

# Using Google Trends to Analyze Global Trends Among Modern Approaches in Organization Management

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## Abstract

The article proposes to consider a comparative analysis of interest in some areas related to modern approaches to organization management. The open source Google Trends toolkit is used as a comparison tool. Approaches to the management of organizations, both on the basis of project management and on the basis of process management, were selected as directions of analysis. The global trends of interest in search queries related to leading professional organizations leading the development of standards in the field of project management, programs and portfolios, professional certification in project management (based on the IPMA certification model), and higher education levels are also considered. The same time intervals were selected as a basis for comparison. The zones have been identified of growing interest in comparing the topics of search queries, as well as the zones of stabilization and decline. An interpretation of the results obtained is proposed. An area of possible application of such an approach, the use of trend analysis in the conduct of dissertations and other types of research work.

## Keywords <sup>1</sup>

Project Management, Agile, Scrum, Process Management, Team Role Models, Certification Model, PMI, IPMA, ISO, Trend analyses, Google Trends

## 1. Introduction

Over the past 15 years, many different events have occurred in the world of professional management. The world survived the financial crisis of 2008-2009, the arrival of the Industry 4.0 concept, the word «digitalization» for many organizations has ceased to be just a «word» and has become an everyday reality.

Now we are on the verge of what has already received its name as the «new normal» - the world in the era of the global COVID-19 pandemic. Also, the last 10 years can be characterized as a period of global «synchronization» and «harmonization» in the field of professional standards in various areas of professional management. In particular, this is the field of professional project management. In 2012 the first ISO 21500: 2012 [1] standard appeared, which to some extent combined the PMI approaches (the model of «knowledge areas» and «process groups» proposed in the PMI PMBOK standard the fifth edition [2]. It can be clearly seen in the approach to the structure of the ISO 21500: 2012 standard) and IPMA (in the fourth edition of the standard which ICB 4.0 IPMA [3] presents a «correspondence table» with ISO 21500 and ISO 21504 [4]). At the same time, there is an active interpenetration of «agility» («Agile») approaches both in the sphere of management in all spheres of

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Proceedings of the 2nd International Workshop IT Project Management (ITPM 2021), February 16-18, 2021, Slavsko, Lviv region, Ukraine  
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human activity and in «classical» project methodologies, which is an excellent example of both the release of the sixth edition of PMI PMBOK [5] and the release of the standard IPMA dedicated to Agile in an organization [6]. As specialists involved in the training of professionals in the field of project management, we would like to understand both emerging new threads and the possible continuation of the life cycle of those trends that have already been formed.

## 2. Problem

The main goal of this study is an attempt to determine possible directions for further development for the field of education and consulting (including the need to transform the existing areas), based on the analysis of trends in the field of interest in various management approaches that have formed in recent years. Under the «sphere of education» in this context are considered both classical long-term programs aimed at obtaining higher education of the corresponding level, and programs of additional education, including training programs, programs of preparation for professional certification, etc. in various areas of management.

The main focus of the study is aimed at defining the "mainstream" of management, which is expected to be relevant for at least the next few years. The main attention is paid, first of all, to issues related to such direction of organization management as project management. The main reason for the relevance of this direction for the authors is that they are directly involved in education related to the topic of project management, including short-term consulting projects, and activities for the training of specialists at all levels of higher education - from undergraduate to doctoral degrees. Early, the authors have already conducted research on a similar topic but using other methods of analysis, to a greater extent in relation to the general trends in the development of knowledge in the field of project management [7]. The results of the proposed trend analysis, according to the authors, will be of interest, on the one hand, for the system of training personnel of higher scientific qualifications [8], and on the other hand, they will be useful for studying the level of influence of some standards on the structure of others [9] in the process of emerging of the «global spread of standards» in project management observed since the release of ISO 21500: 2012 [10].

## 3. Decision

For this, it is proposed to use trend analysis in relation to search queries generated by Internet users using such an open analytical tool as Google Trends [11]. It is clear that this tool will not be able to cover all possible Internet requests that have been and are being carried out by Internet users in the world, but, due to its very wide distribution, for the purposes of our research, we will consider such data trustworthy due to the fact that in this case, the precision of the instrument is not important to us, but the accuracy is quite important. If we consider the «Worldwide» setting as a sample, then, from our point of view, the results will be of interest in any case. As the time interval for trend analysis, the maximum one available in the used service was chosen from 01.01.2004. The logic of the Google Trends settings by the authors during this study is as follows – firstly, a request was made for the following five items, describing the main, in the opinion of the authors, trends in modern management, namely:

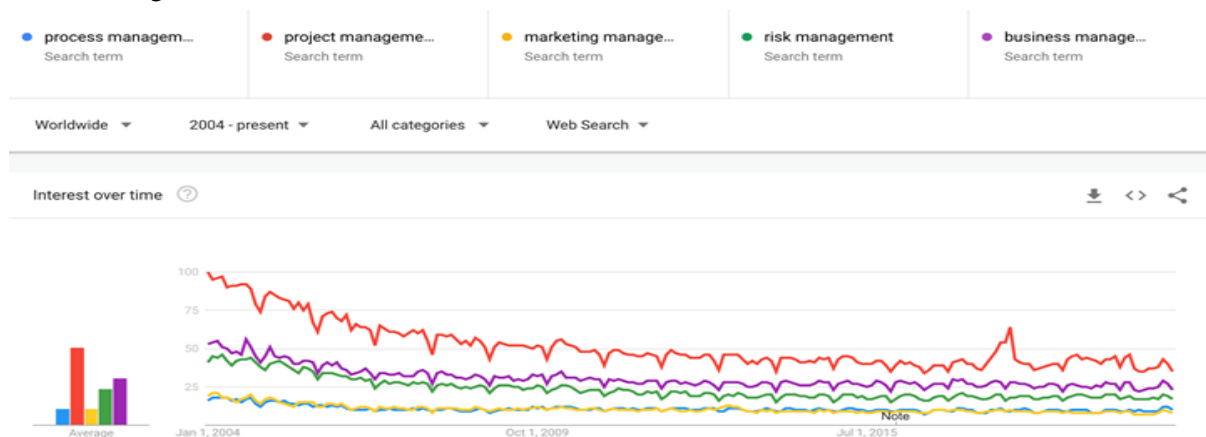
- Process management;
- Project management;
- People management;
- Risk management;
- Business management.

For the result obtained, the search settings for the worst result corresponding to the lowest «Interest» of users (at the first step – for «People management») were successively replaced with the following queries:

- Finance management;
- IT-management;
- Contract management;

- Crisis management;
- Continuity management;
- Innovation management;
- Startup management;
- Strategy management;
- Communication management;
- Client management;
- Marketing management;
- Quality management.

This approach allows you to significantly expand the total number of compared queries (limited to five «by default»). In all cases, «Search Item» was selected as a query parameter. The final result is shown in Fig. 1.



**Figure 1:** The results of a comparative analysis of interest in the main areas of management (top-5 areas) – a screenshot of the results of the analysis by Google Trends

It is worth noting the proximity of quality management and marketing management, but we considered it possible to include marketing management in the final «rating» due to the similarity of such topics as quality management and process management. In the presented result, the «rating» of the user «interest» is the following (at the end of the considered comparison period):

- Project management;
- Business management;
- Risk management;
- Process management;
- Quality management/marketing management.

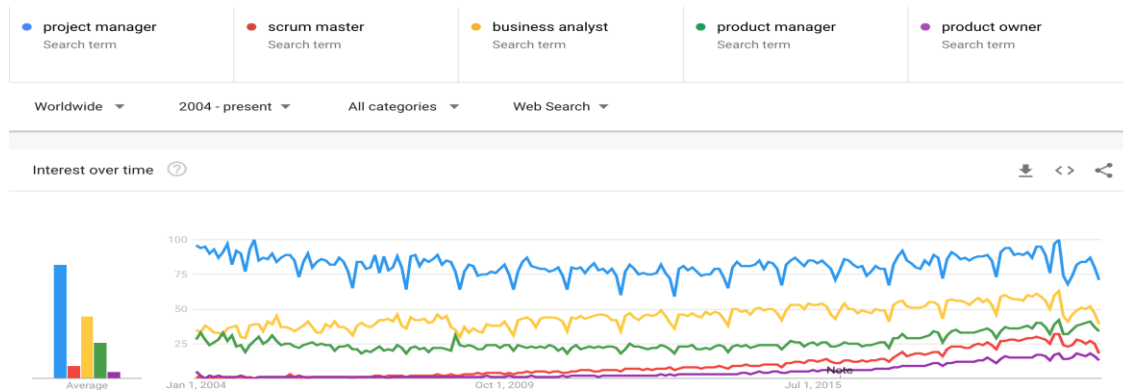
Further, for the «leader», who turned out to be such a direction as project management, the following sets of queries were selected, corresponding to the most popular roles in project management:

- Project manager;
- Scrum master;
- Business analyst;
- Product manager;
- Product owner.

Likewise, an attempt has been made to replace the «product owner» role in this list of roles with roles such as:

- Project sponsor;
- Project coordinator;
- Project specialist;
- Project coach;
- Project trainer;
- Project advisor.

But such attempts (apart from close values for the «project coordinator» role to those of the «product owner») did not yield any changes to the «original rating». The results of the comparative analysis of trends are presented in Fig 2.

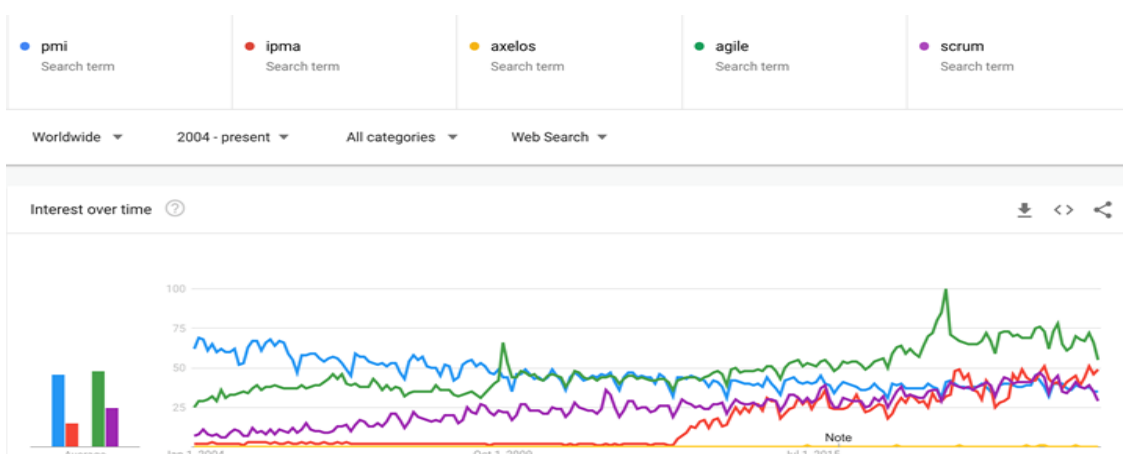


**Figure 2:** The results of a comparative analysis of interest in the main roles of project management (top-5 project roles) – a screenshot of the analysis results by the Google Trends service

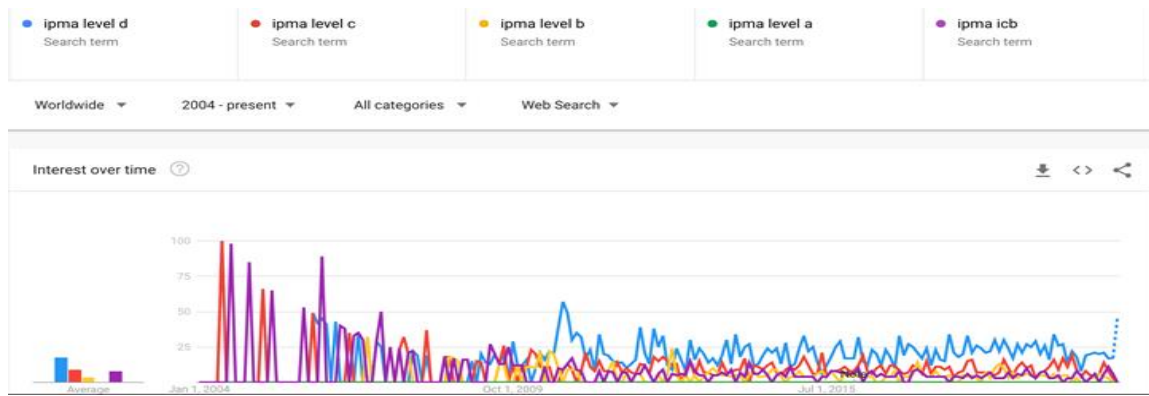
The undisputed leader of the «interest», as can see in Figure 2, for more than 15 years, is still the role of «project manager». So it is logical to look at the providers of standards for this role. Thus, the next step was to analyze the interest in the providers of professional knowledge systems in the field of project management, as a leader of the user interest identified in the first step of the study. For this, the following sets of queries were selected, corresponding to the organizations best known in the field of standards development (although «agile» should rather be considered in conjunction with «agile business consortium [12, 13]», and «scrum» can also be associated with a large number of providers, although this is primarily scrum.org [14]):

- PMI;
- IPMA;
- Axelos;
- Agile;
- Scrum.

Due to the rapid growth of everything related to information technology, digitalization and software development, it can be noted that in general everything related to Agile is in the lead, but this trend, apparently, sums up the contribution made by all the other participants in this survey. Another thing is indicative – a serious growth of interest in IPMA (international project management association), moreover, it was able to reach more significant positions of interest than PMI (the American Project Management Institute) (Fig. 3).



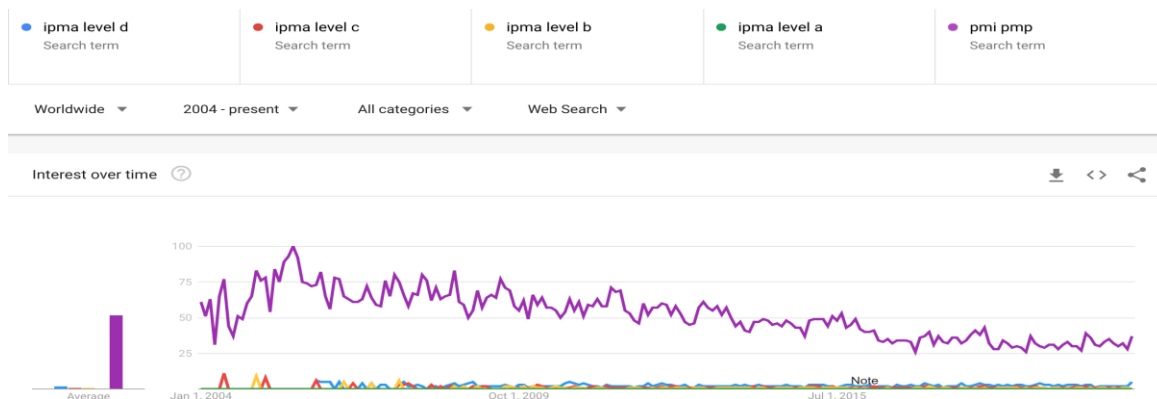
**Figure 3:** The results of a comparative analysis of interest in the main providers of project management knowledge systems - a screenshot of the issuance of the analysis results



**Figure 4:** The results of a comparative analysis of interest in certification levels in the certification system of project management professionals IPMA – a screenshot of the results of the analysis

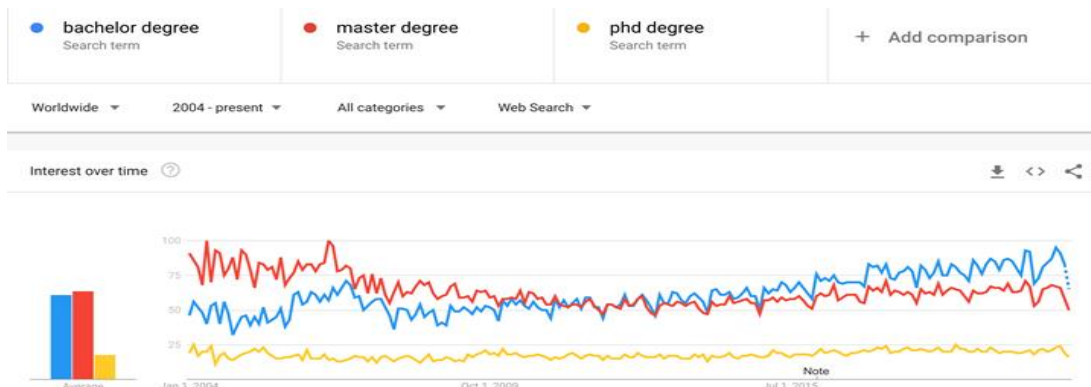
Accordingly, as the next step in the analysis, requests were created for the leader of our trend research (IPMA) to compare the certification levels offered by this organization (and, for comparison, the ICB IPMA standard describing the certification requirements for all these categories is also given here). The results are shown in Fig. 4.

It would not be entirely correct not to give comparison data with such an authoritative certification of project managers as «PMP» (Project Management Professional certification) (Fig. 5).



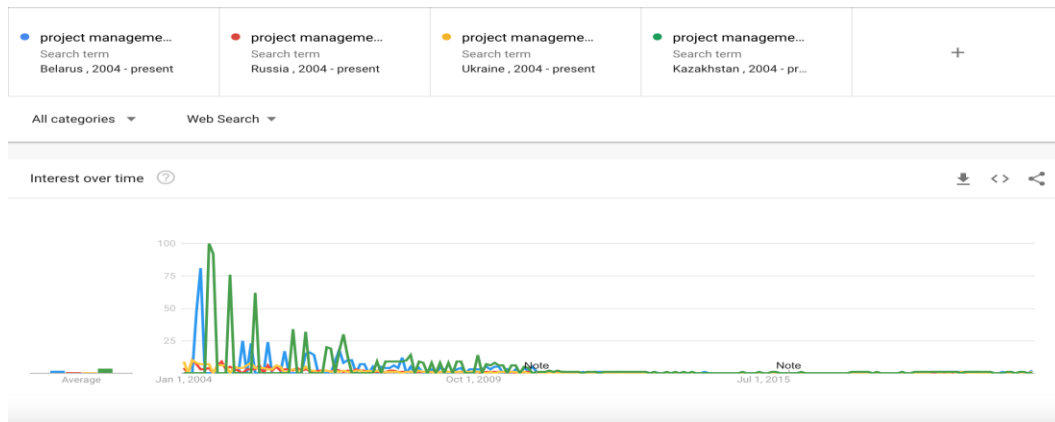
**Figure 5:** The results of a comparative analysis of interest in certification levels in the certification system of project management professionals IPMA and the certification system PMI PMP – a screenshot of the results of the analysis by the Google Trends service

At the same time, a request for the models of education was fulfilled (Fig. 6).



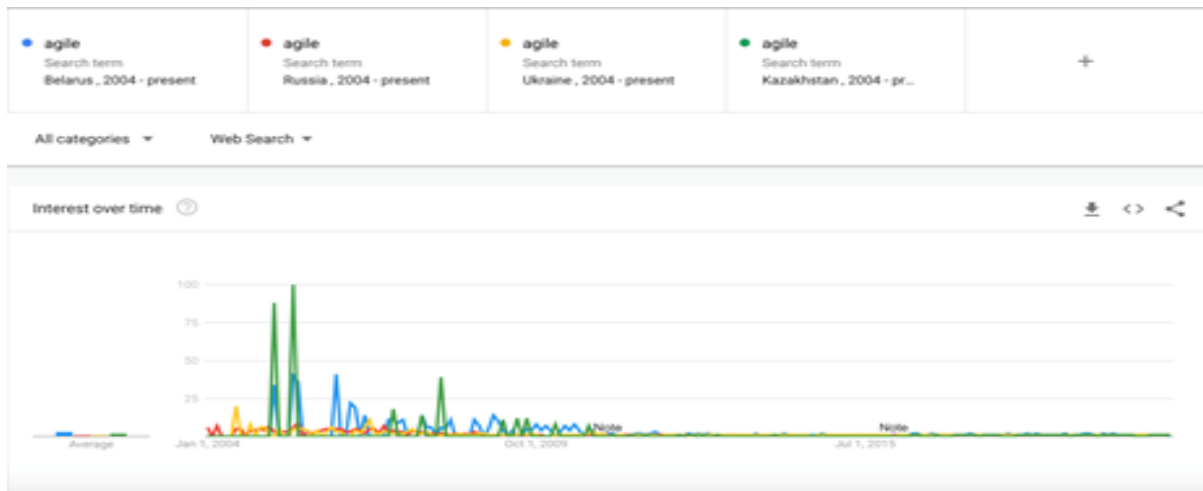
**Figure 6:** The results of a comparative analysis of interest in levels in the higher education system – a screenshot of the results of the analysis by the Google Trends service

As an example of the localization of these global trends, we will cite data on such countries as Belarus, Russia, Ukraine and Kazakhstan, with which the activities of the authors of this study are related to one degree or another in the context of comparing interest in the query «project management» (Fig. 7).



**Figure 7:** The results of a comparative analysis of interest for the query «project management» in Belarus, Russia, Ukraine and Kazakhstan - a screenshot of the results of the analysis by the Google Trends service

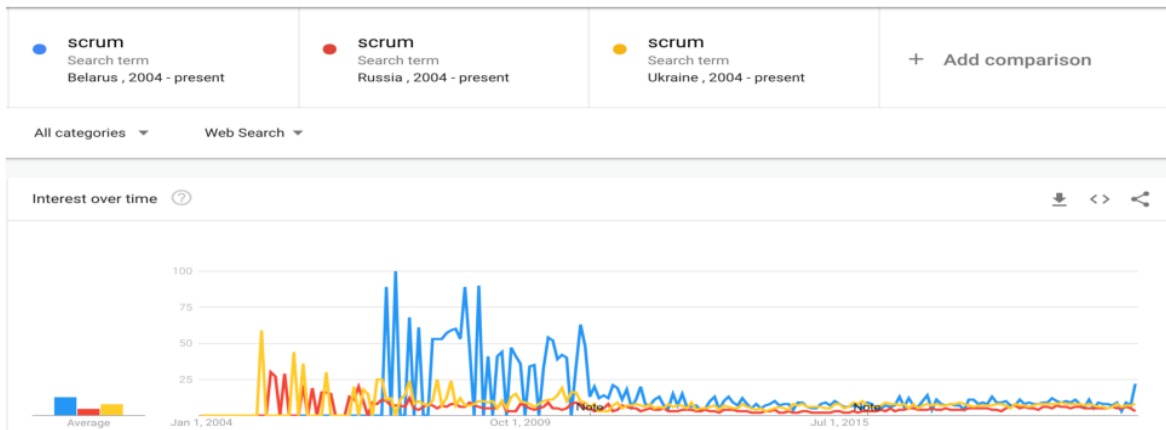
Accordingly, we will carry out the same steps to analyze the interest for search queries for the same countries for areas such as «Agile» (Fig. 8).



**Figure 8:** The results of a comparative analysis of interest for the query «Agile» in Belarus, Russia, Ukraine and Kazakhstan – a screenshot of the results of the analysis

And at the request «Scrum» (Fig. 9) (where Kazakhstan was also the leader, but it is not represented in the sample results to show some interesting feature of the dynamics of interest in this request in Belarus).

This section describes the very logic of the «funnel» of forming queries from «general» to «particular» at the global level and to the transition to the local level (comparing a group of countries for those queries that showed the greatest interest at the global level). In this case, it seems unnecessary to use other, deeper methods of analysis to identify certain patterns, as suggested in various methods of mathematical data processing.



**Figure 9:** Results of a comparative analysis of interest for the query «Scrum» in Belarus, Russia and Ukraine – a screenshot of the results of the analysis by the Google Trends service

For further interpretation of the data, the authors consider it sufficient to use visual methods of analysis, although, of course, it is possible to present data in a tabular form, especially since the Google Trends service offers the ability to download data in .csv format, which provides an excellent opportunity for everyone to conduct a more detailed analysis.

## 4. Results

The research results, if we talk about the global level, are more than optimistic for the field of activity in which the authors of the article work.

As you can see in Fig. 1 and Fig.2, the topic of project management and the role of the project manager, although they have ceased to be what is now commonly called «hype», nevertheless continue to confidently lead at the global level. The decline in «interest» in such requests can be attributed to the well-known «innovation curve», when a particular technology reaches its «plateau».

On the other hand, one cannot fail to note the rapidly growing interest in everything that contains the word «Agile» (Fig. 3), while the dynamics of interest in the activities of the International Project Management Association is interesting and indicative, perhaps this is due to the «competence-based» approach, which she proposes in assessing project managers in contrast to the actually «process» approach present in the PMI PMBOK versions 1 – 6, although the PMI PMP certification system based on this approach continues to confidently lead the world (Fig. 5).

At the same time, interest in the initial level of certification IPMA level D is growing, as can be seen in Figure 4, which, along with the trend of growing interest in the first stage of higher education (Figure 6), makes it possible to make an assumption about the prospects of programs (specialties) of higher education, which will provide an opportunity for their participants, along with obtaining a diploma of education and receive a certificate of level «D» in the IPMA certification system, since there are no requirements for the experience of applicants for such certification at this level, but for education there are. This, in particular, shows the potential prospects for the development of «pilot» certification to the «E» level, launched in a number of countries in Ukraine for particular.

Nevertheless, one cannot fail to note the alarming moments – shown in Fig. 7 – 9, serious declines in interest at the local level in the topic of project management since 2011, despite the fact that, as the analysis of the query in Russian shows, «кризис» («crisis») by the beginning of this period showed a decline.

## 5. Discussion

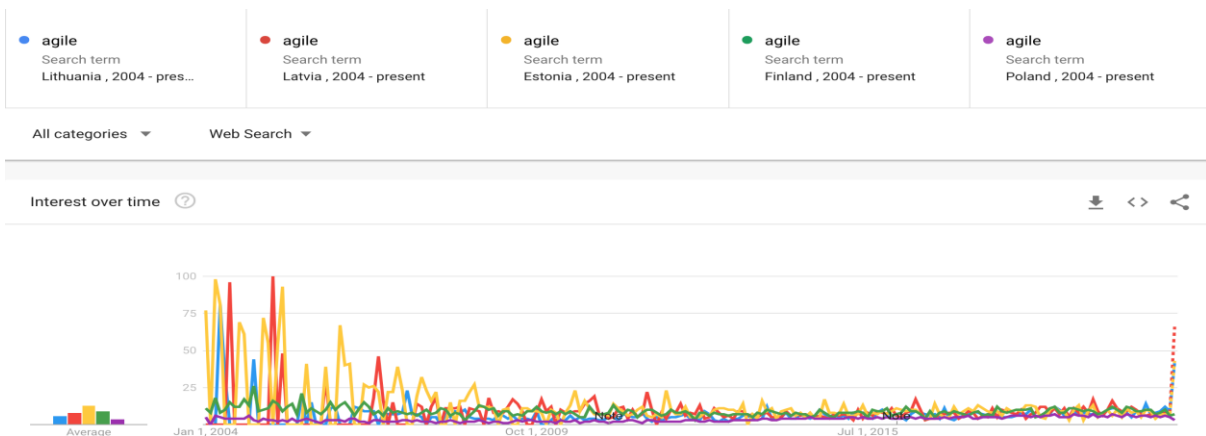
The presented results, due to their obvious inconsistency with global trends, clearly require discussion to determine potential causes. Of course, you can ask the question, how correct was the chosen logic of the approach used by the authors to the «funnel-shaped logic» of research, and

whether it was possible to take an alternative route. Of course, there is such a possibility, and the article describes in detail how the very logic of the formation of «top-5» objects at each of the steps, where it seems necessary to work with a large variety of research objects. You can also revise the approach to the choice of research parameters, since Google Trends offers a wider range of parameters for analyzing «items» than just considering «Search item» as an object, but this parameter offers the maximum coverage of the query count when evaluating «Interest». On the other hand, it was at the beginning of 2011 that Google made changes to its algorithms for calculating analytical indicators, and perhaps this was just reflected in the calculation of indicators for these countries, as Google notes in its service (Fig. 10).



**Figure 10:** The results of a comparative analysis of interest for the query «crisis» in Belarus, Russia, Ukraine and Kazakhstan - a screenshot of the analysis results

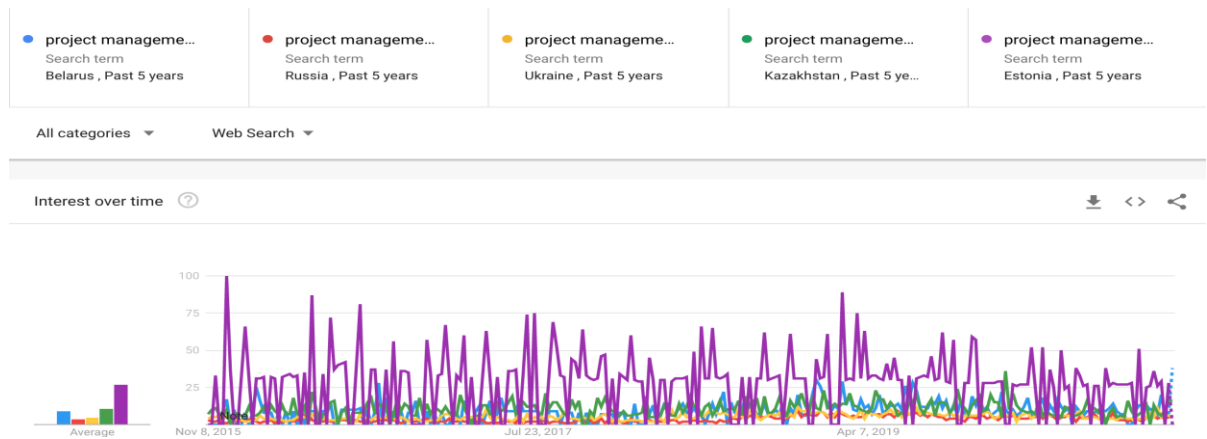
At the same time, a similar request shown in Fig. 9, tuned to a number of other countries, where recent years have also shown a similar change in the dynamics of interest in the research requests (Fig. 11):



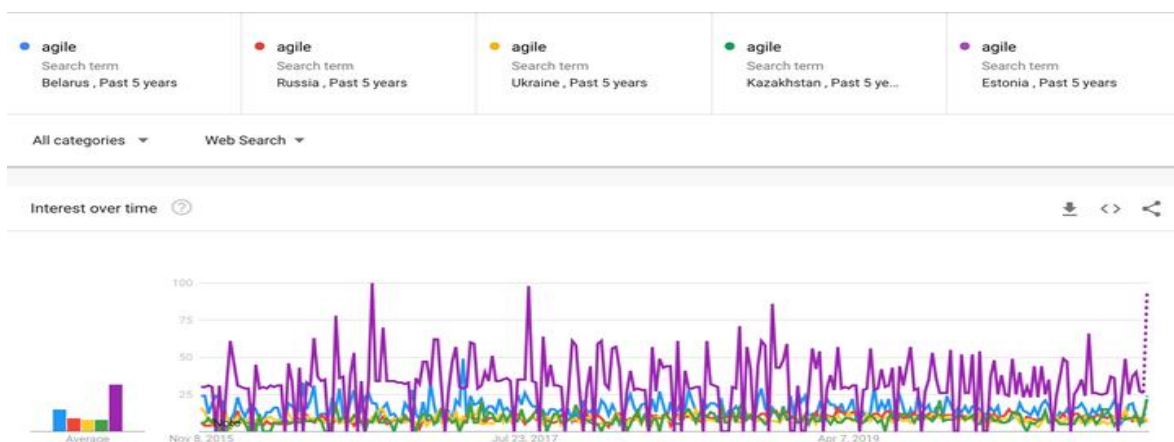
**Figure 11:** The results of a comparative analysis of interest for the query «agile» in Lithuania, Latvia, Estonia, Finland and Poland – a screenshot of the analysis results

Therefore, it seems reasonable to narrow the period under consideration so that it does not include the moments of changes in the Google calculation algorithms, for example, by choosing the parameter «last 5 years». In this case, the presented samples for analyzing interest at the local level will look like this (for comparison, we also add such a country as Estonia, as the leading country for the sample in Fig. 11). Accordingly, we will build for the query «project management» for the period «last five years» (similar to Fig. 7) – Fig. 12 – 15.

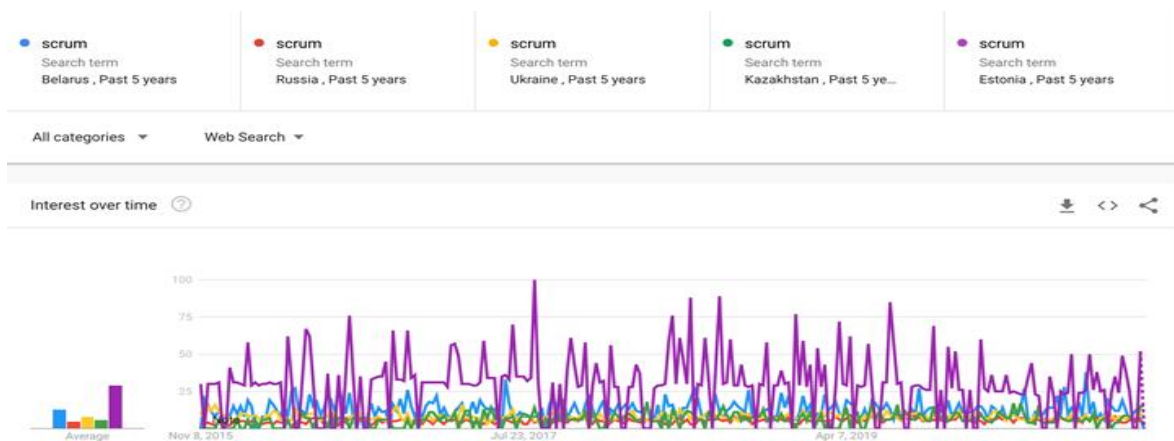




**Figure 12:** The results of a comparative analysis of interest for the query «project management» in Belarus, Russia, Ukraine, Kazakhstan and Estonia

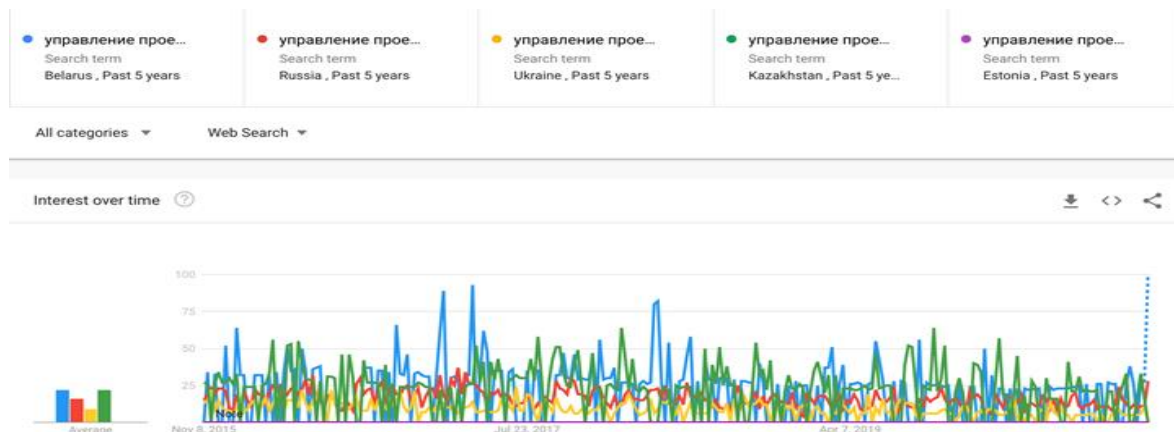


**Figure 13:** The results of a comparative analysis of interest for the query «agile» in Belarus, Russia, Ukraine, Kazakhstan and Estonia — a screenshot of the analysis results



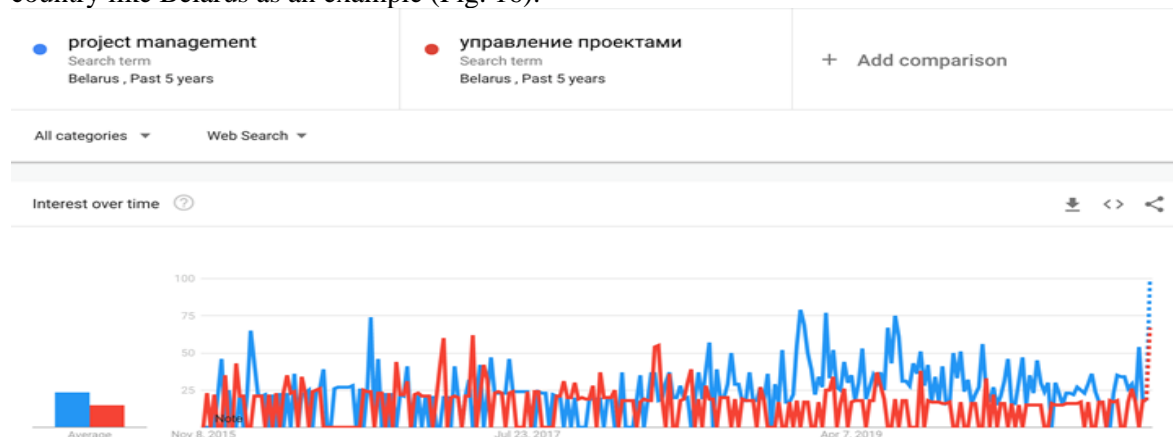
**Figure 14:** The results of a comparative analysis of interest for the query «scrum» in Belarus, Russia, Ukraine, Kazakhstan and Estonia — a screenshot of the analysis results

It can be assumed that such a significant difference is observed primarily due to the language barrier. In particular, when placing a request to the corresponding «project management» in Russian («управление проектами») – the picture changes dramatically.



**Figure 15:** The results of a comparative analysis of interest for the query «project management» in Russian («управление проектами») in Belarus, Russia, Ukraine, Kazakhstan and Estonia — a screenshot of the analysis results

At the same time, it is worth making a comparison of the use of the English and Russian language of queries – for example, for the query «project management» («управление проектами»). Take a country like Belarus as an example (Fig. 16).



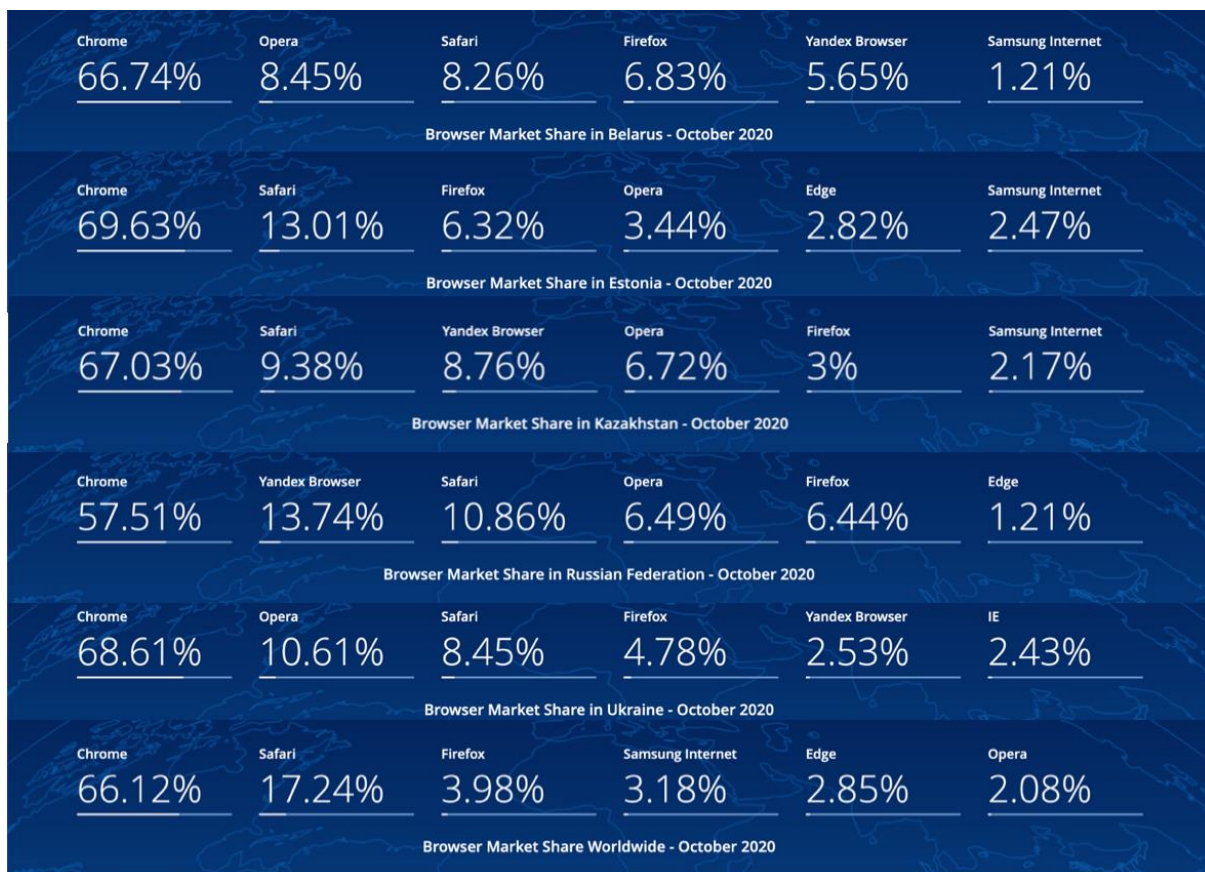
**Figure 16:** Results of a comparative analysis of interest on the query «project management» in English and in Russian («управление проектами») in Belarus

The given data, albeit in a visual presentation, provide ample food for the generation of further hypotheses. At the same time, perhaps, in order to understand all the driving factors, it will be necessary to conduct a PEST analysis, including taking into account both global and local social, economic, political and other reasons. In particular, cultural differences, include the language barrier. Although, judging by Fig. 16, such a barrier is rapidly decreasing, it must be said that this mostly concerns those specialists who work in a very export-oriented IT-industry, which will be true for both Ukraine and Belarus. Professional management implies the urgent need to participate in the processes of transfer of knowledge and technology, which is hardly possible in principle without knowledge of English at a sufficient level - until a translation of this other conceptual work or standard is released (well, if without significant distortion of the meaning of the original document) in the local version, with a high probability, the world will already invent (and test!) something new. Therefore, it is worth noting the need to maximize the use of the English language as a means of working with directly original sources of knowledge in the field of modern management and technologies, in particular, in the field of professional project management.

At the same time, as Fig. 12 – 14 show, this is inevitable if we understand the use of English as the main reason that allows a relatively small Estonia to have significantly higher indicators of interest in modern management technologies than they have in the same topics (which are trends at the global level ) than significantly larger in terms of population, and, it is reasonable to assume, in terms of the

number of specialists who should have a need for access to such information in all its diversity, but, unfortunately, cannot efficiently search for and work with such information in the original language.

The total interest in two languages still falls short of the example selected for comparison. Moreover, in view of the fact that the same profile was selected for the base in “100%” of the “interest” parameter in each of these examples, all these graphs could well be placed in one figure. And in this case, the total profile, only in five parameters, still did not reach the "test case". This, from our point of view, is also an additional factor, rather working for the viability of the hypothesis that emerged in the course of this study about the influence of the language barrier on overcoming the “barrier of interest” to the relevant topic, the main materials on which are created and distributed in English. It is clear that the assessment of "interest" is not an absolute value in this study and is only important for the sample (set of objects) that is used in the comparative analysis. Therefore, the authors do not see much sense in preparing summary tables with absolute figures, although it is possible to offer analysis options in relative values, for which purpose, for each set of elements, one common element is used as a "reference" parameter that sets a common scale. But this should rather be seen as a possible direction for further research using the Google Trends toolkit. Another controversial issue is how legitimate it is to draw conclusions based on the results of such a product as Google Trends in view of the fact that its calculations are based primarily on data from Google, despite the fact that there are a fairly large number of alternative browsers and search engines. In order to address this issue, we present a combined report based on the main countries included in our study of browser usage data [15] (Fig. 17).



**Figure 17:** Results of data on the use of browsers by regions included in the study — a combination of screenshots of the output of analysis results by the Statcounter



**Figure 18:** Results of data on the use of search engines by regions included in the study — a combination of screenshots of the analysis results by the Statcounter

In a similar way, using the same resource, we will analyze the degree of use of search engines [16]. The results are shown in Fig. 18: As can be seen from the figures presented, there is no better reach tool than Google Trends, even if it only uses data from Google, to solve such a problem (unless, of course, an aggregator is created that can take into account all possible queries in all possible access systems to information). At the same time, the indicators relative to the comparison in Fig. 18 both for the browsers used and for the search engines practically do not differ.

## 6. Conclusion

The given data in various combinations, incl. for different countries, in different languages and in different time periods still allow us to make some assumptions about the question, the answer to which was the purpose of the study – to make an attempt to determine possible directions for further development for the field of education and consulting (including the need to transform the existing directions) based on data from trend analysis in the area of interest in various management approaches that have emerged in recent years. First, it is worth noting that there really is a global trend associated with project management as one of the most important management tools in a modern organization. Secondly, the conducted research quite unexpectedly brought to an understanding of the insurmountable gap between the «degrees of freedom» of the possibility of using the best world experience in the countries of the post-Soviet space, which failed to ensure a sufficient level of proficiency in English by their specialists. In this regard, the use of these two main conclusions can be identified as possible directions for further development for the sphere of business education - educational programs in the field of professional management not only «can be», but «should be» in English. At the same time, realizing the possible presence of a language barrier both on the part of the teacher and on the part of participants in such educational programs, it may be worth introducing a third participant into such

programs - a professional linguist who owns the necessary professional glossary, or a professional in the relevant field who knows enough least English and all that glossary. Of course, ideally, it could also be a native speaker. In any case, the information received requires further understanding and consideration in the development of both new educational programs and the adjustment (updating) of existing ones. In modern conditions of the «new normalcy» brought by the COVID-19 pandemic into our lives, such «modernization», oddly enough, may suddenly become more accessible than before - in the format of joint educational programs that have a dual purpose - and training in management technologies, and the acquisition of the necessary language practice, incl. sufficient to pass the exam on your own, for example, to level «D» IPMA immediately in English. On the other hand, such a «forced» movement towards a meaningful transition to the use, as far as possible, of primary sources in their work, will inevitably lead to an increase in the level of knowledge of the English language through its constant use, and, as a consequence, will seriously reduce the «threshold of entry» for many domestic providers of educational programs, both «classic» and «business» formats to the global market of educational services (including the formats of distance work, first of all), which, despite everything, if you look at it on a global scale, is not at all in «Decline».

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