

BUSINESS MODEL AUTOMATION IN REGARDS TO INTERACTION WITH CUSTOMERS FOR ENSURING ECONOMIC SECURITY OF AN ENTERPRISE

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Abstract. The article deals with the automation of business model of consulting companies in regards to mechanisms of interaction with customers (the client block of business model). The authors put forward a hypothesis about the relationship between the performance of support staff and customer outages, which in turn affects the economic security of the entire firm. A methodology for identifying customers with the risk of outage has been developed, which should prevent loss of the client, maintain the client base, identify the client's disloyalty zone and, as a consequence, improve this site of economic security. The analysis was carried out on the basis of fuzzy sets theory and the Fishburn formula. The results are presented in the form of a correlation of customer outages and performance indicators, following by proposed ways of correcting the work of relevant specialists. In addition, the authors developed a quantitative methodology for assessing the economic efficiency of the automation presented, the testing of which is planned in the development of the research topic.

Key words: business model, economic security, customer loyalty, customer outages, consulting

1 Introduction

The trend of transition labor resources from the sphere of material production to the informational one is currently the most noticeable. Information and information technology are increasingly becoming the productive force of society. The main directions of transformation of the economy are considered in many scientific works, where it is mainly noted that the dominant position in the economy is the industry of information services, technologies, etc. The utmost importance is given to the ability of the state, business and enterprise to fit organically into the information space in comparison with its industrial potential. It is recognized that information is the main production resource along with finances, materials and energy. The main factor of the transition to the information economy is development of information and communication technologies in all industries (Hambrick et al, 2001).

In connection with this, the authors consider the activities of a consulting enterprise. It should be noted that such companies are engaged in servicing a lot. Many clients may stay with the company for years (Johnson et al, 2009). In this regard, building a strong loyal relationship with the client is the basis for economic security of an enterprise. The construction of an adequate effective business model becomes an indispensable condition for the company's financial stability.

At the same time, high degree of hierarchy, dynamics and complexity of the structure of modern business lead to the need for constant optimization of management tools. Automation of business model is a real tool to increase productivity and business efficiency in general.

2 Method

The research is based on the method of practical approach to customer service indicators; analysis of relationship between the work of specialists and effectiveness of their support.

To determine the overall degree of risk of customer disloyalty, the theory of fuzzy sets and the Fishburn formula were used.

3 Result

Having compared the definitions of the term «business model» from various sources of different authors, Kaspina and Khapugina came to the following definition: the business model is a logical, structured description of company's activity and increment of its value (Kaspina et al, 2014). The main components of a business model are:

- 1) the structure and management system in the company;
- 2) markets and proposed values (products, services);
- 3) value chain:
 - a) the financial component of the value chain (cost structure, revenue structure, cash flow structure);
 - b) the economic component of the value chain (mechanisms of interaction with suppliers and contractors, other counterparties);
- 4) customers:
 - a) channels for selling products and promoting it on the market;
 - b) target groups of buyers;
 - c) mechanisms of interaction with customers;
- 5) corporate culture.

The «cliental block» is seen by the authors as a tool for formation of long-term relations which are important in consulting area. Let us consider the stages of business model automation in regards to interaction with customers in detail.

1. Definition of indicators of qualitative service influencing continuation of work with clients or their refusals; rationing of indicators

To confirm the hypothesis about the relationship between the quality of specialists' work and the refusals, the process of providing consulting services should be thoroughly considered.

The main stages of the methodology (Boyeva et al, 2013):

- identification of possible risk areas and control points in the process of forming customer loyalty;
- testing the client for each control point, determining the amount of risk that the client will refuse maintenance at each point;
- determination of the overall degree of risk of customer disloyalty using the theory of fuzzy sets and the Fishburn formula.

All significant indicators of customer service can be broadly divided into the following groups:

- 1) service discipline;
- 2) attestation specialist («training» specialist);
- 3) training the client.

Within the framework of the research, the following private performance indicators of employees, which affect the refusals of customers, were identified and normalized (Table 1):

Table 1. Performance indicators affecting the customers' refusals

Performance indicator	Norm
Absence / existence of acts and indebtedness for payment of service provided for the quarter period	In stock 100%
Number of reporting on weekly maintenance and support	Available file for each week of service
Compliance with update schedule, customer visits	Schedule must be observed

The relevance of the update files	Files are current
Share of untrained users	15%
The proportion of untrained users of decision makers	0%
Customer's comments on the service specialist (third-party data)	Remarks should be absent

2. Regulation of the order of work with clients, implementation of other regulations

At this stage, all the identified indicators of effective work should be reflected in the relevant regulations. All participants of the process (performers, responsible persons, etc.) must be familiarized with the documents.

3. Automate customer performance checks

In view of a large number of efficiency indicators, service employees and customers, processes of monitoring quality of service, the prediction of possible failures is greatly simplified when it is automated. The purpose of automation is to optimize work of internal auditors, as well as to reduce the influence of «human factor». In some cases, without automation, the control process is not possible at all (Kuzina,2014).

In view of the large number of controlled processes, automation is seen by the authors as the only possible way of processing and controlling a huge number of information data of various kinds.

The main purpose of automation is to improve the quality of processes. An automated process has more stable characteristics than the process performed in manual mode. In many cases, process automation improves performance, reduces execution time, reduces costs, and increases the accuracy and stability of operations.

The result of automation is significant: reducing time spent on audits - from 20% to 90% for individual audits, an average of 70% over the month (96 instead of 320 man hours per month in the studied consulting company).

Table 2. Reduction of working time of internal audit due to developed automation

	The time spent on internal audit, Man-hours per month		Reduction of time for internal audit,%
	before automation	after automation	
Internal audit 1	5	4	20,00
Internal audit 2	3	1	66,67
Internal audit 3	260	86	66,92
Internal audit 4	52	5	90,38
Total	320	96	70,00

4. Control of compliance with the standards of quality of customer service

Control over the implementation of standards for customer service should be assigned to employees not involved in the process of customer service. This has to be carried out regularly with constant periodicity. Only fulfilling all these requirements

may guarantee objectivity of the control and correctness of the forecasts on customers' refusals (Ismagilov et al, 2015).

In the course of monitoring the implementation of customer service standards, a classifier of inconsistencies was developed (Table 3):

Table 3. Classifier of inconsistencies

Identified discrepancy	Description of the discrepancy	Steps to remove	Timing for elimination	Responsible officer
A significant violation	Violation of the substantive items of the working standards	Elimination, reduction to norms. In case of a repeated violation, an official note addressed to the Director from the head of the audited department	7 working days from the date of receipt of the audit report	Head of audited department
Minor offense	Violation of non-essential items of the working standards	Elimination, reduction to norms	7 working days from the date of receipt of the audit report	Head of audited department
Information for clarification	Mismatches requiring explanations from managers for the purpose of further classification	Letter to the head of internal audit service from the head of audited department with specification of information for further classification	7 working days from the date of receipt of the audit report	Head of audited department
Unformalized process	Identified in the course of internal audit an indefinite process, affecting the quality of service	The fixing in the appropriate regulations of implementation procedure and the norms of identified process	21 working days from the date of receipt of the audit report	Head of Audit Division, Head of Internal Audit Service

5. Correction of work of clients' support specialists team based on the results of performance control

Correction of shortcomings in the work of specialists is undoubtedly necessary action in case of deviations in the norms for customer service. Correction should occur depending on the type of discrepancy found and in the order strictly specified by the company management, reflected in relevant regulations.

In the course of the study, the following summary tables were obtained, which determines relationship between the service indicators and the customers' refusals (Tables 4 and 5). Note that the more weight of refusals, the larger the client is and vice versa.

Table 4. Correlation of total outages and performance indicators by audit

	Other, %	P.1.1*	P.1.2*	P.1.4*	Audit of acts and debts	Audit of graphs	Satisfaction audit	Audit SE
Gr.	part	percentage of specialists in groups who did not meet the standard			percentage of refusing clients with inconsistencies in the report	percentage of clients in the chart with non-conformities	the proportion of unanswered notes	share of incorrect notes, only 19 notes
4	36,36%	0,00%	14% (1 man)	0,00%	30% (6 cat.)	4,76% (1 cat.)	10,53% (2 notes)	10,53%
2	40,91%	0,00%	0,00%	10,00%	10,57% (4 cat.)	0,00%	16,67% (2 notes)	10,53%
1	40,00%	0,00%	10% (1 man)	57,14% (4 men)	3,3% (1 cat.)	18,52% (5 cat.)	0,00%	26,32%
3	41,18%	0,00%	10% (1 man)	0,00%	38,1% (8 cat.)	30% (12 cat.)	40% (8 notes)	52,63%
OP	42,86%	0,00%	0,00%	100% (3 men)	42,86% (6 cat.)	not in the sample	not in the sample	not in the sample

Table 5. Correlation of total outages and performance indicators by groups

Group	Average weight of refusals by group	DISCIPLINE		CERTIFICATION	TRAINING	
		Absence of acts, average for the quarter, pcs.	Absence of files, average for a quarter, pcs.	TTS, technical aspects of working with the clients, weight	Share of untrained users LPR + CW	Share of untrained users
Group 1	-4,033	3	3	4	32%	46%
Group 2	-2,231	3	2	1	31%	44%
Group 3	-0,790	2	1	0	21%	38%

4 Conclusion

Thus, it can be concluded that the relationship between performance indicators considered and number of refusals takes place.

In the research, we identified indicators which signalize about an increase in the probability of the customer's refusal to service:

- passing the attestation by a specialist is not a set-off;
- the proportion of untrained users.

Table 6. Major indicators of possible customer's refusal to service

Average blade weight per group	Total number of users DPR + CI		Share of untrained users	
	MIN	MAX	MIN	MAX
-4,033	16,07%	58,57%	60,52%	72,58%
-2,231	7,69%	59,26%	19,78%	65,12%
-0,790	6,12%	30,49%	13,04%	55,69%

The relationship between the indicators of customer service quality and the number of refusals from further support has been proven by practical tests. The developed system of analytics and automation of client block of the business model allows companies generating reliable information about quality of customer service and make predictions on possible customers' refusals. Such information is undoubtedly useful for adjusting the quality of customer service. The information is deeply private: shortcomings in the work will be shown in the context of specific areas. Such approach allows making adjustments to workflows in real time in the shortest possible period. Note that it is only possible to implement the task through the automation of information processing.

5 Discussion

The authors developed and proposed the following quantitative methodology for assessing the economic efficiency of presented automation:

$$E = Z_{man} - Z_{auto}, \quad (1)$$

where E - definition of annual savings;

Z_{man} - the cost of manual processing of information, rubles;

Z_{auto} - the cost of automated processing of information, rubles.

$$Z_{man} = M * S * 12 \quad (2)$$

where M - the average monthly salary, rubles;

S - the number of staff members of the division to be automated.

It is planned to test the model as a part of future development of the research topic.

Acknowledgement

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

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