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To cite this article: Elvir Akhmetshin *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **699** 012001

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240th ECS Meeting ORLANDO, FL

Orange County Convention Center **Oct 10-14, 2021**



Abstract submission due: April 9

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The Formation of the University Reputation Capital under the Digital Transformation of the Environment

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Abstract. In modern conditions, the importance of digitalization for the university success in the education market is growing rapidly. Competitiveness, and ultimately survival of the educational institution in the information environment depends on how timely it will be included in this process. This article is devoted to considering the features of the digital transformation process and its impact on the university reputation. The development trends of distance education in Russia are analyzed, main missions of a modern university are examined in detail, and it is proved to maintain its competitiveness in the context of digitalization, the university must implement not only basic - educational and scientific missions, but also new, entrepreneurial and innovative ones. Only those universities that succeed in efficiently operating in all directions will be able to strengthen their positions in the market. The features of monitoring the reputation of the university are revealed, the target audiences, to which communication efforts should be directed, are considered. Particular attention is paid to methods of reputation analysis. One way to maintain a reputation is publicity. Publicity monitoring during the formation of a university's reputation in the context of convergence and digitalization allows one to be more attentive to promotion tools.

1. Introduction

In recent years, we have witnessed a digital transformation that affects all areas of human activity, without exception. A sufficient number of scientific studies have already been devoted to these revolutionary changes, among which are works by K. H. Huarng, T. H. K. Yu, W. Lai [1], M. Á. Galindo-Martín, M. S. Castaño-Martínez, M. T. Méndez-Picazo [2], J. J. Ferreira, C. I. Fernandes, F. A. Ferreira [3], C. Loebbecke, A. Picot [4].

In the works devoted to this subject, the authors emphasize that digital transformation significantly changes the way business is conducted, the development of relationships between different groups of stakeholders, not only creating problems, but also providing new opportunities [5-8].

One of the most important areas universal digitalization has touched is education, and above all, higher education. However, not only the pace of digitalization, but also its specific content is on the agenda.



R. Hassan considers the effect of information technology upon teaching, learning and research in the 'digital university'. In less than a generation the university has become a business like any other. It does so in the determining context of neoliberal globalization and the computer revolution. The author submits, that the university develops through what we may now see as a disastrous 'category error'. He argues that humans are analogue creatures who have constructed analogue worlds that they recognize in large measure, in nature. Digital logic is nowhere recognized in nature, and is ultimately alien to us. The university is the key institution for enabling us to understand who and what we are, yet it is being undermined through the suffusion of the market logic and the digital technologies that drive it from a past we look to less, to a present we dwell in more, and a future we are less able to shape [9].

Certain processes and problems of the digital transformation of higher education are highlighted in the works by C. E. Tømte, T. Fosslund, P. O. Aamodt, L. Degn [10], L. Castañeda and N. Selwyn [11]. In most cases, digitalization of higher educational institutions is considered in the context of online learning, teaching, and administration on the Internet in post-secondary settings [12-14].

In general, it should be noted that this topic is one of the central ones for scientific discussions and disputes. An example of such discussions is such an important direction of digitalization of higher education as the introduction of distance learning. The advantages of this form are so obvious that many teachers are beginning to fear that it will completely replace traditional teaching. However, despite all the bright prospects for distance education, a number of authors point to existing problems, for example "as online learning continues to evolve many have proposed that we think differently about our pedagogical approaches, to move beyond the replication of the face-to-face experience. Here we explore the student and faculty visions of the future using a Zaltman Metaphor Elicitation (ZMET) method that uses images to metaphorically represent how individuals feel or relate to particular concepts. Focus group interviews with a small sample of faculty and students suggest a desire for a more personalized learning experience, but one that is still highly social within learning communities" [15].

2. Methods

2.1 Analysis of development trends of distance education in Russia

As for Russia, it is still widely believed that digitalization is limited only to process automation and the replacement of paper media with electronic ones. However, this is just a necessary minimum, which cannot be stopped.

Over the past decade, government bodies have pursued a policy on informatization of the education system, and a number of basic documents have been adopted that regulate this area [16, 17].

At the same time, an analysis of both normative legal acts and scientific literature shows that the digital transformation of higher educational institutions is most often understood as online learning, perhaps due to the fact that this direction of university digitalization is most understandable, the market size is significant, it can be calculated [18-21].

At the beginning of 2019, the global online education market exceeded \$ 50 billion, of which 53% were accounted for the United States, 22% for Asian countries, 16% for the European Union, and 9% for Russia [22]. According to Forbes magazine, the distance learning market in the USA, the leader in world education, will be \$ 325 billion by 2025 [23].

In April 2019, NeoAnalytics research company completed a marketing research of the Russian distance learning market. In the course of the study conducted by NeoAnalytics on the topic "The Russian distance education market: results of 2018, the forecast until 2021", it turned out that the Russian distance education market is developing quite actively and, according to NeoAnalytics estimates, in 2018 the market size was about 28.9 billion rubles. In the period of 2019-2021 the market growth rate will be 17-20% per annum. By 2021, the market volume is expected to reach 53.5 billion rubles. The share of online education in the structure of education in 2021 will be about 2.6% [24].

The actively growing online segment of educational services in the future will significantly change the landscape of this sphere. At the same time, one of the main obstacles to the rapid growth of this area is the lack of a system for recognizing the equality of online education to its traditional forms. Most

employers are willing to unconditionally recognize only professional certificates of training centers supported by large manufacturers (developers), which in essence themselves determine the relevant industry standards (such as, for example, Microsoft, Cisco Systems, SAP, etc.), partially recognize online courses of major universities (Moscow State University named after M.V. Lomonosov, MSTU named after N.E. Bauman, etc.). Other certificates, as a rule, do not have any significant weight in employment [25].

Given the above, we can say that such a sphere of higher education as distance learning in the context of the digital economy is becoming one of the most significant areas of the development of universities, and its importance will grow every year.

2.2 Characteristics of the modern university missions

However, we consider it categorically wrong to talk about the digitalization of the university, implying only the educational mission of the university. A competitive higher education institution today is not only education, it is also science, innovation and entrepreneurship. Digitalization of the university should be carried out in all directions. It is a mistake to do one thing while lagging behind the other. It also seems completely untenable to us that the digital university is a university that trains personnel in the IT field for the digital economy.

The digital university, in addition to the two well-known missions (educational and scientific), makes it possible to implement also entrepreneurial and innovative missions, ensuring the rapid exchange of accumulated scientific information, knowledge and results. And this in turn will enable all groups of stakeholders to use convenient digital services and make more informed decisions.

Speaking of the functions of universities, it turned out historically that at first they were educational institutions, then the scientific component appeared, and only after that the third component was added - entrepreneurial. But a modern competitive university should not only be an elite training center, a generator of new knowledge, but also ensure the introduction of this knowledge in the real sector of the economy, in industry at least at the first stage, using all the tools available to it. As for Russian universities, in fact, most of them implement only the educational mission. A number of universities integrate research and development into the educational process. And, unfortunately, there are practically no universities that implement the entrepreneurial mission, that is, that are engaged in the commercialization of knowledge.

A. Karpov in his work cites the results of monitoring conducted in 2016 by the St. Petersburg National Research University of Information Technologies, Mechanics and Optics (ITMO) and RVC JSC. This monitoring was aimed at analyzing the effectiveness of innovative activities of 40 leading Russian universities participating in the 5-100 project. According to its results, almost no Russian university has conducted innovative entrepreneurial activity, which is mandatory for University 3.0. [26].

But now there is also a fourth mission under discussion, which turns the university into a flagship one. It is the mission of a driver of socio-cultural and economic development of the region. If the flagship university implements all the four missions, it becomes a catalyst for the transformation of the regional economy. Digital entrepreneurial university is becoming the main link in a new branch of the economy - the innovation generation industry. And this affects the region as well [27].

This approach involves the collaboration of science and practice, which are determined by the medium factor in the implementation of activities, namely, work in the digital space. Not only the activity becomes significant, but its final result in the form of a digital clone of an innovative product, during the creation of which it is necessary to go through all stages of development similar to offline activities. That is, to create prototypes and physical models, it is necessary to conduct research and virtual tests - just what a digital university can implement and provide, and therefore include project activities in the educational process.

At the same time, the digital university should provide the teaching staff and students with the necessary platforms and services that allow them to perform high-quality work with the possibility of cooperation and quick response to possible problems when implementing the integration of individual

digital education and scaling up project activities. All this can be realized using Big Data technologies at all stages of the digitalization of university work.

Universities striving to maintain their position in the global education market are facing the task of entering the international scientific and educational space. The digitalization of a university, of course, is one of the factors that increase the competitiveness of the university, and, consequently, its reputation capital.

2.3 Features of monitoring the reputation of an educational institution

Digitalization leads to increased globalization, facilitating the free exchange of information, increasing mobility of the population. In these conditions, the competition of universities for attracting students, investment, both public and private, increases significantly.

Therefore, the creation and effective management of the reputation of a higher educational institution plays a very important role.

G. Dowling believes that the organization has as many reputations as it has stakeholders. In this regard, he suggests dividing all existing stakeholder groups into 4 main groups - normative, functional, diffuse and customer groups. The main criterion for such a division is the role each group plays in the functioning, and sometimes in the survival of the organization.

According to G. Dowling, the regulatory stakeholders include the state, regulatory authorities, the board of directors, shareholders, that is, all groups that determine the rules by which the company operates and, most importantly, verify the implementation of these rules [28]. A negative reputation formed by the above-mentioned groups of stakeholders can create serious obstacles to the activities of the company, up to its closure. The influence of functional groups primarily affects the effectiveness of current, operational activities. Key representatives are the organization's own staff, unions, partners, and the suppliers. A bad reputation in the eyes of these groups can cause serious failures in the organization's work, which in turn can affect the image in the eyes of other stakeholders, for example, consumers. The importance of consumers is explained by the fact that it will depend on their good or bad opinions about the organization whether the representatives of this group will buy the organization's product or not. Moreover, with increasing competition, the importance of this group is growing steadily. And finally, diffuse groups, which include representatives of the media, public organizations, the local community and the general public. A good reputation in the eyes of these groups of stakeholders is especially important in crisis situations, since it is at this time that they become more active. However, this does not mean that one should start working with them only in times of crisis. Correctly built relationships, for example with journalists, will greatly facilitate contact with the press in case of unforeseen situations [29].

Needless to say, the interests of one group of stakeholders may not coincide with the interests of other groups. For example, an increase in employee salaries can lead to higher prices for products, which, in turn, is contrary to the interests of consumers and shareholders. Similar contradictions sometimes arise within the same group, for example, the local community may be against projects that are implemented in the interests of society as a whole (the construction of an airport is beneficial for the city, but provokes protests from residents of the area in which this airport is planned to be built). A certain power is concentrated in the hands of each group of stakeholders, and they use it whenever possible. Therefore, any decision involving various stakeholders should be carefully weighed in terms of the leverage these groups may engage [30].

In the situation of such a large number of stakeholders who are interested in a higher educational institution, the question arises of how to track the change in reputation and what indicators important for each group should be used.

From our point of view, the following indicators can be applied to an educational institution:

1. Regulatory groups. For the state, which, in the case of a higher educational institution, acts, as a rule, and as an owner, important factors are: the demand for graduates (special attention is paid to their further work in the specialty acquired at the university), the university's observance of norms and standards, the creation of jobs by the university [30].

2. Functional groups. In the university, as a rule, these are employees and partners. Employees, which should also be divided into two groups: teachers and administration. Teachers are interested in salaries, the possibility of professional growth, the contingent of students, a convenient work schedule, leadership style, and the atmosphere in the team. Administration is interested in salary, loyal leadership, friendly staff. Factors, important from the point of view of partners are fulfillment of obligations, information transparency, reputation of an educational institution, leadership image, reputation of students and graduates [30].

3. Consumer groups. They can be divided into two categories: students themselves and their parents, who, as experience shows, often pay for training, respectively, are an important decision-maker. Parents are important: the reputation of the educational institution, the qualifications of teachers, the price-quality ratio of educational services, communication with educational institutions abroad [30]. According to our study conducted in 2018, students have named the most important factors: the quality of education, the comfort of the environment, the availability of ample opportunities for leisure, the availability of opportunities for internships and further employment, the presence of student organizations, the cost of training [31].

4. Diffuse groups. The important role of universities from a social point of view is explained by the fact that they are a prerequisite for the formation of a full-fledged urban environment. Therefore, the more organically the institution fits into this environment, the more attractive it will be for the public. Of particular importance is the participation of the university in social activities, the environmental and ethical education of students, their behavior outside the institution. For the media, the opportunity for dialogue, access to information about the activities of an educational institution and to information about studies carried out by scientists of the university are important [30].

Modern possibilities greatly facilitate the monitoring of reputation dynamics [32]. For example, new technologies make it possible to track changes in attitude to online training. That is, they make it possible to see the connotation and explicit characteristics of the presentation of the relationship to distance learning, digitalization of universities, which means that it will allow to correct public opinion regarding this issue, that is, adjust the parameters of influence of changes in this field on the image and reputation components.

But the attitude towards digitalization of universities and distance education currently consists not so much of the presence of innovations and implementation of project activities, but of the general attitude to the university, that is, of publicity, which is formed thanks to multi-tone messages (positive, negative, neutral). The best option for the organization is a high rate of positive references in the media, reviewed in dynamics. But this is more an exception than a rule. Thus, an analysis carried out using the automated system of monitoring "Medialogy" has shown that not only positive publications influence the image.

3. Results

The features of reputation monitoring can be considered by analyzing the publicity of 5 leading universities in St. Petersburg that are part of the 5-100 project program - a government initiative aimed at adapting Russian universities to international standards and incorporating them into the international educational environment. In the framework of this work, we consider such universities as Saint Petersburg State University abbreviated as SPbU, Saint-Petersburg National Research University of Information Technologies, Mechanics and Optics abbreviated as University ITMO, Peter the Great St. Petersburg Polytechnic University, abbreviated as SPbPU, Saint-Petersburg State University of Economics, abbreviated as SPbSEU, Saint Petersburg Electrotechnical University "LETI", abbreviated as ETU "LETI". These educational institutions implement distance education to some extent, and some components of the implemented disciplines are presented on the largest virtual educational platforms, such as Open Education and the educational platform Coursera Inc.

The sphere of public communications implies a lot of work to increase the publicity of each specific market entity. The creation of publicity means the creation of a certain program in which the target audience, the task set, the budget laid down by the organization should be taken into account. The goal

of the program may be to increase sales, improve the image of the organization, change the place of production, etc. [33].

Any brand, regardless of who is its carrier, needs to be promoted. The use of public relations tools in the development and management of the brand contributes to the emergence of bilateral trusting relationships between the brand and the target audience. [34].

Publicity formation of any organization includes participation in various events and ratings, promotion in social networks, implementation of social projects. Fig. 1 reflects the number of media reports about the universities under study in dynamics for 2018-2019. It is clear that activity has increased significantly since 2018.

Remaining the simplest and most understandable criterion for evaluating the effectiveness of an organization, the press rating, although it is leading in popularity, is inferior to the media index in terms of assessing the overall effectiveness of a company's ("facility's") PR activity in the media space.

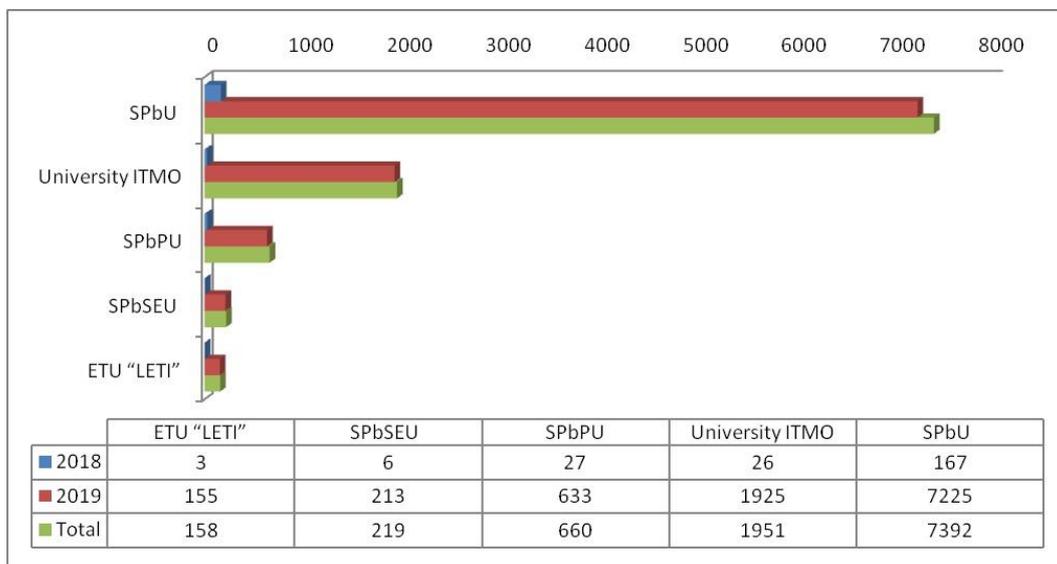


Figure 1. The number of reports on universities in the program 5-100 in dynamics for 2018-2019.

Publicity is most often perceived as a description of a newsworthy event, rather than material aimed at promotion. This allows you to achieve a higher level of trust than advertising, because it is not just informing the audience about the specifics of the organization, but the formation of the image [35].

The main task is to interact with the media, which will ensure the publicity of new events of the organization. In this case, it is worth considering a number of features, such as communication with editors of the media, sending out messages about the organization at the right time, working with a suitable edition, etc. That is, the formation of an agenda relevant to the organization and the creation of newsworthy events. Fig. 2 shows the distribution of publications on universities under study by media headings for 2018-2019 with reprints of the same material in different information sources.

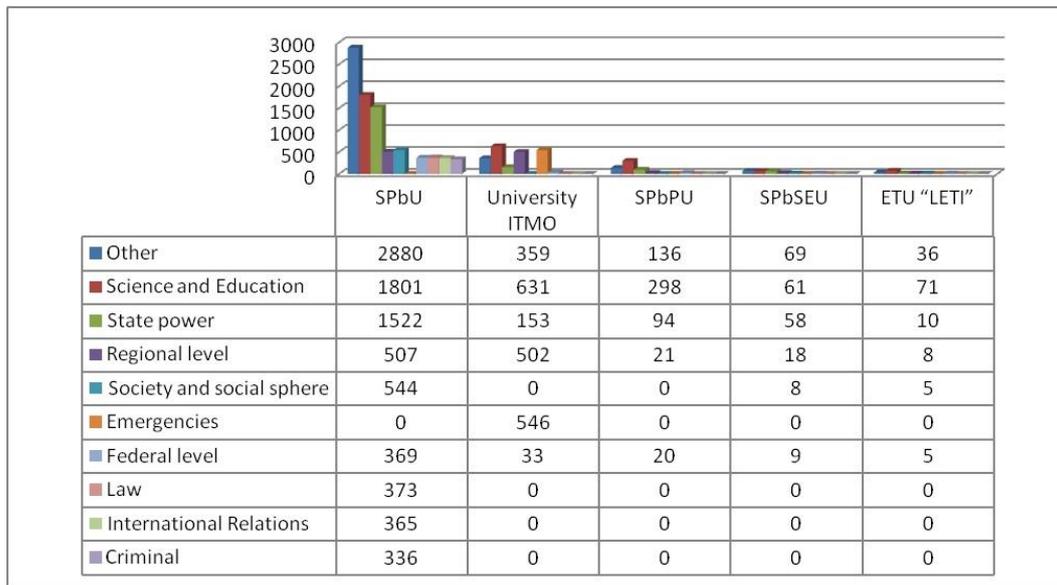


Figure 2. Mentioning of the universities by media headings.

But it is necessary to take into account the newsworthy event and its tonality, since the quantitative characteristics of negative publications can qualitatively affect the publicity of the organization, and this will affect the reputation. Figure 3 shows the tonality of publications for each university in quantitative terms.

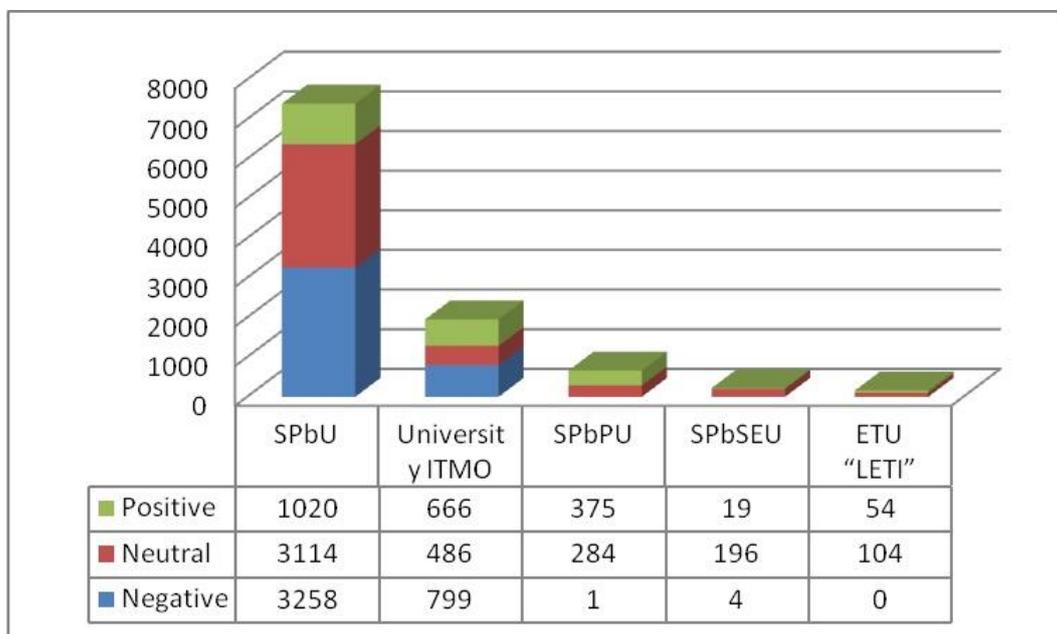


Figure 3. Tonality of publications for universities 5-100, quantitative characteristics.

And, despite the high level of publication activity of St. Petersburg State University and ITMO University, St. Petersburg Polytechnic University and St. Petersburg Electrotechnical University "LETI" are in a better position. Here we can speak just about the formation of the interests of various groups of stakeholders. Fig. 4 shows the percentage distribution of tonality of publications among the universities under study. One may notice a tendency to form a neutral informational background in publications.

Thus, Saint-Petersburg State University of Economics has the highest level of neutral media publications (89%), ETU “LETI” (66%) is somewhat lower, Peter the Great St. Petersburg Polytechnic University (43%) and Saint Petersburg State University are located at approximately the same level (42%). Saint-Petersburg National Research University of Information Technologies, Mechanics and Optics abbreviated ITMO has the lowest value (25%).

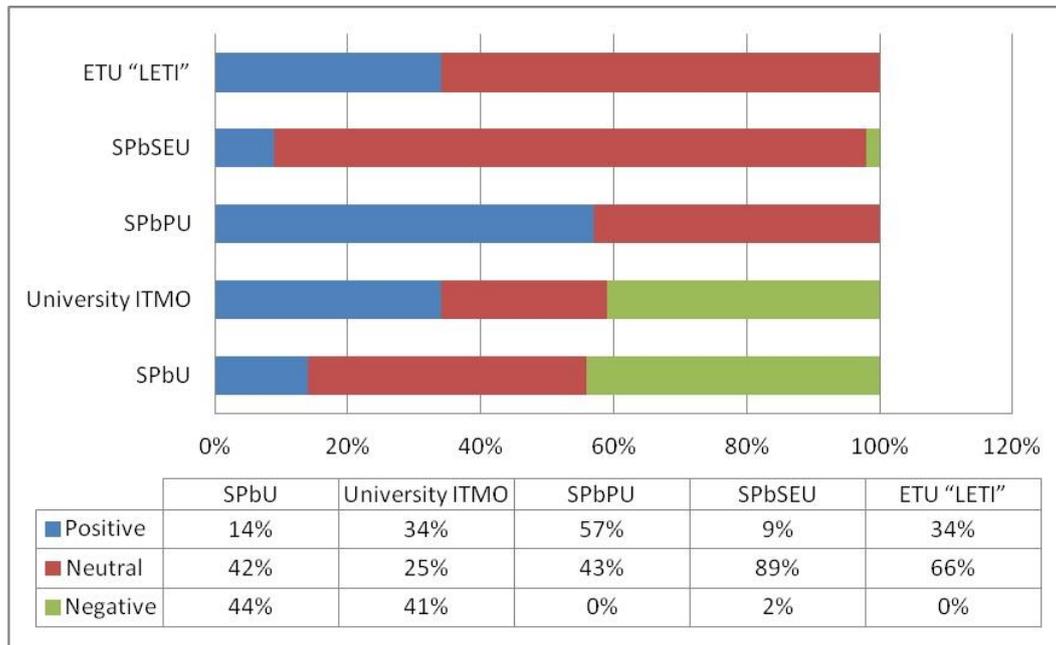


Figure 4. Tonality of publications, in %.

The key to determining publicity is the tonality of publications that affects the media index. The latter is an indicator of the qualitative state of the information field, which is formed by the media around the organization. The value of the media index shows the level and quality of the company's presence in the media. In other words, the higher the media index, the more positive the image of the company created by the media.

As we can see in fig. 5, a high quantitative level of publications is not always a criterion for increasing reputation. Thus, a high level of negative and neutral publications can reduce reputation. In this case, it happened with St. Petersburg State University and ITMO University. Despite the highest level of education in these universities and the wide popularity in Russia and abroad, some newsworthy events have reduced the reputation of these universities.

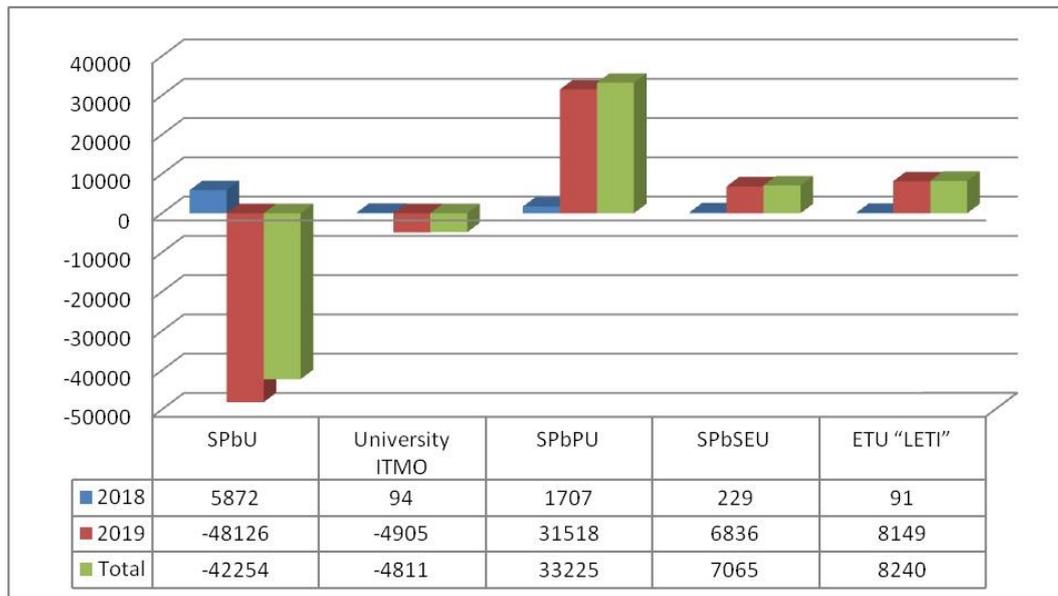


Figure 5. Media Publication Index, Quantitative Characteristics.

It should be noted that the media index is not the ultimate goal of informational presence, it does not allow measuring business growth, but it is a way of demonstrating the company's media presence in the market in the world, country, region.

In general, it should be noted that in a highly competitive market, advertising and public relations, as well as publicity, play a significant role in maintaining the reputation of any organization, which helps to develop additional components of activity. Each company needs media coverage of its activities. Therefore, it is worthwhile to devote time to developing a publicity program, which is likely to help achieve success. In particular, for the activities of universities, this is an extension of the range of offers for the possibility of obtaining education and advanced training and increasing the level of competencies.

4. Discussions

The digitalization of the economy as a whole, and education in particular, is something that both statesmen and scientists are talking about today [36, 37]. Digital transformation is not the future, it is what we already live in. The rapid development of technology has provided new tools for the development of all types of educational institutions in the world. Digitalization has enabled a rapid exchange of experience and knowledge not only accumulated over the years, but also re-emerging. We have encountered certain manifestations of the digitalization of universities for a long time, for example, the rapid development of online courses MOOC (Massive on-line open course) [38]. However, to be limited only by this would be categorically wrong. The digitalization of the university implies significant cultural and organizational changes in the life of universities, a change in their corporate culture. Universities that are able to build a chain from the training of both highly qualified practitioners and scientists involved in basic research and inventing innovations to specialists who are able to commercialize their discoveries have a great future. It is the universities able to realize the innovation and entrepreneurial mission that will have a high reputation among all groups of stakeholders.

5. Conclusions

Modern universities, striving not only to improve, but simply to maintain their position in the global education market in the context of the digitalization of the economy, solve not only the tasks of educational and scientific missions, but also new ones for the vast majority - entrepreneurial and innovative missions. Today, the Digital University is not only a training center for innovators and an

entity providing an efficient exchange of accumulated scientific information, knowledge and results, but also a link in the chain of commercialization of innovations and income generation. The digitalization of the university, of course, is one of the factors that increase the competitiveness of the university, and, consequently, its reputation capital.

Tracking the reputation of the university must be carried out on all possible groups of stakeholders. Since the organization has just as many reputations as there are various target audiences interested in this organization. Moreover, each group, depending on what interests it pursues, may develop its own position. Such positions very often may not coincide, and sometimes even come into direct conflict.

To simplify and systematize the process of monitoring the reputation of an educational institution, it is recommended to divide all stakeholders into four groups - normative, functional, diffuse, and consumer. It is necessary to determine a set of criteria that are important for each group and regularly monitor the dynamics of these criteria. In modern conditions, new, innovative methods are appearing that can significantly facilitate and improve the quality of the reputation monitoring process.

As for directly researching the public capital of a company, here it is necessary to take into account different parameters for assessing the effectiveness of communication work of organizations. In particular, the most relevant at present is the calculation of the media index, which is based on three components: the mentioning of the basic subject of PR activity (institution), the visibility of the basic subject of PR activity, the tone of messages with respect to the basic subject. In PR practice, this is so far the only general indicator that shows with sufficient accuracy the overall effectiveness of PR activities.

Acknowledgements

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

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