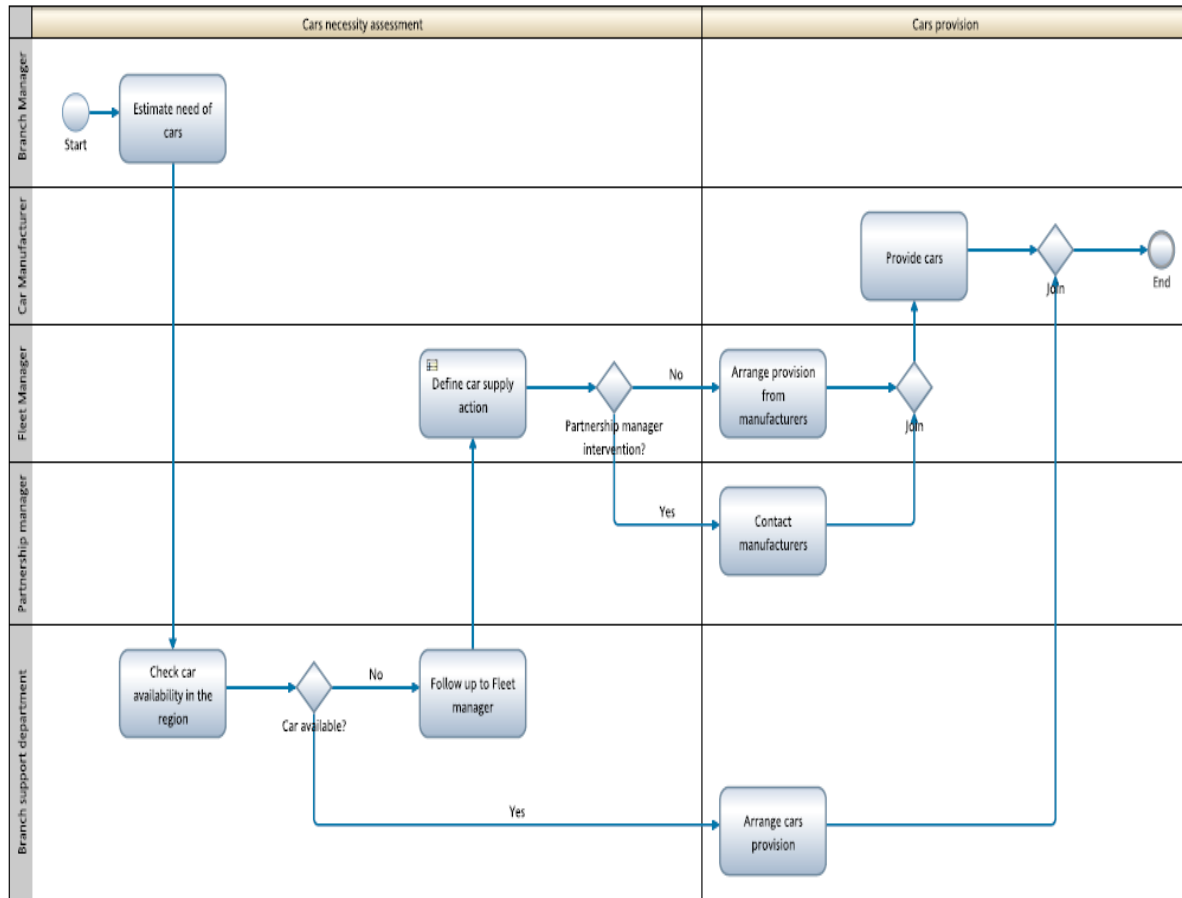
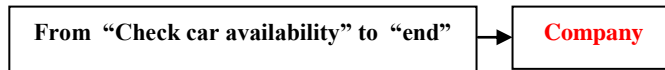


Figure 3. 4 : “Car logistics” process, prepared by/made by/modelled by Veronika Boyanova, AGServ in IBM BlueworksLive

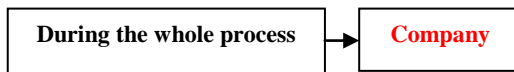
- Availability of cars : This value is consumed by the company and felt from the “Check car availability” to “Arrange cars provision”. The partnership with car manufactures causes cost for company.



- Fast and qualitative service : During this process , how company can do its obligations and how many times they need to do them and offer its service to the customer are so important. The creation of this value is occurred in during the activities that are from “check car availability” to the end of process. Providing the fast services with good quality bears out cost to the company.



- Training and certification : The company is consumed the value in every task in the process .Obviously this is along cost for the company.



Process 4 : Prepare a car

When a person brings back a car this process is started. A sub process here starts which shows different steps of bringing back the documents and signing forms, etc. Then the sales consultant determines the preparation status and a driver will bring the car to repair shop. In the repair shop activities of repairmen will be done. Washing the car is the final step of the car treatment. After that, again the car driver brings back the car to the parking and informs the sales consultant about the preparation of the car. Finally the sales consultant will approve the car availability.

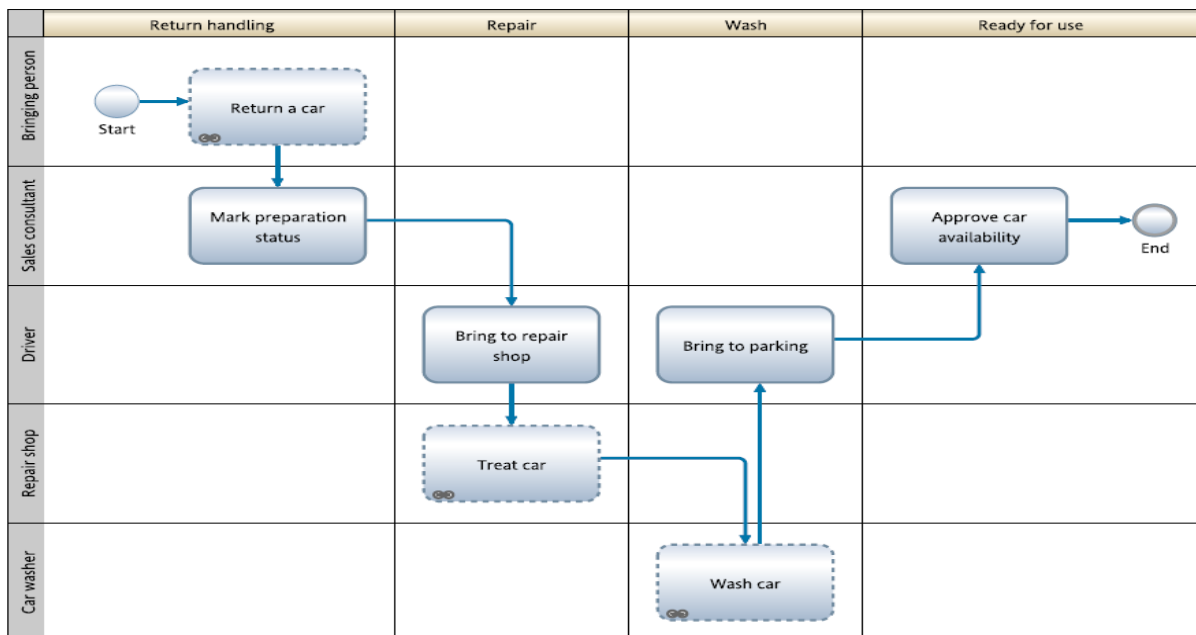
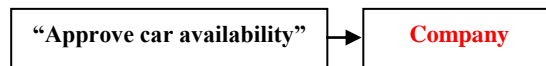


Figure 3. 5 : “Prepare a car” process, prepared by/made by/modeled by Veronika Boyanova, AGServ in IBM BlueworksLive

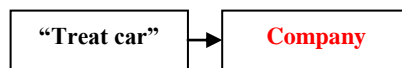
- Gain profit : The car rental company has contracts with repair shop and car wash company and it uses its contracts in this process and saves money by bringing its cars to the contracts partners. The value consumer is the company and also will along cost for it.



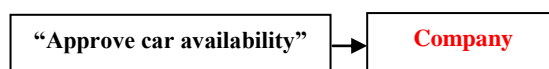
- Availability of cars : This value is sensed in “Approve car availability” activity and consumed by the company.



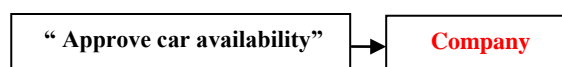
- Favorable offers and service : This is related to the company partnership with insurance company. When an accident is occurred, company uses the contract for decreasing the cost. This value is felt during in “Treat car” process and consumed by the company.



- Fast and qualitative service : The company is the value creator. By approving the availability of cars at right time, the company have more service options for offering to the customer.



- Training and certification : In this Process, “Approve car availability” is the only process that needs to be evaluated by system-certified team members. The company is the value consumer.



Process 5 : Accident handling

When a customer reports an accident, this process is activated. The sales consultant registers this accident and asks the customer if he/she needs a new car. If yes, arrangement of a new car will be started followed by its sub activities. If there is no need for a new car, the process automatically reaches the “picking up the car from accident location” which is done by “Road help insurance company”. The “Insurance process” is a sub process included in accident handling. It starts by recording damages by the insurance expert which will do this in a predefined time period. Then they will assess the expenses caused by the repairmen. Then the insurance financial department transfers money to CR department in a timely manner and a returning person brings the car to repair shop. This sub process is here done.

After the insurance sub process is done, the driver starts the car treatment, washes the car and brings the car parking. Finally the sales consultant approves the car availability.

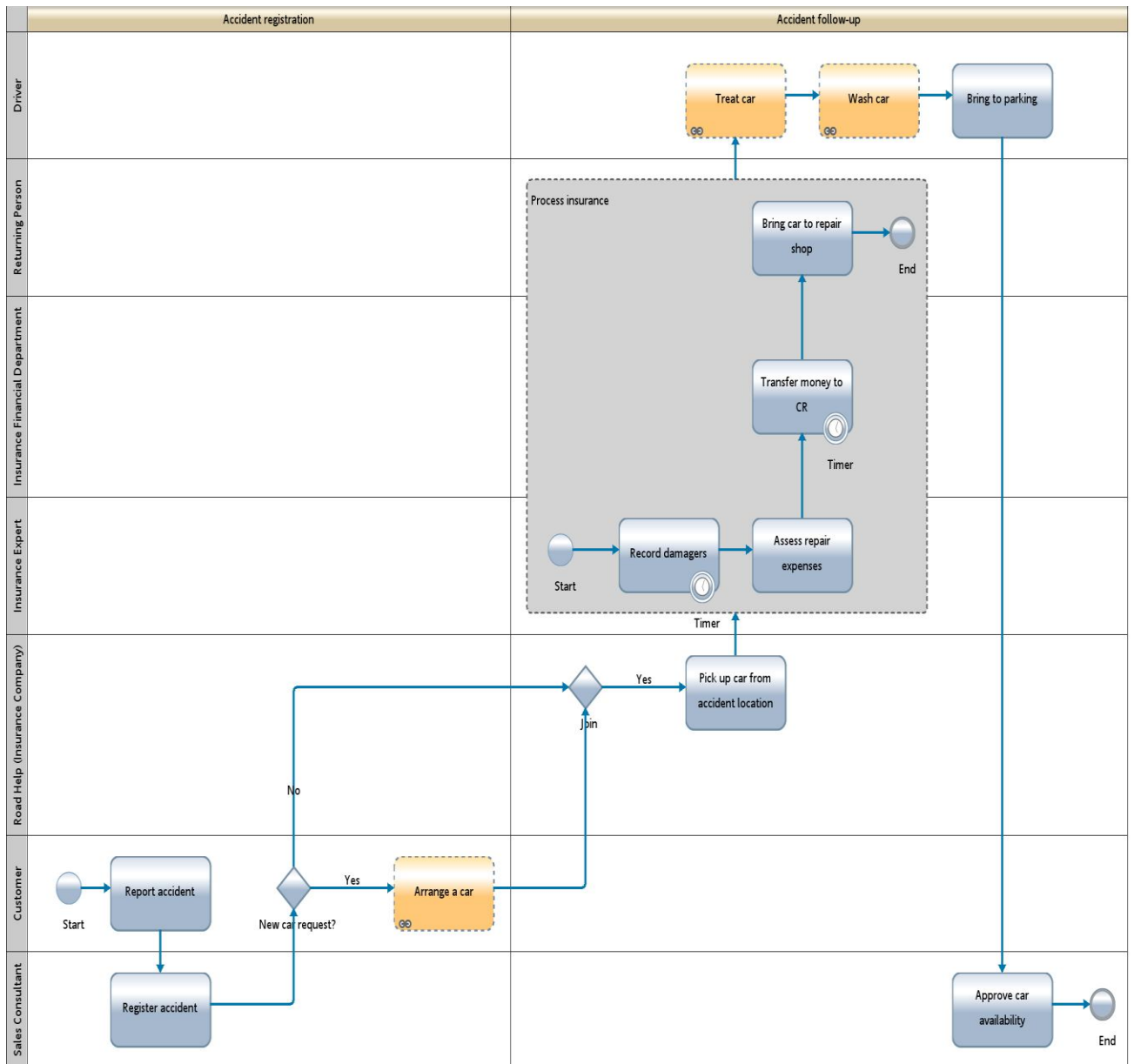
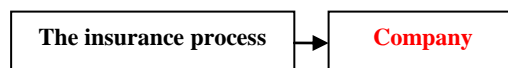
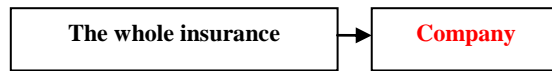


Figure 3. 6 : “Accident handling” process, prepared by/made by/ modeled by Veronika Boyanova, AGServ in IBM BlueworksLive

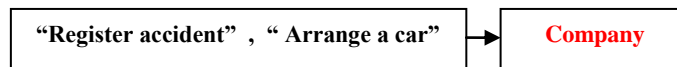
- Gain profit : During the insurance process, company benefits from its own partnership with insurance company and decreases the cost of accident handling and gains profit. The company is the value consumer.



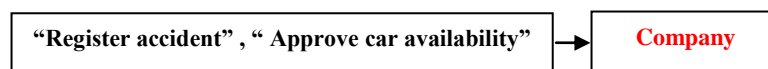
- Favorable offers and service : In this process, the effect of partnership with insurance company is more sensible in comparison with other processes. The company make benefits from the insurance company offers then the car rental company is the value consumer during the whole of insurance process.

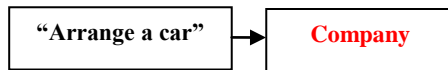


- Customer portfolio retention : If the company wants to gain this value , it must pay attention to its own services when the customer notifies company about the accident such as “ Register accident” and “Arrange a car”. If the company does its own obligations very well, it can connivance the customer to use its services again. The company can be hopeful to consume the customer portfolio retention value and it causes cost for the company.

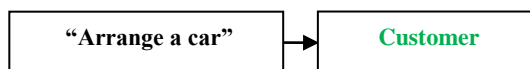


- Customer satisfaction : In this process, how company does its duties in some tasks affects the customer satisfaction. At first glance, The customer satisfaction will be achievable when the customer reports an accident, the company starts associated operational procedures as soon as possible. If the company arranges a car at proper time for the customer who requested a new car from the car rental company after occurring an accident, it will create customer satisfaction value. By approving car availability, the car will be available again and any customer can request it again.

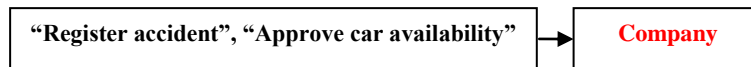




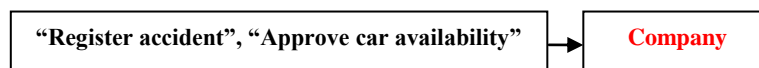
- Fast and qualitative service : In “Register accident”, “Approve car availability” and “Treat car” task, this value is created by the company. The customer is the value consumer during the “Arrange a car” task. Achieving this value causes cost in both case for the company.



- System maintenance : In “Register accident” and “Approve car availability” task, it’s determined that how the technologies of company works. Then the company is the value creator .



- Training and certification : This value is felt and consumed by the company.



Process 6 : Complaint handling

When a complaint arises from a customer the process is activated. It results in the activation of the “complaint registration” sub process. In this sub process a complaint receiver registers the complaint and the systems archives the complaint and the sub process is over. Followed by this registration, the complaint receiver determines if there is a need for actions. If there is no need for an action the process is terminated. But if there is, he/she again looks if there is an immediate solution for the complaint. If yes, he/she solves the issue by its sub activities. But if there is no immediate solution, a complaint responsible person starts another sub process and in this way he/she solves the issue. The process is then terminated.

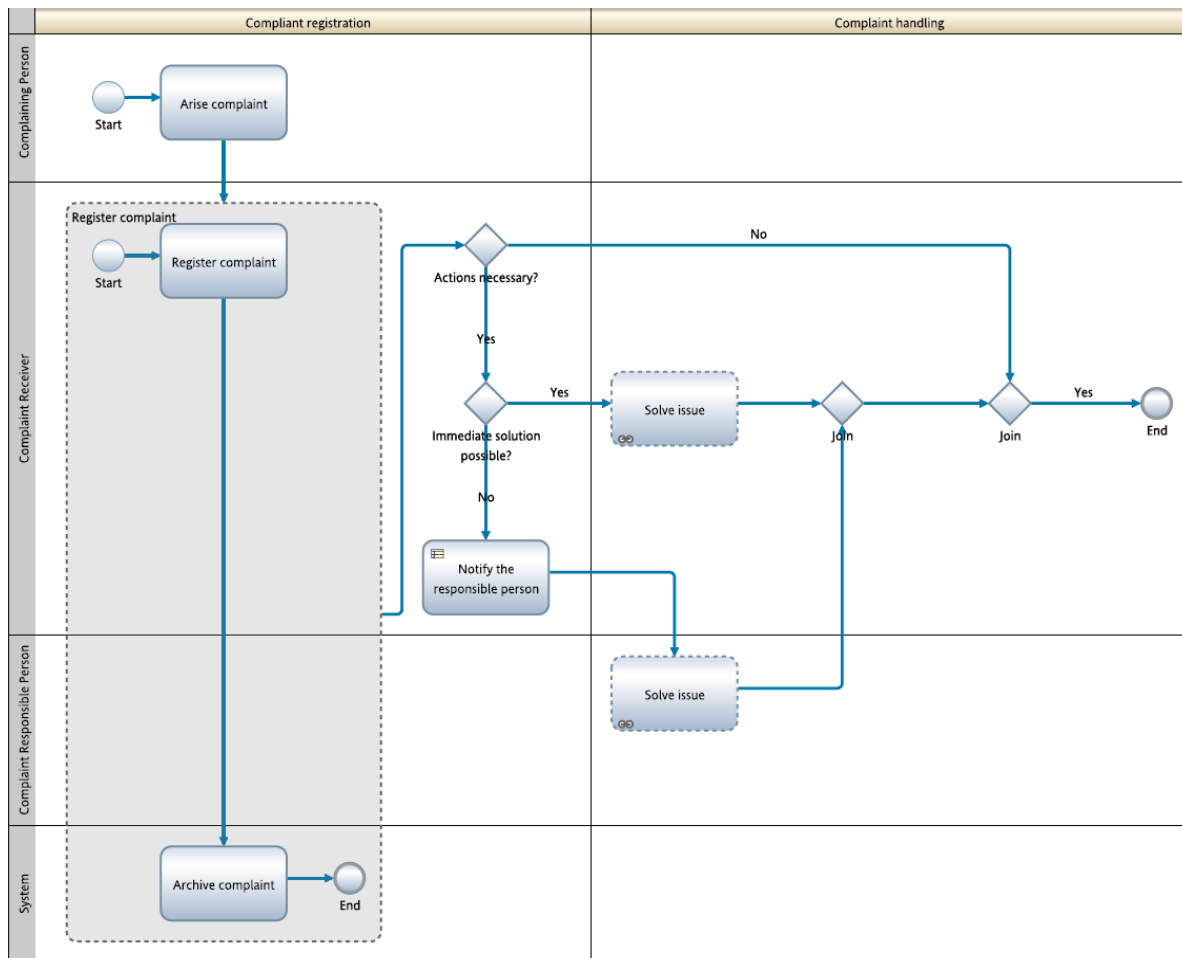
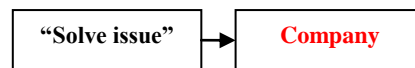
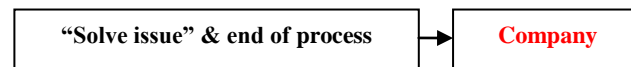


Figure 3. 7: “ Complaint handling” process, prepared by/made by/modelled by Veronika Boyanova, AGServ in IBM BlueworksLive

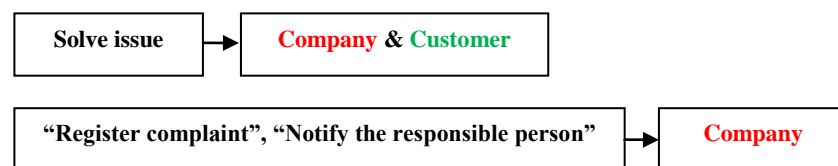
- Customer portfolio retention : When the company solves the complaint, customer will sense that the car rental company pays attention to the customer opinion and it's important for them how customers feel about them and also trust them. So, we confront with 2 situations. The first one, The customer won't use again the service of this car rental company. In the second situation, Customer will satisfy from the reaction of the company and decide to use its services then the company is value creator and creation of this value accompanies with cost for the company.



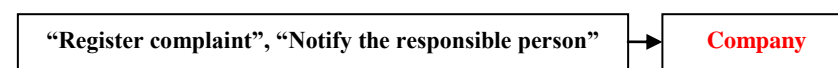
- Customer satisfaction : This value is created when the company solves the complaint and also at the end of process. The car rental company is the value creator. Cost will be part of this value creation.



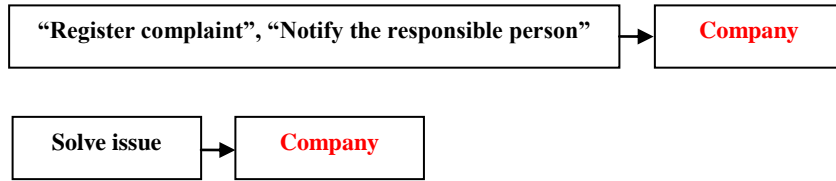
- Fast and qualitative service : The "Solve issue" task clarifies how company offers its services and in this situation the company is value creator and customer consumes this value. In "Register complaint" and "Notify the responsible person" task, the company is the value creator. The company must account some cost for this part.



- Technology leadership : The effect of the technology is felt in "Register complaint" and "Notify the responsible person" sub process and the company is the value creator.



- Training and certification : Only the core certified-system members of company participate with achieving this value that is created by the company.



- Gain of market share : An effect of complaint handling is improving the image of company in the customer mind and also the car rental business. Consumer of this value is the company.



Process 7 : System error handling

Its specialist checks the systems for errors. IF it is possible to remove errors, he/she will do it and the process is over. But if they cannot handle errors, an IT expert will be responsible to handle errors and after that, the process is terminated.

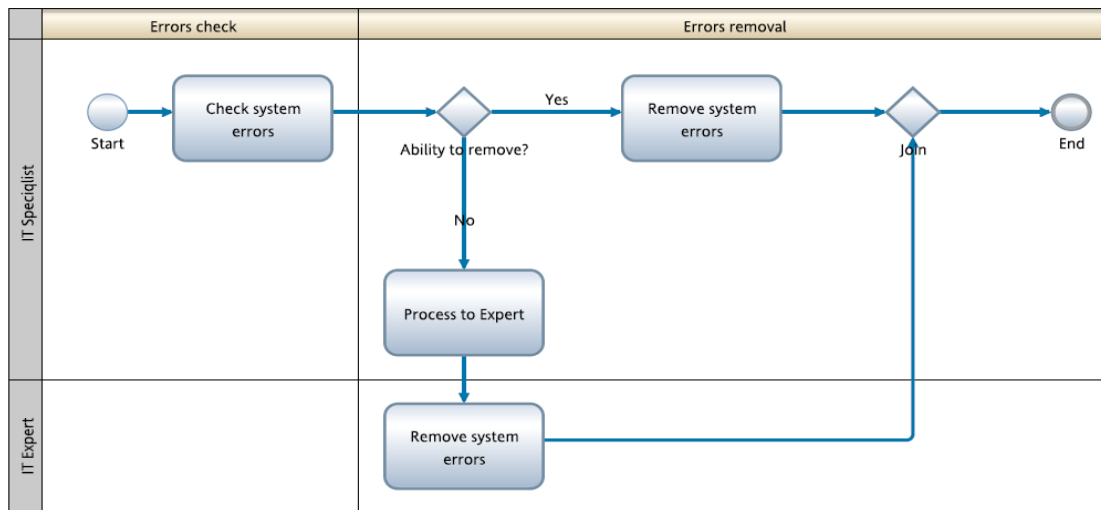
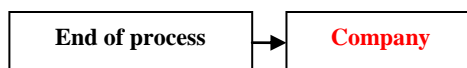
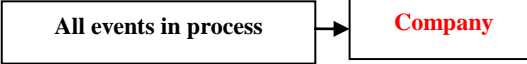
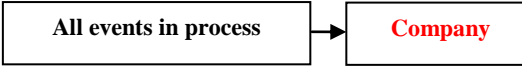
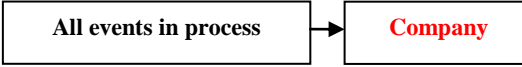



Figure 3. 8: “ System error handling” process, prepared by/made by/modeled by Veronika Boyanova, AGServ in IBM BlueworksLive

- Gain profit : By handling the errors of systems, company gains profit because of improving the performance and reducing cost of errors then it will be the value consumer.



All the values that are mentioned below can be achievable from any task is belong to the process . In all of them, company is the value creator and must pays attention to the cost of achieving this value.

- Fast and qualitative service : 
- System maintenance : 
- Technology leadership : 
- Training and certification : 

Process 8 : Recruitment process

An external user which is a job applicant applies for a job. The HR department is responsible to validate application and if it is not validated, the sub process “Reject Application” is activated and the applicant is going to be informed. Then the process is terminated. If the application is valid, HR consultant forwards the process to potential direct manager. He/ She will review the application. If there is further interest, the HR appoints an interview by the potential direct manager. They approve the applicant and if the applicant approves, a second interview with the second interviewer will be planned. Then the applicant will be approved and if the HR department finds further interest in applicant, the HR consultant hires the applicant and then the process is terminated.

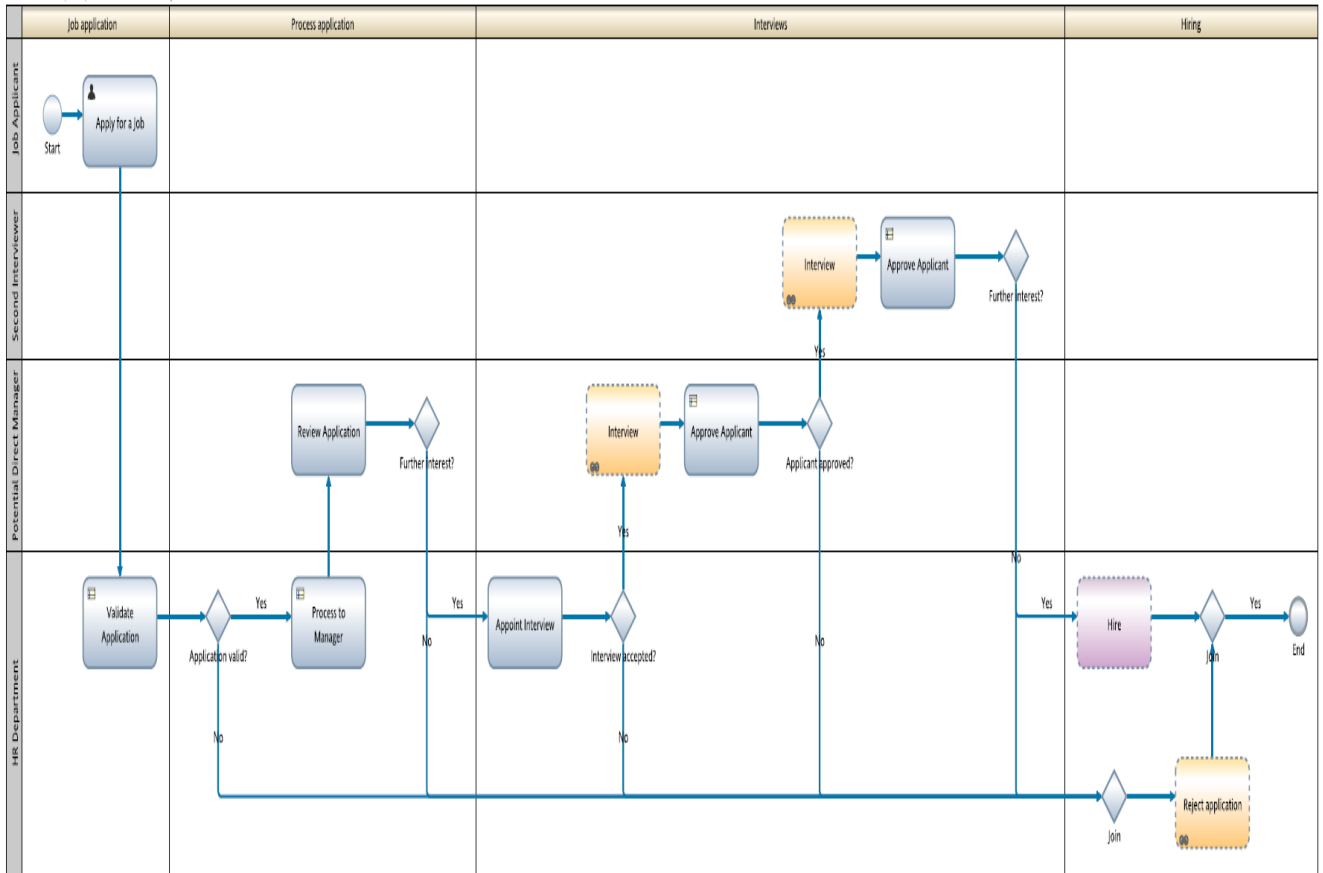
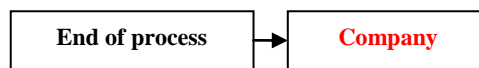
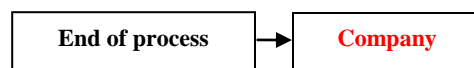


Figure 3. 9 : “Recruitment process” process, prepared by/made by/modelled by Veronika Boyanova, AGServ in IBM BlueworksLive

- Revenue growth : At the end of process , hiring capable employees and specialists affect in all part of the business of company and causes more revenue for it. Then the company is the value consumer.



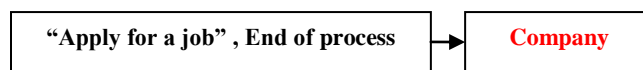
- Gain profit : The car rental company consume this value at the end of process.



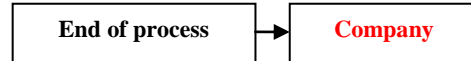
- Training and certification : When company hires a new capable workforce, it's services will be improved either from technical aspect or customer relationship. The company is the value creator and customer will consume it. This value causes cost for the company.



- Brand image recognition : The company capabilities and fame encourage more people to apply for a job . Then, this value is created by the company.



- Gain of market share : At the end of process, by hiring more capable work forces and improving the company services, more customers are persuaded to use the company service and market share will be increased. Then consumer of this value is the company.



Process 9 : Marketing campaign

An idea creator presents ideas for a campaign and the marketing manager will be responsible to evaluate ideas. If they seem good enough, they will be forwarded to marketing department to sketch campaign idea and then again the marketing manager will introduce the campaign to board of directors. If it is approved there then they will define timelines and a scope for the campaign and the marketing department will start a wide sub process to plan the campaign. They start by setting campaign goals, followed by defining metrics and defining participants. If there are external participants, the marketing department will include them and then define responsibilities. They will organize execution and support participants and finally communicate campaign to all stakeholders.

This sub process is then terminated and results in the execution of campaign by the execution team and then the marketing department will analyze the results.

Finally the marketing manager will report results to the board of directors.

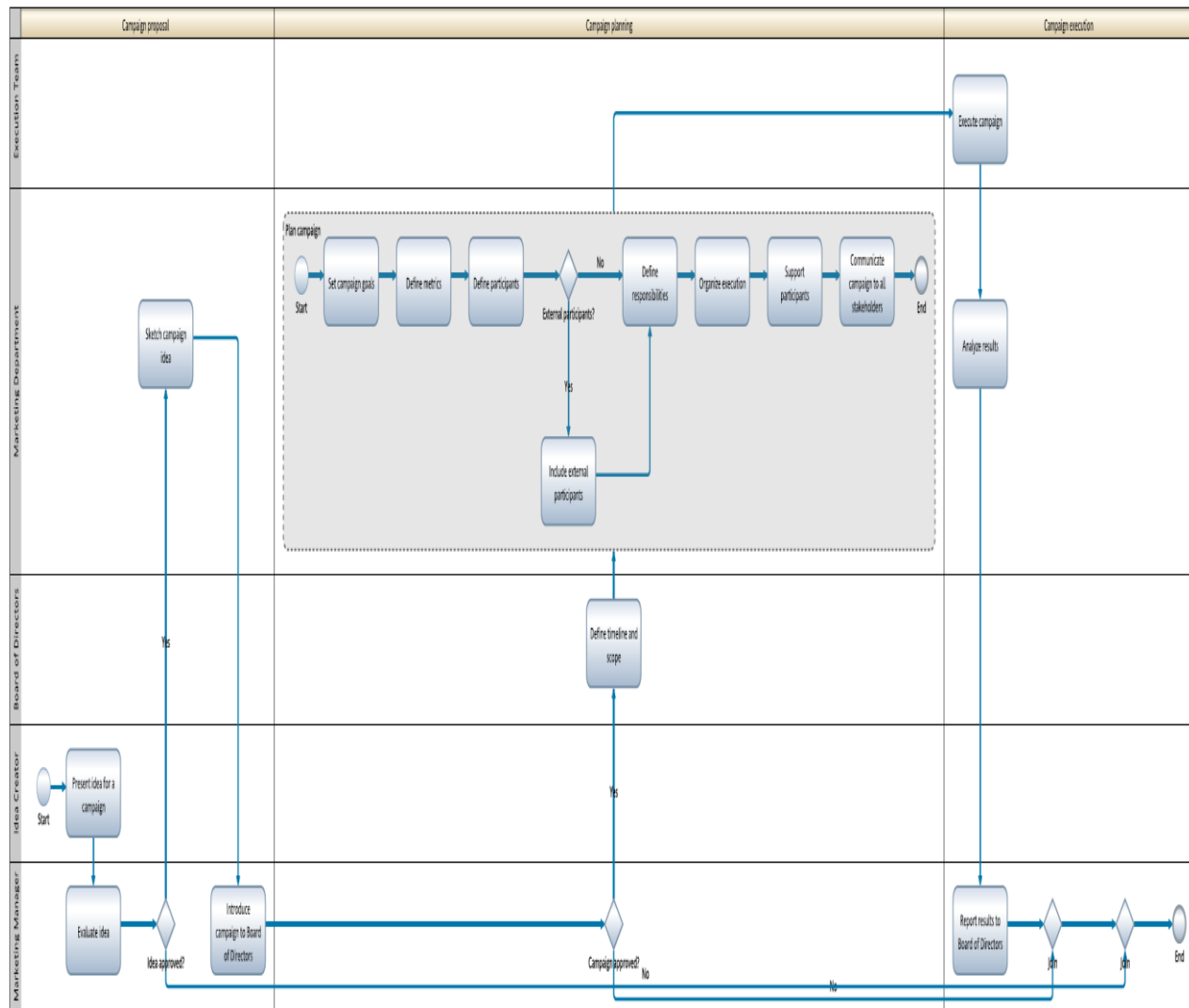


Figure 3. 10 : “Marketing campaign” process, prepared by/made by/modeled by Veronika Boyanova, AGServ in IBM BlueworksLive

In this process, Achieving the value by the company depends on which idea is selected by the marketing managers, how company wants to implement this idea ,the campaign goals , kinds of metrics

and the participants . By considering all of these aspects, each of the values that we introduced above can be achievable in the process after “ Execute campaign” .

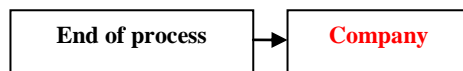
Process 10 : Tourist agent’s bonus calculation

According to the partnership settlement with tourist agents, these offices receive a monetary bonus conforming with the customer requests were brought by them . When a customer rent a car at a tourist office , the employee registers the request with own username and password . All the reservation save in the systems through a month by the name of customers and the employee who registered it .

At the end of every month, the contribution is reported by the partnership manager and the bonus is calculated and then authorized by the financial manager. Finally , it will be sent to the bank account of the tourist agent .

These two values , “ Growth revenue” and “ Gain profit” are the most important ones that are gained at the end of process by the car rental company.

- Revenue growth : This value is felt at the end of the end of process. Because of the partnership , the company has extra way to offer its own services and becomes the value consumer.



- Gain profit : This value is consumed by the company.



Process 11 : Adjustment to legal requirement

An alert of a change in the law informs the company needs doing the adjustment process . Here, the process is triggered. The top management cooperate with a legal entity for evaluation the effects of this change on the business activity of the car rental company. If an effect is recognized, the analytical process will start and result will be reported by the responsible person. The information is sent to internal and external parties(partners, customers, etc.) of the company by the marketing team.

In this situation, relevant managers and employee may realize that an alteration must be done in the business activity of company according to the change in law. Then they will inform internal and external roles about this alteration. Thenceforth , all the incumbent stakeholders work with this new situation.

In this process, because of the nature , aspects and also kinds of this change ,Discussion on the values is more complicated in comparison with others processes. According to the change in law and proper reaction, the company may achieve each of those values during or at the end of the process .

Process 12 : Partnership selection and communication

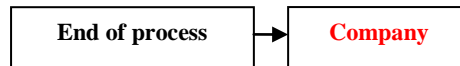
When there is a need for deciding on picking a partner issue , the partnership manager of car rental company is responsible to deal with the issue. When there are cases that are related to common business activities like a lack of cars in the branch which should be provided by the manufacture, there is a common procedure.

The partnership manager should explore the case which is submitted in the partnership section of core system and either accept or reject the request. But, when there are cases that involve also the branch manager, it is branch manager responsibility to collaborate with the management of partnering company.

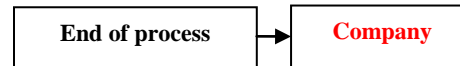
And the final case happens when there are cases that involve top management . In this case , the issue is either solved by the partnership manager or by the CEO of the company. After solving the cases, all parties will be informed and the case will be archived by the partnership manager.

Here , we will mentioned a list o values that are divided into two groups , consumed by company and created by company . First group contains “Revenue growth”, “Gain profit”, “Availability of cars”, “Brand image recognition” and “Gain of market share” . In second one , there are “Customer portfolio retention” , “Customer portfolio extension” and “Customer satisfaction”. Achieving any of the below value is along cost for the company in this process.

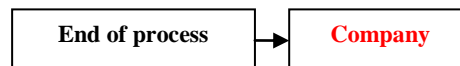
- Revenue growth :



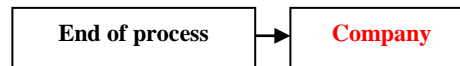
- Gain profit :



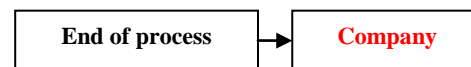
- Directly offering services:



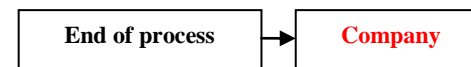
- Availability of cars :



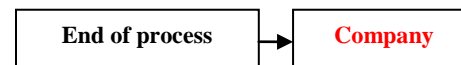
- Favorable offers and services :



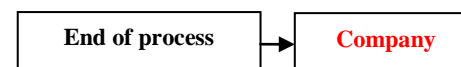
- Popularity :



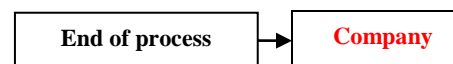
- Customer portfolio retention :



- Customer portfolio extension :



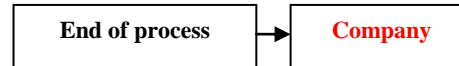
- Customer satisfaction :



- Brand image recognition :



- Gain of market share :

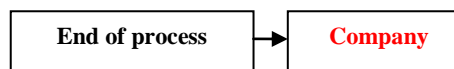


Process 13 : Considering service quality from the customer point of view

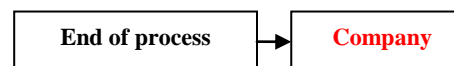
Because of the nature of this business (offering service), customer satisfaction plays an important role in doing the activities. The car rental company dedicates periods for checking the customer satisfaction. Then, they evaluate the quality of some aspects of it and measure the quantity of other ones. By evaluating the customer point of view, the continuation of business method relies on company decision. They will chose the method that company gains more customer satisfaction .

According to above explanation, by evaluating the service quality from the customer point of view, the car rental company can achieve “ Growth revenue” and “ Gain profit” at the end of the process and will be the value consumer .

- Revenue growth :



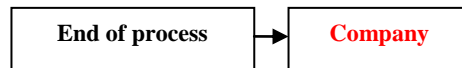
- Gain profit :



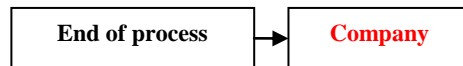
Process 14 : To maintain and update system

As we know, the most processes in company heavily rely on the technology then maintaining and updating systems and technology affect the performance of other procedures. This process is implemented in specified period of time and the technicians always check and evaluate the condition of systems. So, they have proper performance. Technology staffs pay attention to the errors of systems and try to analyze and remove them. To gain more attention and satisfaction of customers, the car rental company tries to use more user friendly systems and adjusts them according new updates.

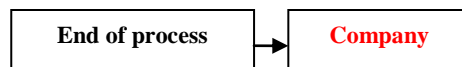
- Gain profit : By maintaining and checking the system, company will confront with lower number of errors and as a result it causes lower cost for the company. Here, company is the value consumer.



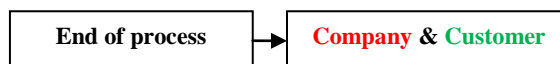
- Customer portfolio retention : When customer work with a convenient and updated system and technology without errors or pausing , they will be persuaded to use the company services. Then , company will be the value creator.



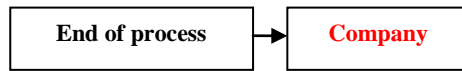
- Customer satisfaction : This value is created by the company at the end of process.



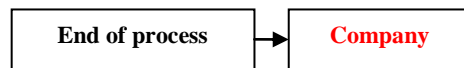
- Fast and qualitative service : This value is the most sensible value in this process, if the company does its duties as proper as possible. It is obvious the company will be the value creator and must pay attention to the cost of achieving this value.



- System maintenance : The company can be sure about creating this value, if it did this process very well. Creating this value causes cost for the company.



- Technology leadership : At the end of this process, technology leadership is created by the company.

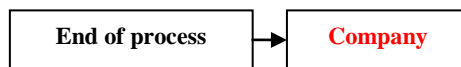


Process 15 : Personnel surveillance

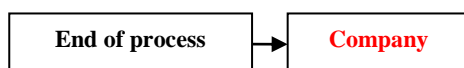
The company tries to hire the most capable personnel in every parts and always must evaluate them by passing the time and in any sections such as technology, rental agent and chauffer. If they feel the need of the held off some training programs for their staff, they must do it as soon as possible. These training programs help the company to reduce some costs that may occur because of staff inefficiencies and also to achieve more customer satisfaction.

At the end of process these values are gained by company, customer or both of them :

- Revenue growth : Paying attention to the work forces performance and evaluating them every time helps company to know about the weak points, so company tries to remove them from system and it causes more revenue for company. Then this value will be consumed by the company.



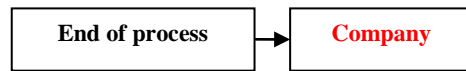
- Gain profit : By reducing the cost of staff inefficiencies, profit will be increased and consumed by the company.



- Customer portfolio retention : This value is really sensed in the situation of customer-staff relationship. It will be achieved if the company performs this process continuously.



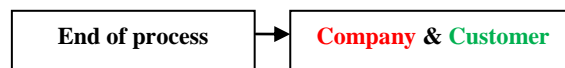
- Customer satisfaction : Same as what was mentioned about the pervious value, also customer satisfaction is achieved from customer-staff relationship. Then company must try to do this process very well in order to creating customer satisfaction.



- Training and Certification : This value can be created by the company.



- Fast and qualitative service : With more capable employees, company provides its services more qualitative so the company will be value creator and on the other hand customer will be its consumer.



3.3 Processes and Values evaluation

Based upon studies on each process and on the way each value is achieved in certain parts of a process, we found out that the type of process is affecting the achievement of values. According to what was mentioned in literature section, we can divide the processes into main groups of functional and management processes.

Functional processes	Management processes
<ul style="list-style-type: none">▪ Rent a car▪ Rent a car online▪ Car logistics▪ Prepare a car▪ Accident handling▪ Complaint handling *▪ System error handling▪ Tourist agent's bonus calculation▪ To maintain and update system▪ Personnel surveillance▪ Considering service quality from the customer point of view	<ul style="list-style-type: none">▪ Complaint handling *▪ Recruitment process▪ Marketing campaign▪ Adjustment to legal requirement▪ Partnership selection & communication

*Remark: Complaint handling belongs to both groups.

Table 3.2 : Car rental company processes

According the previous explanation, the defined values can be put into “Long term” and “Short term” group.

Long Term Values	Short Term Values
<ul style="list-style-type: none"> ▪ Revenue Growth ▪ Gain profit ▪ Favorable offers and services ▪ Brand image recognition ▪ Gain of market share ▪ Customer portfolio retention ▪ Customer portfolio extension ▪ Customer satisfaction * ▪ Popularity 	<ul style="list-style-type: none"> ▪ Availability of cars ▪ Directly offering services ▪ Technology leadership ▪ Training and certification ▪ Customer satisfaction * ▪ Fast and qualitative services ▪ System maintenance

*Remark: Customer satisfaction belongs to both groups.

Table 3.3 : Classifying of Business Value groups in car rental company

Discussion on how the management processes go on is harder because it depends on strategic decisions which will be made during the process and it becomes harder when we want to study if long term values will be created or not. For instance “marketing campaign” and “adjustment to legal requirements” processes are completely strategic ones.

Based on the procedures of processes know-how, different values may be created. In other words, it is possible for all values to be created at the process, especially at the end of process. It depends on how the process is done. Actually as high management of the units and CEOs decide on strategic processes,

as a result the creation of each value depends on these people's decision type. And that is why the anticipation of value creation in these processes is more difficult.

About our case study, the most difficult process is "marketing campaign". Because the way this process is done and the decision making procedure affect other processes and other parts of the company. About another process "Adjustment to legal requirements", we can say that this process is so dependent on changes which happen in the company and managers need to coordinate these changes.

Every company should take care of its partnerships to optimize operations and service provisions. Partnerships play an important role in company's performance. The way the company's strategic management defines company's strategy about partnerships, affects the activation procedure of "partnerships selection and communication" process. The way decisions are made makes it possible that all values except for systems performance values(Training and certification,Technology leadership, System maintenance ,Fast and qualitative service) are gained at the end of process.

About "complaint handling" process, it is needed to mention that depending on which unit performances the customer complaint, this process can be placed in category of "Management" or "Functional" processes. Because of that, the analysis of this process is a little bit harder.

In study of values analysis of long term values is harder than short term values because of their dependence on time. In this category of values the analysis of "customer portfolio retention" and "customer satisfaction" is more complicated. Because in these cases we need to take care of customer ideas generally in addition to considering conditions. Persuading customers to use company's services is more complicated than "customer extension" .Because for the second one we can use different marketing methods. The company should try to consider the majority of ideas in its strategy but in customer retention, the company needs to take customer satisfaction into account, in addition to customer ideas and to think of every aspect of it.

3.3.1 Heat map of Values and processes

For making a heat map of business values and processes , we put the potential of processes from value absorption point of view as our fundamental . Actually, how the processes affect achieving a specified value or by which probability the values can be generated during a determined process . In fact , we draw a graph that its function has two inputs (business value and business process) and its output will be process potential or probability of value generation .

In the below graph, The processes are shown on the X-axis and values on the Y-axis . The X-axis is divided into two parts. The first part belongs to “Functional processes” are specified by purple rectangles with their names and other part belongs to “Management processes” are shown with green rectangles along with name of processes.

On Y-axis , “long term values” are indicated by dark orange rectangles and “short term values” by light orange ones with the name of values. According what was mentioned before “Complaint handling” has features of both process groups and on the other hand, “Customer satisfaction” can be long term and short term values . Then we distinct them with white rectangles. But, we consider them in both groups can be belonged in our evaluation.

The graph is filled by dark blue, light blue and white tiles. Each tile in the crossing point of every value from X-axis and Y-axis defines their relationship . If the color of tile is white, it means the value cannot be generated from the execution of determined process. The distinction between dark and light blue is related to the difference in potential of processes from value absorption point of view. The processes of dark blue tiles has more effect on value generation in comparison with light blue’s. This concept can be explained in other way, the probability of generating the dark blue tile’s value is higher during the process execution.

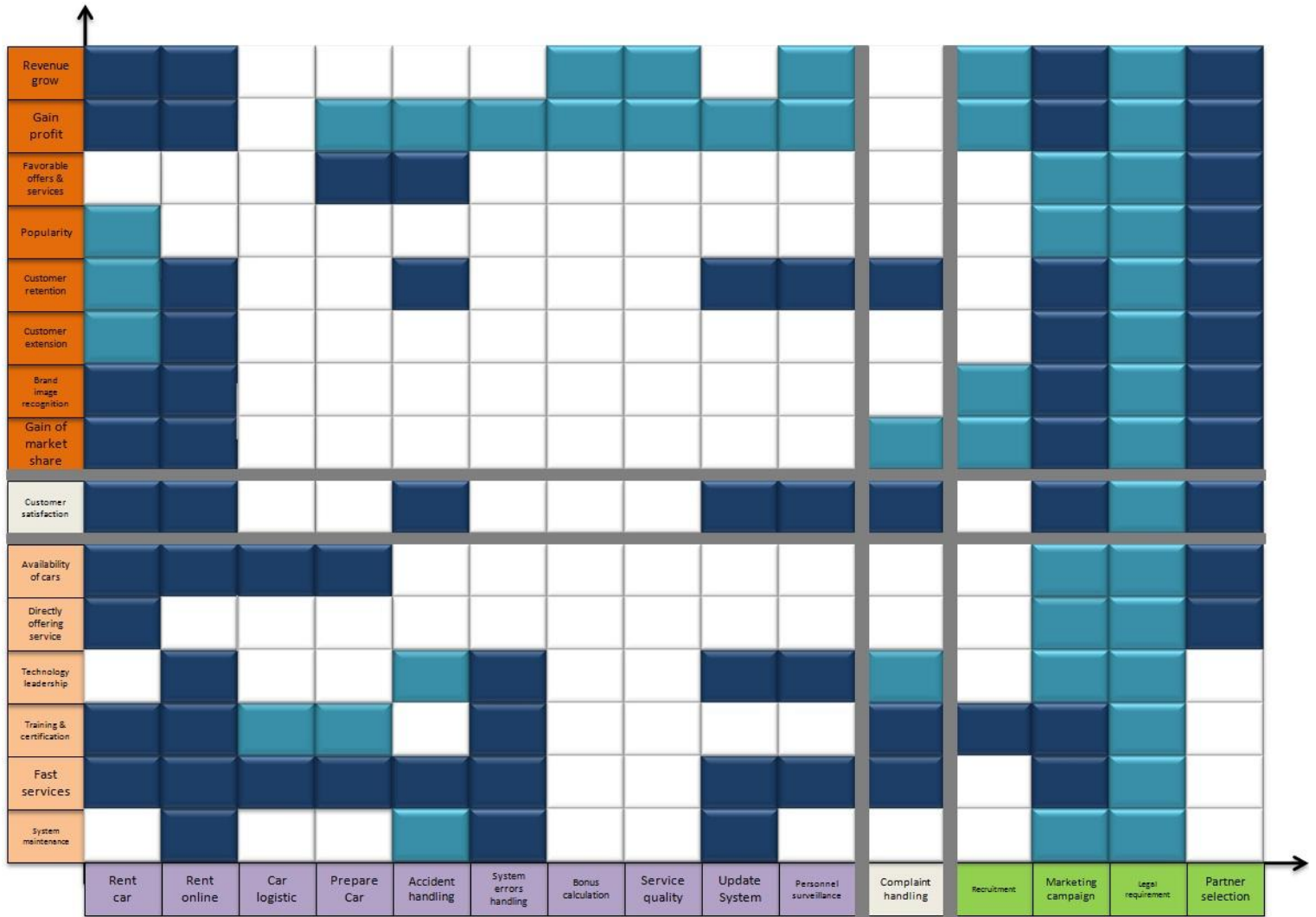


Figure 3. 11 : Heat map of business values and processes

The analysis of above graph starts with process features point of view and all four regions (“Functional processes – long term values”, “Functional processes – short term values”, “Management processes – long term values” and “Management processes – short term values”) will be evaluated. We wrap up that functional processes have more potential in short term value generation. “Rent a car” and “Rent a car online” have the highest value generation share and on the other side, “Tourist agent’s bonus calculation” and “Considering service quality from the customer point of view” have the lowest share.

On the other hand, functional processes have the most effect on “Fast and qualitative service” generation. “Gain profit” and “Customer satisfaction” are the subsequent impressionable values.

The execution of management processes is depended on the strategy selection and decision making of the company. This issue is more egregious in “Marketing campaign” and “Adjustment to legal requirement”. Then omission of these two processes helps us to have a independent evaluation. The graph will be as below :

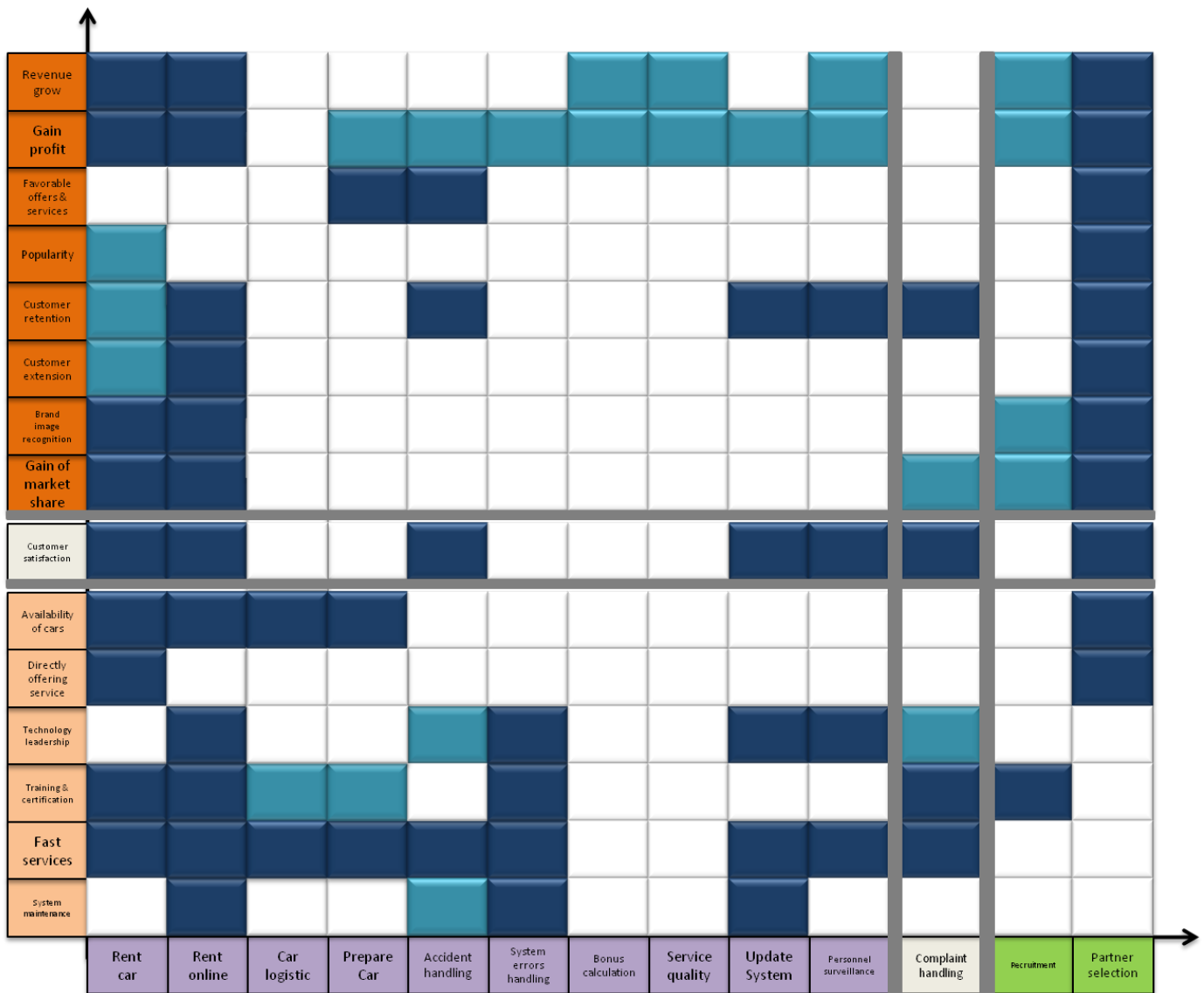


Figure 3. 12 : Optimized heat map

As it was predictable, the effect of management processes is more visible on the long term value generation . “Partnership selection and communication” has the highest share in generating the values. “Customer satisfaction”, “Customer retention” and “Training and certification” are the most probable values that are gained.

“ Rent a car online”, “ Partnership selection and communication” and “ Rent a car” are the most important processes that occur during the performance of car rental company and have higher probability of values production in comparison with other processes. On the other side, “Fast and qualitative service”, “Training and certification”, “ Customer satisfaction” and “ Gain profit” have higher probability of generation during processes execution. If we only hold these processes and values in the graph and eliminate others, the below graph will be created :

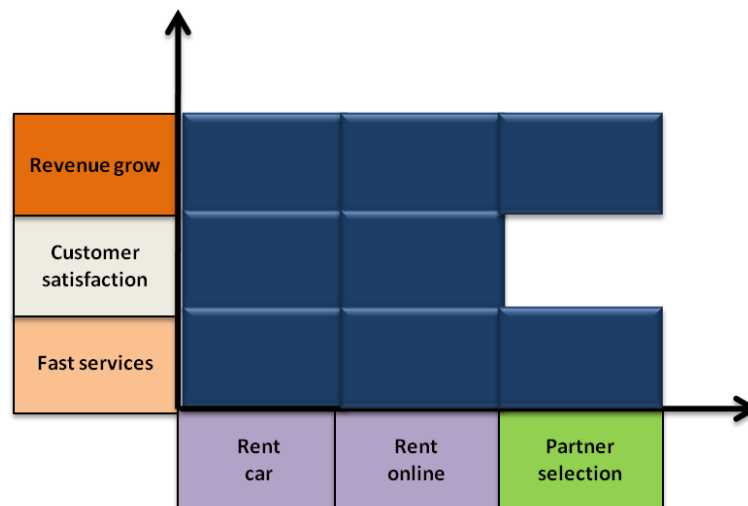


Figure 3. 13 : Heat map of important business values and processes

As we see in the graph, the color of most tiles is dark blue, which means that the most important processes have high capability to prepare situation for generating the significant values.

4 Conclusion

This chapter presents an abstract of this research , the chosen modeling and measuring method, main steps of modeling and an explanation about achieved results. The answers of research and investigate questions are evaluated. In last part, we discuss advantages and difficulties of implementing of the selected method.

4.1 Thesis overview

According to the comprehensive explanation in chapter three , balanced scorecard is the best choice in comparison to the ones mentioned. By using this method, we can extract business values from what happens in the company and ideas in the mind of managers. Actually, it pays attention to both goal situation and current situation. It helps analyzers and managers to recognize the processes that generate their favorable business values and makes it possible to identify changes can improve those processes. The company can monitor and revise its activities in any time.

BPMN models are used in this method as business processes models and based on these models and definition of tasks and activities in each process, it is possible to explore the creation of values in different phases of a process. This is a positive factor facilitating the evaluation during the procedure and it is also make it possible to find the place of each value creation or consumption in company's business processes.

We found the place of value creation and defined a subject, which has created or consumed the aforementioned value. And we also determined if there were costs along achieving this value for the company. These types of information are important for managers and can optimize the time and costs needed for decision making.

We wrapped up our analysis with a heat map of business values and processes. The managers and analyzers will have a comprehensive vision of processes in first glance and can compare the objectives with results of processes execution.

4.2 Evaluation of thesis objectives

The main objective of this research was answering this question “How can we measure and model the business values of a company based on the business process modeling?”. We tried to answer different aspects of it in chapter three. Actually, this question contains some details. So to reach a proper answer, it is necessary to break it down to these following research questions.

1. Which types of business value can be discovered by using BPMN models ?

In “Business value detection” section, we completely introduced all business values that were achieved during the performance of business processes. In “Business processes tracing”, we considered all tasks and activities which took part in value generation. In “Processes and values evaluation” and especially in explanation of heat maps, we presented the relationship types of business processes and values in detail. As a result of this evaluation, functional processes have more potential in short term value generation and on the other hand, the effect of management process is more visible on the long term value generation.

2. Which method is proper for the case study?

In literature review, we introduced a description of “Lean”, “E3”, “SCOR” and “Balanced ScoreCard” method and in chapter three, we compared these methods with each other to find a proper method matching characters of business case. We could specify the tasks or activities generated the values in the most processes but in some of them, the nature and also type of these processes made it difficult to determine the right task or caused that we can generalize the value generation through the whole of process and in some cases, generation of values occurred at the end of process.

4.3 Advantages and disadvantages

How to do this project can be a huge help for senior managers to improve their relationship with executive unit of company. Therefore, decision-making and revision about company strategies, goals and the business processes are done more accurately. BPMN models create situations in which we can check the adoption of generated values with the company strategies by tracing constantly the processes

and their achievable values. If something goes wrong during the performance of any process, it is going to be easy to find the problem and fix it with minimum cost.

On the other hand, the company will be successful in time and cost estimation of changes. For instance if senior management decides on reinforcement of some business units, they will use this information to create plans in human resource management and operation units to optimize cost, time and performance.

Along with all of aforesaid advantages, there are also difficulties during the implementation of the method:

- Evaluation of strategic processes: We mentioned before that strategic processes depend on decision making procedure and type of the company and that is why the evaluation of the processes is not that simple as it depends on managers favorable method.
- Working with values like “Customer portfolio retention” and “Customer satisfaction” is more complicated than other values. Because of their metrics and accuracy and also because they are different in case of different customer.
- Some values and processes existed which take place in various groups such as “Customer satisfaction” value that can be in both long term and short term values and also “Complaint handling” process that has the features of both functional and management processes.

References

- [1] Dyer et al. (2012) *Scaling BPM Adoption From Project to Program with IBM Business Process Manager* International Technical Support Organization, IBM redbooks retrived from (<http://www.ibm.com/redbooks>)
- [2] Huan et al. (2004) *A research and analysis of supply chain operations reference (SCOR) model.* Supply Chain Management, An International Journal, Vol. 9, Num. 1
- [3] Rajesh et al. (2012) *Generic balanced scorecard framework for third party logistics service provider* International Journal of Production Economics, Volume 140, Issue 1
- [4] Martinsons et al. (1999) *The balanced scorecard: a foundation for the strategic management of information systems* Decision Support Systems, Volume 25 , Issue 1
- [5] Supply Chain Council (2004) *SCOR Model*
- [6] Supply Chain Council (2004) *Supply Chain Operations Reference Model*
- [7] NEFFICS D 2.2 [2009] *Networked Enterprise transoFrmation and resource management in Future internet enabled Innovation CloudS* Project No: 258076
- [8] NEFFICS D 3.1 (2009) *Networked Enterprise transoFrmation and resource management in Future internet enabled Innovation CloudS* Project No: 258076
- [9] NEFFICS D 3.2 (2009) *Networked Enterprise transoFrmation and resource management in Future internet enabled Innovation CloudS* Project No: 258076
- [10] NEFFICS methodology [Online]
(<http://epf.thingml.org/wikis/neffics/index.htm>)
- [11] Schacher,M. (2008) *Mini EU-Rent BU.DOC , Business Model*
- [12] Boyanova,V. (2013) *UH case book , car rental company*
- [13] Business process modeling know-how [Online]
(<https://www.blueworkslive.com/#!/gettingStarted:overview>)

- [14] Fundamentals of business concept [Online]
(<http://www.businessdictionary.com/>)

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