

MODELING METHODS AND RISK FACTORS IN THE ACTIVITIES OF INTERNET COMPANIES

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ABSTRACT

The article is concerned with modeling the activities of Internet companies, whose main task is to conduct an effective business. Currently, Internet companies face a huge demand for their services. However, the Internet causes such urgent issues as the confidentiality and security of transmitted information, incomplete access in some parts of the world, and some technical problems with a seemingly high-tech system. The article analyzes information business models and discusses the directions of information commerce and factors in the effective implementation of business models and the attractiveness of the Internet market. The authors identify and assess the possibilities of using Internet technologies in intra-company processes and communications in various types of commercial activities, consider the risks of doing business by Internet companies, and study methods and models of online business.

Keywords: Internet companies, information business, Internet business, business models, risks.

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INTRODUCTION

With the development of information technology and the spread of the Internet, Internet companies began to play a major role in the global economy. However, like any other business entity, an Internet company must constantly analyze its activities and look for ways to optimize them. In this process, modeling the activities of an Internet company plays an important role in evaluating the effectiveness of business processes, identifying bottlenecks, and optimizing the work of a company as a whole.

The research subject is modeling the activities of an Internet company.

The research object is processes and functions related to the activities of an Internet company, including marketing, sales, personnel management, technical support, product and technology development, financial planning, and risk management.

Basic concepts of Internet companies

Internet companies have become an integral part of modern business, providing the user with a wide range of products and services. To become successful, they must understand the basic concepts and principles.

A business model is the backbone of any Internet company (Eliferov & Repin, 2013; Volkov, 2015). It is the plan that determines how a company will make money. A business model determines what products and services will be provided, how they will be sold, and what the profit will be. Companies can choose different business models depending on the type of products and services.

Monetization is a basic concept in online business. It is viewed as the process of turning users who are willing to pay for a company's services or products into customers.

Monetization is the main task of any Internet company as it generates income and guarantees prosperity (Potekhin, 2012; Terenteva & Lebedeva, 2020).

There are many methods of monetization but they evolve depending on the type of product and service that a company provides. Let us consider the most common methods of monetizing Internet companies.

Advertising. This is the simplest and most common method of monetization. It consists in selling ad space on websites, applications, or video hosting sites. There are various advertising formats, such as banners, contextual advertising, video advertising, etc.

Subscriptions. This method of monetization is used by companies that offer services requiring constant payment, such as medical services, sports broadcasts, premium accounts in online games, etc.

Sale of goods. E-commerce companies use this method of monetization, which consists in selling goods from their websites. There are also external platforms where companies can sell their products, for example, Amazon or eBay.

Data monetization. In the online environment, there is a large amount of user data that can be used for commercial purposes. Companies can sell this data to other companies doing research or marketing campaigns.

Freemium. This method of monetization grants basic application features for free without any restrictions but additional features or content are provided on a paid basis. This method is used in various types of applications, such as mobile applications or online games.

Conversion is a key indicator of the effectiveness of an Internet company. It is the percentage of users who make a desired action on the company's website. The desired action can be different, depending on what product or service the company offers. For example, purchase a product, sign up for a newsletter, download an app, fill out a feedback form, etc.

At first glance, a large number of website visitors show a high interest in a product but only some of them turn into real customers. If a company does not pay attention to conversion, it misses the opportunity to earn extra money and wastes resources on attracting traffic.

The efficiency of conversion directly depends on many factors: the quality of content, convenient interface, an explicit call to action, etc. Page loading speed is also an important factor since users can leave the website if the page takes too long to load.

To increase the conversion rate, it is necessary to test the buying or subscription process on the website. A/B tests are used to determine which website elements are driving conversions and how they can be further improved.

Internet companies can use various tools to increase conversions, such as welcome screens, subscription forms, or discount offers for new customers. However, high conversion does not guarantee high profits. To make more money, companies must also pay attention to other concepts such as monetization, business models, and growth.

In addition, the growth of Internet companies is one of the most important concepts that determines the scale and effectiveness of online business. Growth refers to an increase in the number of users, profits, marginal revenue, and range of products and services. It is a key

performance indicator in online business and one of the most valuable indicators for investors and stakeholders.

There are many opportunities for a company's growth on the Internet. In particular, advertising, SEO, content marketing, SMM, email marketing, improving the user interface, and developing new features can contribute to increasing the number of users, which will lead to higher profits. Internet companies can use many methods and tools to attract new users and increase sales and loyal customers.

Such basic concepts as a business model, monetization, conversion, and growth are integral components of Internet companies. To be successful in this segment, companies must understand these principles and apply them to their operations (Grishin, 2016; Nikulin, 2016).

METHODS

This article aims at studying the modeling of activities and principles of Internet companies, as well as analyzing the risks associated with doing business in this sector.

The research methodology included an analysis of existing literature, theories, and concepts related to the activities of Internet companies, modeling methods, and risk management. Business risks were classified and analyzed to determine their impact on the activities of Internet companies and develop risk management strategies.

A comparative analysis was used to assess the pros and cons of various modeling approaches and their effectiveness in optimizing business processes.

RESULTS AND DISCUSSION

Basic principles of functioning of Internet companies

After reviewing the relevant literature, we determined that Internet companies must adhere to several basic principles that allow them to work more efficiently and satisfy the needs of their customers to enhance their competitiveness. Let us consider the basic principles of the functioning of Internet companies that allow them to be at the top of the competition and continue to grow and develop in the modern world.

1. Customer orientation. To be customer-centric, Internet companies must constantly analyze the needs of their customers, study their behavior and preferences, and consider their feedback and complaints. Companies should ensure that customers are satisfied with the quality of the services and products provided and that they return to them.

Being customer-oriented means providing customers with convenient and easy-to-use services, as well as providing fast and high-quality support. Companies must be ready for change and adapt to new customer requirements to remain competitive.

2. Innovation is a principle of the functioning of Internet companies. It helps companies remain competitive and attract new customers. There are different types of innovations.

- The development of new products and services that meet the needs of customers and solve their problems;

- The implementation of new technologies and tools that improve the quality of a company's work and increase its efficiency;

- The creation of new business models that allow a company to earn more money and attract new customers;

- Taking on new markets and segments to expand a company's business and increase its profits;

- Improving the quality of customer service to attract and retain customers.

3. Flexibility. Flexibility is the ability to quickly and effectively respond to changes in the external environment, such as changes in consumer needs, technology trends, and market competition. This principle is an integral part of the development strategy of companies in the context of the rapid growth of the global economy.

A way to demonstrate flexibility is through the desire to innovate. Internet companies must constantly evolve, create new products and services, and improve existing ones to be one step ahead of their competitors. Companies that cannot adapt to new technology trends and market changes will be left behind and will not survive the competition.

Flexibility is also evident in the way Internet companies operate. Many of them use flexible work patterns, such as telecommuting and flexible work schedules, which allow employees to work in the way that best suits their individual needs, resulting in increased employee productivity and satisfaction.

Furthermore, flexibility is crucial for project management. Internet companies are characterized by fast decision-making and rapid project implementation, which allows them to quickly respond to changes and make the most efficient use of resources.

4. Analytics is the collection, analysis, and interpretation of data to obtain valuable information and make better decisions. For Internet companies, analytics is a key tool to understand user needs and behavior, identify market and competitive trends, and optimize their products and services.

One of the most common types of analytics used by Internet companies is web analytics. It includes the collection and analysis of information about website visitors, such as the number of visitors, their location, time spent on the website, etc. The information obtained helps Internet companies to understand how users interact with their websites and how to improve their functionality and management.

Analytics also helps Internet companies reveal the strengths and weaknesses of their products and services and make decisions to improve them. It is also possible to learn which products and services are most popular among users so that a company can focus on their development and promotion.

5. Team. The success of Internet companies depends on the qualification and motivation of their employees. Many IT companies are making efforts to hire a team of professional and talented employees. Companies create programs to select qualified candidates who can work effectively in a team. Most companies also pay great attention to developing the skills of their employees so that they can improve their professional knowledge and skills. A lot of attention is also paid to employee motivation.

Teamwork is one of the main strategies of companies to achieve their goals. Interaction with colleagues and the ability to work in a team become vital skills for employees. Companies conduct special training and briefings to help employees understand how to work effectively in a team.

Thus, the basic principles of the functioning of Internet companies determine their success and competitiveness in the market. Innovation, flexibility, analytics, and personalization of services are important elements of a company's development strategy and help it adapt to a changing environment and compete with other companies.

Activity-based models of Internet companies

Internet business modeling is the process of creating an abstract model of the principles and processes that companies operating online use to optimize their operations and increase profitability.

There are many methods that Internet companies use to model their activities and optimize processes. Below are some of them.

1. The sales funnel model (Figure 1). This model is used by Internet companies to analyze and optimize conversions. It is a sequence of steps that a user must take to become a

company's client. For example, visit a website, register, choose a product, add it to the cart, pay, etc. By analyzing the data for each step, a company can determine where the biggest customer losses occur and improve the process to minimize those losses (Karpova & Larchenko, 2021).



Figure 1. The sales funnel model
Source: compiled by authors

2. The AARRR Model (Figure 2). The acronym stands for Acquisition, Activation, Retention, Revenue, and Referral. Each of these stages is important for creating an effective business model for an Internet company. For instance, in the process of attracting new customers, a company can use advertising campaigns or search engine optimization. At the retention stage, it is recommended to use retargeting or analyze customer preferences.

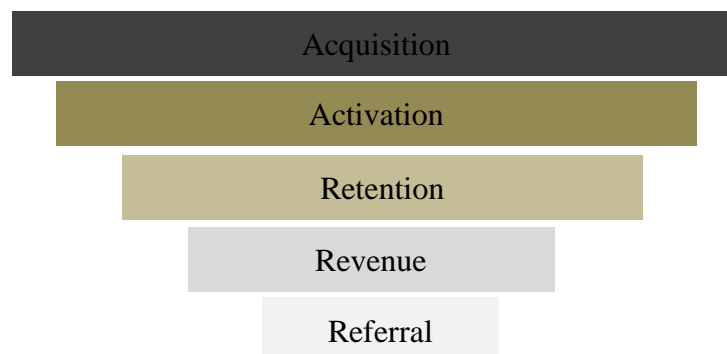


Figure 2. The AARRR Model
Source: compiled by authors

3. The LEAN startup model is used early in the life cycle of an Internet company. It involves constant experimentation and rapid implementation of changes to a company's strategy based on feedback from customers. As a result, a company can more effectively adapt to a changing environment, minimize costs, and remain competitive.

4. The SWOT model is one of the most frequently used in business analysis in general and Internet companies in particular. The abbreviation is an acronym that stands for Strengths, Weaknesses, Opportunities, and Threats.

SWOT analysis is used to assess the strengths and weaknesses of any company and identify opportunities and threats in the market. This model helps to determine what resources and capabilities are available to a company, as well as problems and threats that may arise in the course of work (Figure 3) (Foss, 2007; Lambin, 1996; Thompson, 2009).

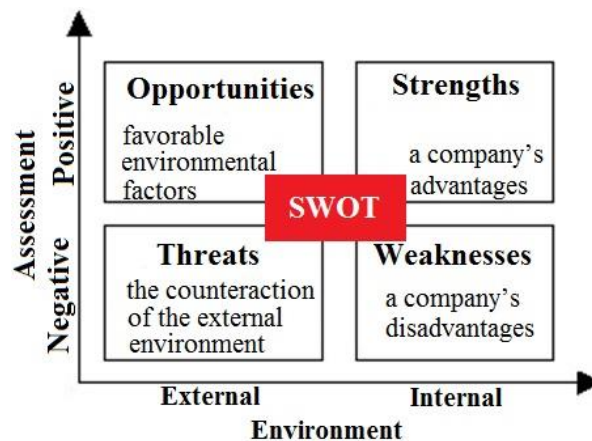


Figure 3. The SWOT model
Source: compiled by authors

A company's strengths can include various factors such as brand popularity, innovative products or services, high-skill staff, etc. Internet companies that have strengths can use them to attract new customers, increase sales, and secure their market position.

However, any company has weaknesses that can cause problems and restrictions in its business development. For example, it can be ineffective marketing, poor technical support, limited financial resources, etc. Addressing these weaknesses can help a company evolve and make the most of its strengths.

In general, modeling the activities of Internet companies helps them improve the efficiency and effectiveness of business processes. Business entities can choose the most suitable methods and models for each stage of their activity, change them if necessary, and improve their work and increase their profits.

Methods for modeling the activities of Internet companies

There are different modeling methods but, in general, they allow using and analyzing data to predict future trends and events.

The main activity modeling method used by Internet companies is data-driven modeling. This modeling technique is based on the processing of large amounts of data. It uses information, for example, about a company's customers. Based on this information, a mathematical model is built. Such models are based on statistical methods, machine learning, and artificial intelligence (Koshkina, 2010; Smekhova, 2020; Zavivaev et al., 2014).

This type of modeling allows Internet companies to consider a large number of options and possible scenarios. When analyzing data, such models consider both structured and unstructured data about customers and sales, price data, and market competition. This presents accurate data about the demand for a particular product at a specific time and predicts the future demand for this product (Tyagai & Mosolova, 2020).

Moreover, data-driven modeling techniques allow companies to make real-time predictions. This is vital for a fast-changing online business market. With the help of these models, companies can make informed decisions based on accurate information, which gives them an edge over their competitors.

The use of data-driven modeling is a key success story of many Internet companies including Google, Facebook, and Amazon. This approach allows them to more effectively and accurately predict demand for their products and services and make informed decisions, which ultimately helps them maintain market leadership (Keller, 2008; Morrow et al., 2007).

The second modeling method widely used in modern research is based on machine learning algorithms. This method is an effective tool for automatically finding patterns in large arrays of data that cannot be processed manually.

Machine learning algorithms allow a computer to independently find data patterns and build models based on them. They can be used for data classification, clustering, segmentation, prediction, and anomaly detection (Karpova & Larchenko, 2021; Popov, 2013; Sokolova & Molchanova, 2020).

Data are classified by dividing the sample into groups with certain characteristics. For example, one can categorize customers based on their preferences for products or services to market products more effectively.

Data clustering allows grouping objects with similar characteristics into separate clusters. This method can be used, for example, to analyze the behavior of customers in an online store or to identify risk groups in medical research.

Data segmentation is used to search for specific groups of objects with some feature. For instance, one can use data segmentation to detect a group of users who regularly use a particular product or service.

Forecasting based on machine learning algorithms can help predict various events or trends, such as changes in demand for products or changes in the labor market.

Anomaly detection is widely used in various fields, including the financial and medical sectors. Machine learning algorithms can help detect anomalies in data and prevent possible financial or medical risks.

Another modeling method that is widely used in modern research is the system dynamics model (Vasileva, 2006; Volkov, 2012). It is a powerful tool for studying the dynamics of a system and its long-term behavior. Internet companies actively use this model to analyze the consequences of the actions taken and assess their impact in the future, as well as to identify weaknesses in operation.

This model is designed to study the dynamics of interaction between the elements of the system and describe the processes occurring within the system. It is based on the concept of feedback which describes the interaction between the elements of the system and the possible consequences of their changes. At the same time, the system is regarded as integrity, where changes in one element can affect the other elements.

Econometric modeling can also be used to predict future market trends and identify factors that influence consumer and competitor behavior. These modeling techniques help study the relationship between such variables as prices, revenues, customer base, etc.

Therefore, activity modeling is an essential tool for Internet companies that want to stay on top of the competition and continue to grow and develop in today's world. The use of various modeling techniques helps them evaluate possible development scenarios, as well as form action strategies and predict future market trends.

Risks of doing business by Internet companies

The risks of doing business by Internet companies are divided into two categories: the standard risks of performing any commercial activity and the threats that are specific to enterprises in this particular area (Kiseleva & Iskadzhyan, 2017; Shapkin & Shapkin, 2013; Veselov et al., 2016).

The **first** category of risks is universal possible threats and obstacles to doing business. Such risks are as follows:

1) Interest risks characterize the likelihood of interest rate changes by the main monetary authority represented mainly by the Central Bank/Reserve of a country, which can both positively and negatively affect the activity of companies in a certain area and business activity in the country as a whole.

2) Operational risks are connected with the likelihood of a violation of the production process of an enterprise or a conflict of interest with other parties to economic relations. Such risks include equipment failures (Internet cables, servers, storage of large data arrays, etc.), problems with the provision of services to certain clients, and problems associated with authorities. The latter is common to the Russian Federation.

3) The risks of violating the financial stability of an enterprise and other financial risks. Such risks are also typical of Internet companies (not just industrial ones). They suggest a violation of the liquidity of a company's assets, financial stability, and a heavy imbalance between own and borrowed funds. In addition, the rapidly growing supply of services by many Internet companies plays a negative role. Relatively speaking, there is an overstocking in the Internet sphere. Such an event took place in 1995-2001 in the United States, when a financial crisis occurred on the Internet. All this led to severe damage to large- and a few medium-sized companies, as well as to massive bankruptcy of small businesses, individual entrepreneurs, and most medium-sized organizations.

The **second** group of risks for the functioning of Internet companies is associated with the specifics of doing business in this innovative industry. These are as follows:

1) Information risks have already been considered in the analysis of extranet models. This risk and the development of methods to combat it is the most urgent problem at present. Malicious hackers damage the activities of Internet companies and their consumers on a large scale. To prevent hacker attacks on a company's servers and information resources, special programs (i.e. antiviruses) are used. However, they do not guarantee protection since their program code can also be hacked (accordingly, overall protection). This affects enterprises and interaction subjects using all models from B2B to B2B2C and B2G.

2) The risks associated with the specifics of competition and the organization of companies in the early stages of their existence. The Internet has become one of the most competitive and open markets. To enter it, a small business and an entrepreneur may not need a lot of costs and resources. However, other business entities can have the same benefits. Moreover, each of them has its competitive advantage, which will be utilized with the immediate start of operations. The question is how these key strengths, ideas, and unique

elements of company strategies are realized. In some cases, when an enterprise has planned its activities incorrectly or entered the wrong market segment, its activity can fail.

CONCLUSION

Internet-based business modeling, including data-driven modeling techniques used for sales forecasting and user behavior analysis, can help companies choose an effective marketing and process management strategy.

Modeling the activities of Internet companies has many advantages. Such models help companies reduce research, statistics, and other costs that are necessary to improve the quality of their activities. In addition, they allow companies to better understand their customers and tailor their products and services to their needs.

Modeling the activities of Internet companies is not a universal tool. Simulation results may differ depending on the data used to create the model and the relevance of their use. Furthermore, modeling cannot replace creativity and intuition.

However, modeling the activities of Internet companies has many practical aspects. It can be used both to determine optimal investments in the development of a company and to create new products and services with due regard to the requirements of consumers.

Thus, modeling the activities of Internet companies is a powerful tool that allows companies to adapt to the market and increase the efficiency of their activities. Its successful application requires a deep understanding of the subject area and careful selection and use of data.

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