

# Entrepreneurial Universities in a World Educational System

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**ABSTRACT.** This article analyzes modern development tendencies of university activities, it proved establishing of a global educational system, which shows increase of university education role, competition escalating and transformation of modern universities functions. It comprehensively studies the process when universities, both traditional and modern – business ones, are extending their functions. The article studied the development of scientists' beliefs related to the essence and forms of entrepreneurial universities. On a basis of generalization of existing approaches, the authors give definition of the essence of entrepreneurial university as a subject of educational, scientific and other allied activities, which receives financial resources from diversified sources, extends fields of its activities and services. The foundation of the system of extended and main criteria for definition of entrepreneurial universities was laid. The main ones are the following: considerable financial autonomy and receiving of significant funding from non-governmental and diversified sources. Amounts and financial funding structure of the world leading universities were analyzed. It was proved that income from activities, which are allied with the main one (educational) activity, increase. The article provides the amounts and the significance of international grants that ensure financial firmness, financial motivation of personnel, upgrades of facilities and resources, initiation and effectiveness of scientific-research activities of universities. Special attention was paid to research of such financial resources of the world leading universities as endowment funds, their scales, features and importance to boost economic capacities of higher education establishments. It was proved that it is important to consider world experience of entrepreneurial universities' work within development and improving of competitive performance of Ukrainian higher education establishments in global educational system.

**KEYWORDS.** Global educational system, university, entrepreneurial universities, diversification, endowment funds, fund raising.

## Introduction

Relevant world business relations are characterized by dynamic globalization processes, which stipulate cooperation improvement and interdependence of all countries and their subjects. Globalization processes embrace relations system not only in economic, but also in social, political, cultural and spiritual fields of social life. Shaping of

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global educational system reflects these processes, which features development of various forms of international cooperation and updating of main activity courses of advanced universities. On one hand, successful integration of universities into world educational system mainstreams necessity to initiate considerably and extend scale of international activities according to all courses; and on the other hand – to extend its economic, entrepreneurial functions to reinforce them as independent efficient establishments at the global market of educational services.

Currently, competitive battles among higher education establishments are quite noticeable at the domestic market as well as at the world market of educational services. Advanced universities undergo upgrading directed to establish resourceful entrepreneurial entities, which receive diversified financial funds, expand their range of activities and services. Considering above mentioned information, an obvious necessity emerges to research and study prospective and practically achievable courses for advanced entrepreneurial universities to develop under current circumstances.

Relevant issues of global educational system and reshaping of role and functions of its main subjects – universities are objects of increased academic interest, as in line to research matters of financial funds and facilities & resources supply, as well as to identify priorities to increase their competitiveness level, to improve major activity types of universities, advance innovative technologies and etc. Above mentioned challenges (without limitation) of development of university degree and higher education establishment system issues, as well as consistent patterns and tendencies of its current progress are studied by national and foreign scientists: I. Aidrus,<sup>2</sup> G. Ginkel<sup>3</sup>, H. Etzkowitz<sup>4</sup>, B. Clark<sup>5</sup>, H. Kuklin<sup>6</sup>, O. Romanovskii<sup>7</sup> and etc.

Nevertheless, despite the presence of profound scientific follow up research works on the chosen challenge issues, it is needed to work out theoretical principles and scientifically validated practical recommendations to diversify traditional functions and extend entrepreneurial activities of advanced universities.

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<sup>2</sup> Aidrus, I.A. and V.M. Filippov. *The world market of educational services*. M.: RUDN. 2008. [In Russian].

<sup>3</sup> Ginkel, G. van. "The University XXI: of problems, challenges, opportunities and management." *Journal of Higher School (Alma Mater)* 1 (2008): 41-49. [In Russian].

<sup>4</sup> Itskovits, G. *Triple Helix. Universities — Enterprises — state. Innovation in action: a monograph*. Translated from English. ed. A.F. Uvarova. Tomsk: Tomsk State University of Control Systems and Radioelectronics, 2010. [In Russian].

<sup>5</sup> Clark Burton, R. *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. U.K.: Emerald Group Publishing Limited. Howard House, 2008.

<sup>6</sup> Kalenyuk, I.S., and O.V. Kuklin. *The development of higher education and the knowledge economy*. M.: New knowledge, 2014. [In Russian].

<sup>7</sup> Romanovskiy, O. O. *The phenomenon of entrepreneurship in universities around the world: monograph*. Vinnitsa: New book, 2012. [In Ukrainian].

The aim of the article is to research phenomenon of entrepreneurial university and diversification processes of international and entrepreneurial functions of advanced universities within educational system globalization.

### **Main part**

Within current globalization, global educational system is developing as compound system of multi-level and economic relations with multiple courses among countries and their subjects (universities) in educational and scientific field. The fact that universities are turning into heavy-duty subjects of world economy is related to increasing role of university degree, scale extending of international educational and scientific activities, extending of functions of advanced higher education establishments. Today dynamic tendency indicates that large amount of people gain university degree: in OECD countries, share of people with university degree aged 25-64 years increased from 22% in 2010 up to 35% in 2015. Thus, one of the five essential aims of European Union is to gain results that up to 40% of youth aged 30-34 years old will gain university degree in 2020<sup>8</sup>.

Rapid increase of export and import of educational and allied intellectual services are accompanied by sharp competitive games and multiple forms and methods of competitive struggle. Global educational system features highly dynamic development (increase of number of countries and people involved in academic exchange processes), acute sharpness and diversification of acts of struggle (ratings of universities, price and non-price competition, combative advertising, transborder education and etc) among countries and universities.

Under conditions of global educational system functions of advanced universities are reshaped and diversified. The universities start to act as active participants of economic relations, gradually extending their entrepreneurial functions. Essential development factor of entrepreneurial aspects in activities of universities is limits of government funds for university degree system, necessity to diversify financing sources, relevance for academic science to close business segment. Elements of entrepreneurship are consistently integrated and spread in different lines of actions of advanced educational establishment. International activity of advanced universities is on immense rise. For them not only to work successfully, but also become leaders of current global educational system, the universities have to reinforce and diversify their activity. Actually, entrepreneurial and

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<sup>8</sup>Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris. <http://dx.doi.org/10.187/eag-2016-en>

international aspects pervade all major lines of actions of advanced leading universities (table 1).

*Table 1 Transformation of Universities' Functions*

<b>Traditional functions of university</b>	<b>Entrepreneurial activity</b>	<b>International activity</b>
educational, formative activity	- services diversification (programs of different duration, levels, teaching techniques); - extending of services range for both main and allied ones, chargeable	- active involvement of prospective university students and consumers at the external markets
Scientific research activity	- extending of scientific research activity; - commercialization of scientific research results; - range extension of allied intellectual services (consulting); - creating of scientific parks, techno-parks, business incubators within the universities	- academic mobility; - participation in international scientific projects; - publications of the results in international journals; - participation in syndicate of universities to carry out international scientific research projects;
Marketing	- energetic advertising campaign at the national and international levels; — search for sponsors; - work with graduates as potential patrons; - participation in national and world ratings of universities	
Financial business activity	- search and diversification of additional funds - forming of endowment fund; - extension of financial autonomy	— search of foreign investors and partners; - extension of export scale of educational and other services

*Source:* compiled by authors.

Above mentioned diversification processes of university functions became core of emerging phenomenon of entrepreneurial universities, which feature highly diversified traditional and relevant functions. Phenomenon of entrepreneurial universities became subjects of active research of foreign scientists (H. Etzkowitz<sup>9</sup>, B. Clark<sup>10</sup>), as well as Ukrainian ones (O. Romanovskii<sup>11</sup>, N. Holiavko<sup>12</sup>).

<sup>9</sup> Itskovits, G. . *Triple Helix. Universities — Enterprises — state. Innovation in action: a monograph* . Translated from English. ed. A.F.Uvarova. Tomsk: Tomsk State University of Control Systems and Radioelectronics, 2010. [In Russian].

<sup>10</sup> Clark Burton, R. . *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. U.K.: Emerald Group Publishing Limited. Howard House, 2008.

<sup>11</sup> Romanovskiy, O. O. *The phenomenon of entrepreneurship in universities around the world: monograph*. Vinnitsa: New book, 2012. [In Ukrainian]

<sup>12</sup> Kalenyuk, I.S., O.I. Gonta, N.I. Holyavko, O.S. Sakun, O.P. Demchenko, A.A. Dyakon, and L.I. Tsimbal. *The educational imperative of social development, scientific monograph*. Edited by I.S. Kalenyuk. Chernigov: ChDIEU, 2014. [In Ukrainian].

Currently there is no unified agreed approach to interpret essence of entrepreneurial university and its main criteria and features. H. Etzkowitz defines entrepreneurial university as higher education establishment which apart from traditional funds also actively develops and uses patents, scientific research and other types of contractual cooperation with private legal entities as efficient means to extend funding sources and inflow of investments to the university<sup>13</sup>. The scientist considers entrepreneurial university some sort of incubators of support and motivation of business initiatives of employees and students of higher education establishments. According to H. Etzkowitz, capitalization of knowledge is unalienable part of advanced university mission.

J. Chrisman, T. Hynes, S. Fraser interpret core of notion "entrepreneurial university" exceptionally from practical points of views. In the perception of scientists, entrepreneurial university is a university which employees, professors, researchers and students create new enterprises<sup>14</sup>. We believe that this approach is somewhat limited, as it doesn't include range of other entrepreneurial functions and activity types of advanced universities. However, above mentioned definition has important applied meaning, if we consider it from the point of necessity to motivate and encourage all stake holders (first of all – employees and students) to establish and develop entrepreneurial activity.

B. Clark approaches analysis of core of entrepreneurial university rather thoroughly, as he highlights practicality to consider entrepreneurship of university both as process and result<sup>15</sup>. In first case, the scientist points out that entrepreneurial universities initiate their own innovative activity and due to it they become effective and influential subjects of economic relations. In second case, the scientist specifies, that entrepreneurship of higher education establishments which is shown as their aim to generate and implement innovative technologies, which enables them to achieve relevant and intended effect – high level of competitiveness and stable position of the establishment at the market of educational services.

Definition by G. Williams is rather limited in relevant context according to its content. He offers to consider universities as «no more

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<sup>13</sup> Itskovits, G. . *Triple Helix. Universities — Enterprises — state. Innovation in action: a monograph* . Translated from English. ed. A.F.Uvarova. Tomsk: Tomsk State University of Control Systems and Radioelectronics, 2010. [In Russian].

<sup>14</sup> Chrisman, J., T. Hynes, and S. Fraser. "Faculty Entrepreneurship and Economic development: The Case of the University of Calgary ." *Journal of Business Venturing* 10, no. 4 (1995): 267-81.

<sup>15</sup> Clark Burton, R. . *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*. U.K.: Emerald Group Publishing Limited. Howard House, 2008.

as service provider in the field of knowledge»<sup>16</sup>. Nowadays, higher education establishments accomplish and show wider range of entrepreneurial activity.

J. Röpke addresses entrepreneurial universities from three points of view, giving definition of this notion, first, as higher education establishment which performs entrepreneurial functions; second, entrepreneurial activity of employees and students reflects it; third, it means cooperation development of higher education establishments with external environment (in particular, business community)<sup>17</sup>. G. Subotzky shares such opinion and points out that there is close coordination among universities and business community, including from position of diversification of financial funding sources of higher education and mainly for organizations of balanced management<sup>18</sup>.

H. Konstantynov and S. Filonovych offer to consider core of entrepreneurial university in an integrated manner. They also specify unity and relevance of the following aspects of activity of entrepreneurial universities:

- to overcome barriers within knowledge and innovations generating;
- to assure practical value of knowledge gained and generated in university (first of all, due to innovative activity);
- to upgrade endogenous environment of entrepreneurial universities promptly;
- to reshape lines of interaction of universities with external environment (entrepreneurship line of higher educational establishments)<sup>19</sup>.

Thus, classification of scientific approaches to the way they interpret core of entrepreneurial universities enables to define two essential directions to shape definitions:

- 1) as higher educational establishments extending range of educational consulting services on commercial basis;
- 2) as higher educational establishments running their own entrepreneurial activity and which commercializes results of scientific research, generated innovative technologies and worked out projects.

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<sup>16</sup> Williams G. *The Enterprising University: Reform, Excellence and Equity*. Edited by Gareth Williams. Buckingham [England]; Philadelphia, PA: Society for Research into Higher Education: Open University Press, 2003.

<sup>17</sup> Röpke, J. "The Entrepreneurial University, Innovation, academic knowledge creation and regional development in a globalized economy." *Working Paper Department of Economics, Philipps-Universität Marburg, Germany*. 2000. [http://etc.online.uni-marburg.de/LinkedDocuments/mafex\\_ri\\_entreuni.pdf](http://etc.online.uni-marburg.de/LinkedDocuments/mafex_ri_entreuni.pdf).

<sup>18</sup> Subotzky, G. . "Alternatives to the Entrepreneurial University: New Modes of Knowledge Production in Community Service Programs." *Higher Education* 38, no. 4 (1999): 401-40.

<sup>19</sup> Konstantinov , G.N., and S.R. Filonovich. "What is the entrepreneurial university." *Education issues* 1 (2007): 49-62. [In Russian].

O. Romanovskyi studies main scientific approaches to classify entrepreneurial universities, marking the following:

1) higher educational establishments giving students qualifications in field of entrepreneurship and business;

2) higher educational establishments running academic entrepreneurship even if there is no qualification program in entrepreneurship and business;

3) higher educational establishments running academic (university) entrepreneurship and give qualification to prospective entrepreneurs<sup>20</sup>.

Overview of scientific research papers of the world scientists and Ukrainian ones enables to shape authors' vision of core regarding term "entrepreneurial university" which is a fusion of existing approaches and groundwork. In particular, in our opinion, entrepreneurial university is compound social economic structure featuring wide diversified traditional and up-to date functions. Essential attribute of entrepreneurial universities is effective commercial activity directed to securing inflow of various internal and external financial resources of development.

In more narrow interpretation, entrepreneurial university, in our opinion, can be considered as higher education establishment which secures capitalization of knowledge, transfer and commercialization of innovative business initiatives of professors, researchers, students and partners – enterprises. Advanced world universities consistently extend their own entrepreneurial activity; the range of entrepreneurial functions diversifies rather rapidly.

Essential mark of entrepreneurial universities is effective entrepreneurial activity, which pervades all courses of the activity and oriented to secure inflow and diversification of internal and external financial resources.

Of principal scientific interest is matter of criteria according to which higher educational establishment can be deemed as entrepreneurial one. On the basis of scientific research papers of foreign and national scientists, and also analyzed experience of world leading entrepreneurial universities, in our opinion, it's possible to define the following extended criteria:

1) financial economic:

– specific amount of non-government funds in total of university financing is not less than 50%;

– considerable share of resources of international organizations and funds;

– considerable share of payment for the education in general financial receipts of university, including from foreign students;

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<sup>20</sup>Romanovskiv, O. O. "Basic concepts and definitions entrepreneurial university." <http://www.economy.nayka.com.ua/?op=1&z=1628>. [In Ukrainian].

- considerable share of financial receipts to conduct scientific research in general income of the university;
  - financial receipts from commercialization of scientific activity results;
- 2) organizational economic:
- diversification of funding sources of university activity;
  - diversification of lines and forms of activity;
  - financial autonomy of higher education establishments;
  - innovative subsidiaries, start-ups, business incubators, other techno park structures under frame of higher education establishments;
  - coordination scale with business community (total cost of scientific projects, form and lines of coordination) etc.

In the given list the following criteria should be marked as the main ones:

- presence of considerable financial autonomy as for the right to dispose its property and financial resources;
- wide diversification of financial receipts as *for sources* (governmental, private, entrepreneurial ones), as well as for *activity type* (research, educational, international, consulting one), which is to be confirmed by receipt of not less than a half of all receipts from non-governmental sources.

Advanced universities face new challenges and to stand it tall requires massive inroads at the international level which in turn aggravates the need of additional financial recourses. Necessity to diversify the financial sources of higher education establishments becomes the ground for entrepreneurial university activity to develop and extend its autonomy. In general structure of world leading universities share of revenue, in particular, from educational activity becomes rather insignificant, whereas the biggest receipts are receipts from investment and research activity. Detailed data of revenue structure of world leading universities which efficiently run entrepreneurial activity and extend range of performed entrepreneurial functions, in progress, is provided in tabl. 2.

Analysis of research activity fund structure of world leading universities allows coming to solid conclusion about extraordinary relevance of international activity development to raise funds from foreign organizations and funds in forms of grants. In particular, at micro level it's grants of individual mobility of researchers; at meso-level – grants for groups of scientists; at macro level – groups of higher education establishments; at the mega level – syndicates of universities of different countries.



*Table 2 Revenue Structure of World Leading Universities, %<sup>21</sup>*

Universities	Educational services revenue	Revenue from Investments / endowment fund	Grants and contracts	Revenue from selling goods and providing services	Other revenues
Harvard University	19	35,2	21	-	24,8
Yale University	9	35	25	20	11
Stanford University	12,1	21,9	31	13,7	11,3
Massachusetts Institute of Technology	10	24	49	-	17
Princeton University	19	46	18	-	17
University of Texas at Austin	10	7	19	-	64
St. Thomas University	59	19	1	-	21
University of Kansas	24	1	22	-	53
University of Alberta	27,8	2,5	7,4	43,9	18.4
Cornell University	16	9	19	22	34

Considering that according to current conditions projects activity brings a significant amount of financial resources to the budget, active competitive struggle among universities to gain grants is more than noticeable. Nowadays, international scientific educational programs enjoy huge popularity, the most ambitious are the following: Tempus / Erasmus +, Horizon 2020, Fulbright and Lane Kirkland programs, British Council programs, IREX (International Research and Exchange Board), American Council of Learned Societies, International Visegrád Fund, Alexander von Humboldt Foundation, the Science for Peace and Security (SPS) Program by NATO, Eastern Partnership programs, German Academic Exchange Service (DAAD) and etc.

Role of international grants to secure financial firmness, material motivation for personnel; upgrade facilities and resources and make scientific research activity of universities more efficient and aggressive can be displayed by the following facts. Within period from 2007 till

<sup>21</sup> American University Budget. A Report from the President. — May 1, 2013 — April 30, 2015. — Washington, 2015. [mup.asu.edu/research.html](http://mup.asu.edu/research.html); Harvard University: Financial Report. Fiscal Year 2014. [finance.harvard.edu/annual-report](http://finance.harvard.edu/annual-report); MIT: Financial Data. [web.mit.edu/factsfinancial.html](http://web.mit.edu/factsfinancial.html); NACUBO, U.S. and Canadian Institutions Listed by Final Year (FY) 2014. *Endowment Market Value, February 2015*. [www.nacubo.org/Research/NACUBO-Commonfund\\_study\\_of\\_endowment/Public\\_NCSE\\_Tables.html](http://www.nacubo.org/Research/NACUBO-Commonfund_study_of_endowment/Public_NCSE_Tables.html); Report of the Treasurer 2013-14. Princeton University. — 701 Carnegie Center, Princeton, 52 p.; Reports and Financial Statements for the year ended 31 July 2014. University of Cambridge. Annual Report 2014. 73 p.

2013 under 7<sup>th</sup> Framework Program 136 000 project offers were handed, among which 25 000 has received grant funds for total amount 41,7 billion of euro. Therewith, the following countries keep permanent leadership: Great Britain, Netherlands, Germany, Sweden, Switzerland and Israel. In particular, due to participation in 7th Framework Program, Oxford University has gained financial receipts to its own budget for total amount 437 million of euro, University of Cambridge – 424 million of euro, University College London – 352 million of euro<sup>22</sup>.

Considering significant extending of entrepreneurial functions of higher education establishments and moreover – development of entrepreneurial universities, of great scientific interest is a matter of fund raising from private sources. Nevertheless, at the same time it must be pointed out that educational establishment should gain real financial autonomy and guarantee transparency of their financial activity. These two aspects can become essential conditions of financial resources inflow from private sources, as well increase of motivation level of higher education establishments to shape commercially oriented and win-win cooperation with business community.

Global experience of leading higher education establishments proves considerable long-term benefits of running endowment funds. In particular, universities with massive endowment funds show financial health and flexibility in making decisions. This practice is most developed in USA with such leaders as Harvard University (endowment fund amounts 35,9 billion USD according to data of financial year 2014), Yale University (23,9 billion USD), Stanford University (21,5 billion USD), Princeton University (21 billion USD) and Massachusetts Institute of Technology (12,4 billion USD). Considerably less amounts reach endowment funds of Canadian universities: University of Toronto (1,82 billion USD), University of British Columbia (1,26 billion USD), McGill University (1,23 billion USD), University of Alberta (0,96 billion USD), Queen's University (0,76 billion USD)<sup>23</sup>. The table 3 presents systematic retrospective analysis of Top 10 universities of United States of America according to amount of their endowment funds.

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<sup>22</sup> UK and Ireland gain in Horizon-2020 top-50 performers. <http://www.Universityworldnews.com/article.php?story=20151029>

<sup>23</sup>NACUBO, U.S. and Canadian Institutions Listed by Final Year (FY) 2014. Endowment Market Value, February 2015. [www.nacubo.org/Research/NACUBO-Commonfund\\_study\\_of\\_endowment/Public\\_NCSE\\_Tables.html](http://www.nacubo.org/Research/NACUBO-Commonfund_study_of_endowment/Public_NCSE_Tables.html); Susannah Snider, US News, Universities With the Largest Financial Endowments, 2015. [www.usnews.com/education/best-colleges/the-short-list-college/articles/2015/01/13/1-universities-with-the-largest-financial-endowments](http://www.usnews.com/education/best-colleges/the-short-list-college/articles/2015/01/13/1-universities-with-the-largest-financial-endowments)

**Table 3 Top-10 US Universities According to Amount of Their Endowment Fund<sup>24</sup>**

Name of university	2013		2012		2010		2005		2000	
	Total, th of USD	Position	Total, th of USD	Position	Total, th of USD	Position	Total, th of USD	Position	Total, th of USD	Position
Harvard University	32 334 293	1	30 435 375	1	27 557 404	1	25 473 721	1	18 844 338	1
Yale University	20 780 000	2	19 345 000	2	16 652 000	2	15 224 900	2	10 084 900	2
Stanford University	18 688 868	3	17 035 804	3	13 851 115	4	12 205 000	3	8 649 475	3
Princeton University	18 200 433	4	16 954 128	4	14 391 450	3	11 206 500	4	8 398 100	4
Massachusetts Institute of Technology	11 005 932	5	10 149 564	5	8 317 321	5	6 712 436	5	6 475 506	5
University of Texas – Austin	9 145 142	6	8 209 163	6	6 436 007	8	4 567 265	8	3 932 469	9
University of Michigan – Ann Arbor	8 382 311	7	7 691 052	7	6 564 144	6	4 931 338	7	3 329 637	14
Columbia University	8 197 880	8	7 654 152	8	6 516 512	7	5 190 564	6	4 263 972	7
Texas A&M University – College Station	8 072 055	9	7 034 588	10	5 945 277	9	4 567 265	8	3 932 469	9
Northwestern University	7 883 323	10	7 118 595	9	5 945 277	9	4 215 275	12	3 368 233	13

Finances of endowment funds are directed, in first turn, to provide students with financial backing and support (for example, when giving exemption on educational fee payment) and scientific pedagogic employees (for example, within research activity by particular scientists or groups of scientists). Often, it's financial resources of endowment funds that are invested in building up of innovative facilities network and creating and development facilities and resources of scientific research (labs, specially designed equipment, tooling and etc.). Taking into consideration weakened condition of facilities and resources in many national higher education establishments (HEE), offered variant is rather attractive for Ukraine, although it requires the whole complex of legal and regulatory, organization informational measures, promotion of this idea among students, graduates and partners of HEE of the country.

Table 4 provides information about amount of endowment funds of the world leading higher education establishments per one student.

<sup>24</sup>American Research University Data. <https://mup.asu.edu/University-Data>

It should be stressed out that within universities (at least in cooperation with higher education establishments) innovative centers – techno-centers, business incubators, scientific technological and innovative clusters and science parks and etc. ought to be created. Such type of structures boosts innovative processes and increase competitive level of economic entities at the international scene.

*Table 4 Endowment Amount Per One Student, USD<sup>25</sup>*

University	Amount of endowment per student, USD.
Yale University	3829457
Harvard University	3788847
Princeton University	3450296
Stanford University	2633679
Massachusetts Institute of Technology	2440127
California Institute of Technology	1893429
University of Chicago	1178539
Columbia University	1077514
University of Duke	910378
Northwestern University	895738
Dartmouth College	882677
Washington University in St Louis	821342
University of Notre Dame du Lac	809856
University of Pennsylvania	717275

According to published information Cambridge cluster:

- amounts up to more than 1500 firms (including 150 companies dealing with Engineering and Physical Sciences, 160 – Natural Sciences, 330 – Information And Communication Technologies);
- more than 57 000 people get job due to the cluster;
- 14 enterprises which participated in the cluster with revenues approx. 1 billion USD;
- two companies with revenues approx. 10 billion USD.<sup>26</sup>

<sup>25</sup>The 25 Richest Colleges by Endowment Dollars Per Undergraduate [Электронный ресурс]. Режим доступа: <http://chronicle.com/article/The-Financial-Aid-Fine-Print/190131/>

<sup>26</sup> The Cambridge Cluster. [www.cam.ac.uk/research](http://www.cam.ac.uk/research)

Due to such fusion of entrepreneurial, innovative, scientific research function of advanced university within efficient cooperation with business community University of Cambridge takes third place in the world among higher education establishments with the most successful university innovative ecosystems (after Stanford University and Massachusetts Institute of Technology), and it is also one of the leaders of world educational services market; usually it holds top positions in world league table.

To secure competitiveness of universities should be carried out on the basis of development of educational (see information above) and scientific research activity as main and efficient tools to diversify financing sources and increase financial receipts to budgets of higher education establishments. For education establishments it's very important to reach perfect balance between world tendencies and national circumstances to secure upgrading and improve efficiency of advanced universities activities at the national level as well as international one.

World leading higher education establishments have worked out and checked on practice considerably profitable type of cooperation with enterprises of the country when they raise funds from business community to carry out scientific research. Coordination in scientific technical field enables universities to fill their own budgets, increase competitiveness level and commercialize results of conducted research; enterprises – partners gain access to the latest scientific inventions as well as eco-friendly and efficient innovative technologies in terms of economy and technology.

Under conditions of current educational system globalization, apart from traditional sources, higher education establishments feel considerable necessity to extend sources base of financial receipts to their budgets. Currently, as functioning practice of world leading universities proves it, of special attention is cooperation development with business community, extending scale of funds raising from international organizations in form of grants and filling university endowment funds for targeted use of resources. Fund raising can become relevant development line of financial economic assurance of international research activity of Ukrainian universities. It should be understood as raising of financial and human resources, facilities and other resources to higher education establishments.

Efficient measures to give access to Ukraine into the world scientific educational system and making inroads of national universities to gain leading positions at the international market of educational services should be based on compound governmental support to reinforce economic capacities of higher education establishments, extend their

functions and financial economic autonomy, system information consulting assurance. Development of informational facilities network ought to be correlated and harmonized according to marketing strategy applied by university targeted to promote Ukrainian university degree in other countries. It's obvious fact that can't be denied that there are lot of national higher education establishments represented in Internet, as well as, and most important, – in international league table of universities (Webometrics, ARWU, The Times and etc.).

To gain leading position at the world market of educational services it's necessary to carry out complex system measures of coordinated and agreed activity of the parties concerned. It's strategically important to select 3-5 higher education establishments of Ukraine and make specially designed conditions of their work and financing to shape real conditions to let them enter world market of educational services and win leading positions at it. In context of current tendencies of globalization of educational system, to gain and hold high competitive positions at the international market usually means to win top positions in world league table of universities.

### **Conclusions**

Thus, taking into consideration analysis provided in the article we can conclude that current global environment is characterized by diversification processes of university activity, forming efficient university structures of entrepreneurial type. The examples of the leading universities prove that there is a wide range of services, which advanced tertiary education establishments could successfully provide on commercial basis as organizations of intellectual potential consolidation of the country. Stable increase of fund raising from various sources is possible only if there is good business reputation, considerable scientific achievements and high level of competitiveness of education establishment in the national economy as well at the world market of educational services (among other universities).

Challenge problem addressed in this article is relevant for current practice of university activity in Ukraine and requires implementation of further scientific research. In particular, to study and define ways to fund raising to higher education segment, to reinforce economic capacities of advanced universities, to develop entrepreneurial functions of universities as well as to boost their main functions – educational and research ones.

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