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THE GAME OF INNOVATION. IS GAMIFICATION A NEW TRENDSETTER?

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Abstract

With the evolution of information technology and that of the Internet, society has changed and so did the needs of Generation Y that aims to be more involved in decision making processes and have an overall open and positive approach to innovation.

This article aims to analyse the contribution of adopting techniques and methods specific to gamification to the results of the innovation process from Generation Y's perspective. The chosen research method is that of quantitative research, resorting to conducting a statistical survey in order to identify the major changes in Generation Y and of the specific way it acts and interacts. The focus is particularly on the implications that this phenomenon has on the innovation process.

The Millennials want to be in control of their lives and take active part in processes that involve them. Gamification is one of the modern tools that facilitates this, it promotes communication between organizations, public or private, and individuals and benefits innovation.

Keywords: innovation, gamification, Generation Y

JEL Classification: O30, M10.

Introduction

In the current socio-economic context, innovation is one of the essential requirements for organizations both from the private or public sector. Generation Y needs to feel actively involved in decision making processes and are more connected to communication channels and technology than previous generations. They want to feel independent, in control of their lives and have a more and more complex system of needs.

Organizations aim to adapt and benefit from these characteristics and an innovative technique top organizations have started to use in the recent years is gamification.

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Through it, they desire to control human behaviour, to motivate people into fulfilling certain goals, to engage them in the activity and to retain them for longer periods of time.

This does not come easy however, psychology knowledge, in game mechanics and information technology knowledge are required along with a coherent plan of goals, motivations and rewards must be determined.

Nonetheless, for those organizations that want to adapt to the traits of Generation Y, to evolve and be efficient in their activity, the necessity to innovate through gamification might be a trend to follow in the next years.

1. Literature review

Gamification can be defined as the application of game mechanics to non-game settings (Baker et al., 2012). In addition to their recreational component, games, in general, have the capacity to engage players in fulfilling a goal, to motivate them and focus them. Thus, gamification aims to change behaviour through the use of psychological techniques and game elements (Everson, 2015).

Games have been played by people for thousands of years and have evolved into a multitude of types, however, only in recent years, new utilities have been developed for this activity.

Along with the evolution of information technology and that of the Internet, new types of games appeared, engaging more and more users worldwide. One such example is the case of social online games: best described as games played over the Internet through a social platform. These applications promote social interaction, basically forming an in-game community, most of them are free to play, follow easy rules and can be played in short time spans.

The main social platform for which such applications have been developed is Facebook, thus their success is strongly linked to its evolution but do not limit themselves here. Competition pushed developers to create applications for the different platforms existing now. New devices, such as smartphones, tablets etc., have made Internet more easily available and, with it, application stores, such as iTunes, Google Play etc., have gained more and more popularity. Furthermore, wearable technology such as fitness trackers, smart watches, Google glasses etc. gather information about people's lifestyle, information extremely valuable to organizations and can, in return, be used as an easy to use communication channel (Everson, 2015).

As a mechanism for innovating, as well as a way of adapting to the needs of Generation Y, organizations, both public and private, started using gamification to engage people in their activities, in pursuit of different purposes, such as finding innovative solutions, increasing return on investment, social wellness, promoting health, following rules etc. (Werbach, 2015).

Top companies, like Microsoft, Nike, Dell, Siemens, Deloitte, eBay etc. have started using gamification as a way of innovation, while a survey of the Unified North American Retailers organization estimates that 87% of North American retailers will use gamification within the next five years to engage customers (CSD, 2015).

The US Department of Work and Pensions uses an online platform to stimulate its 120,000 employees to share ideas and innovate processes. The best ideas are then voted and those that reach the top of the leader board are implemented (Saran, 2015).

Gamification has been successfully used as an innovative technique to cater the needs of Generation Y in traditional activities, such as awareness and fundraising campaigns, launching a book, planning and organising exhibitions, work environment processes. For example, the German company, SAP, implemented a system that shows employees where their colleagues live and rewards those that pick up other employees on their way to work. Employees gather points which can later be transformed into benefits. Apart from the material motivations, this also promotes socializing and bonding among employees. The US based company, Accenture, developed an online socializing platform for its employees to share knowledge on. The most active users are rewarded with points and financial benefits and the points gathered are also considered in the annual evaluation (Harbert, 2014).

M2 Research, a gaming research company, estimated that the gamification market will grow to \$2.8 billion by 2016 (Everson, 2015).

From a development point of view, the main elements of a game, some of which are also used in gamification applications, are: the avatar, rewards, challenges, points, badges, leader board, while, from a functional perspective, a game involves three aspects: it has to have a goal, obstacles or challenges have to be met by the player and it promotes either collaboration or competition with the rest of the players in order to achieve the goal (Werbach, 2015).

Some scientific opinions state that cooperation is more efficient than competition and a solution to promote this is developing a gamification application based on sharing points between users, in case of necessity. Of course, gamification can and should be adapted to the specific needs of each activity and the developers will decide what best suits their goals: cooperation or competition (McCormick, 2015).

Another point of view sees gamification as built on three concepts: mechanics, dynamics and emotions (Robson et al., 2014).

Mechanics refers to the guidelines a game is built on: the goal, the rules, the playing sequences, dynamics is described as the results of the human interaction while using the mechanics of the game, and the emotions refer to what players feel while playing and are resulted from the synergic use of mechanics and dynamics (Robson et al., 2014).

One particular challenge gamification has to face is that of engagement; players are distracted by different stimuli, this is why the application itself has to be developed in a very catchy way so as to build emotional attachment and keep the player inside the gaming environment until the goals are reached.

Gamified experiences are considered to have two main components: the participation component and the connection component. While the first one refers to how active the gamer is, the second one shows how attached the user is to the gaming environment. Furthermore, some specialists argue that according to the extent to which an individual is involved in an activity, four dimensions of engagement can be defined: the observer, the specialist, the apprentice and the performer (Robson et al., 2015). Through the use of gamification organizations aim to actively engage “observers”.

This is also one of the main characteristics of Generation Y that aims to be as connected and involved in decision making processes as possible (Shore, 2011). At the core of the gamification process, there is a necessity to understand the characteristics of the player, the motivations and emotions that drive him, which is also one of the objectives of the current study.

To implement gamification in an efficient manner, organizations need to understand human psychology and, mostly, gaming psychology. Generation Y has a different approach to technology than the Baby Boomers generation - born between the early 1940s up to the early 1960s- , they have an affinity towards the use of smart devices and the online environment (Murray, 2006).

The so called psychological theory of wellbeing sees three motivational factors for people that use the online environment: relatedness, meaning the need for people to interact and develop relationships, competence – the desire to get good results from their actions and autonomy – the capacity to make their own decisions (Saran, 2013). These aspects should be considered as a base when building any gamification process.

Organizations worldwide are doing their best to adapt to this situation, to learn more about the psychological and motivational aspects involved and benefit from them.

From a company's point of view, one way of stimulating open-innovation through gamification is by involving consumers in the company's innovating processes. An example in this case is the use of online contests which can be developed in the form of a social online gaming application. In all environments, new ideas have been the drive for progress. But in order for an idea to transform into an implementable innovation, some requirements have to be met (Armisen and Majchrzak., 2015):

- the innovation has to bring an advantage to the existing situation,
- it has to be compatible with the current values and practices,
- it has to be simple, easy to use and accessible
- trialability and observability.

So some of the challenges that an organization has to face when opting for such an innovative technique are: choosing the best way to develop the application (development through own means or through specialized service providers), using non-technical language so that those involved will understand the aspects involved, clarifying terms and conditions for participants, as well as the selection criteria for the winners, finding the best way to adjust rewards with motivations (Armisen and Majchrzak, 2015).

Motivations for participants do not limit themselves to extrinsic ones – the prize itself, but can also be intrinsic motivations, such as learning, the satisfaction of contributing to a cause, etc., motivations characteristic to the traits of Generation Y.

Also in the case of gamification implemented in a work environment, some authors argue that the motivations should be well thought so that the innovation process is successful. Although material motivations, in the form of a prize can drive participants in the beginning, on the long run these should aim more towards intrinsic motivations, such as peer recognition and career enhancement. Furthermore, some specialists argue that, to be successful, gamification should be adopted through all company levels, CEO's and high top

managers should take part in the process, submit to the rules and accept to join in gamification at a base level, equal to the other employees and work their way up the leaderboard along with the rest. The power of their own example should, thus, inspire the rest to participate and generate intrinsic motivations in addition to the extrinsic, material ones (Saran, 2015).

Here are some of the advantages of using gamification: gamification can promote sharing knowledge and improve it, it can give employees the possibility to self-evaluate themselves and, also, give the company easier feedback about the employees' level of engagement, it can improve self-confidence and faith in one's own capacities, gamification can build engagement and promote socializing among the users, it can accentuate learning and development (Cook, 2013).

As in the case of most innovations, concerns regarding the use of gamification emerge. One of them is the perception aspect related to implementing gamification in a work environment for example. Will managers feel confident that they should push their team members to play games instead of completing their tasks? Will this not affect productivity and the way the employee sees the working environment? On a different note, the users can try to cheat into achieving their goals which would affect the efficiency of the process. These are only some of the questions that future research will have to address.

2. Research objectives

The nature of the innovation process is complex. For this reason organizations are in constant search of those mechanisms that could simplify this process and could encourage a greater participation of organization members transforming it into a collective effort. Gamification, although still a new concept both in terms of the concept evolution and in terms of adoption by organizations (according to the study by Procopie et al., 2015), shows great potential for answering the specific needs of Generation Y and to the changes occurred in its mentality.

Thus the main objective of this research is to analyse the impact that gamification specific techniques and mechanisms can have on improving the results of the innovation process. Research has focused in particular on the case of Generation Y, based on the assumption that its mentality and preferences have changed significantly from the previous generations, following the development of the Internet age that they are currently experiencing.

The second objective of this research emerges: identifying the key changes that occurred for Generation Y and had an impact both on their expectations regarding the innovation process and especially on their preferences regarding the way the innovation process should involve them and how it should develop in the organizations that employ them.

It is important to understand what are the methods and techniques specific to gamification that can be integrated into the innovation process and their advantage as seen by Generation Y.

The hypotheses underlying this research are:

I_{1a}: Internet usage is a common habit for Generation Y.

I_{1b}: Online communication (including networking and collaboration) is the most important utility that Internet provides to Generation Y.

I_{1c}: Social media is continuously growing and its usage represents a common activity for Generation Y.

I_{1d}: Mobile phones are the primary devices used to access the Internet by Generation Y.

I₂: Progress in how much the Internet is used, social media development and the use of mobile devices contribute significantly to changing the preferences and the way of thinking and interacting of Generation Y.

I₃: The specific preferences and the mind-set of Generation Y influence its expectations regarding the companies' innovation process.

I₄: Adopting specific gamification techniques in the innovation process significantly contributes to improving the results of this process.

3. Research methodology

To assess the impact that specific gamification techniques and mechanisms may have on the innovation process for Generation Y a research was done in the period March to June 2015. The statistical research used a directed survey, the technique used in building the sample was volunteer based, the answers of those who wanted to participate in the questionnaire being analysed. A total of 655 invitations to participate in completing the questionnaire were sent out. The response rate was of 13.74%, thus making up a sample of 90 people. The invitation to complete the questionnaire was sent via electronic mail (e-mail) to young people with higher education and knowledge of the innovation process. The results were centralized through a specialized electronic platform that is able to generate detailed reports facilitating the research process. The sampling basis was represented by students who have previously completed a course on Innovation Management.

Of all the results, the answers extracted were those provided by people who are part of Generation Y, using the criterion of age between 15 and 34 years old. The result was a subset of 88 questionnaire replies which formed the basis on which the analysis of the research was conducted.

The research was based on a set of questions which were formulated after analysing the scientific literature:

How often does Generation Y use the Internet? What is the main purpose of using the Internet for Generation Y? Does Generation Y use social networks? What is the main device used to access the Internet by Generation Y?

What is the impact of all these technological changes in Generation Y's way of thinking and acting?

What are the expectations of Generation Y regarding innovation?

How useful is the integration of the mechanisms specific to gamification in the innovation process in the view of Generation Y? What are the gamification specific factors that may contribute to improving the results of the innovation process as considered by Generation Y? What are the main advantages of innovation as a game in the view of Generation Y?

4. Results and discussions

Analysis of the results show that Generation Y is addicted to Internet usage with 98% of respondents using the Internet several times a day (table no. 1). This is both due to the work that most people in this category do as well as due to their preferences for leisure activities. For Generation Y, Internet access became a basic need equated with the need for communication.

Table no. 1: Frequency for Internet usage for Generation Y

Frequency	Percentage
Multiple times per day	98%
Once per day	2%
Once or more per week	0%
Sometimes	0%
Never	0%

Thus, the first hypothesis of this research is validated:

I_{1a}: Internet usage is a common habit for Generation Y.

Given the importance that the evolution of the Internet has for the subjects of this study, an identification of the utility that they attribute to Internet is deemed necessary.

Results show that Generation Y mainly uses the Internet in order to communicate, which includes emails, social networks and other online communication applications accounting for 50% of all responses (table no. 2). Staying informed is a secondary need fulfilled through the Internet accounting for 35% of all responses.

Table no. 2: The main purpose for Internet usage by Generation Y

Purpose	Percentage
Communication (email, social networks, online communication applications etc.)	50%
Staying informed	35%
Entertainment (games, movies, music etc.)	13%
Other (work related activities)	2%

These results confirm the second hypothesis:

I_{1b}: Online communication (including networking and collaboration) is the most important utility that Internet provides to Generation Y.

Thus it can be observed that the Internet is viewed as more than a source of information, becoming the most important means of communication. In the last decade, along with the development of social networks like Facebook, Twitter, Instagram, etc., the Internet takes hold of Generation Y's spare time, becoming an important source of relaxation and connecting people and experiences like never before. In this context it is important to note that 99% of respondents use a social network (table no. 3). It can be said that social networks are becoming a social phenomenon, with an impressive, that changed the companies' way of thinking and the interaction with their customers.

Table no. 3: Social network usage for Generation Y

<i>Social network usage</i>	<i>Percentage</i>
yes	99%
no	1%

These results confirm the third hypothesis:

I_{1c}: Social media is continuously growing and its usage represents a common activity for Generation Y.

Along with the evolution of social media and the technological progress in the field of mobile devices in general, considering the volume of smartphone sales, the primary choice of devices used for Internet access is changing. Thus, if until a few years ago, primarily the computer was used for accessing the Internet, present results confirm that the phone is the main device used for Internet surfing with 44% of respondents opting for it (table no. 4). In second place with 36% of answers is the laptop, followed by the personal computer and tablet. This is due to the evolution of the field of communications, mobile operators greatly improving Internet access and facilitating consumer access by lowering service costs. Moreover, the number of applications designed specifically for mobile phones has increased exponentially and with it the attractiveness of using such devices also increased.

Table no. 4: Main device used for Internet access by Generation Y

<i>Device</i>	<i>Percentage</i>
Smartphone	44%
Laptop	36%
Personal computer	17%
Tablet	2%

The fourth hypothesis is confirmed:

I_{1d}: Mobile phones are the primary devices used to access the Internet by Generation Y.

All these changes, which represent a technological progress and also a psychological one regarding how Generation Y perceives things, how it wants to interact and its overall expectations. This contributes significantly to the development of the gamification concept in theory and in practice in the coming years. The effects of all these changes have begun to be studied in different domains.

The research further focuses on the implications this phenomenon has on the innovation process. Thus Generation Y expects to be involved in friendly, intuitive and at the same time challenging activities. Shore (2011) states "playing is the way of thinking and acting for Generation Y". Gamification becomes a principle of thought and action for Generation Y and thus the innovation process can be viewed as a multiplayer game that attracts by offering the pleasure of play and the final win / result the player can achieve. This vision is also validated by the answers received to the question "To what extent the evolution of the Internet, social media and mobile devices influences the thinking of the generation you belong to? More than 91% say that these changes impact the way of thinking of Generation Y, with an average of 4.43 of all responses." (Figure no. 1)

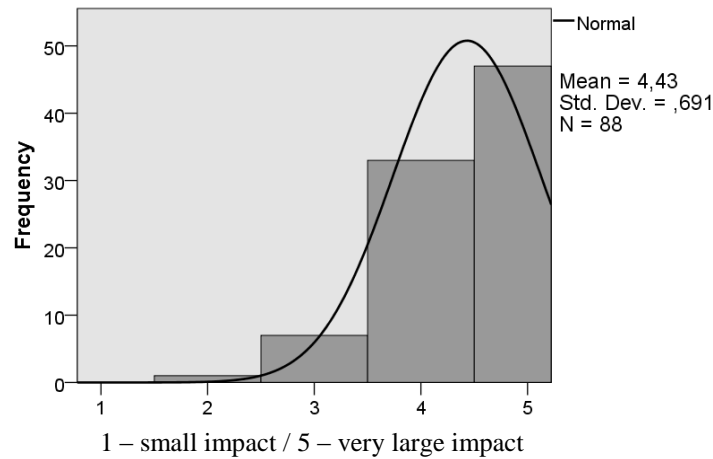


Figure no. 1: The impact of Internet, social media and mobile devices on Generation Y’s way of thinking

These results confirm the fifth hypothesis:

I₂: Progress in how much the Internet is used, social media development and the use of mobile devices contribute significantly to changing the preferences and the way of thinking and interacting of Generation Y.

Thus, not only the behaviour of Generation Y in solving the challenges faced changes but also their expectations about the results of the innovation process. For companies, understanding this can make the difference between failure and success in innovation. (Figure no. 2)

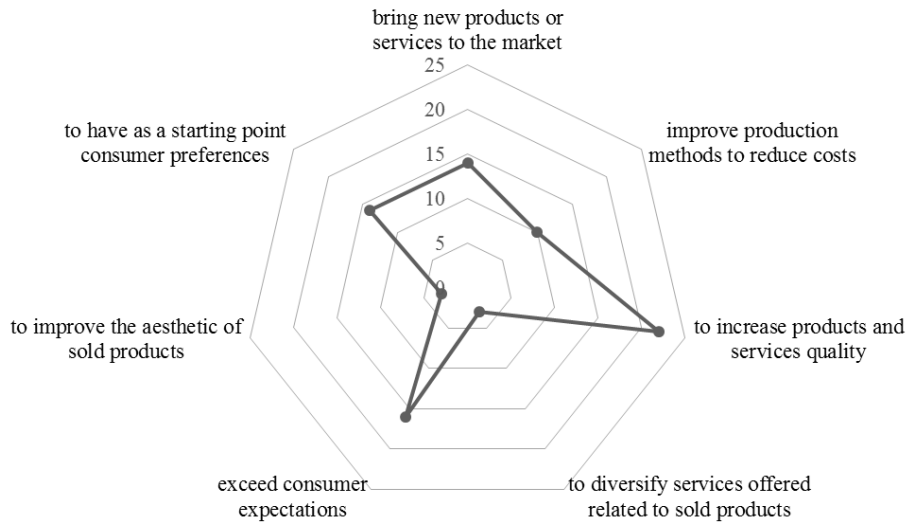


Figure no. 2: Generation Y’s expectations regarding a company’s innovation process

As seen in figure no. 1 Generation Y mainly attributes to the innovation process the characteristic of improving the quality of products and services sold. This does not change compared to past generations expectations (ex.), but has peculiarities for Generation Y. We refer here to the fact that they expect more radical innovation and continuous improvement that will be more visible and highlighted by the company that produces them.

What is important to note is that Generation Y expects innovation to exceed consumer expectations. This could be generated largely by the psychological changes this generation underwent as a result of the technological developments they are familiar with.

What remains important is that the innovation process has as a starting point a real consumer need, a fact that is universally valid regardless of the age group to which the consumer belongs to.

These results confirm the sixth hypothesis:

I₃: The specific preferences and the mind-set of Generation Y influence its expectations regarding the companies' innovation process.

Furthermore, the research aims: to identify the exact methods of using gamification principles in innovation, to see if Generation Y sees the integration of gamification methods and techniques in the innovation process as an advantage and to establish what those advantages are. According to Shore (2011) games offer adrenaline / excitement / rewards that are much needed by Generation Y and thus the integration of gamification specific techniques in the innovation process helps improve the results of this process.

It is important to note what is the perception of Generation Y regarding the usefulness of integrating gamification specific thinking / mechanisms in the innovation process. On a scale from 1 (not at all useful) to 7 (very useful), it averaged 5.45, being considered an important way to stimulate innovation. This shows that Generation Y appreciates an "innovation as a game" approach, which is why an analysis of the methods by which to achieve this is required. (Figure no. 3)

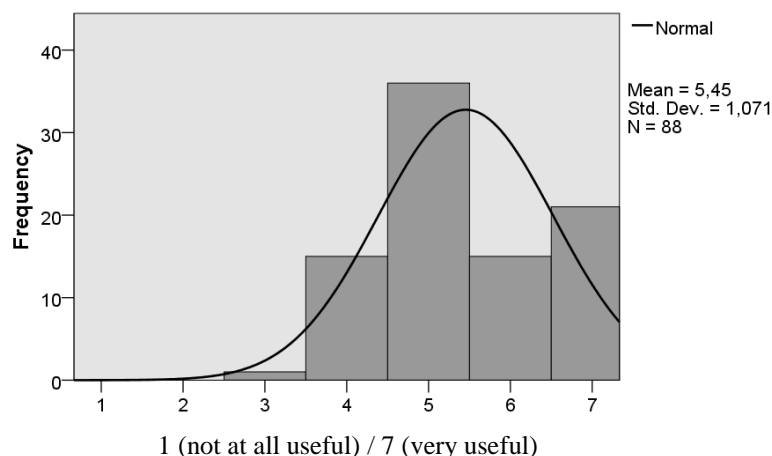
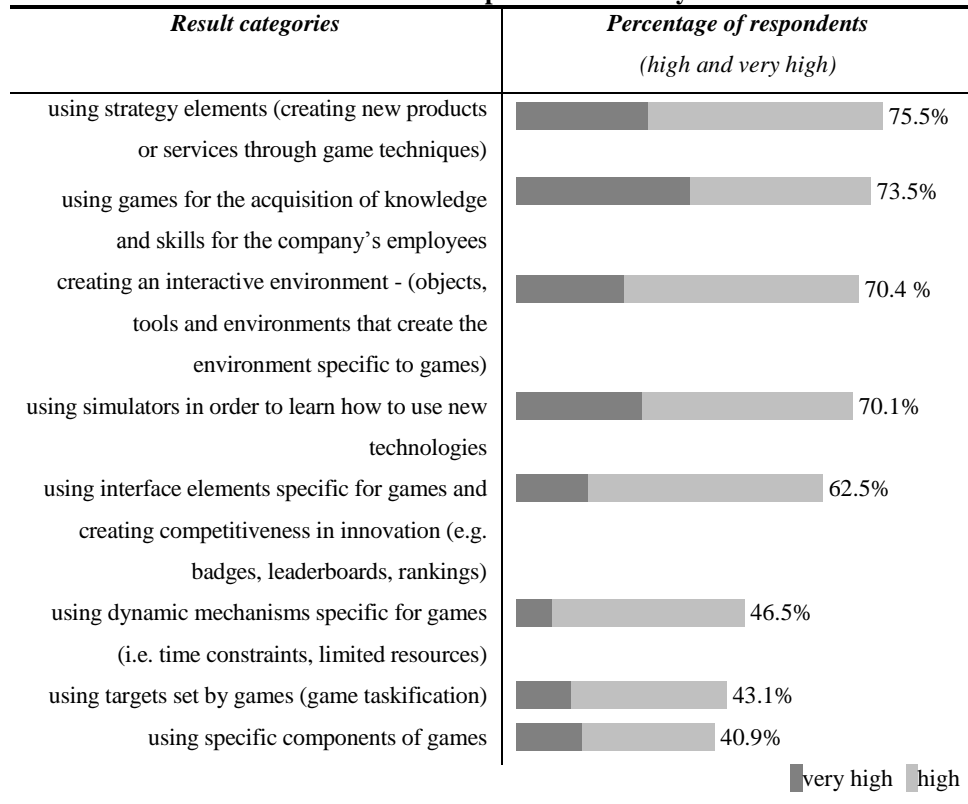


Figure no. 3: The usefulness of integrating a gamification specific thinking / mechanisms in the innovation process as considered by Generation Y

Among the most important factors that can contribute to this mechanism include: adapting the strategy and the introduction of game specific elements in creating new products or services, using games for gaining new knowledge and skills and, not least, creating an interactive environment for innovation that will integrate game specific elements (table no. 5). With less importance in the opinion of participants also added to these are: using simulators in order to teach employees how to use new technologies, using interface elements specific for games and also establishing targets which once achieved activate new stages.

Table no. 5: Specific gamification factors that can contribute to the improvement of the results of the innovation process as seen by Generation Y



After identifying the specific mechanisms for integrating gamification elements in the innovation process, understanding the main advantages that Generation Y attributes to building the process of “innovation as a game” proves useful.

Thus, among the most important elements through which gamification contributes to the development of the innovation process is increasing creativity and creating a competitive environment for innovation that also contribute to the involvement of a larger number of people and encouraging teamwork.

If in the case of the internal process of innovation, integrating elements specific to gamification is still an option that should be analysed according to a larger number of factors, such as field of activity, number and personality of employees, in the case of the

process of co-creation and in the companies’ attempts to involve consumers in the innovation process, adopting gamification techniques is gradually becoming a necessity. According to the analysis we prove that integrating elements specific to gamification in the innovation process is useful, helping to increase creativity and the competitiveness of the innovation environment (figure no. 4).

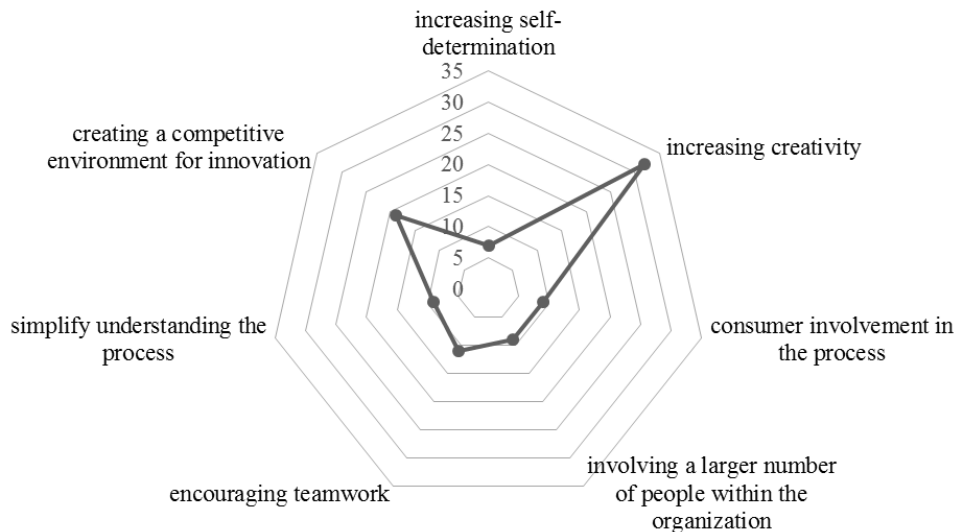


Figure no. 4: Main advantages of “innovation as a game” as seen by Generation Y

It thus validates the seventh hypothesis:

H4: Adopting specific gamification techniques in the innovation process significantly contributes to improving the results of this process.

Gamification should be viewed as a tool that organizations can use to develop a dynamic and collaborative innovation environment that simplifies the understanding of this process and can transform into an activity that is fun as well as competitive for stimulating the creativity that is much needed for innovation.

Conclusions

Gamification has been successfully used to change attitudes through the use of psychology and gaming elements. This innovative approach has been implemented in traditional activities, as well as in innovative fields, ranging from arts, to wellness, to human resources or improving return on investment. The evolution of the information technology and the improved access to Internet worldwide have made people more connected to information and have facilitated communication.

Along with this, society has also changed, the needs of the Millennials have changed in comparison to those of the Generation X; people now desire to be more involved in decision making processes, they no longer want to be simple “observers” and private as

well as public organizations do their best to cater for these needs and benefit from them, through the use of gamification techniques.

Specialists estimate the trend is ascending and more and more organizations will innovate through gamification in the following years. Either through the use of collaboration between 'players' or through competition, one aspect is common to all gamified activities: they aim towards achieving a goal through the use of a set of challenges and a system of rewards.

Nonetheless, as in the case of any innovative technique, concerns about its efficiency arise. Whether it is regarding defining the goals and objectives in a non-technical matter, so that these are understandable by the participants, building the proper motivational and rewards system, or preventing users from cheating, more studies regarding innovation through gamification will surely be conducted.

The research focused on the influence that gamification specific techniques and mechanisms have on the results of the innovation process from the perspective of Generation Y, whose mentality and preferences have changed significantly along with the technological developments it experiences.

The main changes in the case of Generation Y have to do with its addiction to Internet usage, which becomes a basic need and gradually occupies increasingly more of its time, including its leisure time, being perceived as a method of relaxation. Results show that Generation Y mainly uses the Internet in order to communicate, network and collaborate online. Along with the development of social networks, the Internet takes hold of increasingly more of Generation Y's leisure time while social media is becoming a social phenomenon causing psychological and social changes. The phone became the main device used by Generation Y to surf the Internet, having attracted users through its mobility and user friendly interface. All these changes represent a step forward not only from a technological point of view but also from a psychologic one in how Generation Y perceives things, how it wants to interact and what expectations it has. This will contribute significantly in the coming years to the development of the gamification concept in theory and in practice.

Thus, gamification becomes a principle of thought and action for Generation Y. This phenomenon has implications including on the innovation process, as changes occur in what Generation Y expects as results of this process. Generation Y expects the innovation process to exceed consumer expectations, this attribute ranking as second after the main purpose of improving the quality of products and services. It is also important to note that Generation Y considers the integration of specific gamification mechanisms as useful in carrying out the innovation process, by integrating elements such as adapting the strategy and the introduction of elements specific to games in creating new products or services, using games for accumulation of new knowledge and skills and not least creating an interactive environment for innovation that will integrate elements specific to games in order to increase the level of adrenaline and reward perceived by people involved in this.

Thus, gamification helps improve the innovation process by stimulating creativity and creating a competitive environment for innovation that also contribute to the involvement of a larger number of people and fostering teamwork. The importance of including gamification principles grows with the companies' desire to attract consumers into the process of innovation and thus encourage co-creation initiatives.

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