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Relevance of Innovations in Educational Research Technology of Universities

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Abstract

Have diverse purposes such as education, research, and social services, which are made up of different academic fields. It is a complex organization due to its complexity not only in higher education policy but also in science, technology, and innovation. Apart from being influenced by social and industrial policies, it is one of the important factors that influence the realization of policies. Therefore, how to qualitatively upgrade universities is an important issue while considering national strategies. This research paper first summarizes the role of universities in science, technology, and innovation policy, changes the environment around university systems, and reflects on innovation in university systems and organizations.

Keywords: Diversification of Universities, Knowledge Society, Classification of Universities, World Class Universities, Assessment Nation, University Organization, Academic Capitalism, Corporate University.

Introduction

Universities have diverse functions, such as science, technology, and innovation. It is important to understand the role of universities in policy, however, the main function of the university at that time was to educate about law and theology, and the birth of the university was not necessary. Universities have their origins in teacher-student associations (Universities). Research

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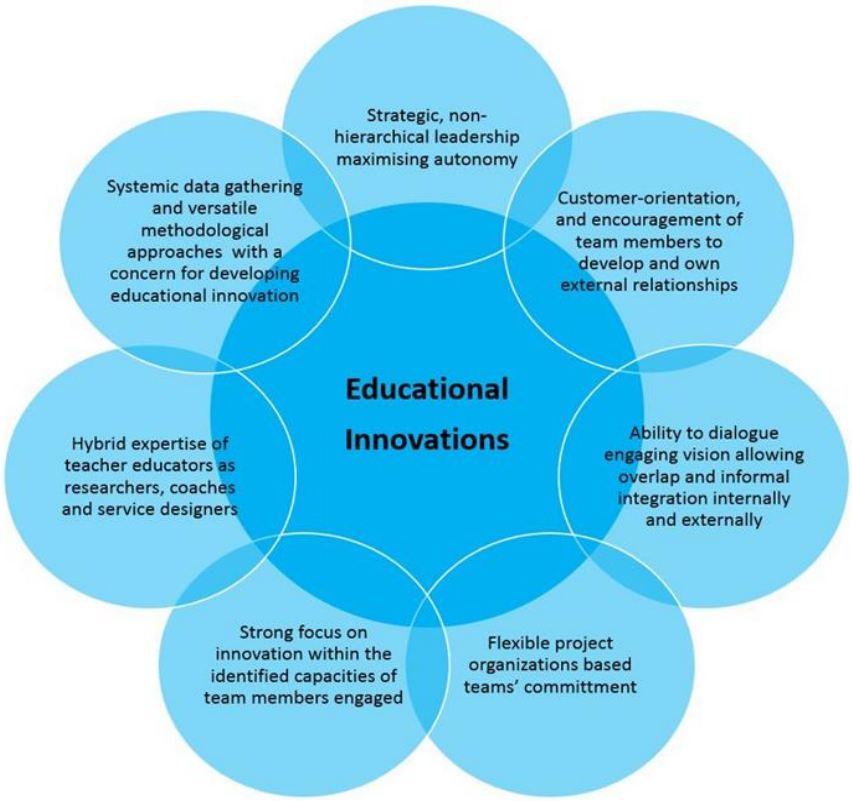
work takes place in universities. The University of Berlin, which was founded in Germany in 1810, has played an important role in bringing it to the world. The role of universities in the development of the German state was emphasized through the creation, and this modern German research university later spread to other countries (Geiger, 2015).



As well as 19 Established in America in the late 19th century, the Land-Grant College was established by the Morrill Land Grant Act of 1862. Based on land provided by the Japanese government, it was established as a university that contributes to the development of agriculture, engineering, etc. Public service through technology transfer has become one of the main functions of universities (Alabarch, 2001). While the functions of universities have changed over time and country, they primarily include education, research, and social services (including knowledge transfer).

Major functions of the university - education, research, and knowledge transfer –

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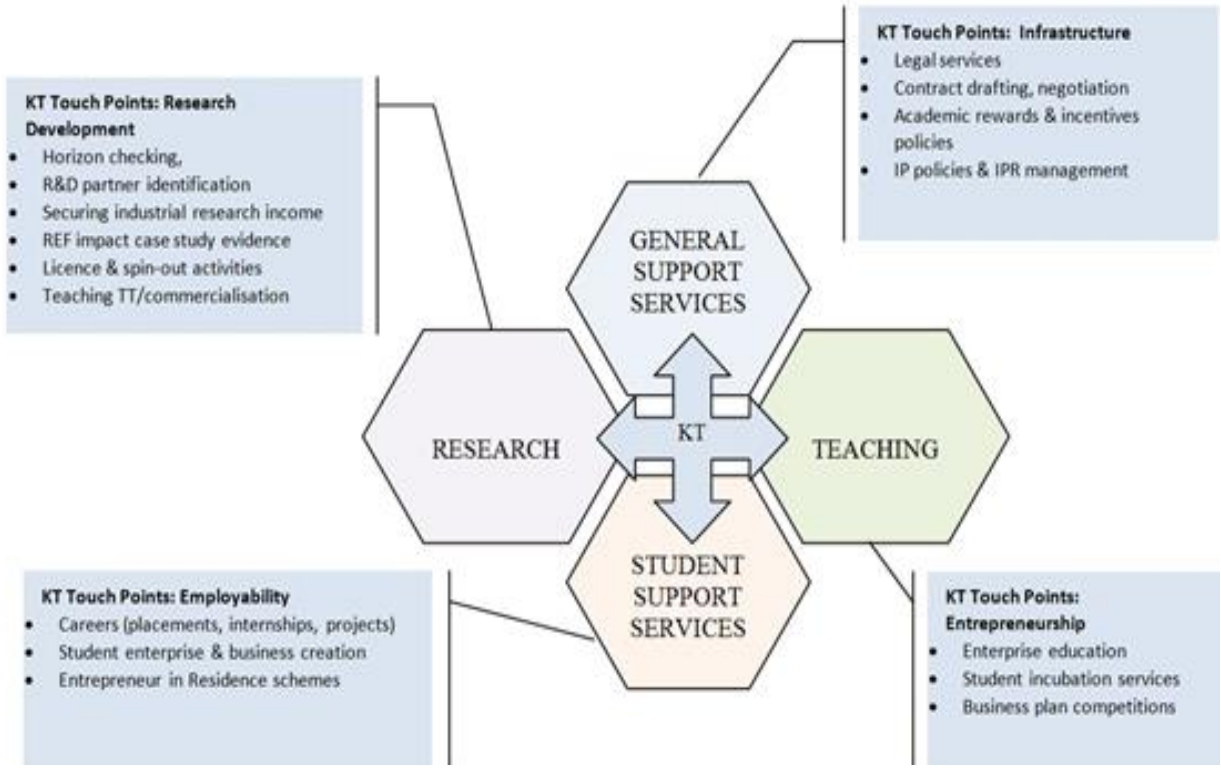
However, there is a limit to how universities can be viewed as a single model. For example, in the former Soviet Union and China before the 1980s, research institutes established outside universities became a prominent feature. All universities play a central role in education, research, and social services (knowledge transfer) (Liu, 2007). On the other hand, when these three functions are combined into a single organization called the University, how will each function interact with the other? Predicting whether they will be affected is an important approach to building an effective university system. This is because if we look at the two relationships between education and research, it is likely that the two will produce a synergistic effect. Otherwise, they may interfere with each other (Ben-David, 1977). It organizes the relationship between research, teaching, and knowledge transfer. Shown in Table 1 (Giana and Rossi, 2015). Universities, as shown in Table 1, there are separate functions that influence each other. Influencing each other will require policies and university management that diverge from the silo perspective. Table 1 Relationship between education, research, and knowledge transfer (positive and negative aspects) Source: Geena and Rossi (2015) [p.33]



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Role of Universities in Science, technology, and innovation policy-The contribution of universities to innovation is also made through such functions as education, research, and knowledge transfer. It is often the case that it is important to create new knowledge through research work and to return that knowledge to society and the economy. However, Geena and Rossi (2015) point out that the different means of each function enable universities it has been held that it contributes to economic growth. For example, training of advanced professionals, management, organization, strategy, marketing Creation and dissemination of social science knowledge such as research, creation of spin-off companies, industry-academia collaboration, employment, renovation of facilities and equipment, creation and dissemination of new knowledge and technology, access to valuable equipment and facilities, conservation and management of technology, equipment, bibliographies, videos, manuscripts, etc.; regeneration of the cities where they are located; Contribute to the community, building a social network among students, alumni, faculty members, and related parties.

Through these means, universities have a direct impact on the technological development, maintenance, and renewal of human resources and tangible assets. Bring in. For example,

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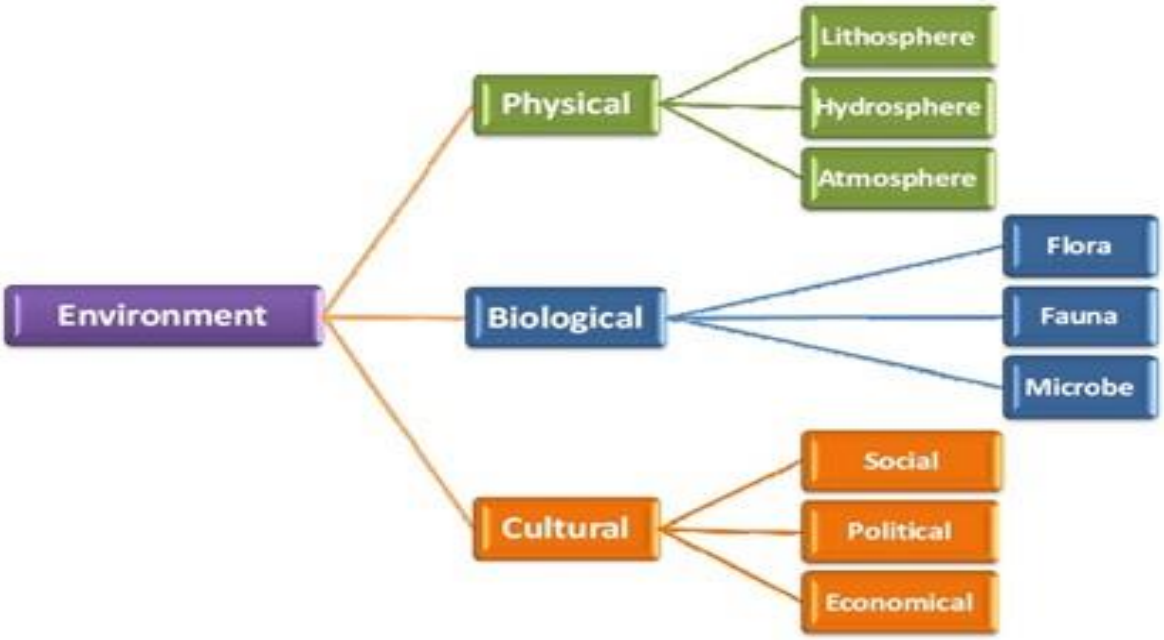
improving the productivity of human resources, and improving the ability of companies to adapt to technology, new products, and new projects of companies include improving the ability to deliver processes, hiring highly specialized personnel, and upgrading equipment. As an indirect effect, improving the performance of economic institutions. For example, improving the capacity of policymakers, increasing social capital, and Educational implications such as health, political participation, and civic responsibility.

The environment surrounding the university system and various factors promoting change-

Expansion of the university area

The expansion of the university sector is one of the social backgrounds that have forced the reform of universities. University Due to its multi-functionality, it is education and research, management and administration, administration and finance, faculty and staff recruitment and careers, and quality of administration. There are various topics like applications, curriculum, teaching methods, industry-academia collaboration, etc. I tried to explain the changes using a unified framework rather than as separate issues.



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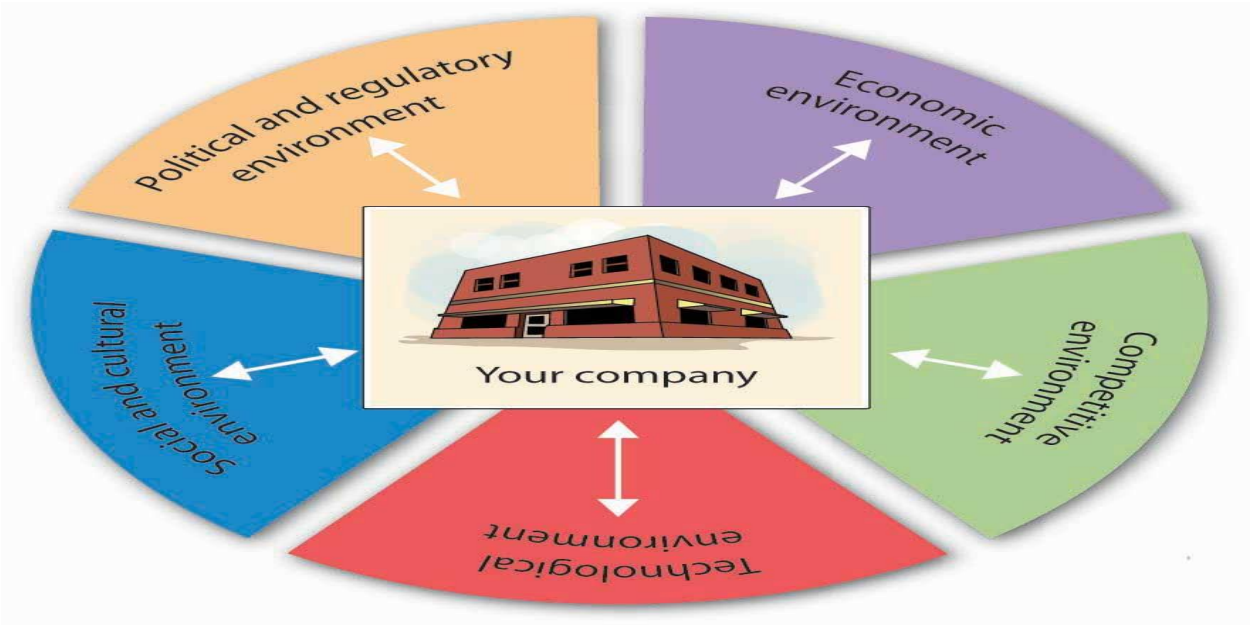
Trod (1973). True university Elite type system, 15% to 50% University system Mass type, 50% or more University system In addition to universal access, the popularity of universities will affect not only educational activities but also the relationship between society and universities. He pointed out the need to reform the administrative and financial systems of universities (Throw, 1973). For example, large financial aid for education is one of the specific problems. And where to allocate scarce government resources among diverse higher education sectors. The question arises whether this should be done.



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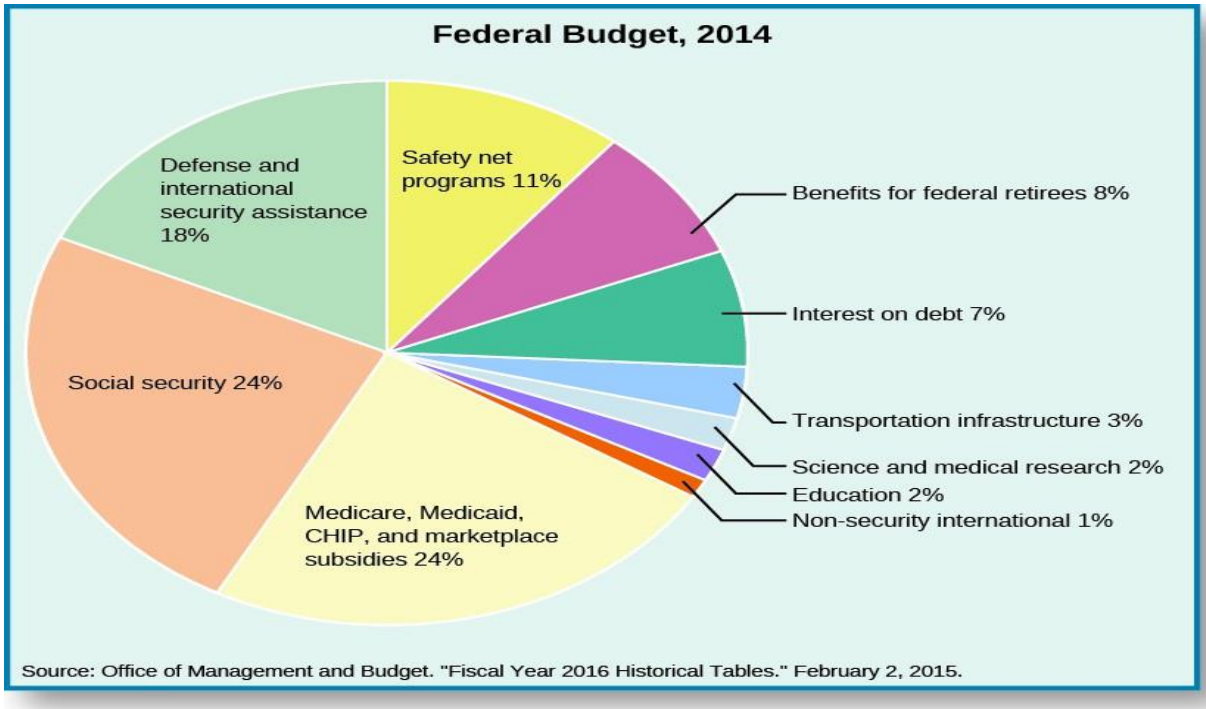
In addition, individual workers change jobs, change specialties, and continually update their knowledge throughout their careers. Is necessary. In this context, universities are recognized as an important activity body and produce knowledge not only through traditional research activities but also it will be necessary to transfer of knowledge and the creation and dissemination of knowledge in collaboration with different actors outside the university. Man In the context of human resource development, in a knowledge-based society, there is a need to respond to the mass of students and develop lifelong learning machines. It is important to expand Noh and change educational methods to self-directed learning, such as learning to "continue to learn". (William & Hoffman, 2008).



Innovation in university systems and Organizations

Adopting NPM for the University Sector The relationship between the university sector and government as well as between universities amid growing societal expectations of universities is also changing. A major change in this regard is the introduction of the new Public Management for University policy. Management: mph). In general, NPM has characterized by 1) the separation

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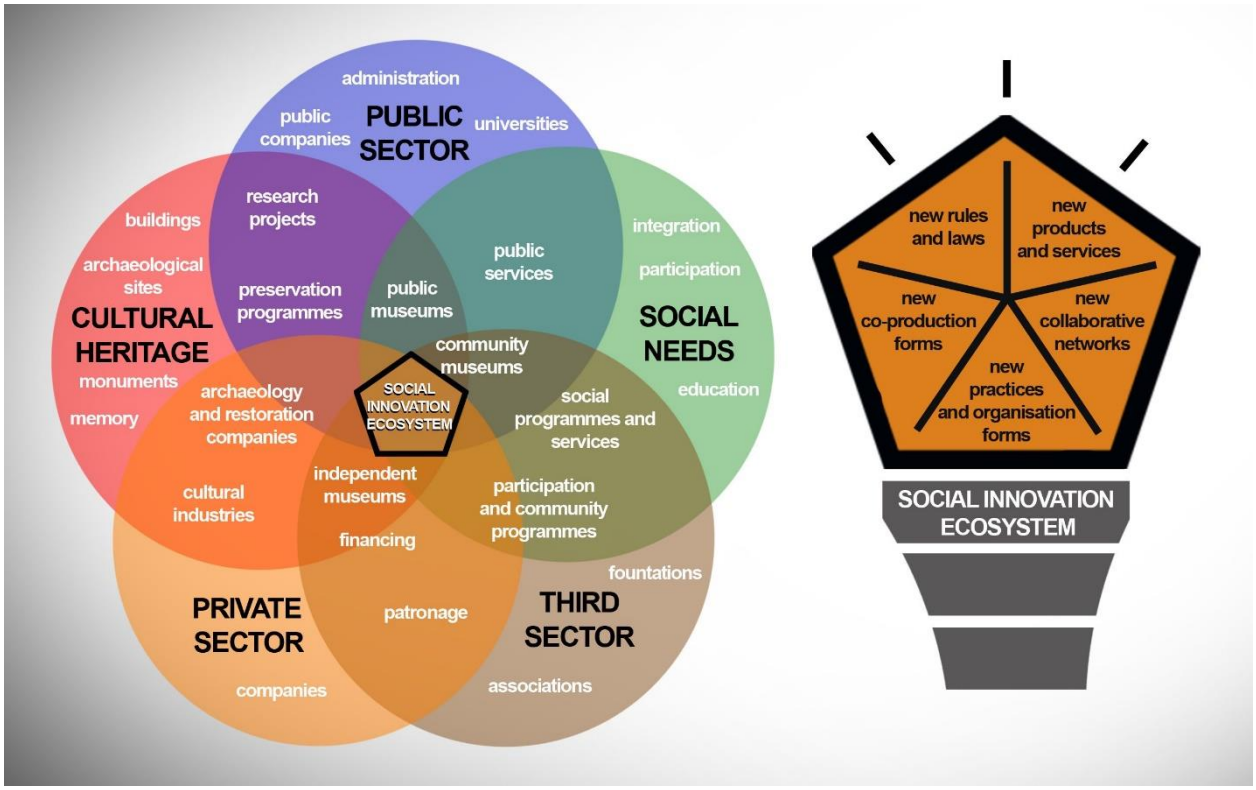
of policy planning and implementation, 2) The implementer is selected on the basis of the principle of competition, 3) assigning authority to the implementer to design the method of implementation, and 4) implementing the implementer. Evaluation is done on the basis of performance and results. A typical example of 1) is the independence of universities from administrative bodies, such as the incorporation of some national and public universities in Japan. It is to be an organization such policies are also being implemented in countries like South Korea and France.



Change to a more autonomous organizational form, such as the ability to reorganize and replace self-decision-making systems has been done. In addition, as in the examples from 2) to 4), we evaluate the performance of the university and, based on General Expenses) to the University). A leading example of this is "research assessment" in the UK. Research Assessment Exercise (RAE)", and since 2014, the "Research Excellence Framework (Research Excellence Framework: REF)". According to the OECD (2010) and Hicks (2012), followed by at least 13 countries (UK, Spain, Slovakia, Hong Kong, Australia, Poland Germany, Italy, New Zealand, Belgium (Flanders),

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Norway, Sweden, Germany Mark, Finland) to allocate one-time grants based on indicators and evaluation. It has become.

In the United States and Germany, a portion of the subsidy is allocated based on various indicators depending on the state. In Japan, national university corporations are assessed, and part of the operating expenditure grant is distributed based on the assessment results. Through NPM, the role of the government is shifted from controlling universities through financial investment and regulating them through laws and regulations. Towards an "evaluative state" (Neve, 1988), which indirectly leads to national goals through the evaluation of puts, whereby the government does not control the goals of the universities, but rather the quality of the various outputs. Reward by evaluation. In response, each university has a different position, such as industry or students. Articulate your own tasks and goals, formulate strategy, and prioritize various tasks based on relationships with stakeholders. It has changed so that it is necessary to clarify the rank.

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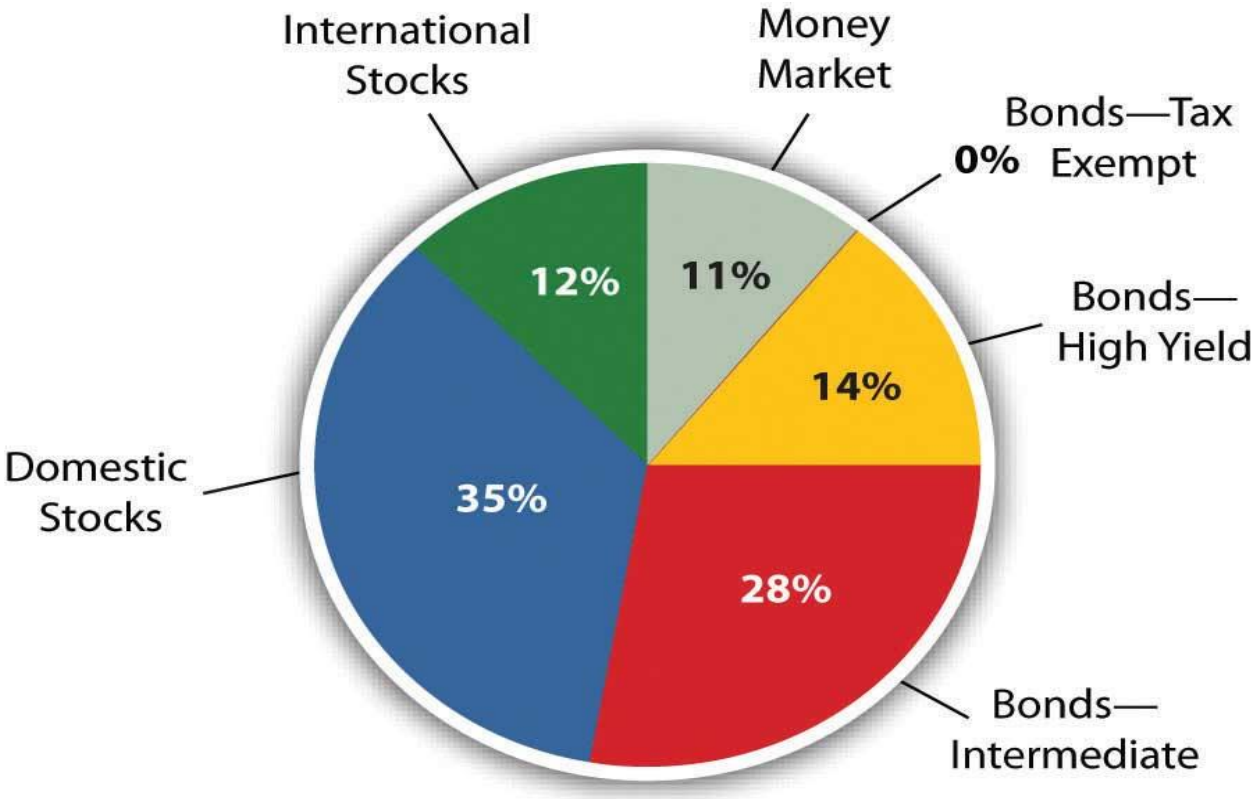
Diversification and classification of universities-

How can we classify and organize universities with the diverse issues created by the expansion of the university sector? This is a matter to be understood. Specifically, when it comes to classification, in the context of science and technology policy, it is necessary as a conceptual tool when considering whether to intensively allocate resources to universities. In Europe, the terms 'mission diversity' and 'mission differentiation' have been used to classify universities and differentiate their functions. In Europe, universities and colleges have traditionally many countries have a system in which higher professional educational institutions co-exist with non-academic institutions, and diversity has existed from the beginning. Plank. However, polytechnics were promoted and integrated into universities in England in 1992.



First, in European countries, there is an attempt to standardize the different degree systems in each country, known as the Bologna Process. Universities and other institutions of higher education

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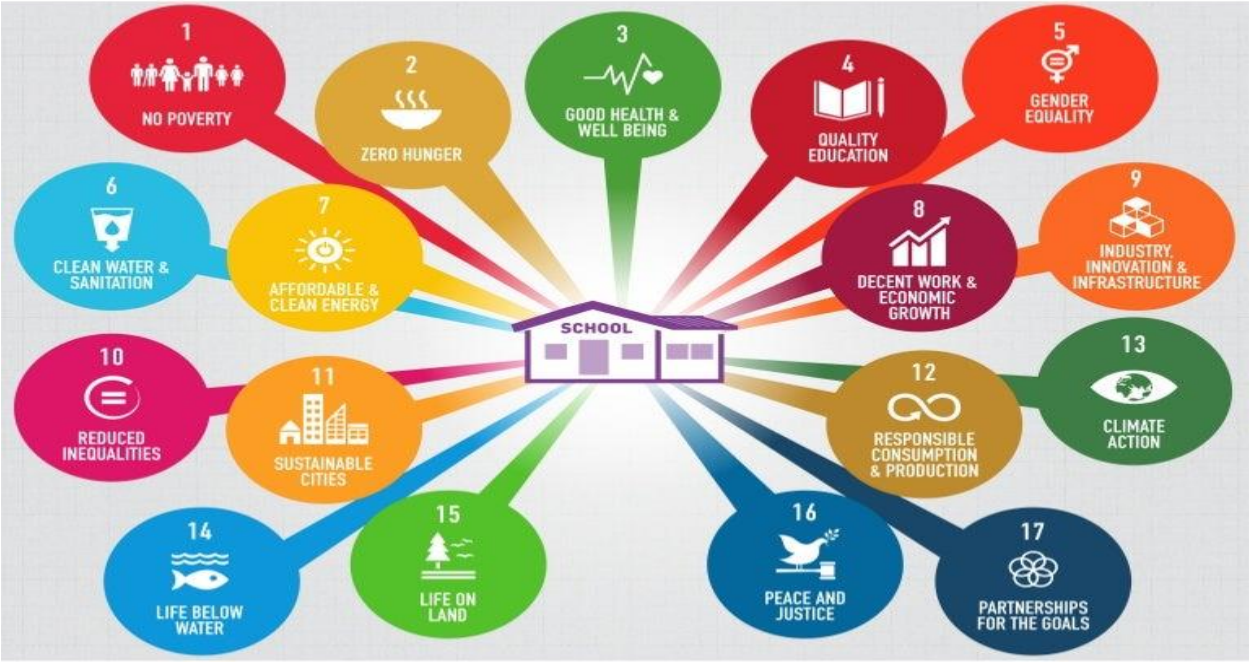
legally award similar degrees I decided to give In addition, research activities In terms of activities, higher professional educational institutions are also expanding research activities in areas closer to industrial applications, and the gap with universities is increasing. It is becoming clear. Therefore, using facts, etc., analyze the characteristics and achievements of the activities of the university.

Quality of education and research within certain indicators like university ranking—

Furthermore, there is a question of the quality of education and research within certain indicators such as university rankings. In addition to the vertical diversity that differentiates the hierarchy, differences in university orientation can be described by several indicators. Horizontal diversity expressed as the feeling is also essential (Teacher, 2005). For example, in Europe, U-Multibank There have been attempts to create multidimensional rankings such as (Van Ruth, 2008). In the United States, in the 1970s, as a university typology to understand the overall picture of the expansion of the higher education sector,



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The Carnegie Council on Higher Education developed the Carnegie Classification. The criteria for the Carnegie classification have been slightly modified. Reiterating the positive, it is basically prepared on the basis of objective indicators such as the number of degrees awarded. It has been prepared only for the purpose of organizing various universities. The classification criteria were significantly revised in 2005, In addition to the basic types of universities so far, there are also graduate education programs, graduate education programs, student information, and academic New classification frameworks such as graduate degree information, scale, and environment have been introduced, and universities can be typified from several perspectives. Methods are being adopted.

In Japan, the use of the keywords "individuation" and "functional differentiation"---

In Japan, the keywords "individualization" and "functional differentiation" are used to classify the university sector and politically functional differentiation has been made. In recent years, the 2005 report of the Central Council of Education, "Higher Education in Japan

1) World-class research and education base,

2) Developing highly specialized professionals,

3) A wide range of vocational training,

4) Broad liberal arts education,

5) Education and research in specific specialty areas (art, physical education, etc.), 6) Social contribution work (regional contribution, industry-academia-government cooperation, international exchange, etc.)

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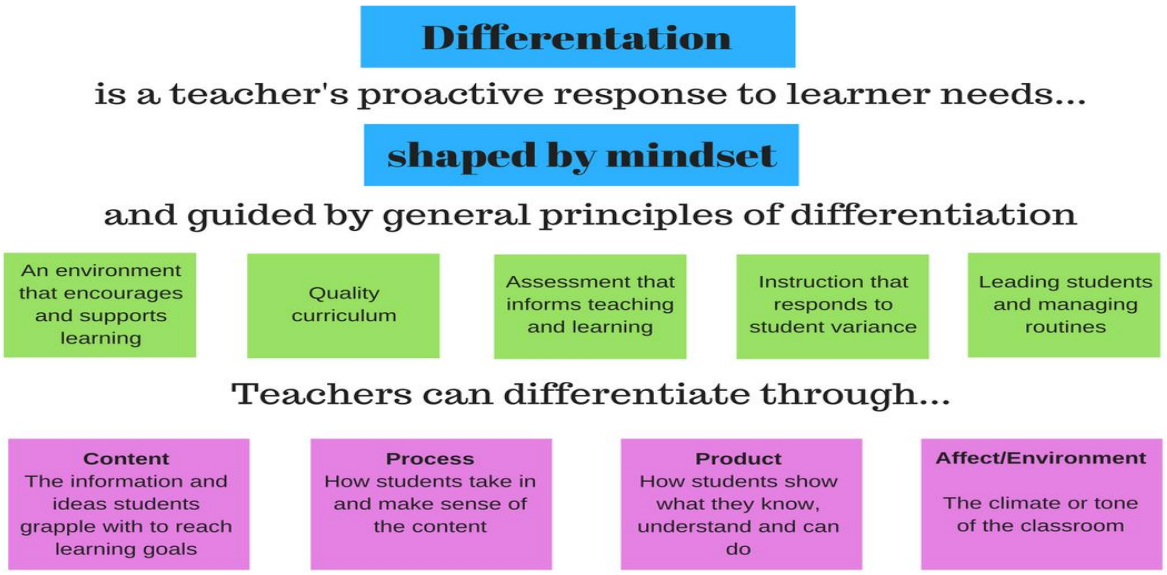

Functional differentiation based on the autonomous selection of universities was proposed. In 2016, the Ministry of Education, Culture, Sports, Science, and Technology National universities are designated as "Regional Revitalization/Specific Sector Priority Base", "Specific Sector Priority Base", and "World-leading Education and Research". Introduced a way to allocate operating expense subsidies according to the type of activity.

Classification principles of universities-

In relation to the classification theory of universities, the issue of "world-class universities" has become a national issue, especially in emerging countries. (World-class university)" (Alabarch, 2001). Salim (2009) describes the constituent elements of a world-class university.

1) A concentration of outstanding students and faculty,

2) A rich academic environment that supports cutting-edge research. Have resources and

3) Foster strategic vision, innovation, adaptability, and decision-making without bureaucracy and good governance that enables resource management.

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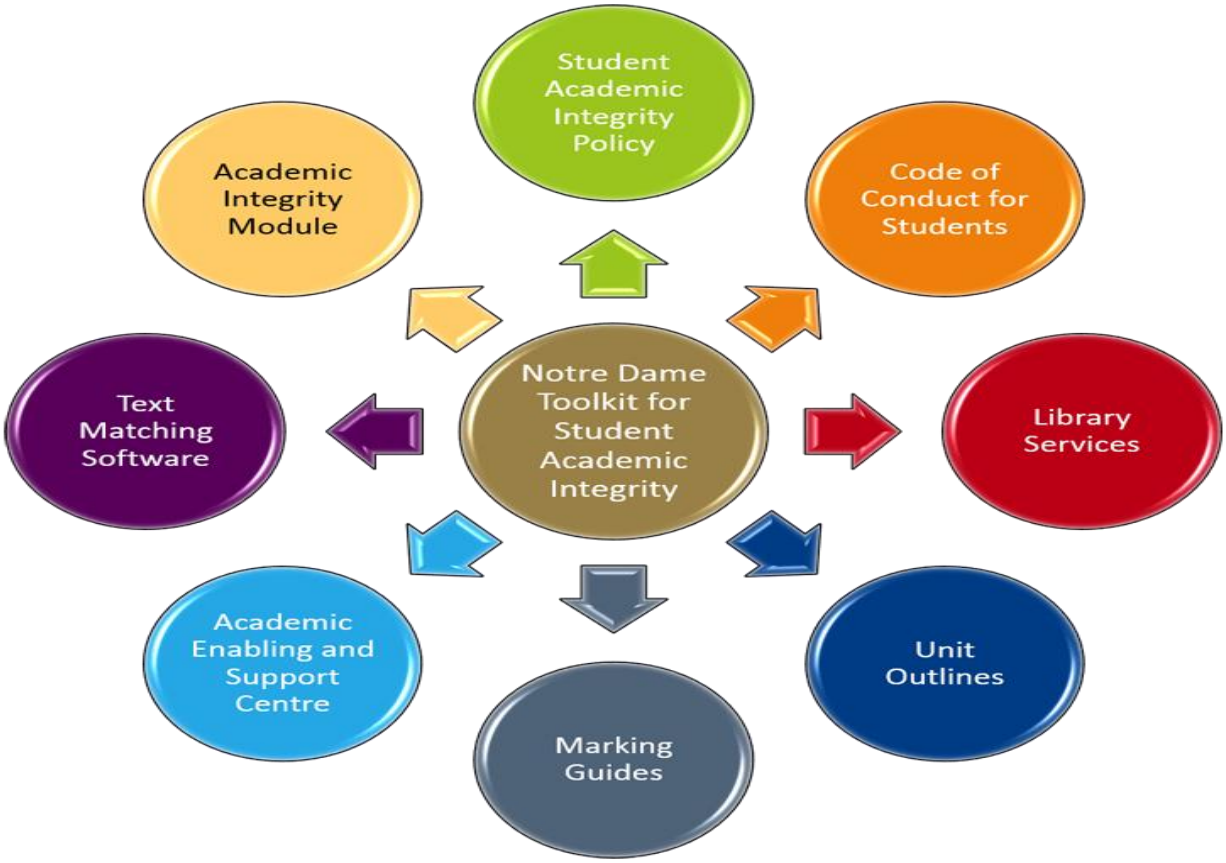

The government should take steps toward its construction. Firstly, by upgrading a small number of potentially powerful existing universities; It proposes measures such as promoting the integration of several existing universities that will produce new ones. In Japan, national universities that are expected to conduct world-class education and research activities are designated as designated national university corporations. In 2017, as designated measures the costs and benefits of a strategic approach to building a world-class university (Source Salim (2009) [p.48])

Innovation in university organizations = Features of university organization-

Along with the transformation of the university sector as a whole, transformation is also taking place at the university organizational level. University organization theory in research on it has

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pointed out that change is needed on this basis (Birnbaum 1988; Keizer 2001). Keizer (2001) lists 13 characteristics of university organizations. In other words, universities should:

1) It is difficult for them to take their own independent decisions as they are influenced by the movements of external organizations like government and assessment bodies.

2) Traditionally under the autonomy of universities;

3) A very specific organizational culture in academia;

Change * Exists,

4) Is an organization with a long-term mission?

5) Has beliefs shared by the entire organization

6) The existence of multiple power and authority structures;

7) Being a loosely coupled system

8) Loosely coupled interdependence with multiple power and authority structures;

Organized chaotic decision making

9) Differences in values emphasized by faculty and administrators

10) Loosely coupled distribution;

11) Decision-making through shared governance;

12) Goal ambiguity of the organization

13) Image of the organization

These are the 13 characteristics mentioned above which are emphasized in management. Of course, all these characteristics apply to all universities. Although it is not a perfect fit, there is a

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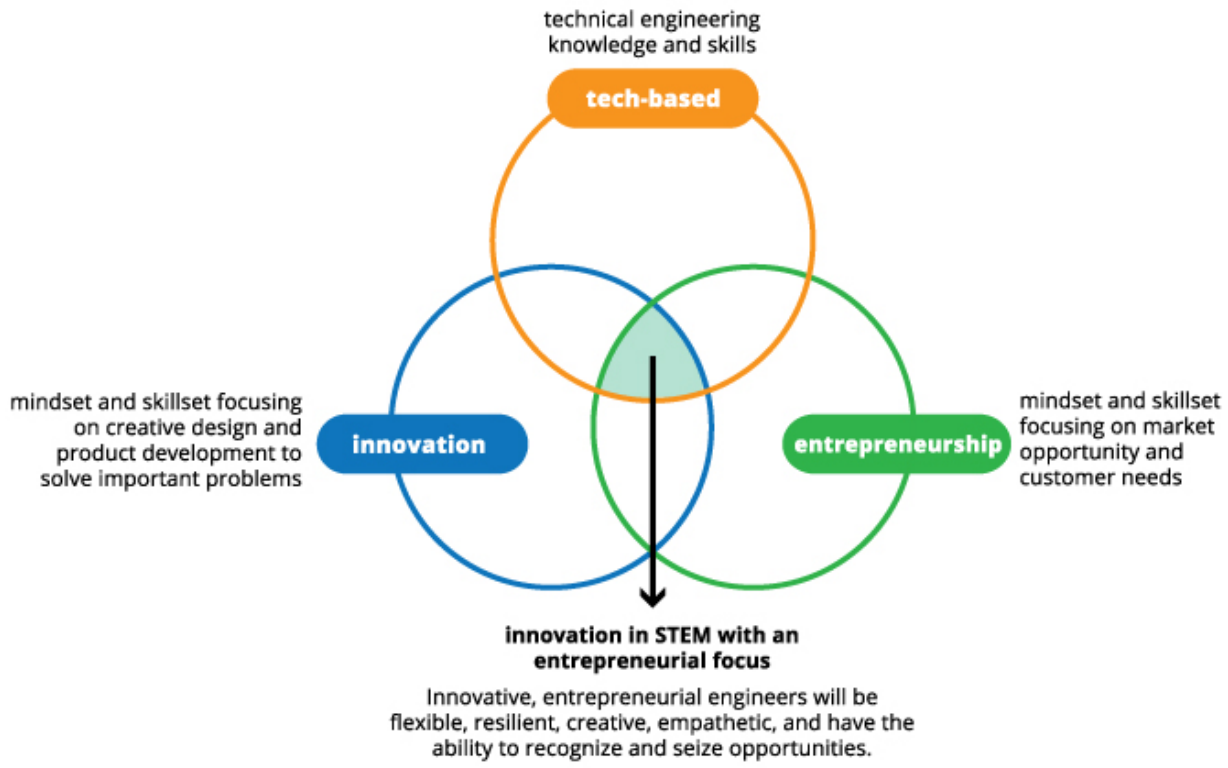
need for organizational innovation taking into account the characteristics of such a university organization.



Evolution of Research Management in Universities

Furthermore, the management of research activities in universities has changed significantly (Connell, 2004; Hazelton et al., 2005). With the growing importance of research work in universities, do universities access research funds from various sources? It is essential that funding be obtained competitively from the university and distributed fairly within the university. Research needs to be done which is also difficult and requires large equipment. Besides, we have acquired excellent human resources It is also necessary to retain and nurture young researchers in unstable employment. Therefore, university research Common trends in change management include the following (Connell, 2004). One in university Research management is becoming more specialized, and many universities have senior positions such as vice-chancellors in charge of research. Apart

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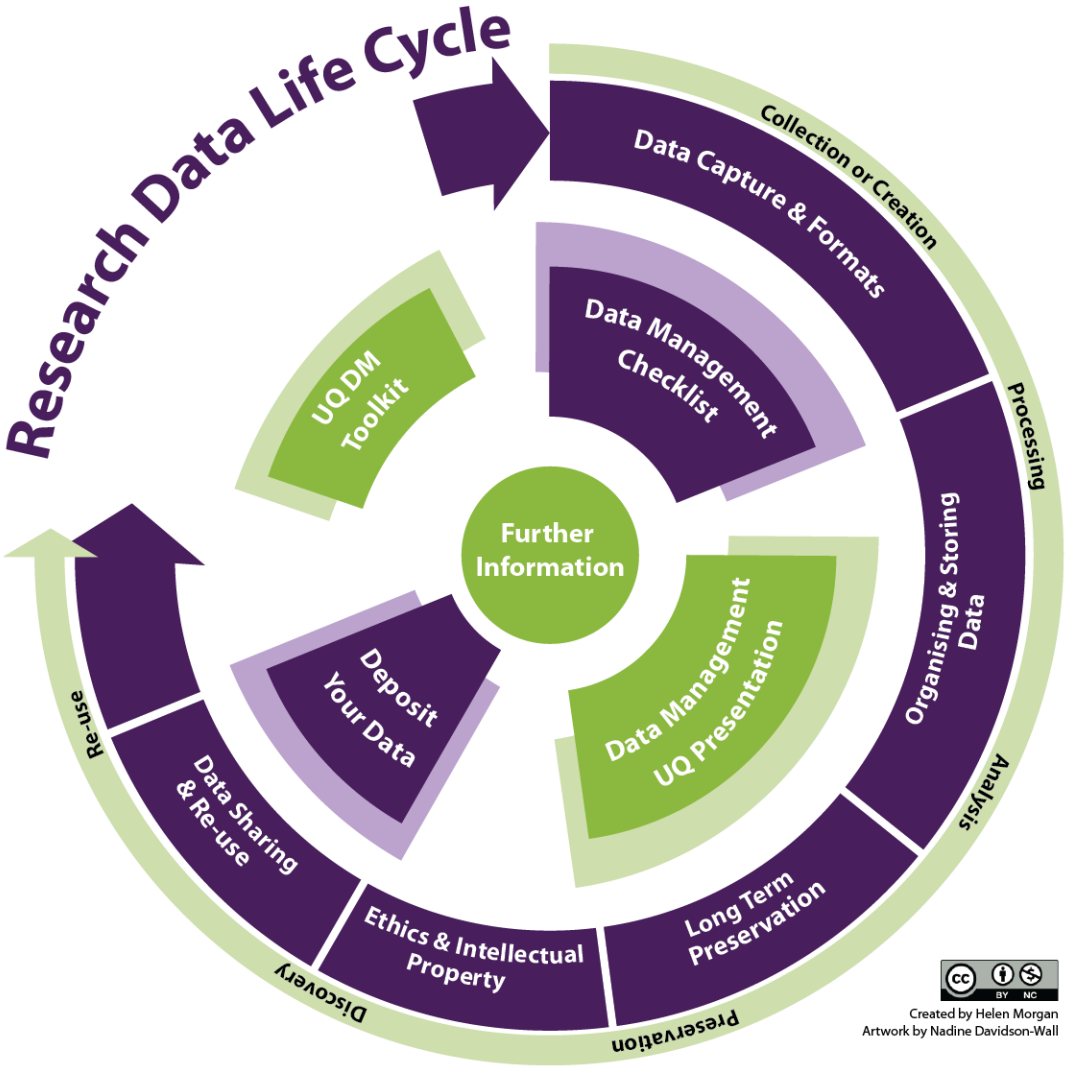
from this, Research Management Specialist (URA) is also being kept. Also, as an organization, it aims to draw up a strategic research plan for all areas of research. Allocate funding, conduct quality assessments, and commercialize research results within the university. In addition, the career of a researcher to organize the education of doctoral course students and postdoctoral students and to start non-academic careers Sustained contribution to the University through the learning of transferable skills and continuous capacity building of faculty members is.



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Conclusion-

Considering the uniqueness of university organizations, under environmental changes, universities should adopt a corporate management style. Struggled to secure financial resources through the provision of educational services and the acquisition of research funds. As a result of the reform of this system, the national universities, which had hitherto been part of the administrative structure, are now in the form of corporations. In addition, the responsibilities of Boards of Directors, Management Councils, Auditors, etc. have been clarified, and National Universities are institutionally self-sustaining and self-sustaining. It became a management body based on subjectivity. In terms of finance, the traditional National School Special Account was abolished, and operating expenses were subsidized. In recent years, amid a decline in operating subsidies, there has been an emphasis on building excellent education and research bases and on the internationalization of universities.

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