

Introducing an approach to set a scenario in running small and medium businesses

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Summary

The extensive complexity and variety in today's business has urged the managers taking continuous and effective lessons. Learning process increases the ability of the organization accordance and helps the organization to lead a suitable combination of strategy and effective actions. Recognizing the performance indicators of the organization for the long-term goals in this situation is very vital. One of the leading and eye-catching problems in the small and medium industries that decrease their competitive power to the large industries is lacking of a definite, efficient and aimed strategy in the business. For different reasons such as costing and lacking of time in setting scenario and writing strategy process, lacking of economic understanding in short-terms and in some cases lacking a strategic idea in the industries owners decreases the competitive power and the growth of the business. In this article by using the systematic idea and applying dynamic system in strategic plan BSC and constructing an active strategic plan helps to dedicate a simple and low costing approach for setting a scenario because of the kind of the process the ability of these industries can solve the problems.

Keywords:

Balanced scorecard, Dynamic system, Strategic plan, small and medium industries.

Introduction:

Making decision for the future is an important and unavoidable problem in every kind of businesses and organizations with any kind of taste and knowledge in managers and employees, even where no scientific method is for belief deciding. One of the essential necessities in decision making is having knowledge to the present and future situation in the business. Even managers and major decision makers in the organization are fond of knowing the result of their present decisions in the future process of the organization, their customer satisfaction and finally their financial profits. They are also interested in knowing that in where and how much they should expend money to earn more financial profits or any other strategic goal which they want. They like to know when in the future they can reach to their goals. In fact the duration of influence and improving in the organization is done to making decision for any scenario. In addition these small businesses like other businesses face to the uncertain complex space of today's world of business. One of the solutions for avoiding these uncertainties is setting scenario.

Setting scenario which is used in today's business differ in the kind of processes, direct and indirect costs that they need, even the needs of the professionals and serving time to write the strategy scenario in large industries are possible.

Usage of dynamic systems in the strategic map and BSC not only help to remove the defects of these industries but also help to test different scenarios with the least expenditure and time to make the better and more correct decision for the future business. Even the use of dynamic systems in business process modeling ends to the increasing of learning level in the organization and this subject causes the development in the practices because the employee's executive agents can see these influences in their business's future. till now many articles and tens of case studies in the dynamic apply of system for increasing the efficiency of balanced scorecard have been written and each of them has used the dynamic capability systems to recover the BSC systematic defects. By increasing the changes and complexity in technology, environment and organs are going to become an everlasting challenge in business. When the managers face to the environment challenges in the business their capability for making suitable and effective decision for the organization to survive is essential. According to Porter's theory only a professional combination of strategy and operational efficiency, which are two elements, acting in different way, can able the organization to reach the superior performance, which is also the final goal. Operational efficiency is closely related to everyday management. This means the organization is doing well or in the other word is doing better than rivals. Strategy is responsible for doing well and means doing different from the rival companies. Strategy provides the long-term goal for the organization, but how to be sure that the organization is moving in the correct direction? To specify the practice indicators which help the organization more to the indicated goals is very important. BSC has been one of the almost popular systems to scale the practices in recent years. Although some criticisms have been taken about it, this article starts with a short review on BSC, then some weaknesses, which were recognized in theoretical and BSC's business application topics, will be discussed and will be explained how system dynamic (SD) can be an alternative for some of these weaknesses.

Industry growth focuses on workshops and small businesses is one of the proper strategy for industry development, which has been followed by the developed countries. This importance is from the special and unique characteristics which this part has on country's economy and social development. In addition to making strategy in a macro level for future, these industries need a strategic utilization in every part separately, until to be able to reach the defined goals. This article is trying to improve this area a little. Small workshops can be expended and developed in every part of country; this point meanwhile creates added value and economic prosperity, causes to create a proper occupation and justified income and expenditure distribution. Another superiority of developing small workshops is their quick matching with consumer's wants and needs. These units will be able to keep their consuming market even when their customer's wants are soon-passing so they match their wants in low cost to change their sort of production and flexible to their needs. In spite of the existence of all important superiority which these workshops have had in blooming the economy of the different countries, in Iran small industries face to many problems, even though they have so many advantages and superiorities in industrial and economical developments. These problems ended to bankruptcy and fragility of these businesses in the recent years. One

of the leading and eye-catching problems in the medium and small industries in Iran which decrease the competitive powers with the similar bigger industries is lacking of having an aimed or definite business strategy, which it has different reasons such as taking time and even cost. Writing strategy and drawing strategy map, and even economic misunderstanding in the short-term and in some cases lacking of strategic idea in the owner of these industries was less paid attention to this important matter.

Definition and Concepts

In this section concepts and definition which are using in this paper are identified and are more survived.

Balanced scorecards (BSC) and organization strategy

The experience has been earned in these recent decades proves that the financial criteria for the future practice for business is not enough in the first years of 1990s Robert Kaplan and David Norton. A companying with representatives of so many companies worked a project which was called the measuring of performance in future organization; they tried to develop a new way to measure the organization performance. As a result they recommended considering some information in different parts of the organization besides the financial criteria. They impressed that for evaluating the correct performance, BSC should consist of four areas of indicators: financial, customer, internal processes, growth and learning. For keeping competitive superiority, strategic goals should be established on the organization's perspective and mission.

BSC should clear the long-term financial goals and connect them to the necessary activities in financial processes, learning and growth, customer and internal processes perspective. To reach these goals necessary activities and touching goals should be programmed to avoid of falling into the trap. Defining 15 to 20 performance indicators make daily activities fit to the strategic purposes. These indicators include performance drivers and outcome measures. When indicators have categorized in four aspects, they must be an element of cause and effect chain which exist at the highest level in improving the financial performance.

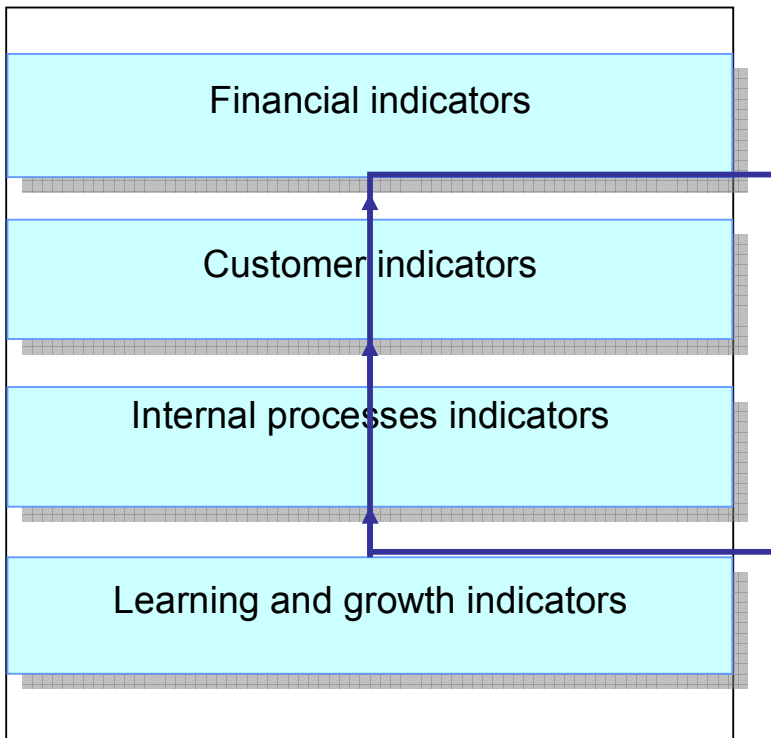


Figure1: cause and effect relationships in BSC

Dynamic systems

In explaining dynamic systems pointing to five basic elements including: System, Feedback, Level and flow variables, related Diagrams and modeling Process are very necessary.

-System:

-Cause and effect relationship and Feedbacks: cause and effect diagram are applied for showing the dynamic interaction between system's elements. There are two original feedback loops in causal diagram, Positive feedback loop with figurative behavior and Negative feedback loop with goal-seeking behavior. According to figure2 in the left-hand positive feedback loop the increasing of birth causes the increasing of population and in the right-hand negative feedback loop the increasing rate of death causes the decreasing of population.

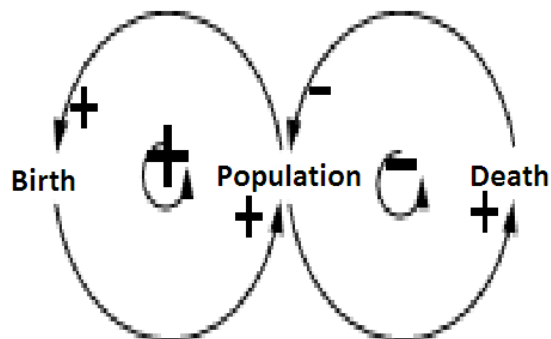


Figure 2: Cause and effect diagram

Level and flow: level variables show the resources collections; the amount which reflects the system position. As an example the country population in a certain time is one kind of level variable. Level variable retells the variety in the level variable in an interval of time and can cause the decrease increase of that level. For example death and birth rate in the figure 2 are some source of flow variables.

Flow and level diagram: in spite of the fact that the causative diagrams are used in a great range but aren't retelling all the needing components to analyze the sensitivity of the system and it is necessary the diagram which is consisting of level variables, flow and other variables for simulation. In general in these diagrams delay, level variables, flow, auxiliaries and constants in parallel lines and rectangle figures adjusting valve, circle and diamond according to figure 3 are shown.

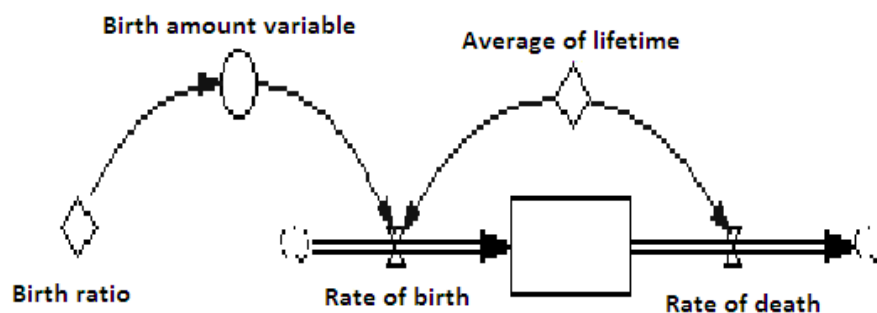


Figure 3: level and flow diagram

Modeling process: different approaches are available for the modeling of dynamic system which in this research one of the simplest approaches consist of these process: problem definition, cause and effect diagram modeling, establishing dynamic model, performing simulation, analyze and using the result are told in summary.

1. Problem definition: consists of identifying the zone of the problem, the constants of the way of interaction between variables and collecting original data.
2. Cause and effect diagram modeling: consists of the identifying original variables and developing the cause and effect loops with identifying the key points.
3. Establishing the dynamic modeling: consists of drawing the flow and level diagram consisted of cause and effect diagram developed in the past stage, Next the quantity the relationship should be defined among all of the Problem variables derived from the experimental data and professional ideas.
4. Modeling performing: consists of modeling performance by using of dynamic modeling developed in the past stage and calculating the variables amount in the duration of time. Also different scenario according to different combinations of constants and primary variables amount of level variables which are able to simulating. In this stage analyzing the sensitivity provides the possibility for surveying the influence of primary variables on the reply variables. So in this stage comparing with the result from the simulation and result from the real world provides the possibility of giving credit dynamic modeling by the professionals.

5. Analyzing and applying the results: consists of analyzing the results and making decision based on the simulation result in business.

Medium and small organization and their place

There is no specific definition about the small organizations or businesses which are acceptable in general. In theoretic aspect to measure the size of the organization there are some different indicators such as sale amount, the volume of production activities or services, capital investments and money and bank activities, machinery values, physical and geographical vast, number of clients and the number of the personnel. Although each of these scales can be the introducer of the size of an organization but usually in the different activities different scales are applied. In the study that was performed by the international industrial development center small organizations are the ones which have less than one hundred personnel (Stepanek J.E 1960). Some of the organization such as the US industrial development organization has situated the companies which they have 10 to 100 personnel and the value of their machineries are less than 7.5 million Rials in the small companies circle.

In Iran also there are different definitions for small companies which the most important of them are referred below: in Iran's statistics center's definition, the production units which their employees aren't more than 10 are called small production units. In the small industries organization definition the small production units are the industries which: A) their capital investment is at least 750 thousand Tomans. B) Their employees are at least 50 persons. C) They have not artistic aspect. D) They are mechanism. E) Their capital investment should be totally Iranian.

In addition to the different definition mentioned above, some fundamental characteristics are also considered that medium and small industries are separated from other industries. These characteristics are mentioned below: usually the management of small industries is performed by one person that is seldom the owner of that unit. So in the small organizations the professional and the special management are not carried on. Also there is a direct and continuous contact between the employees and the manager. Usually they have less access to the vast capital resources in banks and financial organizations. Among these limitations we can mention financial limitation of technology development (United Nations Commission on Trade and Development, 2004). Also these industries doesn't have leading and determinant role on the market which they provide their products or services. In these organizations commercial communications and necessary transactions required for supplying raw materials, technology and other resources are done by local and domestic organizations.

Small and medium industries placed more than 93% of industrial units and more than 50% of employees in industry department, but they don't have needed position in Iran's economic structure. This is not because their small size, it is because of their lack of any kind of consultation financial and technical supports. Small and medium industries face some difficulties which are discussed in continue.

Many researchers have been engaging to study about the strategic reasons of not growing up small and medium industries and they have some comments which are mentioned below: A) in terms of number of small and medium industries, 1) in terms of

structure (product combination, employees number, production capacity, strategic situation of the product, geographical markets). 2) In terms of process and relationship systems (owners more interested in growing and trying to cope with their families and their needs), face to some problems that the obstacles to their growth and development. In Holms opinion the relation in accessing to growth and financial supply, distinguish two kinds of companies, companies which their growth have been ended. In this companies growth continues as long as the financial resources are entering and if the new properties don't enter the company they have internal growth limitations. According to Brown's researches the understanding degree of the environment usability and the amount of power and tending to earn the strategic sources are two agents that influenced on the growth scale. The results of Gibson's surveys show that the companies may have limited growth goal in this field they want to have continuous business and if the growth put the stability in danger the companies don't want that as a goal. In Prom's opinion in relation with the scaling the growth stimulators or the loss of growth some important agents are defined below here; 1) the growth stimulation in the owner of the business. 2) Growth power and specialty (in terms of management) 3) access to strategic sources. 4) Production demand and services.

The shortages and defects are facing to the country industrial units such as: financial problems old equipments and machineries, lack of the copy-rights, lacking of equal commercial opportunity, lacking of research and development unit, not accessing to the information sites, shortage of economical knowledge, management and financial, reserving and supplying human powers, cultural problems, loss of necessary scales in different aspects of capital investment, market and production, lacking suitable growth environment for business in different aspects of legal and lawful cases, lacking of fundamental and software substructures, lacking of close relationship with country financial and banking networks, lacking of the corporation networks among the companies and not having recognition goal market.

Superiorities and defects of BSC and the application dynamic systems

Two important superiorities which are mentioned in different sources are:

1) Supervising the limited indicators:

BSC recommends for company performance management we need only a few good balanced indicators, while in past evaluating performance methods the mass of indicators and criteria cause creating heavy loads of information and confusing the managers. Totally BSC recommends only 3 to 5 criteria for each aspect; this point matches the limited rational.

2) A bridge between different areas:

BSC attracts managers' attention to a balanced set of functional criteria which are taken from financial and non-financial aspects.

In spite of the BSC popularities some criticisms have been taken. As it will be explained in continue the origin of these criticisms refers to the invisible systematic perspective of BSC. These criticisms are the other side of BSC's superiorities. Systematic vision advices the organization to pick up only few limited indicators as leverage key points of

the system for identifying organization performance. But, how can one be sure that the dozen or so selected are indeed the right ones? Should there be more or less? And, do they all work in the same direction or might they counteract each other? Moreover, if they are the right variables, what would be the right values to target for? And within what time frame should these be achieved? If every cause and effect relations have been explained? How much is the influence of the decided criteria on the organization financial success? In continue we discuss five shortcomings to the currently common way of developing and using a BSC:

1) Unidirectional cause and effect relationship: casual strategic plan on BSC expresses only unidirectional cause and effect relationships while the elements in administrative strategic plans are inter-acting on each other in feedback causal loops [8]. Unidirectional cause and effect relationships are very simple-thinking and in opposition to the fact.

2) Not considering the time dimension between cause- and-effect and the storages: BSC doesn't separate cause-and-effects in time because some of cause and effect relationships have lagging time and it is not consider in BSC. This matter causes to conclude wrongly about administrative strategic plan effect. Time dimension does not exist in BSC and BSC measures cause-and-effect in just a time. In the other hand simple looking on different criteria in the same time is not equate. Also even using causal loop individually is being looked a discussing subject, because these loops doesn't show the filling in and out of strategic factors. Furthermore, there isn't a quantitative base in causal loop maps for estimating scale or changing speed in key items.

3) The absence of an oral mechanism for validation:

BSC doesn't provide a mechanism for validating definite criterias. Usually the managers' problem is not recognizing some of the things which are measurable, but their problem is decreasing the list of possible criteria to a manageable (relative) set. Therefore supervising the limited indicators superiority is possible to become a defect when the correct criteria are not decided for the BSC [4]. The BSC assumptions' validation for cause and effect relationships between performances criteria are questioned by subject literature. Specially, it has been shown, for example, assumed relationships between quality and financial criteria are possible to be not verified in notion, it means assumed casual cause and effect relationships based on the more customers satisfaction the more financial benefits may not have an experimental witness, vice versa, the cost of policies for increasing the number of the customers in short-term or long-term may be higher than its benefits.

Present BSC literature hasn't give any scientific basis for choosing or testing the definite criteria. A review from 700 performance management documents and also from wide literature of evaluating and budgeting, by Sloper, Linard, Peterson [8] in order to acquiring a reference which could provide criteria for choosing indicators or developing the decision rules in order to directing the sequence of actions to change the indicators amounts became inconclusion. In other hand because of static nature of BSC, the strategic plans are not able to evaluate the strategies and policies exactly and also cannot answer the questions such as "what happens if...?" and etc.

4. Inadequate relationships between operation and strategy: BSC have defect in unanimously between strategy level indicator and operation level indicators.
5. Excessive focusing on system internal: BSC does not consider the developed value chain which the participating of employees and suppliers are very important.

SD as a method against the defects of BSC

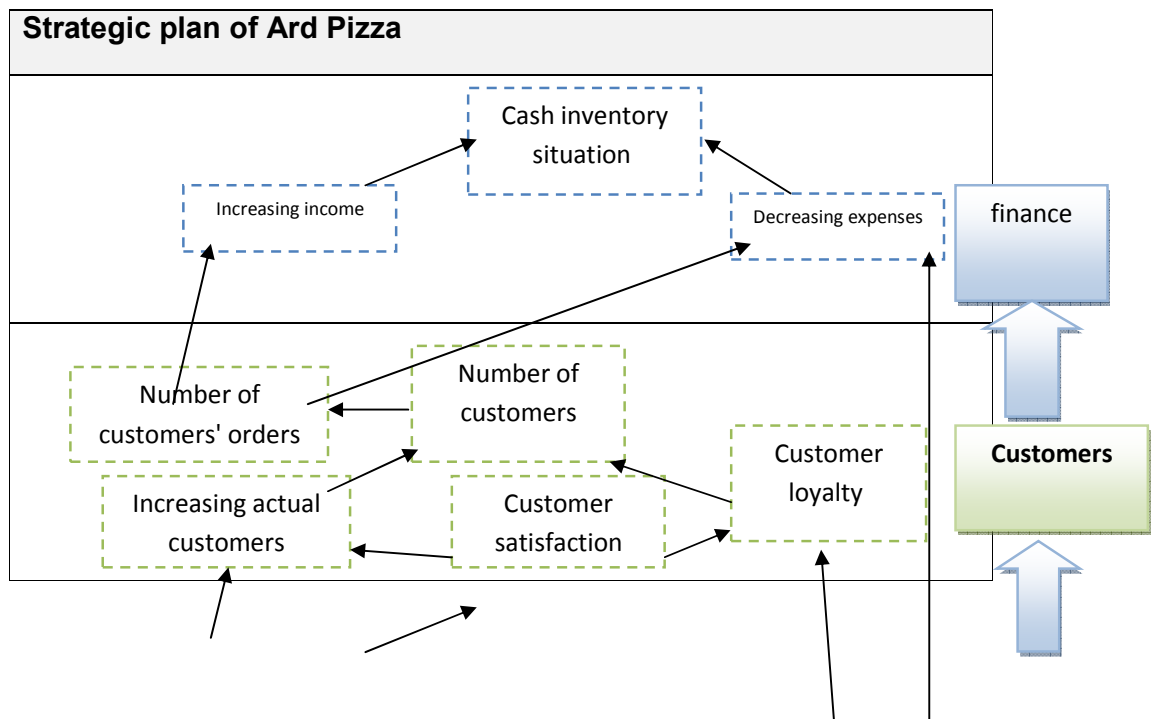
Case study: Dynamic strategic plan of "Ard" Pizza

Introducing the business:

In 2002 Ard Pizza has started its business with an earlier commercial name "Raz" pizza as chain stores in Tehran with a professional management. The management of these stores, which had also some related experiences in USA, has followed gaining more stock in market and achieving customer satisfaction by using past experiences noticing the customers and strengthening the sense of responsibility between the employees.

Provided model for this Business

In the following research, meanwhile studying the effective policies for increasing the interest, the strategic plan of this business and the effect of each policy in the future helping dynamic simulation have been considered. In this model information such as business expenses, average profit, monthly customer attraction rate, marketing expenses and customer loss rate have achieved by using information bank and interviewing data which are filled in the model. In this business, after passing stages and identifying the key and important success indicators, the strategic plan was distinguished which are provided in figure (4).



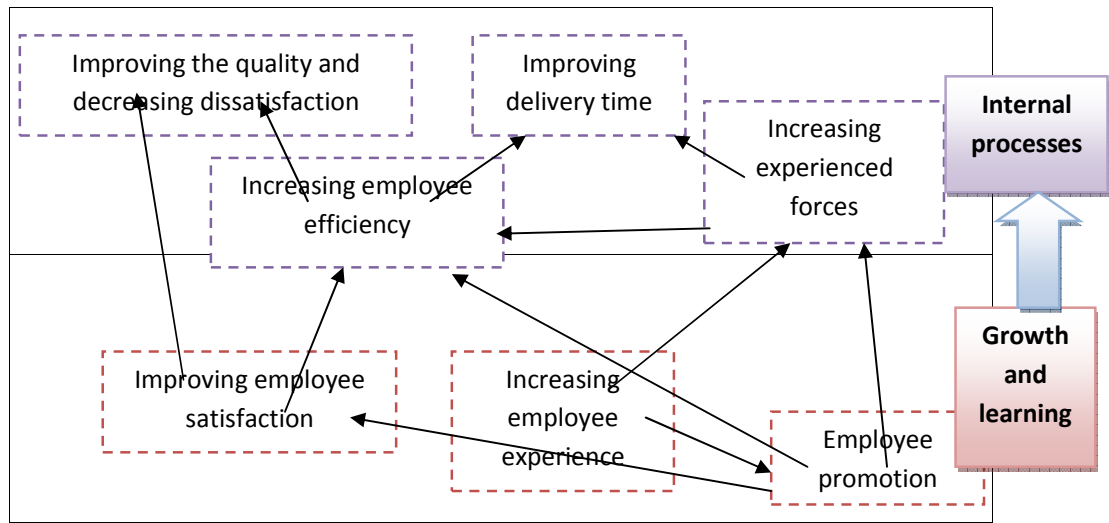


Figure 4

On the other side for ascertaining the inserted goals of strategic plan an operational plan which has time limitation and indicators for evaluating the amount of attaining goals is needed. Strategic goals and measure indicators for each goal are presented in table 3.

Indicators	objectives	perspectives	
The Income in comparison with the same time at past years	Increasing income	finance	1
Decreasing the different parts' expenses	Decreasing the expense		
Number of added customers	Increasing the number of customers	customers	2
Customer loyalty	Increasing customer		

	satisfaction		
Number of lost customers	Keeping customers		
Number of customer complaints and without defection orders	Improving the quality and increasing customer satisfaction	Internal processes	3
Delivery notice	Improving delivery notice		
Number of experienced forces	Increasing experienced forces		
Cooking process notice	Increasing the cook employees' efficiency		
Delivery notice at home	Increasing motorized delivery		
Number of employee resign	Improving employee satisfaction	Learning and growth	4
Employee efficiency			
Number of un-experienced forces employing	Increasing employee experience		
Number of employee promotion	Employee promotion		

Table 3: strategic goals and measure indicators of business strategic plan

As it's specified in figure 5 between important activities and organization key variables above cause and effect relations exist.

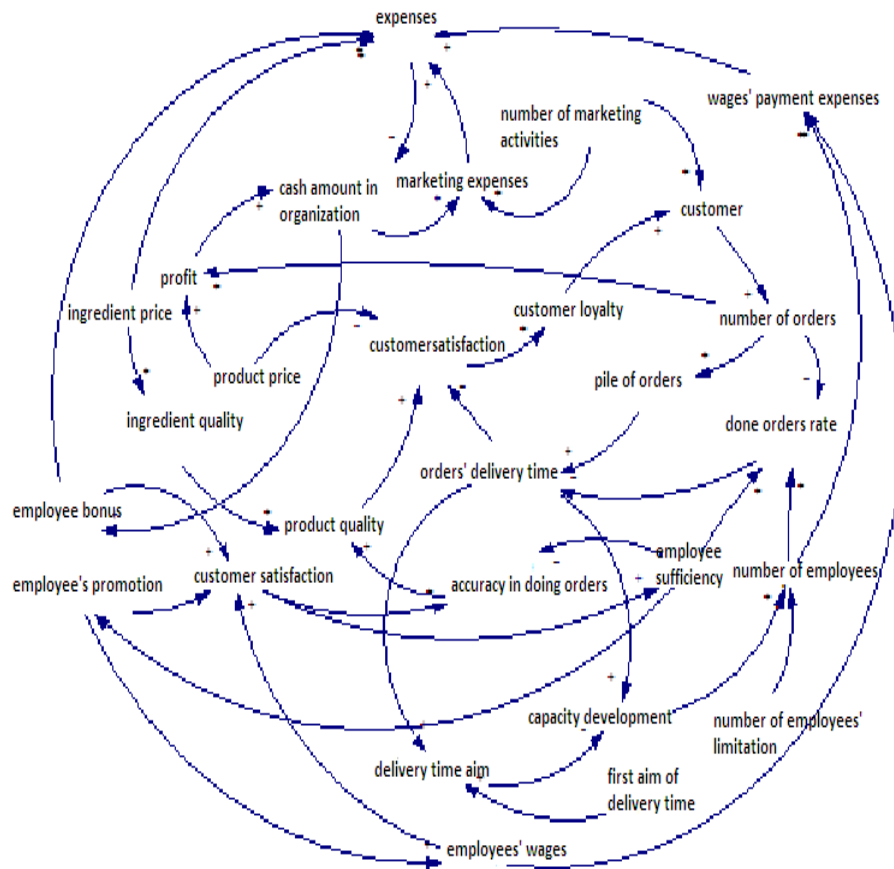


Figure 5: cause and effect relations diagram

1. Financial perspective

Financial goals always must have a bilateral role, which means first of all they must justify the expected strategic financial performance and last in improving the cash situation of the organization and also they must support and stimulate the other strategic goals. At this side cash inventory has considered as state variable. This business's state-rate diagram has been shown in figure 7.

In attention to Ard Pizza's goals, cash inventory of the organization is the supportive variable for the marketing strategy. In abstract all of the relations in this perspective have been presented in the loop of figure 6.

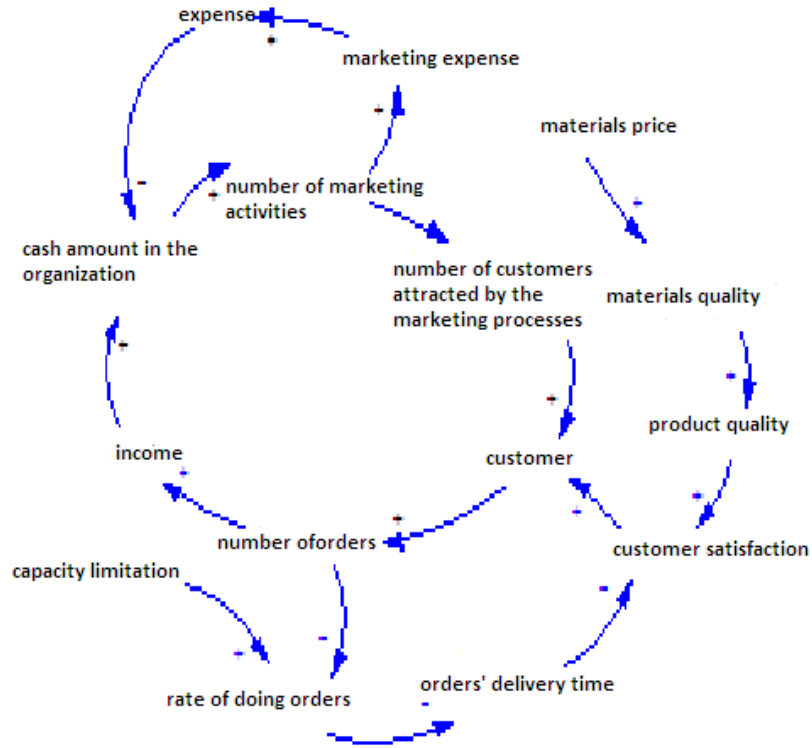


Figure 6: relation loop of organization cash inventory and marketing

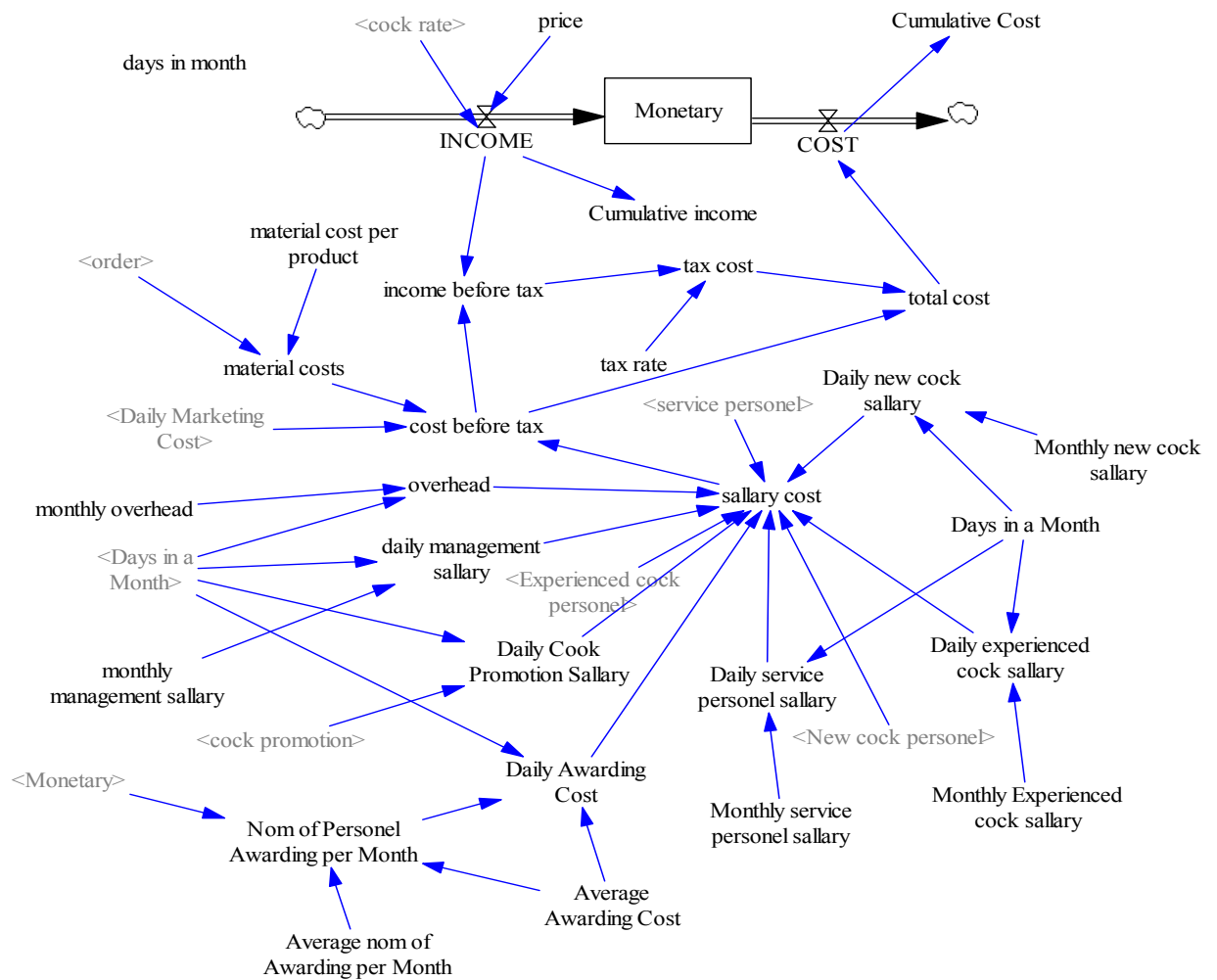


Figure 7: flow diagram (financial perspective)

2. Customer perspective

In this aspect the organization focuses on giving service to the customers, production quality, delivery notice and all the important things which are attracting and stimulating the customers. As it said before, for Ard Pizza management customers are the heart of organization and all the attempts are applied for increasing the number of customers. In this model actual and potential customers are considered as the state variables.

In this model with considering the direct marketing expenses, the role of customer satisfaction are justified in the loop of figure 8. Other indirect expenses such improving material quality expenses, increasing capacity and etc are paid before.

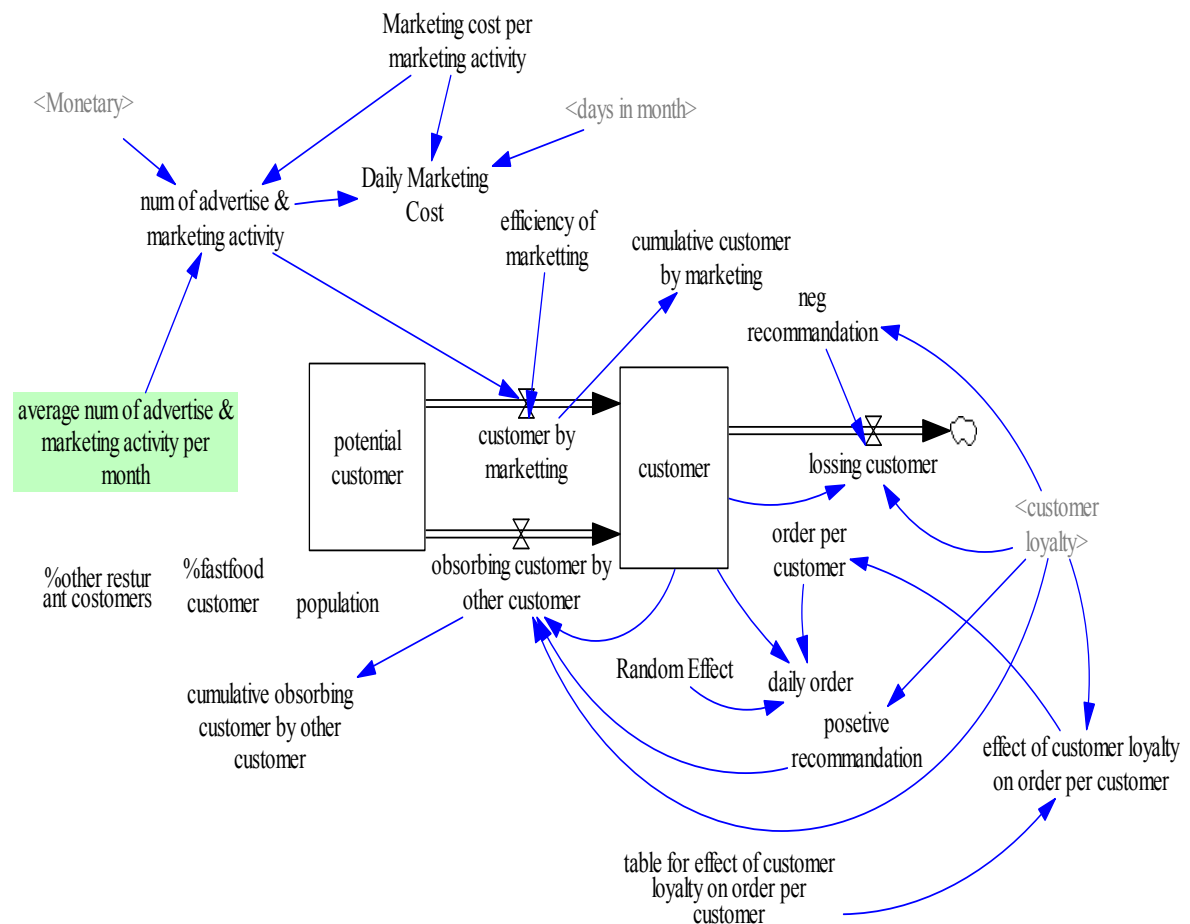


Figure 9: flow diagram (customer perspective)

3. Internal processes perspective

Identifying the original internal processes of the organization has very important role in the organization mission. Studying these processes not only helps the organization to attract more customers and provide the method for attracting and maintaining the customers but also it provides the power points of the company for future investment.

In attention to the key activities of the company which are cooking and delivering the production to the customers, the number of orders which are being operated and amount of ready production for sending are the state variables.

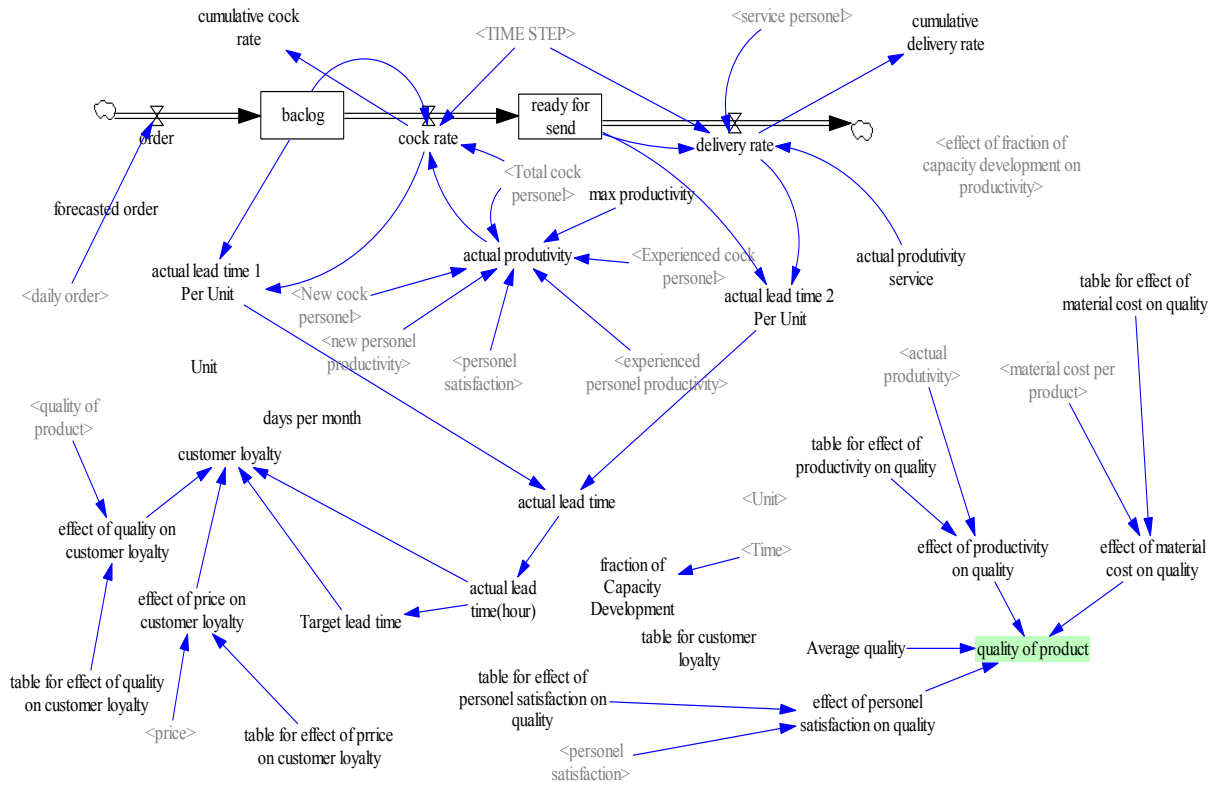


Figure 10: floe diagram (internal processes perspective)

4. Learning and growth perspective

In this business, because of their role in attracting customers, employees are the vital and key elements for the company. All of relations between efficiency, promotion and cause and effect diagram are been provided in figure 11 and figure 12.

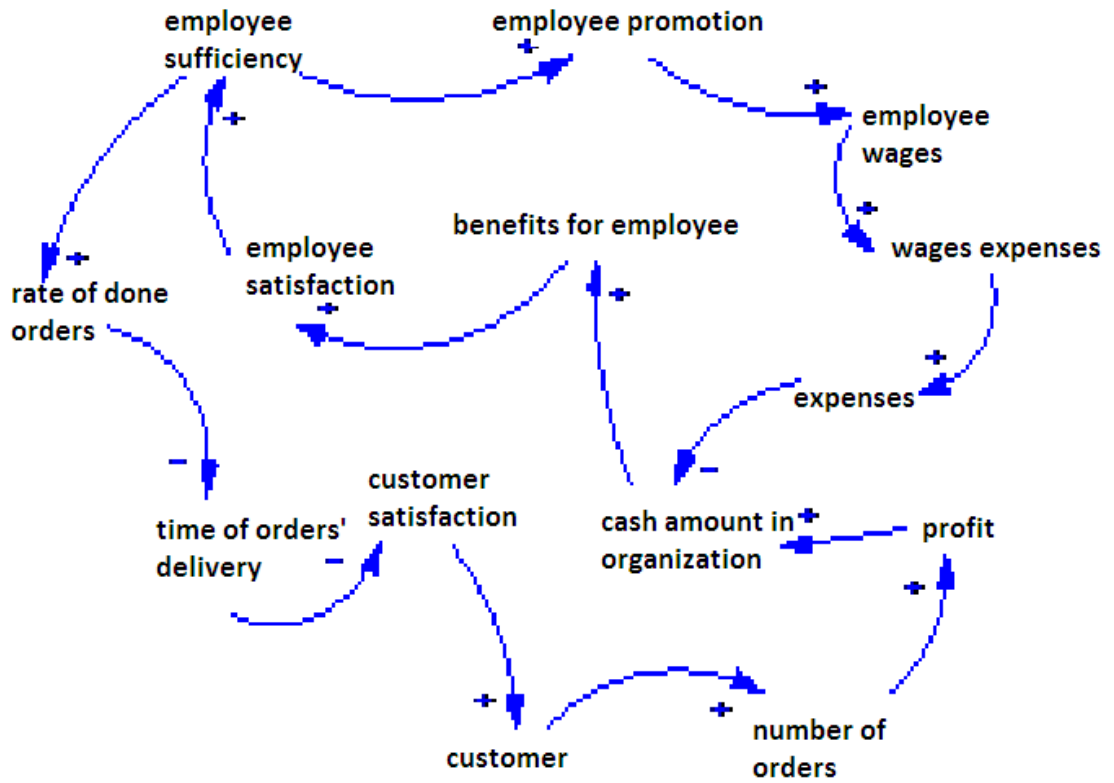


Figure 11: employee satisfaction and efficiency

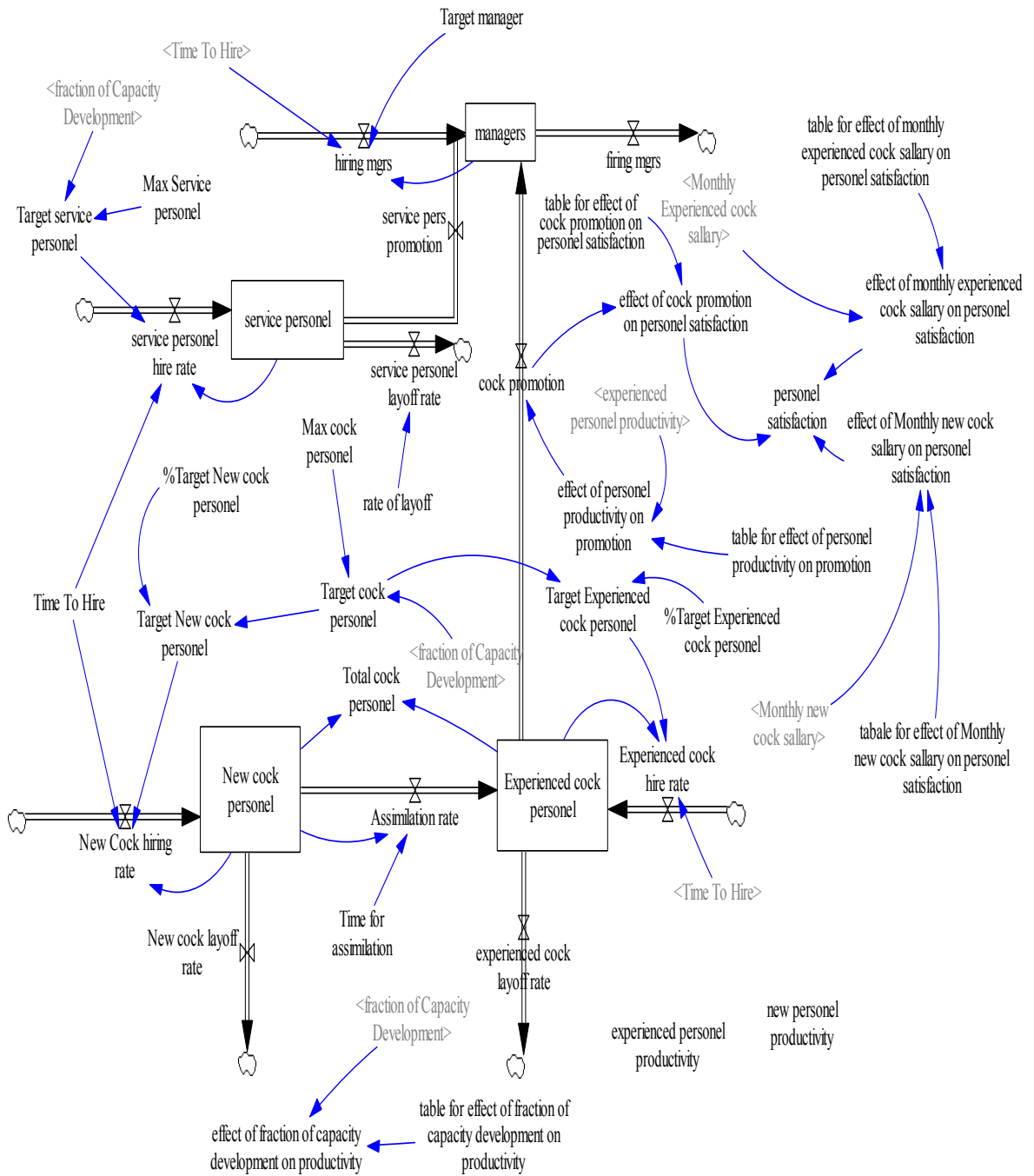
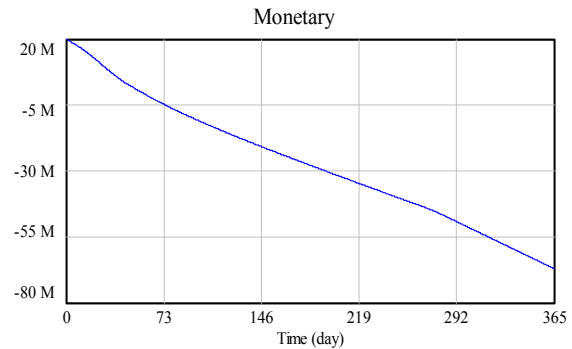


Figure 12: flow diagram (learning and growth of personnel perspective)

Investigating the validation of the model

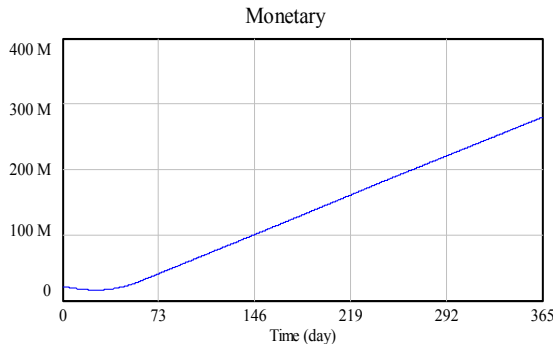
Here the relationships between delivery time, customer satisfaction and finally business incoming have been examined. As it was investigated, with considering the rate of employee efficiency very low the delivery time became very high then customer satisfaction turned very low and the number of customers obviously decreased, so as the result the company's income and its cash amount decreased very much and even it became negative. Below the left diagrams show the normal situation and the right diagrams show the situation with the very low level of employee efficiency.

Figure 13: limited conditions test

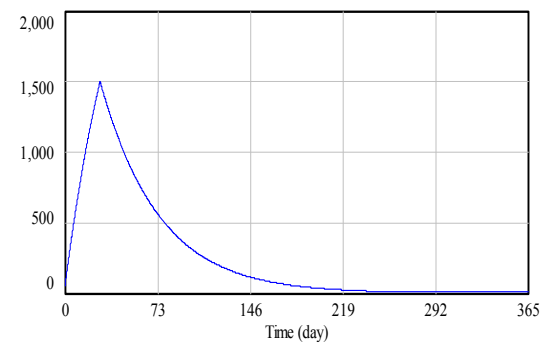


Monetary : Current ————— toman
customer

Also the behavior of the model has confirmed by statistical comparing the



Monetary : Current ————— toman



customer : Current ————— person

been

actual sell average to sell average of the simulated system.

Studying the effect of different scenarios on the business performance

As it was pointed before setting a dynamic scenario is an appropriate method for editing the strategy for a small business.

For increasing income, attracting more customers by using monthly more times of marketing processes is also possible but Ard Pizza management didn't consider it because Ard Pizza is a chain fast food restaurant which can achieve a suitable stock in market if the management improve the situation.

According to the strategy of the organization below scenarios have been recommended.

	strategy	Related variable
1	Increasing customer satisfaction during 2 years	Increasing prices and increasing quality
2	Increasing customer satisfaction during 2 years	Decreasing quality and decreasing prices
3	Increasing customer satisfaction during 2 years	Decreasing delivery time

Table 4: Strategies and Scenarios

In first scenario the behavior of customers is not linear and the same as customers' behavior in second one. Customers like to buy a product with better quality on the other hand they want to buy a product with lower price. Considering said assumptions, the results of setting each scenario have been mentioned.

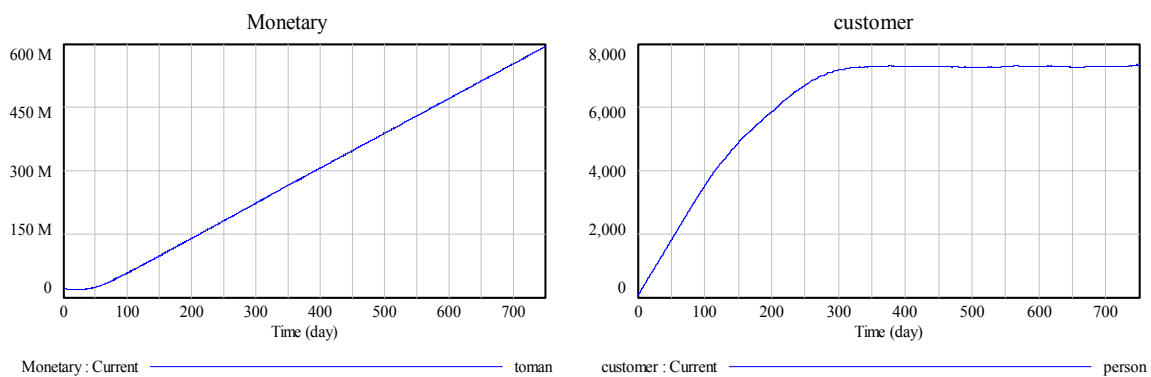


Figure 14: present position of the business

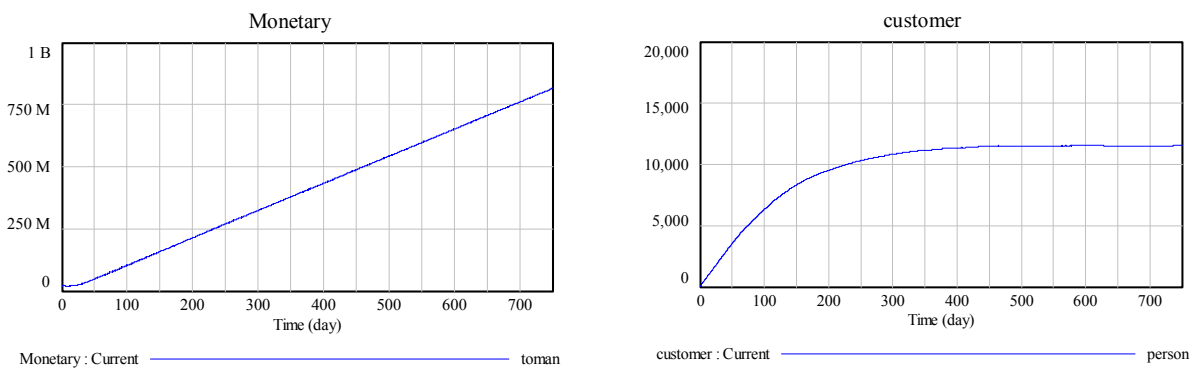


Figure 15: position of the business after setting first scenario

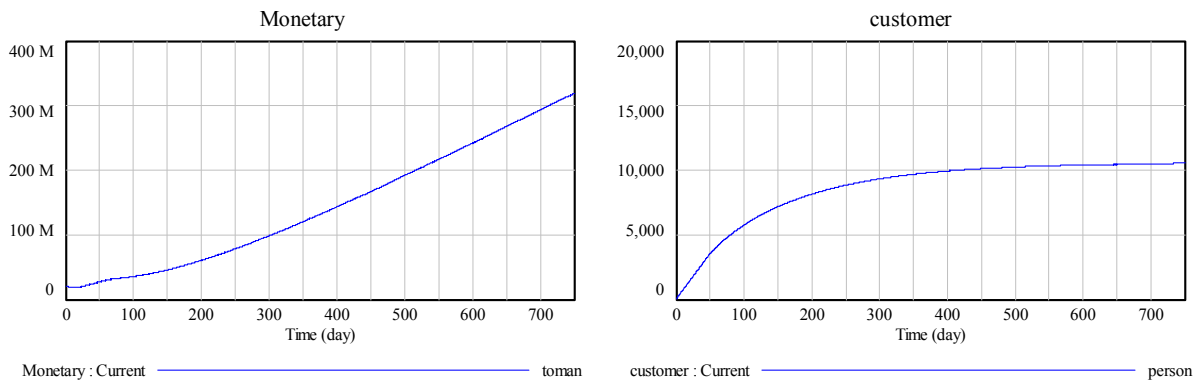


Figure 16: position of business after setting second scenario

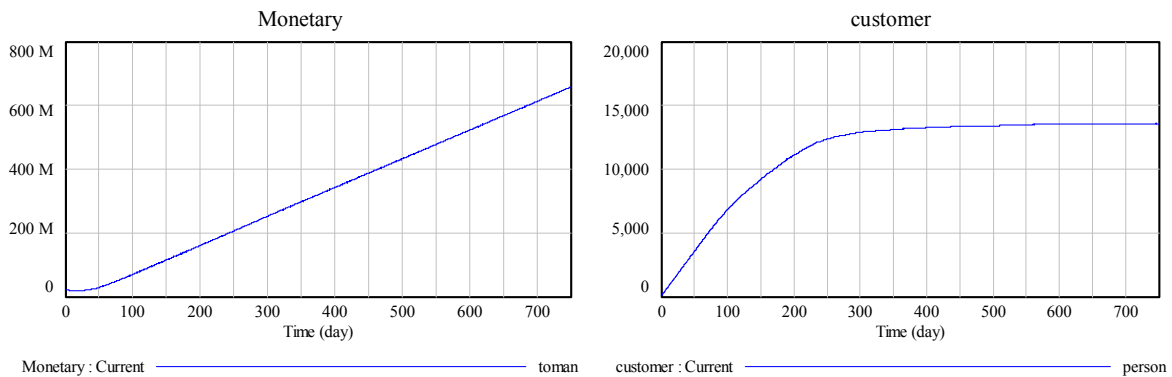


Figure 17: position of business after setting third scenario

At the end, as it is obviously cleared, first policy decision causes to speed up changing potential customers to actual customers and increases the organization's cash amount but decreases the customer satisfaction; second policy makes the trend of changing potential customers to actual customers low but increases the customer satisfaction, on the other hand it decreases the cash amount. But third policy meanwhile protects cash amount of the organization, results to increase the number of the customers and customer satisfaction, so the third policy could be chosen as the strategic business policy.

Conclusion

The capacity of managers for innovation and system thinking in a complex and dynamic world only would be improved if they'll be an active receiver of professional people's advice. Actual and deep improvement in action and business thinking will appear when

managers themselves are system model-makers in their own applied field of responsible.

The shortage of BSC function was addressed by combining it with SD tools that created dynamic BSC.

Totally any function which starts like present BSC function and then is been added with other things such as group communication processes, visual methods for cause and effect relationships, quantifying and compatibility survey could be taken as an improvement for BSC in theory and action.