Abstract: The authors of the article analysed the Bologna process implementation in its two main dimensions in terms of “quality assurance” of higher education. It is found that significant progress has been made in ensuring minimum sufficient quality in the first (internal) dimension “compatibility and comparability”. In the second (external) dimension “competitiveness and attractiveness” the progress in achieving the most perfect quality is insignificant and is primarily associated not with the pan-European coordinated Bologna process, but with unique national initiatives to create and support leading universities and their elite associations. It is shown that one of the reasons for the current situation is the Bologna process's inattention to rating mechanisms for evaluating and motivating university activities at higher levels of complexity and excellence, instead focusing on accreditation mechanisms and mass higher education. It is argued that the confirmation and aspiration to competitiveness and attractiveness of the European Higher Education Area (EHEA) in the third decade of the Bologna process (until 2030)
in the Rome Ministerial Communiqué (2020) obliges to form a strong pan-European policy of realistic increase of the global competitiveness of the EHEA with the involvement / development of adequate rating mechanisms and strategies for the development of university leadership. In the context of the dimensions of the Bologna process, Ukraine lacks a national strategy-2 for the creation of leading universities and their elite institutional and sectoral associations, which threatens national security, hinders the formation of conditions for effective post-war recovery of Ukraine on a new, highly intellectual, high-tech and highly motivated basis.

Keywords: Bologna process; higher education; competitiveness and attractiveness; most perfect quality; post-war reconstruction; rating; strategy-2; Ukraine.

INTRODUCTION, PROBLEM STATEMENT

The Bologna Declaration of 19 June 1999 proclaimed the formation of the European higher education area (EHEA) with certain characteristics. From the analysis of the Declaration, it follows that the key words of the EHEA vision are their two complementary pairs 1) compatibility and comparability and 2) competitiveness and attractiveness, which make up the essence respectively internal and external dimensions of the Bologna process. The promotion of quality (quality assurance) in the EHEA in general was also declared as the main condition for achieving the goals of the Bologna process (The Bologna ..., 1999).

In the next ten ministerial communiqués (2001, 2003, 2005, 2007, 2009, 2010, 2012, 2015, 2018 і 2020) it was supported the main dimensions of the Bologna process (and EHEA, regarding formal launch to have been declared in 2010) and quality assurance with coverage of each of them (Towards the ..., 2001; Realising ..., 2003; The European ..., 2005; Towards the ..., 2007; The Bologna ..., 2009; Budapest-Vienna ..., 2010; Making ..., 2012; Yerevan ..., 2015; Paris ..., 2018; Rome ..., 2020). Specifically, in 2007, a special document “European Higher Education in a Global Setting. A Strategy for the External Dimension of the Bologna Process” was adopted, that is aimed at development of competitiveness and attractiveness of EHEA (European ..., 2007).

At the same time, it can be seen from the materials of the relevant ministerial conferences that the EHEA over the course of two decades of the Bologna process has gained strong development in the first dimension, according to which the necessary and sufficient mechanisms have been developed and the corresponding culture of quality assurance has been formed, and the desired results have been achieved to a large extent (Yerevan ..., 2015; Paris ..., 2018; Rome ..., 2020). Also, gradually the meaning of the originally broad and all-encompassing term quality assurance essentially narrowed to its orientation on the first dimension (The Bologna ..., 1999; Towards the ..., 2001; Realising ..., 2003; The European ..., 2005; Towards the ..., 2007). As for the second dimension, the progress is not obvious and problematic, there is a lack of convincing evidence, and most importantly, an understanding of the quality and specificity of its “assurance” corresponding to this dimension (Budapest-Vienna ..., 2010; Making ..., 2012; Yerevan ..., 2015; Paris ..., 2018; Rome ..., 2020).

The purpose of the article is to determine the degree of implementation of the second (external) dimension of the Bologna process during the last two decades and in the perspective until 2030, to clarify the essence of quality in this dimension, to identify the factors of progress and the reasons for inhibition, to substantiate the evaluation mechanisms “competitiveness and attractiveness”, and also the principles of intensification of development EHEA in the second dimension in pan-European and national modalities.

LITERATURE REVIEW

The article is based on the following original publications.

Firstly, Bologna Declaration (1999) and subsequent ministerial communiqués (2001-2020)
Secondly, the topics, goals and programs of the seventeen annual European quality assurance forums (2006–2022) (European ..., 2006; European ..., 2010; European ..., 2011; EUA, 2012; EUA, 2018; EUA, 2019; EUA, 2020; EUA, 2021; EUA, 2022).


Fourthly, system data of leading international university rankings: Shanghai Ranking (20 years in a row), THE (Times Higher Education) World University Rankings, QS World University Rankings (Cabinet ..., 2018; Shanghai ..., 2022; THE ..., 2022; QS ..., 2022).

Fifthly, analytical and monographic papers, including the author’s, on the concept and characteristics of quality, its diversity and multi-level, assessment mechanisms and motivation to achieve a certain quality of higher education, in particular, the use of rating mechanisms to identify the quality of the highest excellence of top universities, the creation of world-class universities, scientifically based recommendations on the strategic development of domestic higher education and others (Salmi, 2009; European Parliament’s Committee on Culture and Education, 2015; Lugovyi, Slyusarenko & Talanova, 2019; 2020; Lugovyi & Talanova (Eds.), 2020; Lugovyi, Saukh & Talanova, 2022; Kalashnikova & Orzhel, 2022).

Sixthly, the key documents that are related to the post-war reconstruction of Ukraine (Prezydent ..., 2022; Plan ..., 2022).

The use of literary sources is noted in the main material presentation.

**METHODOLOGY**

The authors analysed the key documents of the Bologna process for 1999–2022 to clarify its main characteristics and specifics of the EHEA development, its connection with other European strategic initiatives, in particular with the Lisbon Strategy (Lisbon ..., 2000), the decision to create the European Research Area (Presidency ..., 2000; European Commission, 2000), the “Europe 2020” Strategy (European Commission, 2010). To determine higher education of the highest excellence, which precisely characterizes the competitiveness and attractiveness of EHEA in general, national higher education in particular, and individual leading universities specifically, the systematic data of the Shanghai Ranking for 2003–2022 (Shanghai ..., 2022) were used. The choice of this particular ranking as a mechanism for assessing the top university quality was made in view of its objectivity, validity, reliability, and other advantages that have been proven and recognized over 20 years of operation. In addition, to assess the state of competitiveness and development prospects of the best national universities, rating data of THE World University Rankings, QS World University Rankings is used (Cabinet ..., 2018; THE ..., 2022; QS ..., 2022). The achievement of high-quality higher education is also considered in view of the assessment of the success of national reforms, which are particularly updated in connection with the need for the post-war reconstruction of Ukraine (Plan ..., 2022) on a highly intellectual, high-tech and highly motivated basis, and the substantiation of relevant practical recommendations.

**MAIN RESULTS**

In contrast to the category of quality and its provision for internal dimensions of Bologna process (compatibility and comparability of EHEA) quality for external dimensions
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(competitiveness and attractiveness of EHEA) has not acquired a systematic understanding and development, the tools for its provision and evaluation in this case are not clearly identified (The Bologna ..., 1999; Towards the ..., 2001; Realising ..., 2003; The European ..., 2005; Towards the ..., 2007; The Bologna ..., 2009; Budapest-Vienna ..., 2010; Making ..., 2012; Yerevan ..., 2015; Paris ..., 2018; Rome ..., 2020; European ..., 2006; European ..., 2010; European ..., 2011; EUA, 2012; EUA, 2018; EUA, 2019; EUA, 2020; EUA, 2021; EUA, 2022).

At the same time, from the review of ten communiqués, it can be understood that the quality of higher education in external dimensions (competitiveness and attractiveness EHEA) is primarily related to:

– The development of training at the complex “doctoral and postdoctoral levels” (Realising ..., 2003, p. 7), and “an overall increase in the number of doctoral candidates” (The European ..., 2005, p. 4);

– The “strengthen research and innovation” (The European ..., 2005, p. 3), “integration between education and research at all levels”, “stimulating research and innovation” (The Bologna Process ..., 2009, p. 1), and “improving synergies between education, research and innovation” (Paris ..., 2018, p. 3);

– The “importance of strong institutions, which are diverse, adequately funded, autonomous and accountable” (Towards the ..., 2007, p. 2);

– Providing the assistance in the creation of such institutions by the state and society, because “these cannot be resolved by Higher Education Institutions alone. It requires strong support, including financial and appropriate decisions from national Governments and European Bodies” (Realising ..., 2003, p. 7);

– Not only with assurance, but also with quality enhancement, “enhancing the quality of higher education and research” (Towards the ..., 2007, p. 2).

However, on the contrary to the modern world-leading university practice, no rating system is indicated in any communiqué as necessary for monitoring and evaluating the actual achievement and motivation of the development of the competitive quality of higher education. Instead, the Bologna process is mainly focused on accreditation policies and procedures, standards and recommendations, relevant criteria with their known a priori limited capabilities (Salmi, 2009; European Parliament’s Committee on Culture and Education, 2015; Lugovyi, Slyusarenko & Talanova, 2019; 2020; 2021; Lugovyi & Talanova (Eds.), 2020; Kalashnikova & Orzhel, 2022, National ..., 2022).

Likewise, the annual European quality assurance forums (EQAFs), organized by the E4-Group in support of the Bologna process (ENQA, ESU, EUA and EURUSHE), have not dealt with the topic of the highest quality of excellence and its identification since 2006. Instead, these forums, creating “a common European understanding of quality assurance” and aiming at “improving the quality of provision” (European ..., 2011), focus the attention on various, definitely important, but still minimally sufficient, widely available, and not of the most perfect quality characteristics of elite higher education, which determines success in competitive leadership as opposed to mass harmony. In general, the current quality assurance poorly motivates “creativity and innovative practices in higher education” (European ..., 2010). Unlike rating encouragements accreditation obligations have a limited impact on achieving competitive excellence (Lugovyi & Talanova (Eds.), 2020).

Since the quality assurance in terms of “competitiveness and attractiveness” did not receive adequate attention and support within the Bologna process, in 2014-2015 on the request of the European Parliament’s Committee on Culture and Education the study “University quality indicators: A critical assessment” was conducted, into which the essential capabilities of quality assurance and rating are compared (European Parliament’s Committee on Culture and
Education, 2015). It is characteristic that rating was not opposed to accreditation, but to quality assurance. Such incorrect heterogeneous correlation is to some extent justified, if accreditation is considered to be the core of the latter. As demonstrated in the author’s research, it is the accreditation based on the mission essence and functional capacity that exists in opposition to the rating and at the same time complements it (Lugovyi & Talanova (Eds.), 2020; Lugovyi, Slyusarenko & Talanova, 2021). After all, quality is multi-level, at the lowest level of which is minimum sufficient quality and at the highest level – the most perfect quality. Accordingly, a range of adequate mechanisms are used for multi-level quality assessment, at the extreme poles of which are accreditation and rating (Lugovyi, Slyusarenko & Talanova, 2020). Due to the fundamentally different functionality of accreditation and rating, it is impossible to ensure different quality in one way (accreditation or rating only). At the same time, it is at the highest levels of the quality of higher education, which is determined by the rating, that the declared competitiveness and attractiveness are really ensured (see Fig. 1).

The systematic author’s studies have confirmed that it is the ratings that diagnose the highest university achievements, and among the international university ratings, the Shanghai Ranking is the most adequate for these purposes in the conditions of an innovative type of progress (Lugovyi, Slyusarenko & Talanova, 2019; 2020; 2021; Lugovyi & Talanova (Eds.), 2020).

Below, the results of applying this rating to evaluate the real dynamics of the Bologna process (EHEA) in its second dimension regarding competitiveness and attractiveness are represented (see Fig. 2, 3, 4).

From Fig. 2, it can be understood that during 2004–2022, when the Shanghai Ranking methodology did not change, EHEA did not improve its competitiveness and attractiveness in general, in the second dimension from the review of the best university achievements. The average place of the 24 compared countries even slightly worsened from 207.3 to 210.4. The countries have changed the ranking positions of the best universities to varying degrees. Although in general there is a numerical preponderance of the countries (15) that increased the university achievement, however, this did not compensate the weakening of the remaining 9 countries on this indicator.
Changes of the best achievements of world-class universities (ranked 1-500/502) in EHEA countries by the Shanghai Ranking in 2022 compared with 2004.

Note: To compare Turkey, Serbia, Slovenia and Croatia, which in 2004 were not included in the rating (1–502 places), place 503 was assigned. Instead, Hungary, which in 2022, having left the 1-500 group, moved to the 601–700 group, – 602nd place.

Source: Compiled by authors based on: Shanghai …, 2022.

At the same time, the number of countries with world-class universities (in the top 502/500) increased from 20 in 2004 to 23 in 2022 (Turkey, Serbia, Slovenia, and Croatia were added, while Hungary dropped out) (see Fig. 3).

In this case, only 8 countries increased the number of world-class universities, while 16 countries decreased or did not change.

The number of the countries represented by higher education institutions (HEIs) in the group...
1–100 has also decreased from 12 in 2004 to 10 in 2022. Although exclusively, due to the national efforts, France entered the group of countries with extra-class universities (1–30) (see Fig. 4).

From Fig. 2–4, it is clear that EHEA during 2004–2022 generally worsened its competitiveness and attractiveness rather than improved it.

Fig. 3
Changes of the number of world-class universities (ranked 1-500/502) in EHEA countries by the Shanghai Ranking in 2022 compared with 2004.
Source: Compiled by authors based on: Shanghai …, 2022.

As for Ukraine, neither the general (institutional) (ARWU) nor the sectoral (by academic subjects) (GRAS) versions of the Shanghai Ranking see the Ukrainian universities at all. At the same time, Ukraine is absent among 64 countries/territories of the general version and 96 countries/territories of the sectoral version in 54 academic subjects of Shanghai Ranking (Shanghai …, 2022).
In this situation, with regard to Ukraine, we have to turn to the less objective THE World University Rankings (subjective by a third) and QS World University Rankings (subjective by half). However, according to them, regression is observed rather than progress (see Fig. 5, 6).

The overall increase in the number of Ukrainian HEIs listed in the rankings is primarily due to the ranking list expansion, and not to university achievements. After all, the places averaged over domestic institutions have generally deteriorated. The only exception is Sumy State University (SSU), the only one in the top 500 group, that is, according to THE World University Rankings, it has the international status of world-class university.

It should be noted that this is a merit, first of all, thanking to the staff of this young institution.
There were no special national programs to support it. SSU has gone from Sumy branch of Kharkiv Polytechnic Institute (now National Technical University “Kharkiv Polytechnic Institute”) to a leading, internationally competitive and attractive university, surpassing its alma mater in the above ranking. Today, at the university, foreign students make up 20% (one of the largest indicators in Ukraine) (THE …, 2022), the number of PhD students is about 8% (the highest indicator in Ukraine) of bachelor's and master’s students (Lugovyi, Saukh & Talanova, 2022).

![Dynamics of achievements of Ukrainian universities by THE World University Rankings](image)

**Fig. 5**

**Dynamics of achievements of Ukrainian universities by THE World University Rankings**

Source: Compiled by authors based on: THE …, 2022.

Since the Bologna process turned out to be de facto indifferent to the stagnation of EHEA in the competitiveness and attractiveness dimension, could not develop an adequate rating approach to achieve progress in this dimension, insofar as Ukraine, following the example of other leading countries participating in the Bologna process, must independently develop an appropriate strategy to achieve the highest higher education quality.
Such strategy as -2, in contrast to strategy-1 to ensure the minimum sufficient quality (Lugovyi, Slyusarenko & Talanova, 2021), should include the following mechanisms and tools.

Firstly. Creation of the National Ranking HEIs, necessary to assess and monitor the domestic higher education top quality, the profile of which is currently not known exactly. This will give grounds for the strategy-2 formation for the development of higher education in Ukraine of higher excellence, in particular, the creation of world-class universities from among the leading institutions following the example of other EHEA member countries. The Shanghai Ranking methodology should be used as a basic, which, in particular, provides for:

- Objectivity (absence of subjective criteria/indicators, use of third-party databases);
- Validity (the ability to evaluate top quality in accordance with the key missionary components of leading universities – declared education, research, innovation / creativity, but is not provided by the Bologna process;
- Comprehensibility (limiting minimization of the number of necessary and sufficient criteria and indicators).

The second. The National Rating should be normalized by law. It is advisable to entrust the administration of the rating to an independent state body – the National Agency for Quality Assurance in Higher Education (Natsionalne ..., 2022) with appropriate funding comparable to the accreditation costs. Scientific and methodological support (consulting) of the rating can be provided by the NAES of Ukraine, its Institute of Higher Education. In order to develop and agree on the criteria and indicator base of the rating, it is important to involve the Union of Rectors of Higher Education Institutions of Ukraine and regional councils of rectors. The rating results must be annually approved by the Ministry of Education and Science of Ukraine for official use in practice.

The third. To form an effective policy for the competitiveness and attractiveness development of leading universities in Ukraine, it is advisable to form an elite Association of Ukrainian Universities such as the Association of American Universities. It is advisable to include HEIs that, according to the results of the Shanghai Ranking, THE World University Rankings and QS World University Rankings, took places in the group 1–1000. To date, these are 6 HEIs of THE and QS ratings: one in Sumy, one in Lviv, two in Kyiv and two in Kharkiv (see Fig. 5, 6). These institutions should be given strong targeted state and public support in their development.

The fourth. The network of other Ukrainian HEIs should be optimized by consolidating institutions, primarily through mergers. The basis for optimizing HEIs in Ukraine, according to The World Bank, may be by their rating, which in particular requires the rating criteria development in the short term (Review ..., 2019).

The fifth. The creation of globally competitive leading universities in Ukraine will allow for effective post-war not simple reproduction of the destroyed, but the restoration of Ukraine, its society and economy on a new, highly intellectual, high-tech and highly motivated basis. After all, it is precisely these foundations that determine success in the victorious struggle of the Ukrainian people against the military aggression of the Russian Federation (Prezydent ..., 2022; Plan ..., 2022; Kalashnikova & Orzhel, 2022).

CONCLUSIONS

The following conclusions follow from the above.

1. The Bologna process is implemented in its two main dimensions, taking into account the “quality assurance” of higher education. At the same time, during 1999–2022, significant progress was made in ensuring minimum sufficient quality in the first (internal) dimension “compatibility and comparability”. According to the second (external) dimension “competitiveness and attractiveness”, progress in achieving the most perfect quality is insignificant and is primarily associated not with the pan-European agreed Bologna process, but with unique national initiatives to create and support leading universities and their elite associations.

2. Among the reasons for the current situation is the inattention of the Bologna process to the rating mechanisms for assessing and motivating university activities at the highest levels of complexity and excellence, the focus on accreditation mechanisms and mass higher education.

3. Confirmation and commitment to the competitiveness and attractiveness of the European Higher Education Area in the third decade of the Bologna process (until 2030) in the Rome Ministerial Communiqué (2020) obliges the formation of a strong pan-European policy to really increase the global competitiveness of the EHEA with the involvement and development strategies of university leadership.

4. In the context of the Bologna process dimensions, Ukraine lacks a national strategy-2 for the creation of leading universities and their elite institutional and sectoral associations,
which threatens national security and hinders the formation of conditions for an effective post-war reconstruction of Ukraine on a new, highly intellectual, high-tech and highly motivated basis.

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