Small Business Development Strategy: Leading Methods and Models

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Abstract Small business is one of the most important and leading segments of the economy of any country which forms competition in the market of goods and services, affects the improvement of their quality, and provides tax deductions to budgets of all levels. At the same time, small businesses are severely limited by resources, both financial, material, and informational. Their activity in conditions of lack of information makes it impossible to have a clear vision and strategy for development and, consequently, their decisions about which value proposition should be developed, which should be removed from the market and which consumer segment is ineffective for the organization are often unfounded and taken on an intuitive level. The paper offers a solution to this problem from the perspective of forecasting and planning the organization's revenue as the main component of the development strategy. The proposed method involves building a business model (using the method developed by Osterwalder) which allows us to analyze the relationship of such subsystems as value proposition, consumer segments, activities, resources, income, and expenses. For projection purposes, we have proposed an integral indicator of assessment of market capacity, which is aimed at the volumetric flow values of revenues allocated in the business model. This indicator considers depth and width, the uniqueness of value proposition, competitive prices and the level of competition and the level of service distribution channel. We also developed a mathematical model that provides the opportunity to quantify the factor. The value of the integral indicator is used to predict the number of potential customers in the consumer segment and the volume values of revenue streams. The developed mathematical models are based on methods of economic analysis and differ in their adaptation to analyze the results of business modeling. Special attention should be paid to the proposed model for predicting the number of potential customers in the consumer segment, which is an adapted version of the queuing system efficiency model that gives accurate forecast results in queue management systems.

Keywords: *small business, leadership, development strategy, forecasting*

1 Introduction

Small business is a strategically important segment of the economy of any country. However, the growth rates of the main indicators of small business organizations in Russia, as well as in the Krasnodar region, have a depressive trend, which indicates the presence of restraining factors. On the one hand, some conditions have been created for the development of organizations in this segment (support programs, targeted funds, support for

credit organizations, suppliers of special equipment, consulting support, etc.); on the other hand, there is a large number of studies on the regulation of activities and organization of small businesses.

The solution to this issue, in our opinion, is to shift the focus of research to the development of methods and models of strategic development aimed at the small business segment. The main prerequisite for this is the fact that small business organizations carry out their activities in conditions of a lack of information about the external and internal environment. Information about the facts of economic activity is usually collected only for the purpose of forming accounting and tax reports (Janda et al. 2013). Accordingly, some entrepreneurs do not have information that forms a clear vision of the prospects and mechanisms for further development of the organization (Dey and Lehner 2017).

Therefore, an urgent issue is the development of methods and models aimed at developing a strategy for the development of an organization that belongs to the small business segment and is applicable in conditions of information scarcity. To solve this problem, the authors previously proposed an approach that provides the formation of a business model, its analysis and development of strategic initiatives (Ehrenberger et al, 2015; Baranovskaya et al. 2016; Zaitseva et al. 2018; Reznichenko et al. 2018; or Vostroknutov and Loiko 2018). The purpose of this study is to propose a method for forecasting the income of a small business organization based on the use of a business model template proposed by Osterwalder (see Osterwalder et al. 2014; Osterwalder et al. 2010), which can be characterized by the introduction of numerical parameters for describing its blocks.

2. Methods of forecasting and planning the company's revenue

Understanding and comprehension of an organization's development strategy begins with determining revenue streams and calculating their volumes. When using the business model template proposed by A. Osterwalder, the definition of revenue streams is to reflect the relationship between three elements: the value proposition, the sales channel and the consumer segment (see Table 1).

Table 1. Comparative analysis of methods for forecasting and planning the organization's revenue

No.	Name of the method	Brief description	Advantages	Disadvantages
1	Method of expert assessments	The method of expert assessments is widely used in forecasting and planning sales in the event that a new type of product or service is introduced to the market. It can be used in the form of analytical calculations, individual or collective assessment, and collective generation of ideas	The method allows you to take into account the opinions of different experts. It is used for long-term (strategic planning).	For the most part, a qualitative assessment is made of various factors that may affect the planning process All qualitative assessments are subjective and their accuracy depends on the expert's experience
2	Extrapolation	The main idea of the method is to analyze the results of the organization's activities for past periods and transfer the trend (average annual growth rates) to the future	It is quite simple to be implemented and low-cost. We use it in medium-term planning	The accuracy of the forecast depends on the depth of the statistical base. The more previous periods, the more accurate the forecast is
3	Normative method	The essence of the method is reduced to the calculation of specific norms, for example, norms of consumption, expenditure, stock, needs. Based on the received unit rates, demand and other planned indicators are calculated. The results of the calculations are compared with the norms of sectoral, territorial or Federal regulations	Allows you to organize planning and accounting processes based on specific standards, which allows you to identify weaknesses of the company, e.g., ways to improve the competitiveness of a product or service and pricing planning	This process based on standards is not flexible. The adequacy of the planning process depends on standards that are not always accurate
4	Method of analogies	This method involves the selection of an analog product for a newly marketed product (service) and transferring the analog trends to it	Transfer of analog trends is based on methods of economic and mathematical modeling	The analog is selected by expert means, many assumptions are assumed, which increases the risks
5	Balance method	The method is aimed at determining the balance or balance between different indicators. For example, how many resources will be required to produce a given volume of products based on a sales plan	Ensures a balance between supply and demand, the required quantity of products and the costs incurred for their production or purchasing, storage, etc. The method is widely supported by information technologies	It does not take into account certain environmental factors, such as inflation and changes in market conditions

Source: Own results

However, in order to judge the effectiveness or expediency of a particular flow, its numerical parameters are needed. In the article (Loiko et al. 2018) there is a method that allows to use a numerical description of the parameters of the business model and calculate the volume indicators of revenue streams of the company. This makes it possible to apply a fairly large list of methods for forecasting and planning the organization's revenue. Currently, a fairly wide list of methods for forecasting and planning the company's income can be used (expert assessments, extrapolation method, normative method, etc.). We have presented their comparative analysis in Table 1 (Drucker 2006; Hyndman and Athanasopoulos 2018; Rothaermel 2020). In Table 1 we formulate the advantages and disadvantages of the methods regarding their use by small business companies.

As one can see from Table 1, the key point in the process of formalizing the strategy and planning sales, when using any method, is to calculate the market capacity. Market capacity is an economic indicator that describes the size of the market, represented by the total volume of sales. It is the size of the market capacity that forms the basis of the sales planning process or is its "starting point" (Drucker 2006; Hyndman and Athanasopoulos 2018; Rothaermel 2020). Therefore, it is necessary to analyze existing methods for estimating market capacity (see Table 2).

Table 2. Comparative analysis of market capacity assessment methods

No.	Name of the method	Brief description	Advantages	Disadvantages
1	Chain substitution	This method is the easiest way to estimate the market capacity, which involves calculating the average price, average receipt, and the number of potential customers in the consumer segment	Easy method. The possibility of implementing without the involvement of specialized information systems	Key performance indicator (number of potential customers in the consumer segment) is calculated on the basis of expert assessments as a proportion of the customer segment
2	Method of structural characteristics	The method assumes that when calculating the market capacity, we take into account the market share of imported goods, as well as those goods that are in the warehouse of the organization at the end of the reporting period	It takes into account the market capacity of imported goods, which in some cases may be a fairly large share of	The same as the advantages
3	Method of index research panel	This method is based on the competitors in the total number of channels of distribution for selected consumer segment, the allocation period of the study and the analysis of sales during this period	The market capacity is allocated as averagein sales in the test period, distributed on the number of competitors	Inability of applying the method for a new product (service) entering the market
4	Method of summing sales	The main essence of the method is to count primary and repeat sales, as well as sales made additionally when purchasing a basic service	The market capacity is based on the account of loyal customers and their preferences	Inability of applying the method for a new product (service) entering the market
5	Adaptive methods (Queuing theory)	The main essence of the method is to evaluate the value proposition and its competitive characteristics, which allows us to calculate the share of the consumer segment that will become loyal customers in the planned period. As a base model it uses a performance indicator system of mass service with denials	The method allows us to make a quantitative assessment of the capacity of the consumer segment, i.e. calculate the number of loyal customers	When evaluating a value offer, a small number of indicators are used (depth of the value offer, price competitiveness)

Source: Own results

As it can be seen from the data, almost all assessment methods use qualitative methods (expert assessments), which is quite subjective for such an important indicator (Drucker 2006; Hyndman and Athanasopoulos 2018; Rothaermel 2020). Only one method, based on the Queuing theory, uses a quantifiable methodology to estimate market capacity. Accordingly, an adaptive method based on the application of the Queuing theory can be chosen as the basic method for assessing the market capacity and new mathematical

models can be proposed for evaluating the value proposition, expanding the list of factors that affect the process of forming revenue streams and forming a small business development strategy (Loiko et al. 2018).

3. Development of an integrated model for assessing market capacity and forecasting the company's revenue

The use of any method of assessing the market capacity is ultimately aimed at determining the number of potential customers of the consumer segment. Therefore, to improve the adequacy and accuracy of the forecast, it is necessary to take into account various factors that affect the process of making a sale. To do this, it is proposed to use an integral indicator that takes into account the depth and width, uniqueness of the value proposition, price competitiveness and the level of competition, as well as the level of service of the sales channel.

The first indicator that is used to evaluate the market capacity and form the strategy for the development of the business model of the organization is the width of the assortment (value proposition). This indicator describes the number of types of products (services) that an organization puts on the market (expressed as a percentage). A product group is defined as a product (service) group. The width of the value offer of the sales channel can be calculated using the formula:

$$W_{VO} = \left(1 - \frac{1}{n}\right) * 100, \quad (1)$$

where$W_{VO}$is the width of the value proposition of the sales channel, %;
n – the number of product groups that contains the value proposition of the sales channel (in units).

Similarly, we can calculate the depth value of the assortment. The main difference between this indicator is that the depth of the value offer is measured within each product group and indicates the diversity of the potential customer's choice. The depth of the value offer within a product group can be calculated as such:

$$D_{PG} = \left(1 - \frac{1}{p}\right) * 100, \quad (2)$$

Where:
D_{PG} - is the depth of the product group's value offer, %.
p– the number of products (services) that the product group contains (in units).

The depth of the value proposition of the sales channel can be found as the average value of the depth of product groups assigned to the sales channel:

$$D_{VO} = \frac{\sum_{i=1}^{n} D_{PG\,i}}{n} \quad (3)$$

The next indicator, which is used to assess market capacity, and which has a key influence on the formation of a business model development strategy is price competitiveness. Price competitiveness refers to the coefficient that characterizes the average deviation of the price of the product (service) being created from the competitor's price:

$$C_{PP} = \frac{100 - \frac{P_p}{D_P}}{100}, \quad (4)$$

where:
C_{PP} – the price competitiveness of the created product (service);
P_p– the price of the created product (service), RUB.;
$D_P$is the mean value of the deviation of the price of products produced from the prices of competitors, distribution channel, RUB. The average deviation of the price of the created product from the price of competitors can be calculated using the formula:

$$D_P = \frac{\sum_{i=1}^{q}(C_p - P_p)}{q}, \quad (5)$$

where:
C_p - is the competitor's price, RUB.

q – number of competitors, (in units). It should be noted that this indicator can be calculated for an individual product or service (4), as well as for a product group, as well as for the entire value proposition of the sales channel:

$$C_{PP\ product\ group} = \frac{\sum_{i=1}^{p} C_{PP}}{p}. \quad (6)$$

$$C_{PP\ value\ proposition} = \frac{\sum_{i=1}^{n} C_{PP\ product\ group}}{n}. \quad (7)$$

The next indicator used to assess market capacity is the uniqueness of the value proposition. The uniqueness of a value proposition or product (service) is defined as the number of products (services) of analogues available on the market. Therefore, the uniqueness of the product (service) can be determined by the formula:

$$U_p = 100 - \left(1 - \frac{1}{a+1}\right) * 100, \quad (8)$$

where:
U_p - is the uniqueness of the product (service), %.
a – the number of analogs of the product (service) presented on the market (in units).

Similarly, to the previous indicator, the uniqueness indicator can also be calculated for the product group and the entire value proposition of the sales channel. The article presents the principle of determining these indicators in (6, 7).

The next indicator used to assess market capacity and influence the process of forming an organization's strategy is the level of competition. Initially, this indicator is to show the market share occupied by competitors, expressed as a percentage. It should also be noted that this indicator is calculated for each consumer segment assigned to the sales channel. Then, the level of competition within the consumer segment can be calculated using the following formula:

$$L_c = 100 - \left(\frac{\frac{\sum_{i=1}^{l} V_i}{Q_i+1} * 100}{\sum_{i=1}^{l} V_i}\right), \quad (9)$$

where:
L_c - is the level of competition of the sales channel within the consumer segment, %;
V_i - capacity of the consumer segment of the sales channel, units.
Q_i – number of competitors in the sales channel, units.
l– number of consumer segments, units.

The final indicator that will be used to evaluate the value proposition of the sales channel is the level of service. This indicator will stand for the ratio of sales channel services to the number of product groups assigned to it. Accordingly, the level of competition can be determined by the formula:

$$L_s = 100 - \left(1 - \frac{S}{N}\right) * 100, \quad (10)$$

where:
$УС_{КС}$ – sales channel service level,%;
S – the number of services assigned to the sales channel, units.
N – the number of product groups assigned to the sales channel, units.

Table 3. Scale of value correspondences based on the example of the unique value proposition indicator

Indicators, units of measurement	Range of indicator values	Number of points
The uniqueness of the value proposition %	100	100
	50-99	90
	30-49	80
	21-29	70
	17-20	60
	14-16	50
	12-13	40
	11-11,9	30
	10-10,9	20
	less than 10	10

Source: Own results

The factors taken into account in the integrated assessment of market capacity have different units of measurement. To put them into a single system, we have to develop a compliance scale. We have proposed to translate the values of indicators into a point scale. Table 3 shows the scale of value matches based on the example of the unique value proposition indicator.

Thus, after translating the obtained values of the system of indicators used to assess the market capacity, it becomes possible to calculate an integral estimate by simply summing the points scored for each sales channel.

We have made predicting the number of potential customers directly in the consumer segment. The presented formula is an adapted model for evaluating a single-channel Queuing system. The use of this model is justified by the fact that the demand flow intensity, λ, used in Queuing theory, is the capacity of the consumer segment, and as the service flow intensity (μ) we may use the results of an integral assessment of the market capacity (Shortle et al. 2018; Kleinrock 1975).

$$N_{PC} = \frac{V_i IE}{V_i + IE} \quad , \tag{11}$$

where:
N_{PC} - is the number of potential customers of the consumer segment, units.
V_i–capacity of the consumer segment, units.
IE –integral evaluation of the value proposition of the sales channel, points.

Predicting the volume values of revenue streams is carried out in accordance with (12). The numerator of the expression shows the revenue from the sale of a product, product or service, while the denominator averages this value. In fact, on average, one customer (under conditions of acceptable diversity) will purchase only one value offer from the product group.

$$Income = \sum_{i=1}^{n} \frac{P_i Dem_i N_{PC}}{z} \quad , \tag{12}$$

where:
*Income*is – is the volume value of the revenue stream received by the sales channel, RUB.
N_{PC} – thenumber of potential customers of the consumer segment, units.
P_i – the cost of the value offer, RUB.
Dem_i–the demand for value supply, unit/period;
z – the number of value offers in the product group, units.
n–the number of value offers assigned to the sales channel, units.

4. Conclusions

Overall, forecasting and planning of a company's revenue is a key stage in forming a development strategy of the company. Almost all modern methods of sales planning provide market capacity forecasting, i.e. the number of potential customers of the consumer segment who, in a competitive environment and a variety of value offers, will make a purchase in the analyzed organization. Despite the importance of this indicator, almost all assessment methods use qualitative methods (expert assessments), which is quite subjective. This fact made it necessary to develop a method and models that allow applying quantitative estimates, thereby increasing the adequacy and accuracy of the forecast. Which offers an integral indicator that takes into account depth and width, the uniqueness of value proposition, competitive prices and the level of competition and service level of a distribution channel used to evaluate the capacity of the market according to the results of business modeling organization. Our mathematical models of integral indicator factors are based on methods of economic analysis and differ in their adaptation to the terms and template of the business model. Some of the proposed models are completely new (price competitiveness, uniqueness of the value proposition). To predict the number of potential customers, we have proposed to use an adapted model for evaluating a single-channel Queuing system that gives accurate forecast results in queue management systems.

Thus, the proposed method allows us to predict the volume values of revenue streams in various sections (value proposition, sales channel, consumer segment) and shows the relationship and influence of various factors on the results obtained. Using this method, a businessman will be able to see the strengths and weaknesses, opportunities, and threats to the company from the position of revenue generation; he will also be able to build an appropriate strategy in this case. In addition, it should be noted that the proposed method is applicable in conditions of lack of information about the external and internal environment of the company. Further development of the methodology will include the cost subsystem in its context.

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