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USING GAMIFICATION ELEMENTS AT EVERY LIFECYCLE
STAGE OF CLOUD SYSTEM CLIENT SERVICE

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Abstract

Globalization, accelerating data exchange, development of information technology and new products in all fields make information processing an important factor of any economic system qualitative development at the macro- or micro levels. Information technology is an indispensable tool of any organization. A significant example of new market based on information technology (IT) innovation is the growing competition for the opportunity to provide certain resources as a service. In the professional literature this concept is called «Cloud computing» (or «Cloud systems»).

Business as well as the fields of IT have taken interest in the concept of cloud systems over the past few years. In the market «Software as a service» (SaaS) is one of the dominant models of cloud services, i.e. a service that allows you not to purchase expensive software, but temporarily use it. Competitive cloud market makes customer involvement and loyalty particularly important. Gamification is a promising management practice in this field.

In the first part of the article, the stages of the client service lifecycle are considered and the importance of their planning is identified, also a model of SaaS is developed. The second part of the article focuses on the issues of gamification. Bartle's taxonomy of player types is considered and analyzed. A universal classification of gamification elements is proposed and a model for the application of various gamification elements at different stages of the client service lifecycle is presented. A general conclusion and references are in the last part of the paper.

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Keywords: Cloud system, SaaS service, lifecycle, customer service, gamification.



1. Introduction

Cloud systems gradually strengthen their positions in all areas of life. The main reason for migrating to the «cloud» is economic expediency. According to Gartner in 2016, the SaaS segment has revenue almost twice as much as IaaS services, which are a key group of cloud products (Lebedev, 2017).

Usually it is cheaper for companies to rent software as needed (the «pay-as-you-go» model) than to invest in own IT infrastructure (Lebedev, 2017). Thus, the quality of provided service is crucial in the struggle for market share where the coefficient of customer base (churn rate) fluidity is of importance. Scientists note that improving and maintaining the quality of customer service are tools to reduce the churn rate (Depura & Garg, 2012; Prakash & Rao, 2015; Uskov & Sekar, 2014; Zichermann & Linder, 2013).

Most companies with cloud infrastructure focus on long-term relationship with users (Yang et al., 2017). They use the customer-centered approach in their work. In these conditions, SaaS services make efforts to attract new users and also make attempts to retain current users. Many scientific works describe the processes of relationships with customers (Astashova, 2014; Burke, 2014; Kondratskaya & Hoavilo, 2017; Markeeva, 2015; Hamari, 2013; Zichermann & Linder, 2013). These analyses let us conclude that the role of customers in different sectors and types of markets is increasing.

The customer base (users) becomes one of the main resources which help achieve economic results. In these conditions the involvement and loyalty of consumers to the product or services of the cloud system are of particular importance. A new and young management practice is gamification of the customer service. The term was proposed by N. Pelling in 2002. Until 2010 the professional business community did not use the term «gamification» and it was not the subject of study in scientific research. Only by the beginning of 2010 there was practical experience in the implementation of gamification in projects (Herranz et al., 2015; Werbach & Hunter, 2012). Within the compass of this article, gamification is regarded as a method of using game elements and loyalty programs to attract the target group and induce users of the cloud service to perform actions.

The article describes a lifecycle of cloud system client service, analyzes gamification procedures and proposes their classification. A universal model for applying gamification techniques at all stages of client service is presented.

2. Problem Statement

The foundation for achieving the required quality of cloud services is a well-thought-out mechanism for managing the lifecycle of the customer service. The interface of the customer service determines the user's perception of usability, efficiency and as a result loyalty and involvement. Currently, the advanced technologies developed by Apple and Google, who take the lead in client service, are such that consumers expect the digital service to be simple and convenient, regardless of device, platform or service provider (Erdoş & Kallos, 2014).

The lifecycle of the SaaS client is different from the user of the conventional software. The main difference is that SaaS services are provided by subscription rather than by periodic payment or a license. A cloud system has to understand every stage of the client's lifecycle to get more traffic, subscriptions and users.

3. Research Questions

We analyzed various works and studies (Arkhipova, 2016; Astashova, 2014; Burke 2014; Fischer, 2017; Markeeva, 2015; Polyakova & Obukhova, 2013; Hamari, 2013; Heilbrunn et al., 2014; Tsyplakova, 2016; Werbach & Hunter, 2012; Zaramenskikh, 2014). There are many classifications of the client service lifecycle, but almost all of them bare one similarity. They consider such stages as «prospect», «lead», «single purchase customer», «repeat customer», «loyal customer» (El-Telbany & Elragal, 2017). However, the stages are universal for clients of offline companies. First, a potential buyer learns about a company and its product (through reviews, social networks, advertising) then considers the expediency of making the appropriate purchase, with a positive decision buys a product and becomes its owner. Further, the company is interested in leading the buyer to purchase repeatedly (by means of PR-marketing).

This model does not fully apply to users of cloud systems and does not meet the specifics of the «cloud»: if the cloud services are sold only once or for a short period of time, this will decrease the corporate income. Therefore, we adapted the above-mentioned steps to SaaS services and offered a model of lifecycle of the client service cloud system (Fig. 01).

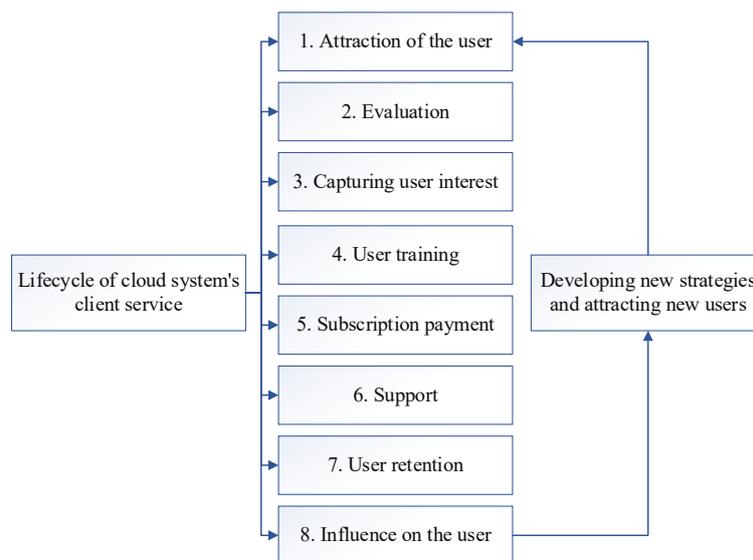


Figure 01. Lifecycle of cloud system client service

The first stage of the proposed lifecycle is «Attraction of the user», i.e. the need to attract traffic to the cloud system. A potential user of a cloud system service can become regular only when he needs a service, knows about the company and is ready to purchase a subscription. The most effective methods to increase recognition of the company are TV, radio, online marketing, «word-of-mouth», social media.

When a potential customer learns about cloud services, the next stage of the lifecycle is evaluation. The company's reputation and sales are interdependent. In the context of continual progress of websites, a potential buyer will necessarily learn what people write about the seller, product and service on the Internet in blogs, reviews, company website and also through business pages in social networks. Thus, the presence of the website and the management of the reputation on the Internet are vitally important when the customer evaluates the cloud service.

At the «Capturing user interest» stage, information about potential users of the cloud service is gathered. It is important to capture the customer's interest (for example, using the news posting, blogs, subscriptions, communities, gamification elements, online chats, callback). The use of these methods should end in registration of a client on the website and accessing the cloud system client service.

After registration the company can organize tutorials (brochures) describing the client service and / or can provide a free demo-version for some period to introduce the service and its capabilities.

With the proper management of the previous stage, a user must learn how to use the functionality of the service and be able to integrate it into the business processes. By the end of the test period, users must make a decision to extend a period of license. In case of a competent planning stage, the issue of purchasing a cloud service becomes a formality. After that it is important to understand the portrait of target users in order to adapt the capabilities of the client service.

To understand motivation of users of the cloud system, Zichermann and Linder point out the need to create a «character» (Zichermann & Linder, 2013). A «character» is a description of the user segment of the cloud system client service. «Characters» can help to determine the best choice among gamification elements.

The first five stages are focused on managing the user's behavior regarding the purchase of the service. The next three stages are aimed at ensuring subsequent using of paid services and attracting new users.

Post-sales support is a key step to ensure the acquisition of service. About 80 % of top-managers from B2B companies consider post-sale content useful (Starkova & Timinova, 2015). Support in the cloud infrastructure is about study of users' needs and requirements, permanent data collecting and its analysis in order to develop service. In the context of rapid technological progress the following trends in the development of cloud system client service are noted: servicing connected devices, creating loyalty through customer service, educating customer communities, attracting users (Harris & O'Gorman, 2014; Harwood & Garry, 2015).

Along with post-sales support it is also necessary to apply user retention methods. Therefore, the next step is «User retention». In cloud service management there are many methods to attract and retain clients, such as special discounts, direct mail, engagement, which are more traditional, and new directions in Internet marketing (gamification, CRM technologies and loyalty programs). Customer loyalty is often associated with customer service and service is the main factor in retaining customers and receiving positive or negative feedback. Customer retention is also important for practical result: researches show that attracting a new customer can cost three to five times more than retaining an existing customer (Fuchs et al., 2014).

The last lifecycle stage of cloud system client service is planning and development of new cloud strategies and increasing the client base. Nobody can influence other potential clients better than customers. Therefore, referral systems have become widespread in current conditions. However, the possibility of a latent influence on the behavior of users is not limited only by a referral system. Many cloud services use other effective methods, for example, «word-of-mouth», community forums, testimonials, blogs and reviews.

4. Purpose of the Study

Thus, an important goal of economic entities in the SaaS market is undivided attention to requirements of users and the development of technologies for relationship management. Despite the fact that at present much companies prefer material methods of user loyalty (for example, discounts on service packages) the most effective approach seems to be based on the balanced integration of tangible and intangible methods. One of the innovative methods to encourage users to perform target actions is gamification. It is a method of interacting with users to improve the positive patterns of using services: increasing users' activity, social interaction, quality and performance of actions.

5. Research Methods

Understanding target users is an important stage in the gamification system development. Not only socio-demographic characteristics can affect the user's expectations of a cloud-based web service, but also their cultural aspects, attitudes towards innovation, social class.

R. Bartle, a gamification specialist, has developed a classification of players (Bartle's taxonomy of player types). This classification was intended to describe the world of Warcraft players, but turned out to be useful in gaming design, and later in gamification. Bartle carried out a survey among users of online games. He concluded that all players can be divided into four groups (regardless of their political views, hobbies and attachments): achievers, explorers, socializers and killers (Bartle, 1996).

Achievers methodically achieve the set goals, compete with the system for achievements and ratings, but not with other users; explorers do not compete for achievements, points and levels, they prefer to study and analyze different aspects of the game; socializers are ready to help other players and expand the network of communication; killers prefer competitions and show their superiority over other players. Bartle's typology can be used in cloud systems. It should be noted that nobody strictly belongs to one type of players and in different situations they may behave differently.

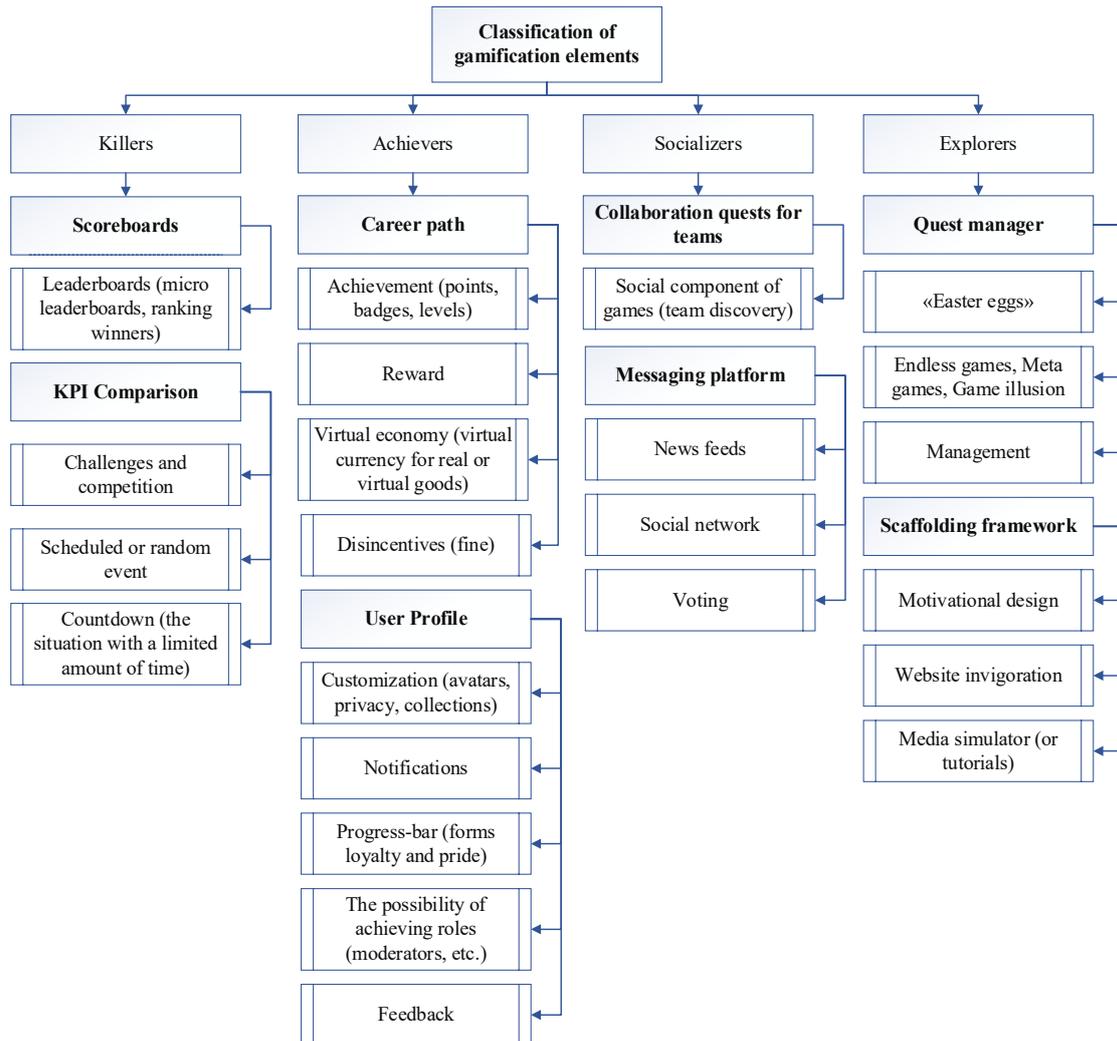


Figure 02. Classification of gamification elements

So taking Bartle’s types as a basis, we identified the relationship between characteristics of the «players» (focused on loyalty and involvement; in our case – users of cloud system client service) and gamification elements. Thus, we proposed a model of gamification elements (Fig. 02).

Scoreboards include a rating system for users so they can see each other’s achievements. It can include separate ratings for mini games with different game mechanisms, winner ratings and the process of turning a game object into a user's personal property (for example, leadership control: «Your result is better than that of 84 % of other users»).

KPI Comparison provides an opportunity for users to compare their achievements and progress in real time with average data of other clients. Such comparison can be organized by missions, battles, combat (for example, «Boss battles» – it is a chance to consolidate everything you have learned) and various contests. Challenges and competition with a limited amount of time (in case of victory, a user can get the bonus level or some reward) can increase effectiveness and interest of every user. For example, within a certain time, it is necessary to register on the site and get a chance to use discounts («holiday bonus: join us today and you can get 30% off the price»).

Career path is a component of gamification that shows transparency of the achievement system by virtual or material expression of performed actions results. Badges (medals, bonuses), levels and points are the most universal gamification elements responsible for showing user's achievements and progress. Werbach and Hunter tested more than one hundred variants of the gamification systems (Werbach & Hunter, 2012). Many systems always are based on these three elements (Garcia et al., 2017). For example, «You need to collect 10 thousand points to the fifth level, and you will get access to the superuser title and new useful content».

During designing complicated gamification platforms, a company pays attention to virtual economy, which can be expressed as virtual currency to buy real or virtual goods. A cloud service can create its own currency. A user can earn it by executing certain actions: for proposed ideas, active usage of the services, participation in competitions, etc.

User Profile is an instant view of user cards showing such gamification elements as status, progress, avatar and news feed, which are common for social nets. User Profile allows others to track one's achievements, which is a latent motivation to perform a certain kind of actions within the client service.

Collaboration quests for teams and Messaging platforms perform a social function of gamification. These platforms motivate users to team up for tasks (collecting and trading, gifting and sharing experience or knowledge). Particular attention while developing tasks is devoted to group psychology of users and to knowledge of social pressure and viral game methods for attracting new and retaining existing users.

Quest manager is the central component of the gaming system (Nakashima et al., 2017). This component launches new quests and automatically creates leaderboards. Among the most popular elements (taken from games and successfully used in the fields of gamification) are Easter eggs (as an amusing method to surprise and reward people for their loyalty), endless games (infinite games, where the unchanging position is a reward itself), meta games (hidden quests that require non-obvious actions) and game-illusion (a game element in which a winner is selected at random, for example, by a lottery).

Scaffolding framework includes recommendations for the next actions that users must perform to achieve the goals defined by each quest. Also the platform notifies users when they are near to final results or when they are adrift of the leader (for example, «We warn that the effect of your superpower expired. You have no Premium access. Continue to progress and we will give you a discount»).

6. Findings

The analyzed components allow the gamification system to increase the awareness of users about the system, and increase their loyalty to the company's services and involvement in the gamification elements of the customer service. With the help of proposed lifecycle and the classification of gamification elements, we developed a universal model that can be used for developing a client service. The elements were mapped according to the objectives of each lifecycle stage, which were considered above.

Undoubtedly, the use of gamification elements at all stages of client service can help cloud companies achieve necessary results. Positive experience has already been accumulated in implementations of gamification projects, which attract attention of scientists and practitioners. However, external rewards can discourage motivation. Sometimes rewards for performing actions can lead to decreasing of user's motivation (for example, when a user sees how far he is from the leader)

Table 01. Universal model for applying gamification elements on all stages of cloud system client service

Lifecycle of cloud system's client service	Possible gamification elements
Attraction of the user	Countdown; Motivational design; Scheduled or random event; Website invigoration
Service evaluation	Easter eggs; Motivational design; Reward; Social network; Voting
Capturing user interest	Customization; Endless games; Feedback; Newsfeeds; Notifications; Progress-bar; Social network; The possibility of achieving roles
User training	Achievement; Disincentives (fine); Media simulator (or tutorials); Reward; Virtual economy
Subscription payment	Achievement; Countdown; Virtual economy
Support	Challenges and competition; Feedback; Management; Social component of games (team discovery)
User retention	Achievement; Challenges and competition; Game-illusion; Leader boards; Meta games; Progress-bar; Reward; Virtual economy
Influence on the user	Achievement; Easter eggs; Game-illusion; Reward; Social component of games (team discovery); Social network

7. Conclusion

The actions of users in the cloud system client service depend on motivation and, in turn, cause feedback from the system, for example, by getting points of victory. The feedback motivates a client to perform the next action. The key element is the feedback, which makes games an effective motivator. Actions lead to a visible response. Points, for example, are a way of displaying feedback about user's activity as well as leader's ratings, levels and badges. Thus, feedback with other gamification elements at different stages of client service provides a motivation basis.

All gamification projects must be coordinated with the organization's business strategy and the values of a corporate brand. Gamification offers SaaS services a wide range of tools for creating effective systems of motivating, and in the coming years it may prove to be a good alternative to traditional methods.

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