

Reform of Higher Education in Japan

– *Fostering responsiveness to society* –

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Introduction

Japan is a newly developed country, although its development was not so recent as some new members of the OECD (Organisation for Economic Co-operation and Development). For several decades after the World War II, Japan enjoyed economic growth driven by well-configured Industry-Government-Education collaboration. The mission and role of education, being regarded as a vital factor in achieving the general aims of society, were as a rule defined to serve to society in this framework.

The framework came to an end in the period following the fall of the Berlin Wall in 1989. In 1990, the “bubble economy” collapsed and the Japanese economy has been stagnant ever since. The recession forced structural changes to industry, followed by governmental administrative reform up to ministerial level. Under such circumstances, as the key to progress, it is increasingly demanded that universities should contribute to society – education of students with skills, development of mission-oriented research, participation in joint research projects with industry and government, etc. University reform progressed rapidly in the 1990s.

On the other hand, Japan is an ageing country. Japanese society will experience a decrease in the number of its younger population, which is supposed to cause divers problems including notably the lack of workforce and the reorganisation of the pension scheme. For universities, students' enrolment number is expected to plunge over the next decade, and they will be faced with enhanced competition to attract increasingly diversified students.

I Education system in Japan

1. Development of the modern education system

Throughout its history, Japan has attached great importance to education. Even before the Meiji¹ era (1868-1912), under the feudal régime (the Edo period), Japan had number of schools called *Terakoya*, open to children of commoners and *samurai* (warriors). At the end of the Edo period, there were around ten thousand *terakoya*, and according to an estimation, the literacy rate was 40 %.

The Japanese modern education system was introduced immediately after the Meiji Restoration. In 1872, the Government promulgated the Education System Order (*Gakusei*) with the objective of generalisation of school education and others. Since then, first ele-

1 From the name of the reigning Emperor Meiji. The Meiji era began with a revolution called the Meiji Restoration which marked the opening of modernisation of Japanese society.

mentary schools, then secondary schools were rapidly set up throughout the country, generally based on the existing system. At the beginning of the twentieth century, elementary education became universal both for boys and girls (Figure 1).

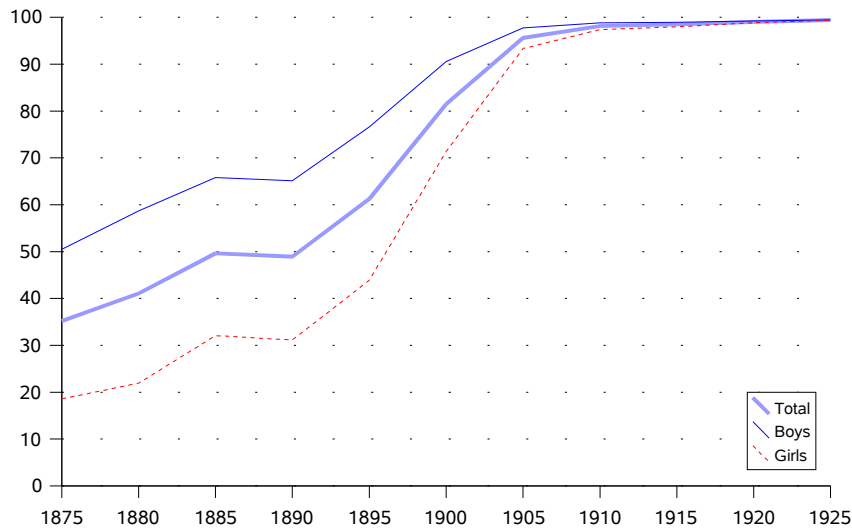


Figure 1 Percentage of children in full time elementary education between 1875 and 1925

Nowadays, with very few exceptions, all school-aged children (from 6 to 15 years) attend elementary and lower secondary schools (junior high schools) which are compulsory; and almost all the lower secondary school graduates attend upper secondary schools (senior high schools). In 2004, the upper high school attendance rate was 97.5% of the lower secondary school graduates and 96.3% of the age cohort. Slightly less than half of the age cohort goes on to higher education institutions (excluding non-university institutions). In 2004, the percentage of students enrolling in universities or junior colleges rose to 49.9%.

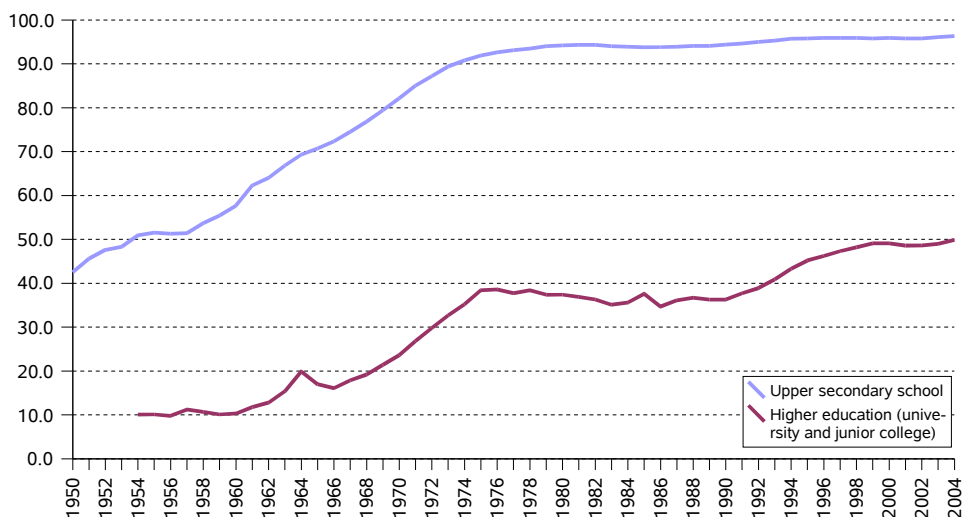


Figure 2 Percentage of students enrolling in upper secondary schools and higher education institutions (universities and junior colleges)

2. Organisation of the school system

Since the introduction of a modern educational system through the promulgation of the Education System Order in 1872, the Japanese school system has undergone a number of amendments and revisions. Ultimately, the pre-war school system was characterised by a relatively short period of compulsory education, common to all, and also by a multiple track system after that period. During wartime, under extraordinary circumstances, the school system became very complicated (Figure 3).

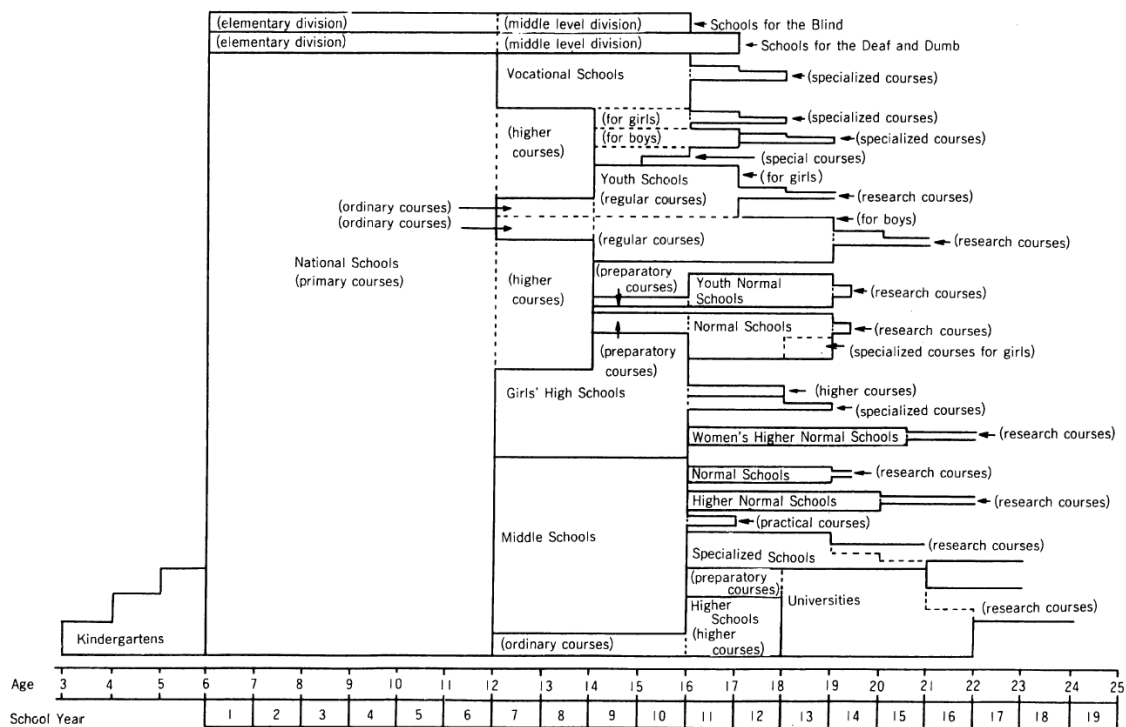


Figure 3 Organisation of the school system in 1944

Source : Ministry of Education, 1989

After World War II, the Japanese education system was entirely revised under the occupation. The school system, from kindergartens to universities, was structurally rationalised and unified into a single track format. The duration of compulsory education was extended from six years to nine years. The varying types of higher educational institutions were consolidated into a single four-year university system² constituting the last part the new 6-3-3-4 education system. Under the new system, any graduate of an upper secondary school was entitled to apply for entrance to a university. The doors of the universities were opened much wider than in the pre-war period.

As a rule, the school system established in the post-war period has been maintained until today, although some new structures were created, including colleges of technology (1961), special training schools (1975) and secondary education schools (1998). Under the post-war education system, Japanese primary and secondary schools displayed a

² Although the junior college system offering two-year higher education was set up alongside universities, the system was considered as provisional at that time. After its perpetuation in 1964 by a revision of the School Education Law, it would considerably develop throughout the country.

very good performance. According to a survey by the OECD in 2000 (PISA 2000), which assessed 15-year old students in 43 countries in the world concerning their attainments in mathematics, science and reading, Japan was classed in the first group for mathematics and science and the second group for reading. However, since educational programmes in schools, from pre-school level to higher education, have been gradually diversified and are now offering a range of options, it is becoming more difficult to assess students' academic ability with an achievement test³.

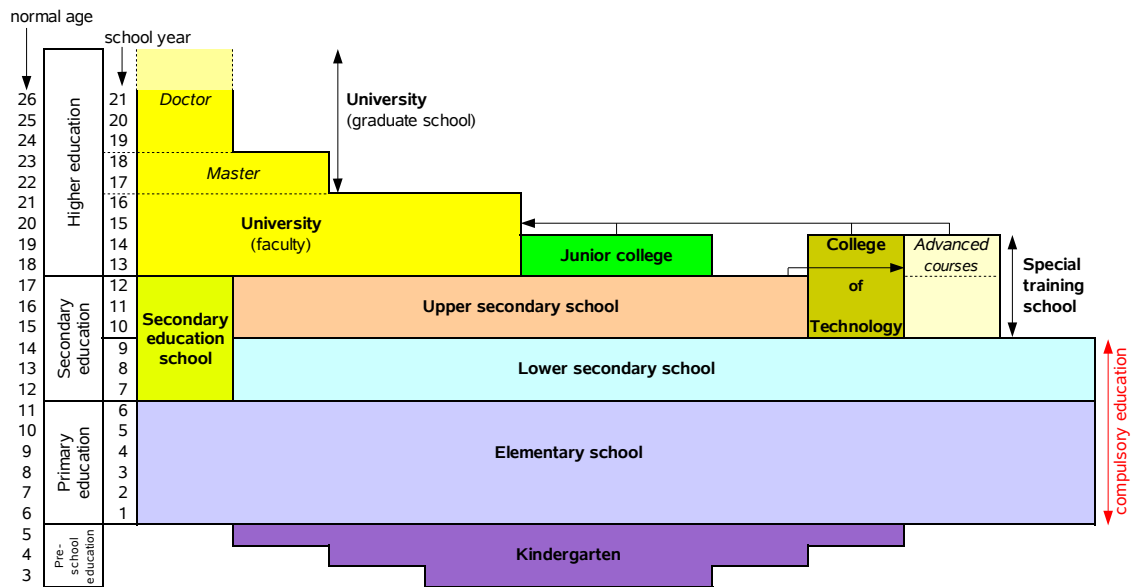


Figure 4 Organisation of the present school system

II Higher education in Japan

1. Foundation of modern higher education institutions

The modern higher education system began in the late 19th century in Japan when the University of Tokyo (later Tokyo Imperial University) was founded in 1887 by the Meiji government through the merger of two existing higher education institutions. Other imperial universities were subsequently established in several major cities in Japan, resulting in a total of 7 imperial universities (Tokyo, Kyoto, Tohoku, Kyushu, Hokkaido, Osaka and Nagoya), apart from those located in overseas territories. All these were comprehensive universities and were organised on the continental European model (especially Germanic), which led to a bureaucratic system with quasi-autonomous academic units (faculties).

Apart from the imperial universities, a number of governmental, local public and private higher education institutions were founded in the same period. In 1903, the Government enacted the Specialised School Order to codify the establishment and activities of institutions previously classed as miscellaneous schools. Specialised schools increased remarkably since then. They were later given, with single-faculty institutions in special

3 In fact, according to the results from PISA 2003 which had assessed the attainments in reading and mathematics as well as the problem-solving ability, Japan lowered its ranking in terms of reading literacy and mathematics in comparison with the PISA 2000 ranking.

cases, the opportunity to seek the status of university by the promulgation of the University Order in 1918 (implemented the following year).

The pre-war Japanese higher education system was thus characterised (but not exhaustively) by the well-organised bureaucratic administration system in governmental institutions and also by the coexistence of the three sectors of higher education institutions – governmental (national), local public and private, with massive investment in the national sector by the Government. Although they were not many in number (Table 1), governmental institutions, especially imperial universities, enjoyed the prerogative of acquiring abundant staff, facilities and prioritisation in other parts of budget distribution in comparison with institutions of other sectors.

Table 1 Number of higher education institutions by type and sector as of 1943

	<i>Universities</i> [imperial universities]	<i>Specialised Schools</i>	<i>Total</i>
Governmental (national)	19 [7]	58	77
Local public	2	24	26
Private	28	134	162
Total	49 [7]	216	265

After the war, in 1949, 70 institutions opened their doors as national universities. A number of national universities started either from old normal schools or as branch schools responsible for two-year courses. The imperial universities and other governmental universities were integrated into the newly created university system without difference in terms of legal status. However, in contrast to the former imperial universities and other former governmental universities, these new national universities would remain weak for a long time in terms of prestige, staffing, facilities, budget allocation and management ability. In addition, 17 local public universities and 81 private universities also began teaching in 1949. Some of the older specialised schools reopened as junior colleges.

2. The expansion of higher education and its decline

After the reorganisation during the occupation period, the 1960s and early 1970s witnessed the most rapid growth of the higher education system. Numerically, whereas there had been 245 universities and 280 junior colleges in 1960, there came to be 420 universities (Figure 5) and 513 junior colleges by 1975 (Figure 6). In terms of student numbers, by 1975 the population attending universities (including graduate schools) increased to 1,734,082, or 2.77 times the 1960 student population (Figure 7), and in junior colleges to 348,922, or 4.28 times the 1960 figure. The percentage of school students continuing to university or junior college by 1975 increased from 10.3% to 38.4% of the corresponding age group (Figure 8).

During the growth period, it was private universities that developed very rapidly. Its development was well illustrated by the sharp increase in the percentage of their enrolled students out of the total student population : students enrolment in private universities and junior colleges rose from 64.4% for universities and 78.7% for junior colleges in 1960 to 76.4% for universities and 91.2% for junior colleges in 1975.

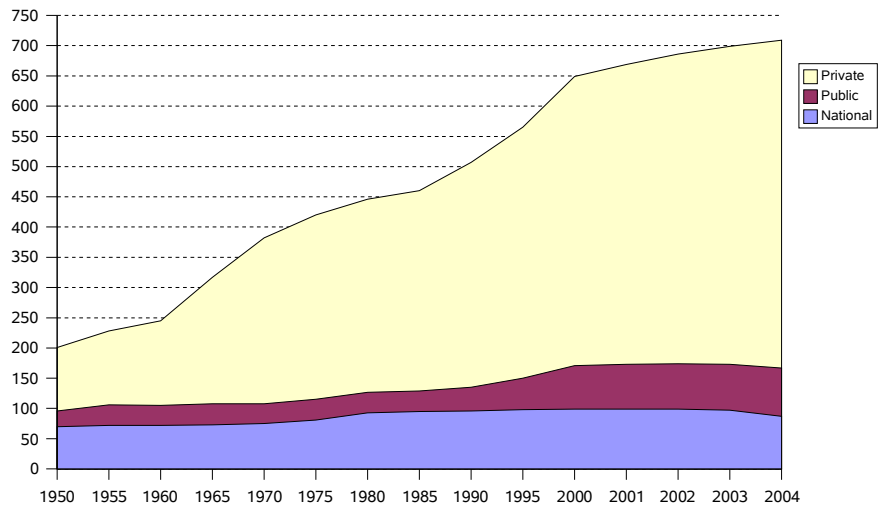


Figure 5 Number of universities by sector

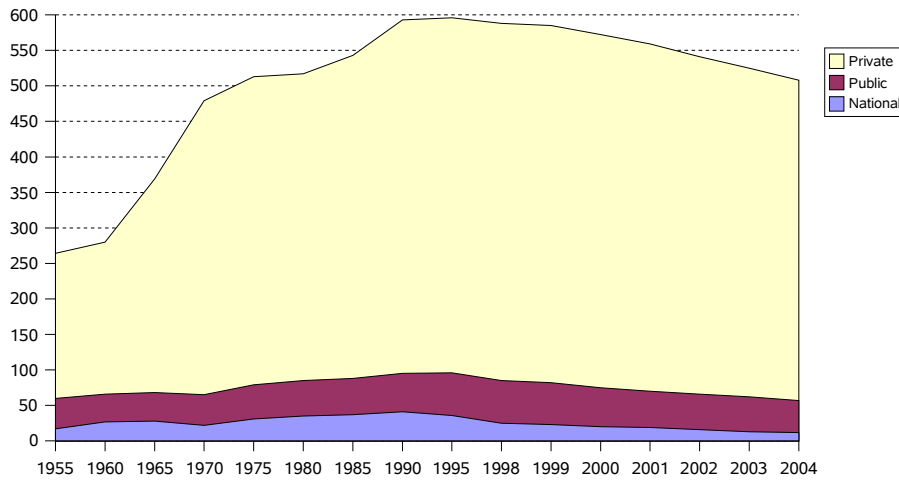


Figure 6 Number of junior colleges by sector

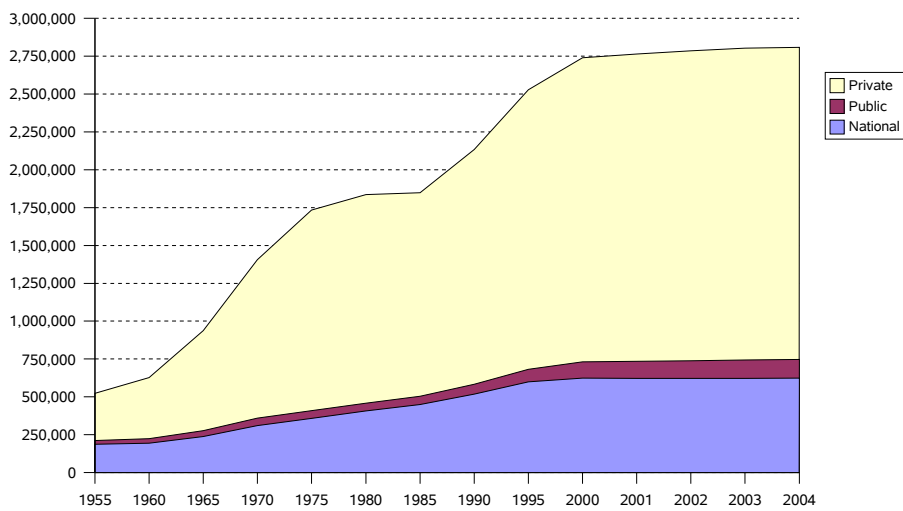


Figure 7 Student enrolment in universities (including graduate students) by sector

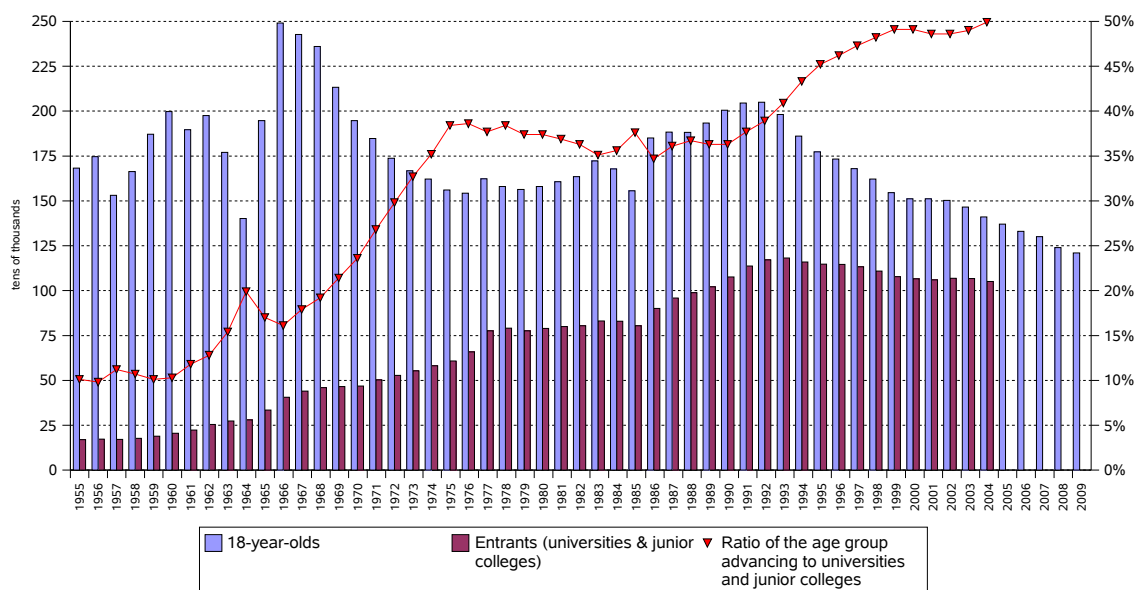


Figure 8 Trends in 18-year-old population and access to higher education

The second rapid expansion of higher education occurred in the 1980s and early 1990s. The number of universities increased from 446 (93 national, 34 public and 319 private) in 1980 to 565 (98 national, 52 public and 415 private) in 1995, and 709 (87 national, 80 public and 542 private) in 2004. However, the number of 18-year-olds reached its peak in 1992, and has been decreasing ever since. Although the number of universities is still increasing, the number of junior colleges reached its peak (596 in number) in 1996 and is now gradually decreasing (Figure 6). In addition, the proportion of the age group advancing to universities and junior colleges reached 49.1% in 1999, and has been stagnant at around 49% since then (Figure 8).

III Reform and deregulation in higher education

1. Student movements in the late 1960s and university reform⁴

The system conceived after the war was not capable of coping with the sharp increase in applications and the popularisation of university education in the years following 1965. In addition to the greater number of students seeking admission to universities, pressures for expansion of the system also arose from societal needs in the wake of the scientific innovations and rapid economic growth of the preceding decade. As a result, universities came to be overloaded without making necessary adjustments in administration or educational structure.

Struggles within the universities caused by students broke out first in 1966, over increases in tuition fees and the administration of the student halls, and spread throughout the country. In particular, against protests raised at the University of Tokyo in 1968, riot police were mobilised the next year and resulted in fierce confrontations between students and police. The disruptions began to subside following the enactment of the Law concerning Emergency Measures on the Operation of Universities of August

⁴ The description in this chapter largely due to Ministry of Education (1980).

1969.

The prolonged struggles had revealed problems that existed both inside and outside the universities and produced a debate over university reform. In June 1971, the Central Council for Education⁵ submitted recommendations for reform to the Minister of Education on various aspects of higher education, including 1) diversification of higher education; 2) curriculum reform; 3) improvements in teaching methods; 4) opening of higher education to the general public and establishment of a system of certification; 5) organisational separation of education and research; 6) establishment of “research institutes” (*kenkyuin*); 7) rationalisation of the size of higher educational institutions and their administrative structure; 8) improvements in personnel policies and treatment of teachers; 9) change of the form for establishing national and local public universities; 10) improvements in governmental financing of higher education, a system of costs being borne by the beneficiaries, and a scholarship system; 11) a national plan for the co-ordination of higher education; 12) improvements in the students' environment; and 13) improvements in the selection procedures of students.

Upon these recommendations and others, the Monbusho⁶ took various measures to enable universities to make their structure more flexible so as to enable individual universities to carry out appropriate reforms on their own initiative in response to a variety of demands from society. For example, in 1972 the Ministry created arrangements for credit transfers between universities (in 1982 these arrangements were extended to credit transfers between universities and junior colleges). In 1976 the Ministry authorised universities to admit students (or to allow students to graduate from a university) at the beginning (or the end) of a school term, rather than at the beginning (or the end) of an academic year⁷. In 1985 the Ministry gave more flexibility to the qualification of university teachers so as to enable universities to appoint working people from other sectors as university teachers.

2. The University Council and the deregulation in higher education

The National Council on Educational Reform (*Rinjikyokushingikai*), established in 1984 as an advisory body to the Prime Minister, submitted reports on a wide range of issues, including the improvement and individualisation of university education, the enhancement of graduate schools, fiscal policies relating to higher education, the organisation and management of universities, and the establishment of a “University Council”, which would be inaugurated in 1987⁸ as an advisory body for the Minister of Education to deliberate on basic aspects of higher education in Japan. Immediately after its inauguration, the council was asked to study specific measures for university reform in the light of the following social changes.

1. Progress in scientific research and changes in human resources;

5 An advisory board for the Minister of Education.

6 The official appellation of the ministry was “Ministry of Education, Science, Sports and Culture” (“Monbusho” in Japanese) until the merger with the Science and Technology Agency in January 2001. Monbusho became then the Ministry of Education, Culture, Sports, Science and Technology (MEXT). In this paper, the Minister in charge of Monbusho or the MEXT is referred to as the “Minister of Education”.

7 In Japan, an academic year is composed of two terms.

8 The council existed until the governmental reorganisation in 2001 (mentioned before) and was integrated into the Central Council for Education (Subdivision on Universities).

2. A rise in the percentage of students continuing to higher education and diversification of students; and
3. A growing need for lifelong learning and rising social expectations of universities.

Ever since the establishment of the Council, measures such as quantitative and qualitative improvement of graduate schools as well as deregulation and improvement of university administration have been taking place. One of the most important recommendations was the abolition of subject areas to enable universities to structure curricula reflecting their own educational ideals and objectives, which resulted in 1991 in amendment of the Standards for the Establishment of Universities. It was decided that there should be no definition of subject areas, such as general education and specialised education. It was also decided to discontinue the practice of requiring students to obtain a certain number of credits in each subject area as a prerequisite for graduation and to make the acquisition of a minimum total number of credits the only requirement. Another most important recommendation was the qualitative and quantitative improvements of graduate schools.

In 1998, the University Council submitted a report, *A Vision for the University of the 21st Century and Future Reform Measures : Distinctive Universities in a Competitive Environment*, which built upon the progress of university reform at that time. The report presented the basic policies of university reform in the perspective of the 21st century as follows :

1. Improve the quality of education and research with the purpose of nurturing the ability to investigate issues;
2. Secure university autonomy by making the educational and research system structure more flexible;
3. Establish university administration and management with responsibility for decision-making and implementation; and
4. Individualise universities and continuously improve their education and research by establishing multiple evaluation systems.

In 2001, to further promote the reform, *Policies for the Structural Reform of Universities (National Universities)* defined the future direction of the reform, with a view to making universities more dynamic and internationally competitive. It stipulated : (1) that the realignment and consolidation of national universities should be boldly pursued; (2) that management methods of the private sector should be introduced into national universities; and (3) that a competitive mechanism with third-party evaluation should be adopted by universities. The private sector management methods referred to in (2) above were meant to turn national universities into independent administrative institutions (mentioned later) and require outside participation in university administration and merit-based human resources management.

In 2002, the School Education Law was revised and provided more flexibility to institutions for a reorganisation of faculties and departments, while a continual third-party evaluation system was introduced. Under the revised law, only notification to the ministry is required of the institution in cases of reorganisation without change in the kinds and fields of degrees awarded by that institution, and ministerial authorisation itself is no longer necessary.

3. Incorporation of national universities⁹

National universities were until March 2004 a part of the national government, and are directly operated by the latter. By acquiring the status of “national university corporations”, they were given a legal personality and became more autonomous from the government. This reform was regarded as one of the most significant reforms of Japanese university since the Meiji era.

a. Progress towards incorporation

The idea of incorporating national universities is not a new one. The earliest appearance of the idea can be found in the proposal *Teikokudaigaku dokuritsuan shiko* [Private study on independence of the Imperial University] in 1899 where academics suggested placing the Imperial University under the patronage of the Emperor conferring legal personality on it. In the 1960s, a certain number of proposals were made by academics, such as Michio Nagai's *Daigakukosya* [university corporation] in 1962. In 1971, the Central Council for Education proposed, as one alternative, incorporating national universities to help self-development by giving them more institutional autonomy.

In the late 1980s, the National Council on Educational Reform vehemently discussed the possibility of incorporating national and public universities. At the same time, the incorporation of national universities came to be studied as part of governmental administrative reform. In the 1990s, some governmental advisory bodies suggested the incorporation of national universities as one option, but national universities and the Monbusho unanimously rejected the suggestion.

Meanwhile, a new administrative system called the “Independent Administrative Institution (IAI)” was set up in 1999, which was to separate some organisations from the central government, giving them autonomy to enhance the effectiveness and efficiency of their operation in providing administrative services¹⁰. In April 2001, 57 new autonomous governmental corporations were created. The incorporation of national universities came then to be studied as part of this organisational reform in the Government.

The study on incorporation of national universities came to be officially undertaken by the Monbusho in September 1999. In 2001, a study group composed of academics and non-university people was set up in the Ministry and proceeded with the study on the incorporation of national universities in close consultation with the Association of National Universities (ANU). The study group put forth the final report in March 2002 on a framework of the incorporation of national universities. In July 2003, the National University Corporation Law and other related five laws were legislated. Finally, all the national universities were incorporated on 1st April 2004.

b. Goals/plan and evaluation

⁹ As for the details of the incorporation of national universities, refer to Oba (2003) and Oba (2004).

¹⁰ Article 2 of the Law concerning the General Rules of the Independent Administrative Institutions defines independent administrative institutions as “legal entities established pursuant to this Law or other specific laws enacted for the purpose of efficiently and effectively providing services or businesses that may not necessarily be offered by private entities or that need to be exclusively offered by a single entity, from among those services or businesses that must be reliably implemented for the public benefit, such as for the stability of socio-economic or national life, but that need not necessarily be directly implemented by the Government on its own.”

Each national university was individually given a legal personality and became a national university corporation¹¹. This policy – individually incorporating national universities – aimed at extending individuality by enhancing the institutional autonomy of each institution.

The budget is now being allotted by the Government to each university as a lump sum (operational grant) without earmarking, based on the medium-term plan prepared by each university according to its medium-term goals and approved by the MEXT. The medium-term goals are presented by the MEXT, which are elaborated on the basis of the views of each university. The duration of medium-term goals/plan is six years. In addition, the allocation of the budget for the next period will come to vary according to the results of the evaluation.

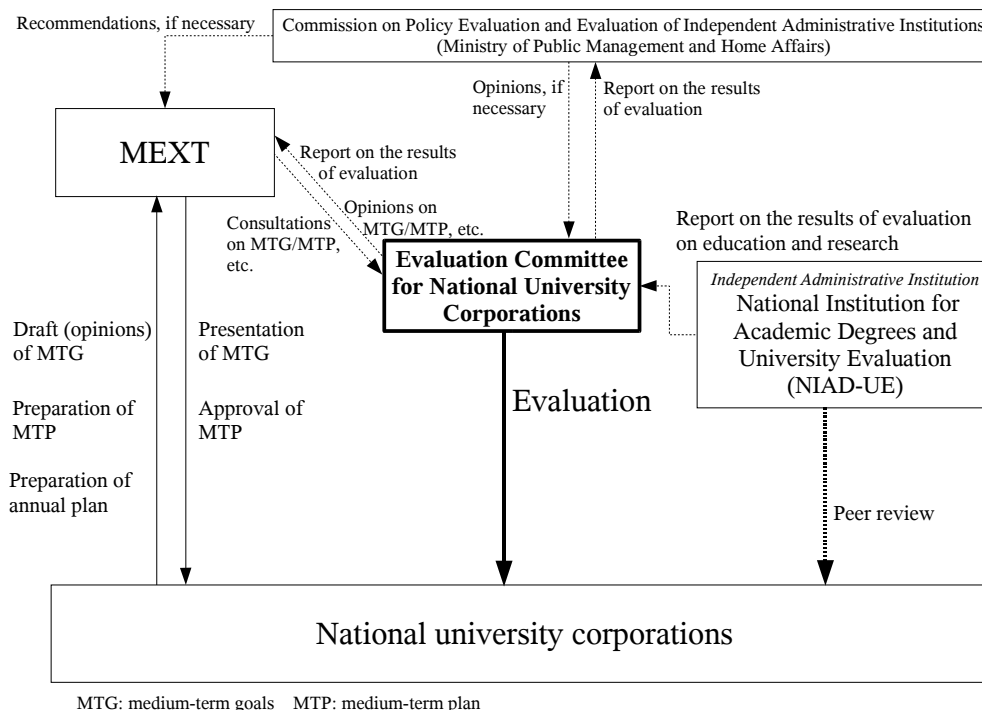


Figure 9 Evaluation system of national university corporations

Prior to the definition of the medium-term goals by the MEXT, the Ministry should consult the Evaluation Committee for National University Corporations (hereafter referred to as the “evaluation committee”). With respect to matters essentially related to education and research, the evaluation committee is to receive a report from the National Institution for Academic Degrees and University Evaluation (NIAD-UE), in order to respect the specialised nature of the education and research of universities. The evaluation committee was, prior to the foundation of national university corporations, set up on 1st October 2003. It held its first general meeting on 31 October, and selected Ryoji Noyori (2001 Nobel laureate in chemistry) as its chairman.

c. Governance and management

Each national university corporation has the president of the university and executives in its governing body. In contrast to the former national universities having the sole

¹¹ More precisely, each national university was founded by a national university corporation (see below).

deliberative organisation (council), three deliberative organisations are set up in each corporation : (1) board of directors, the highest deliberative organisation before the final decision by the president, (2) administrative council, to deliberate on important matters concerning the administration of the national university corporation, and (3) education and research council, to deliberate on important matters concerning education and research. The governance is shared by these three organisations. In addition, the structure of the secretariat is now at the discretion of each university.

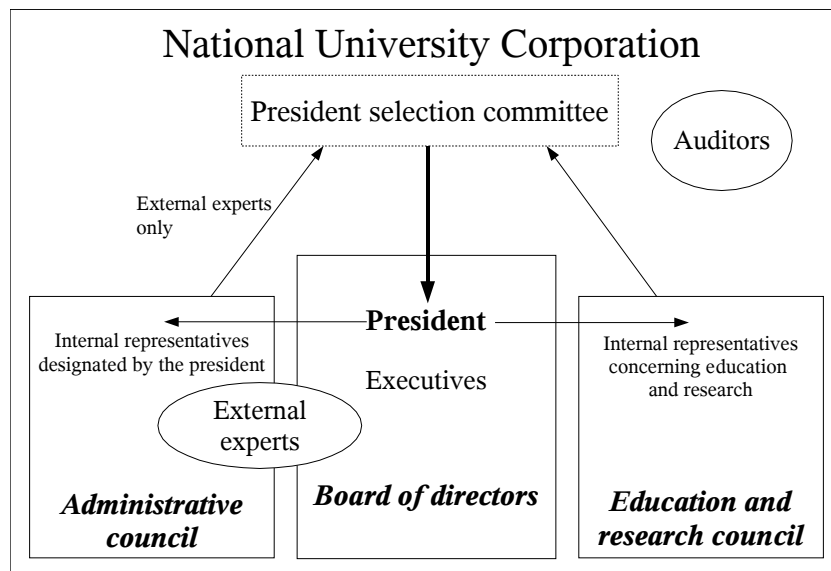


Figure 10 Governing bodies of national university corporations

In order to ensure the accountability and the responsiveness to society of national universities, people from outside the university participate in their management. At least one of executives, who compose the board of directors, should be a person from outside the university. In addition, not less than half of the total members of the administrative council should be appointed from outside.

IV Higher education and societal needs – How can universities be more responsive to society?

1. The transition from elite to mass higher education

Every country experiences increasing demands on higher education during its economic development. As shown before, Japan witnessed rapid expansions in the 1960s and early 1970s as well as in the late 1980s and 1990s. The percentage of students enrolling in universities and junior colleges rose from 10.1% in 1960 to 49.9% in 2004. Similarly, the number of entrants rose from 205 thousand to 705 thousand, although it reached its peak in 1993 (810 thousand).

According to M. Trow's very well-known model of the transition from elite to mass higher education (and subsequently towards universal access), a higher education system that enrolls under 15% of the relevant age group of young people is considered an elite system, and if the transition is made successfully, the system is then able to develop institutions that can grow without being transformed until the enrolment ratio reaches

50% of the age grade (Trow, 1974). Although he recognised the existence of variations among countries, Trow pointed to several elements particular to each system.

Table 2 Characteristics of the three phases of higher education system defined by Trow (1974)

	<i>Elite</i>	<i>Mass</i>	<i>Universal</i>
<i>Enrolment ratio</i>	Under 15%	Between 15 and 50%	Over 50%
<i>Attitude towards access</i>	Privilege	Right	Obligation
<i>Primary functions of higher education institutions</i>	Shape the mind and character of the ruling class; Prepare students for broad elite roles	Prepare a much broader range of elites; Transmission of skills	Prepare large numbers of people for life; Maximise their adaptability to society
<i>Curriculum</i>	Highly structured; Highly specialised and governed by the professor's notion	More modular, marked by semi-structured sequences of courses; Credit system; Movement between fields	Less structured and boundaries between courses being broken down; Rejection of academic forms and standards
<i>Forms of instruction</i>	Tutorial or seminar, marked by a personal relationship between teachers and students	Emphasis on the transmission of skill and knowledge; Large lectures, often by teaching assistants	Direct personal relationship being subordinated; Heavier reliance on correspondence, TVs, computer and other technological aids
<i>Academic career of the student</i>	Entrance directly after finishing secondary school; In-residence	Growing delayed entry; More heterogeneous students; Higher waste rate	Much postponement of entry and stopping-out; Large number of students with working experiences; Life-long learning
<i>Academic standards</i>	Broadly shared and relatively high	Variable among institutions	Different criterion of achievement
<i>Selection</i>	Meritocratic achievement	Additional non-academic criteria	Wholly open

In Japan, the enrolment ratio is estimated to have reached beyond 15% as early as 1963; if we believe in Trow's model, Japanese higher education system should have passed from the elite phase to the mass one. In the 1960s, the growth of higher education was boosted by the economic and social development in the late 1950's which had made it possible for many parents to bear the expenses of higher education for their children. This same development created increased social demand for the growth of scientific techniques and the expansion of science and engineering courses to train modern technologists.

Subsequently, corresponding changes were made within the higher education system. They included the creation of colleges of technology in 1961, combining three years of upper secondary education and with two years of university level of vocationally ori-

ented education. It aimed at training professional workers having a good scholastic foundation, to meet the needs of an industrial society. Together with the institutionalisation of junior colleges in 1964, Japanese higher education system passed to a multi-track system, as seen in the pre-war period.

In universities, the growth of the enrolment ratio and changes in social demands resulted in changes in the percentage distribution of students according to field of specialisation in favour of the science courses (Figure 11). In 1957 and in 1961, two campaigns were made in order to attract students into the science and engineering fields and new departments were created, such as electronics, nuclear energy, urban and pollution problems, urban planning and environmental engineering, and later information technology, before the dawn of the age of information.

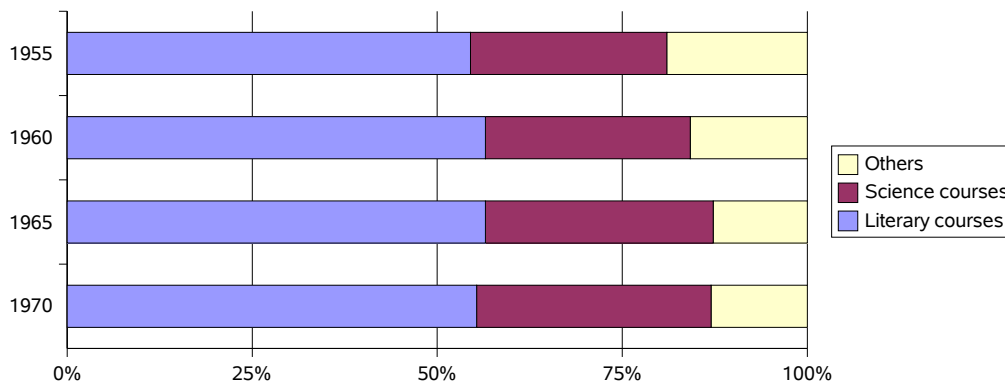


Figure 11 Changes in the percentage distribution of the university according to field of specialisation from 1955 to 1970

However, adjustments made to the growth of higher education were not sufficient in the end, particularly in terms of physical infrastructure to accommodate students and teaching methods based on the elite system, and as seen before, it resulted in student movements in the late 1960s.

2. The planned expansion of higher education after 1975

The growth of higher education which had continued through the 1960s and early 1970s came finally to an end in 1975. The rapid expansion of the scale of higher education led to a deterioration of the conditions of the educational process and to an excessive concentration of universities in large cities and consequently, regional imbalances in access to higher education.

In order to expand and improve higher education with a long-term perspective, a decade plan for higher education was formulated for the years from 1976 to 1986¹². During this decade, the number of 18-year olds was expected to remain at the level of 1.5 million to 1.6 million. The plan envisaged improving the conditions of the educational process through restricting the further quantitative expansion of higher education. The plan also envisaged rectifying regional imbalances in access to higher education through restricting the establishment or expansion of institutions of higher education in large cities.

Additionally, alongside the university system, as a non-university higher education insti-

¹² The plan included a first phase (1976-1980) and a second phase (1981-1986).

tution, the special training school (advanced courses)¹³ was institutionalised, which was to offer in particular vocational training courses such as information technology, foreign languages, cookery, and so on. Special training schools have contributed to democratisation of higher education through absorbing secondary education graduates who could not or did not wish to go on to a university or a junior college.

After the decade plan 1976-1986, as a rule, policies for a planned improvement of higher education were still maintained. Such policies came finally to an end in the 1990s, as seen before, in the course of structural reform of the Government.

3. Diversification of higher education institutions and their programmes

Towards the end of 20th century, one could finally conclude that Japanese higher education reached the universal phase when the enrolment ratio of the age cohort of 18 years attained 49.1% in 1999. If the non-university sector is included, the enrolment ratio had already reached over 50% in 1987. According to Trow's model, with a much more diversified student body, universities and other higher education institutions of universal access¹⁴ should now offer courses that are less structured and more vocational or problem solution oriented in diversified components.

The 1998 report of the University Council (mentioned before) recommended the definite abandonment of the planned higher education policy and the acceleration of diversification of higher education institutions, in order to respond to increasingly changing societal needs and a more diverse student body's demands. The deregulation on the curriculum organisation in 1991 and the incorporation of national universities in 2004 were both decided in accordance with the policy towards the diversification of higher education, although the latter was achieved in the process of governmental administrative reform.

After the aforesaid deregulation, curriculum reform has been implemented in almost all universities. Various types of curriculum reform have been attempted (Figure 12). Most of these reforms, in principle, placed importance on general education and aimed to realise a systematic study of a subject over four years (Ministry of Education, 2004), often to the detriment of the former however.

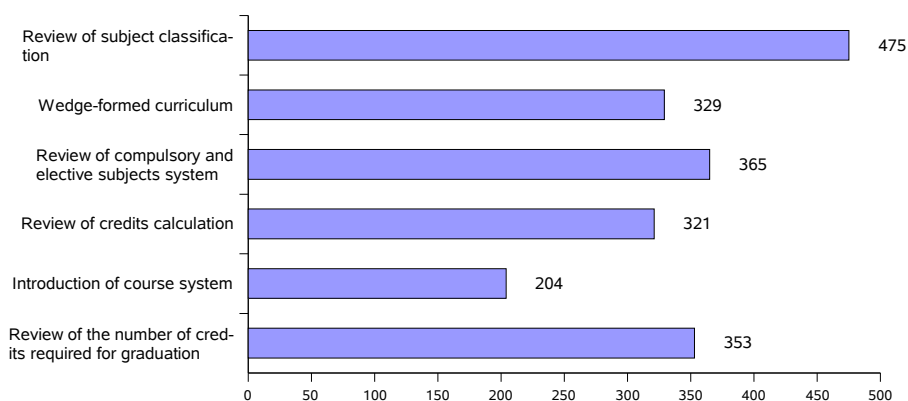


Figure 12 Implementation of curriculum reform in universities (2001)

13 This kind of school offers secondary level education as well as tertiary level education.

14 It should be noted that Trow did not mean that the forms of the prior phase would disappear after the transition from one phase to another but that each phase would survive in some institutions.

4. Development of human resources in knowledge-based society

Today, knowledge is regarded as the most important asset for social development (knowledge-based society), and knowledge creation and its inheritance is the key to the development. In such an environment, the principal role of higher education is not only to provide learning opportunities to those having just finished secondary education, but also to offer higher learning to all people in need of knowledge and skills required by their career planing.

Due to the unprecedented advancement of science and technology in recent years, Japan has witnessed important changes in the demand for human resources. In particular, an increasingly borderless economy and progression of information technology have brought about a fundamental change in the abilities that employers are seeking in their human resources (Figure 13, Figure 14). The appearance of new vocational courses in universities is principally due to such a shift in the employment market.

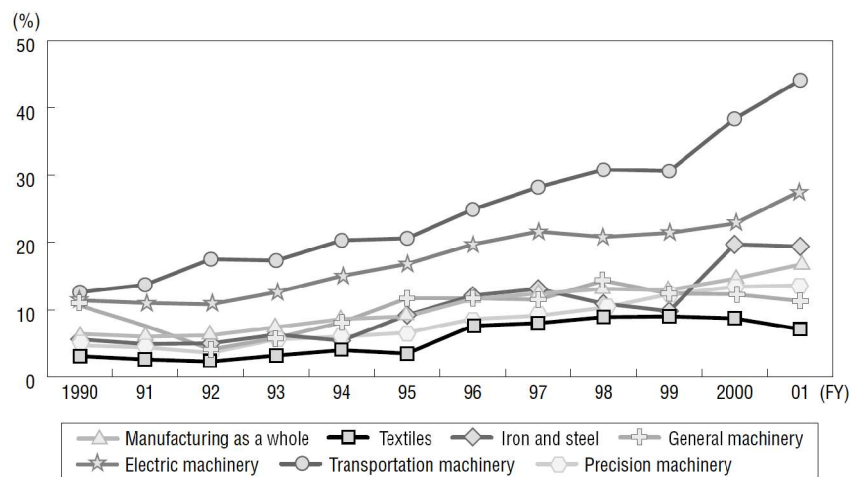


Figure 13 Japan's foreign production ratio by industry
Source : Ministry of Education, 2004

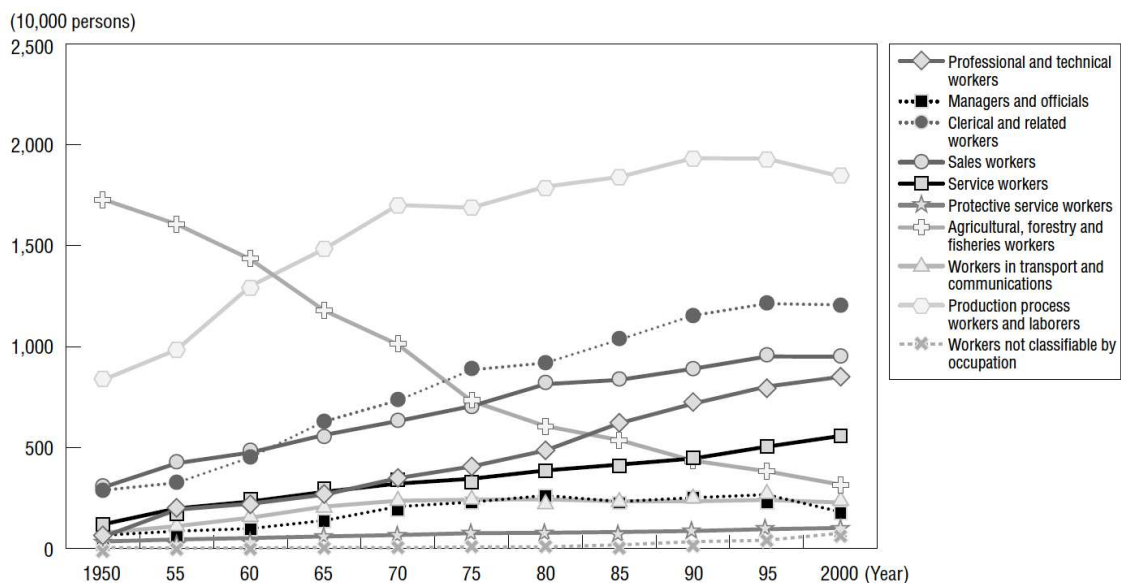


Figure 14 Number of employees by occupational classification
Source : Ministry of Education, 2004

From a research perspective, industry-academia co-operation has become a very important issue. Universities are increasingly required to engage in full-fledged co-operation with industry. The number of co-operative research cases by national universities and that of TLO (technology licensing office) have rapidly increased in recent years (Figure 15). The incorporation of national universities is expected to boost such co-operation.

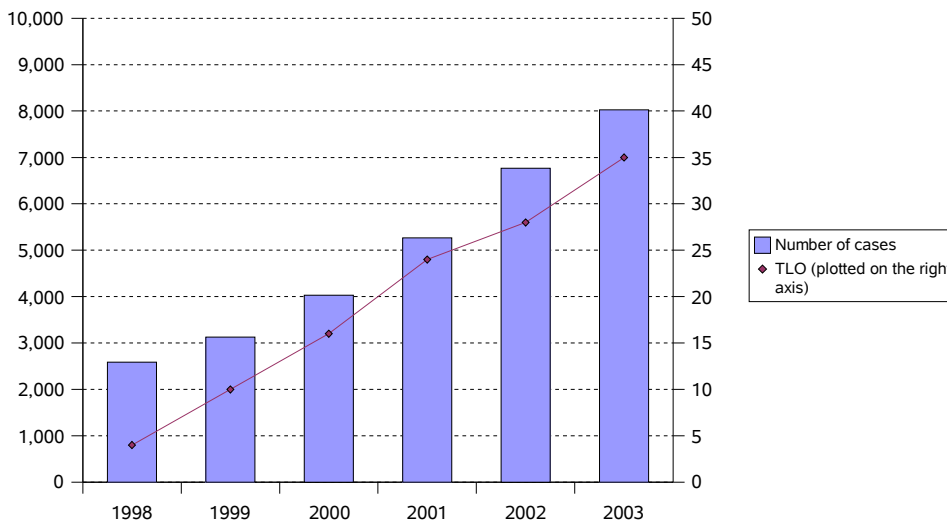


Figure 15 Number of cases of co-operative research implemented between national universities and the industry / Number of TLO recognised by the Government

Closing remarks

Various factors have underlined the necessity for higher education reform. Among them, three major factors should be noted (Ministry of Education, 2004). The first is the diversification in students, due to popularisation of higher education, increase in adult and international students, etc. The second is changes in the demand for human resources, due to the advent of the knowledge-based society in particular. And the third is the increased reliance of industry on academic research activities. All of these factors led to deregulation of higher education, followed by diversification of institutions and their increased autonomy.

For Japan, in order to overcome current economic and societal difficulties, it is critical to prepare well-educated citizens with talents and abilities, by producing and transmitting knowledge in an excellent environment. Such a condition will be realised only through continual university reform initiated by people in universities.

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Readers interested in further reading about the reform of Japanese higher education are advised to procure author's papers cited above. They are available on his Web site (home.hiroshima-u.ac.jp/oba/index-e.html).

¹⁵ In the references list, for simplification purpose, the term “Ministry of Education” has been employed to designate the ministry in charge of education policy.