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QUANTIFYING FACULTY PRODUCTIVITY IN JAPAN: Development and Application of the Achievement-Motivated Key Performance Indicator

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### Publication Date

2016-10-01

**QUANTIFYING FACULTY PRODUCTIVITY IN JAPAN:  
Development and Application of the Achievement-Motivated Key Performance Indicator**

October 2016

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**ABSTRACT**

Universities throughout the world are trending toward more performance based methods to capture their strengths, weaknesses and productivity. Hiroshima University has developed an integrated objective measure for quantifying multifaceted faculty activities, namely the "Achievement-Motivated Key Performance Indicator" (A-KPI), in order to visualize the strengths and weaknesses of the university, while balancing versatile faculty activities university-wide. We believe any reform efforts should be based on accurate understanding of the status quo through rigorous self-assessment. This uniquely developed KPI could be a starting point for shaping a stronger faculty body, with each motivated faculty member striving to achieve his or her professional expertise while balancing the distribution of overall efforts as a single institution with shared visions and missions. The individual A-KPI scores calculated for all the faculty members at Hiroshima University reveal that the faculty activities are unevenly distributed for some schools, with a majority of professors devoting their efforts to teaching and thesis advising, and much less toward academic publications and/or the acquisition of external funding. More balanced distributions between teaching and research oriented activities are observed for the faculties of other schools. Our analysis suggests that the overall performance would be improved through more efficient and well-balanced time allocation among faculty members.

**Keywords:** Faculty Productivity, Performance Indicators, Japanese Universities.

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**A. A New Wave of Institutional Reform**

The School Education Act of Japan stipulates, the "missions of colleges and universities, as the center of higher learning, involve provision of knowledge, deepening our understanding of arts and sciences through teaching and research, developing intellectual, moral, as well as practical competences. That is, colleges and universities ought to contribute to the growth and prosperity of our society through widely disseminating the outcomes of the teaching and research activities"<sup>1</sup> (Article 83 of the School Education Act). In a rapidly globalizing knowledge society, the roles played (or expected to be played) by colleges and universities are expanding to cover diverse arrays of demands arising from both the domestic and international communities. The resources that could be appropriated to an individual institution in Japan, however, have contracted in recent years owing to economic instability in today's volatile and uncertain environments.<sup>2</sup>

Nonetheless, a university remains committed to continuously producing prominent research outputs and highly skilled graduates with the existing, but increasingly limited, financial and human resources. Every Japanese institution today is engaged in internal reforming towards strengthening its institutional missions or functions, and various studies have been conducted on how such a functionally differentiated university environment may be established (Abe and Watanabe 2012a, 2012b, 2015). As with any successful institutional reform, the reforming efforts should be based at the outset on accurate understanding of the status quo through rigorous self-assessment.

*Strengthening Institutional Research*

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An internal organization with the mission of conducting institutional research (IR) is relatively new and has only recently been established in many Japanese universities (Kato and Ukawa 2010). However, Japanese colleges and universities have not yet reached the stage where the role of IR is well defined or clearly understood by those involved in the community (Matsuzuka 2010). At the same time, institutions generate significant amounts of data that, in turn, generate numerous charts and tables. Yet it is often unclear how and in what way the analysis results can be utilized to improve the management of an institution in the long run.

Strengthening the IR functions in a Japanese context requires clarification of how the analysis can be used to improve university management. At Hiroshima University, the Office for Strategic Acquisition of Competitive Research (*Kyōsōteki shikin kakutoku senryaku-shitu*) was established in 2010 with the pragmatic mission of conducting IR analyses. Its production over a short period contributed to the recent acquisitions by the university of two large-scale government subsidy programs, including the “Program for Promoting Enhancement of Research Universities” in 2013 and the Type A (Top Type) of the “Top Global University Project” in 2014.

#### *Achievement-Motivated Key Performance Indicator (A-KPI)*

Effective institutional management requires an organizational environment and incentives where all the faculty members equally strive to improve their teaching, research and public service activities.<sup>3</sup> Such an environment also requires an understanding that the allocation of work time and effort invested into teaching, research and public service activities varies widely among individual professors as well as by different academic disciplines. We make every effort to create an environment within our university where every faculty member contributes to teaching and research based on his or her own strengths and personal expertise while respecting individual preferences and styles, and meeting the needs of our students.

In order to promote such an environment, whether and how we can optimally allocate internal human resources between teaching and research becomes a critical institutional agenda. In order to achieve this organizational goal, it is important to set an objective indicator, which facilitates our accurate understanding of how our faculty members are engaging in teaching, research, and other essential activities. The overall performance as well as distribution or “scatteredness” of their activities within a school, department or any organizational unit can then be captured visually by scatterplots and collectively by numerical averaging. The aim of this paper is to introduce an integrated measure which captures faculty activities of teaching, graduate student development, research, acquiring external funding, and globalization activities, namely the “Achievement-Motivated Key Performance Indicator (A-KPI),” which was originally developed by the IR division (University Management Planning Office) of Hiroshima University and has been implemented university-wide since 2014. Since its inception, the A-KPI has drawn a great deal of interests among the community of higher education in Japan.

It is important to keep in mind that the performance indicator has been developed and introduced at Hiroshima University to accurately grasp the strengths and weaknesses of the university in three primary areas of faculty activities: teaching, research, and internationalization, as a comprehensive research institution and one of the leading national universities of Japan. This could be a starting point for establishing a stronger faculty body with each motivated faculty member striving to achieve his or her professional expertise while balancing the distribution of overall efforts by the faculty as an institution.

#### **B. The Rationale for a Quantified Measure of Faculty Activities in a Japanese Context**

According to the School Basic Surveys conducted annually by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan, the total number of full-time teaching staff employed by all the national universities has gradually increased in recent years. The data released by the Ministry of Finance (2012) shows that the total number of full-time teaching staff at national universities nation-wide exceeds the number set as a minimum requirement by the MEXT’s Standards for Establishment of Universities.

The financial conditions of the national university corporations studied by Shima (2012) shows that the combined revenues of all the national universities increased by 9.1 percent (or 213.8 billion yen = approx. \$2.1 billion) between 2005 and 2010. Further analysis reveals that the total amount of government subsidies for basic operational expenses granted to the national universities as a whole gradually declined year after year, with a decrease of 2.9 percent (or 67.6 billion yen = approx. \$670 million) between 2005 and 2010, while external competitive funding sponsored by the government increased over the same period of time. It has been pointed out that the shift in these funding mechanisms has generated revenue disparity among the national universities in recent years. The decrease in the basic operational funding is supplemented with hospital revenues, external competitive grants, and research projects commissioned by the governments in some of the largest comprehensive universities, resulting in an increase as the total revenues. However, the majority of other small-scale national universities suffer from the declining total institutional revenues.

### *Full-Time Faculty Trends*

The recent data on the (increasing) total number of full-time teaching staff employed by the national universities and the declining trend in the revenues for the basic operational expenses in these institutions indicate that the number of full-time faculty members employed through external competitive grants has been increasing, while the number of faculty employed with the MEXT's basic operational subsidies, which is a more stable source of revenue and the conventional source of revenue for employment of tenured or tenure-track faculty members, is shrinking. The employment of the grant-based, non-tenure-track faculty members as a whole in all the national universities is increasing each year. The formal definition of full-time faculty ("*honmu kyōin*") is rather ambiguous and includes all the faculty members who are employed full-time and affiliated with the university. The full-time faculty in Japanese universities includes diverse employment categories of academic staff. For example, a specially-appointed faculty member ("*tokunin kyōin*")<sup>4</sup> is a full-time faculty as long as the type of employment falls under the simple definition of the above-mentioned full-time appointment.

However, it is important to note that the specially-appointed faculty members are often employed with external competitive grants, and their roles and expectations vary depending on the objectives of the external grants. In particular, the specially-appointed faculty positions are not only nontenure-track positions but also the term of appointment is quite short, normally one year to three years, and it is rare for the specially-appointed faculty members to be assigned teaching and student instruction/advisement of degree theses.

It is also rare that an assistant professor ("*jokyō*") in a national university is assigned to teach his or her class independently, and a specially-appointed assistant professor ("*tokunin jokyō*") will almost never be asked to teach as they are employed on contracts typically funded by short-term external projects. In order to establish a balanced allocation of human resources within our institution, we judged that the development of an objective measure which accurately captures the overall faculty activities is an important step to make a mid- to long-term succession plan of our university faculty.<sup>5</sup>

### *Faculty Time Allocation*

The time allocation of Japanese professors has been surveyed by various projects commissioned by the MEXT (e.g., Yamamoto 2010), and a simulation work in quest of the optimal organizational scale has been explored by Watanabe *et al.* (2013). Using the same data, Watanabe (2011) documents that the faculty workload grew rapidly after the corporatization of national universities, which took place in 2004 with the leading effort by the MEXT, and the weight of faculty allocation of time shifted from research-related activities to teaching and service responsibilities. In order to mend various issues related to growing faculty workload, efforts have been made with internal surveys and organizational reforms. However, the perception of multifaceted "workload" differs individually as well as by academic field, and quantifying the individual faculty perceptions of workload are not an easy task.

How our faculty members allocate their time into teaching and research is dependent on the total hours spent at work in both activities, which may often be overlapping, and standardization among various academic fields is important. In order to shed some light on this issue, we propose an objective indicator, the Achievement-Motivated Key Performance Indicator (A-KPI) that attempts to capture the multifaceted activities of faculty members.

### **C. The Structure of the Achievement-motivated Key Performance Indicator (A-KPI)**

Key performance indicators (KPI) are widely used by both public and private entities as performance assessment indicators, which quantify the progress of their organizational objectives. Hiroshima University's Management Planning Office has studied various kinds of indicators that would be employed to measure the performance of our faculty members, and through these examinations, we have identified a unique set of measures that match the institutional values and emphases.

The Achievement-motivated Key Performance Indicator (A-KPI) has been developed and implemented by Hiroshima University in order to visualize multifaceted tasks undertaken by each faculty member over time, which can then be utilized by the university to properly allocate human resources among various fields of activities. The tasks are converted to numeric terms with a long-term goal of each faculty member earning the maximum of 1,000 points. Different tasks have different values (or weights) assigned to them.

The A-KPI consists of five components. When the university-wide average scores in each of the five activity areas exceed the targeted scores, then it will confirm that Hiroshima University is an active university where degrees are being conferred to students as an educational institution, globally-recognized research is being conducted, and researchers and students are gathering from all over the world. The A-KPI has been developed in order to facilitate clarification of the steps that need to be taken to achieve this institutional goal. The breakdown of the point system is described in detail below.

(a) **Classes to be taught and tasks related to entrance examination preparation** - For the tasks of classroom teaching and preparation of entrance examinations, the target value of 300 points per faculty member has been assigned. The credits of a class taught by an instructor during an academic year are multiplied or "weighted" by the number of total students who took the class. For instance, a 2-credit bearing class taken by 25 students earns the instructor the "taught credits" of 50. If the same instructor teaches another 2-credit bearing class registered by 35 students, he or she is entitled to the additional "taught credits" of 70. If these two classes are the only classes taught by the instructor during the academic year, then the total contribution made by the instructor in "taught credits" at the university is simply  $50 + 70 = 120$ . The same computational procedure could easily be replicated for approximately 1,800 faculty members of the university.

The "taught credits" summed over all the teaching staff and classes within a university directly translate into and equal to the sum of the credits granted to all the students, both undergraduate and graduate, during the academic year:

$$\text{Total credits granted} = \sum_{i=1}^N \{(\text{credits of a class}) \times (\text{number of students taking the class})\}_i$$

where  $N$  indicates the total number of classes offered by the university in an academic year. At Hiroshima University, the total number of credits granted annually university-wide was 415,794 in FY2014 (Table 1). This is the approximate number of total credits required for the university to grant each year by norm to existing students, in order to confer degrees continually to all the enrolled students as an educational institution. Unless the enrollment capacity drastically changes, the number will not significantly fluctuate in the future. In other words, the university will be able to continue its operation as an educational institution at the current level of quantity only by providing the aforementioned required educational service each year.

**Table 1. The breakdown of the Achievement-motivated Key Performance Indicator (A-KPI)**

	As of 2014	Target (university-wide)	Per faculty member		Points/weights
			Target	Point	
(a) Classroom teaching				300	
Taught credits (= number of credits multiplied by number of students)	415,794 credits (regular students)	Approx. 440,000	244 credits	244	1 credit = 1 point
	2,158 credits (non-regular students)	Approx. 18,000	10 credits	10	
Entrance examinations	3,533 load	3,535 load	2 load	6	1 load = 3 points
Classes taught in non-Japanese language	746 classes	3,600 classes	2 classes	40	1 class = 20 points
(b) Graduate advisement				150	
Masters students	1,179	2,300	1.2	6	1 student = 5 points
Doctoral students	405	1,100	0.6	72	1 student = 120 points
Doctoral degree granted	(Type I) 272 (Type II) 32	1,100	0.6	72	1 graduate = 120 points
(c) Web of Science indexed articles	1,616	5,400	3	300	1 article = 100 points
(d) External funding	¥108.3 billion	¥270 billion	¥1.5 million	150	¥0.1 million = 1 points
(e) Internationalization				100	
International students	1,435	3,600	2	40	1 student = 20 points
Co-authorship with researchers outside Japan	444	2,700	1.5	30	1 article = 20 points
Inviting international researchers	76	5,400	3	30	1 person = 10 points
Overseas activities	2,238				
Total: X = (a) + (b) + (c) + (d) + (e)				1,000	

Includes all the full-time faculty members, i.e., tenured, tenure track, and non-tenure track. "Web of Science" indexed articles include all the articles published in journals indexed in the Science Citation Index (SCI), Social Science Citation Index (SSCI), and Arts & Humanities Citation Index (A&HCI).

With a planned expansion of degree programs over the next decade at Hiroshima University, particularly at a graduate level, we have estimated that the number of taught credits required university-wide would increase to approximately 440,000. The number

of full-time faculty members at HU has been approximately 1,800, so each full-time faculty member is expected to contribute with approximately 244 ( $= 440,000/1,800$ ) taught credits, which translates to per-faculty teaching of two 2-credit bearing classes holding an average of 61 students in each class. These 244 taught credits would be converted to 244 points, with the weight of 1 point assigned to each credit. In addition, with the growing effort in increasing international short-term exchange students, we estimate that HU faculty members are expected to contribute approximately 18,000 taught credits through teaching non-regular non-degree seeking students such as short-term exchange students, so that each faculty member will contribute 10 ( $= 18,000/1,800$ ) taught credits for teaching of these students. These credits would be converted to 10 points per faculty member with the weight of 1 point per taught credit.

The annual task of preparing entrance examination questions is undertaken by examination writing members, checking members, and other faculty members.<sup>6</sup> When these tasks are translated into scores according to the tasks involved and pre-assigned points (or "load") for each task, the total scores for the entire university are about 3,500 scores. This is equal to approximately 2 scores per full-time faculty member, which will be converted to 6 points (3 points per score).

The number of classes taught in a foreign language currently averages 0.2 classes per faculty member. Our goal is to have each faculty member teach 2 classes in a foreign language, which will be converted to 40 points (20 points per class taught in a foreign language).

**(b) Number of supervising graduate students** - Based on the institutional mission as a comprehensive research university, Hiroshima University places a strong emphasis on graduate education and has set the achievement target at the maximum of 150 points per faculty member in the area of graduate advisement and supervision. Our institutional goal at the doctoral level is to enroll the total 1,100 highly qualified graduate students each year into the doctoral programs and thus to annually confer doctoral degrees to 1,100 students. A faculty member who takes on the task of being a primary doctoral supervisor receives 120 points for each matriculating doctoral student, and an additional 120 points when a doctoral student under his/her supervision earns the final degree. As such, the 10-year target to be achieved is 0.6 students per faculty member ( $= 1,100/1,800$ ), and the target point per faculty member is set at 144 ( $= 0.6 \times 240$ ).

In addition to the doctoral-level supervising role, the institutional goal is to accept 2,300 graduate students university-wide each year into the master's degree programs.<sup>7</sup> A faculty member who takes on the role of being a primary master's-level supervisor receives a weight of 5 points for each matriculating master's student. As such, with approximately 1,800 full-time faculty members at the university assumed, the 10-year target to be achieved is 1.2 students per faculty member ( $= 2,300/1,800$ ), and the maximum earned per faculty member in this area is 6.0 points ( $= 5 \times 1.2$ ).

**(c) Number of publications** - At Hiroshima University, faculty members are strongly encouraged to contribute to the advancement of our understanding and creation of new knowledge at the forefront through disseminating their research outputs in the form of journal articles. For this purpose, each article published in an academic journal indexed in the Science Citation Index (SCI), Social Sciences Citation Index (SSCI), or Arts & Humanities Citation Index (A&HCI), earns a faculty member 100 points. For the university to establish an excellence initiative as a leading research institution in Japan, we set that at least 5,400 journal articles should be published annually per year. This translates to an average of 3 published journal articles per faculty member. Thus, the target is the maximum of 300 points per faculty member ( $= 100 \times 3$ ).

**(d) Acquisition of external funding** - Since the corporatization of the national universities in 2004, the amount of government subsidies granted to each national university has decreased dramatically. It has become critical for an individual institution to collect sufficient resources needed for various activities. The target amount of total external funding to be raised annually in 10 years is set at approximately 27,000 million yen ( $= \$270$  million). Each faculty member is entitled to 1 point for every 0.1 million yen acquired, and this averages to approximately 15 million yen ( $= \$150,000$ ) per faculty member, which is converted to the individual goal of 150 points.

**(e) Internationalization** - Hiroshima University currently accepts an average of 0.6 international students per faculty member. To promote the institutional identity as committed to contributing the world peace, we set our target to accept 2 international students per faculty member. The role of advising an international student is granted 20 points for each student, which will be converted to the maximum target of 40 points ( $= 2 \times 20$ ).

International co-authorship is also considered an important effort, and an average of 0.2 publications per faculty member are produced annually in such efforts at Hiroshima University. One internationally co-authored published article is equal to 20 points, and the target number in this area is 1.5 papers per faculty member, which will be converted to 30 points ( $= 1.5 \times 20$ ).

The target for the total number of foreign scholars and researchers who are invited to the university and faculty members who visit overseas institutions is set to 5,400 per year. This equals three invitations/visits per faculty member per year, which will be converted to 30 points. Inviting one foreign researcher, or visiting an overseas institution once is equal to 10 points. The combined target value for internationalization is 100 points per faculty member.

The grand total of all the target points earned in 5 major areas of faculty activities described thus far is referred to as  $X = (a) + (b) + (c) + (d) + (e) = 1,000$  in the last row of Table 1. What has been explained above is the quantification of the process to achieve this goal. The score composites, *i.e.*, the target score of 300 in the area of teaching, 150 in the area of external funding acquisition, 100 in internationalization and so forth, is determined rather subjectively considering the 10-year goal set by the university.

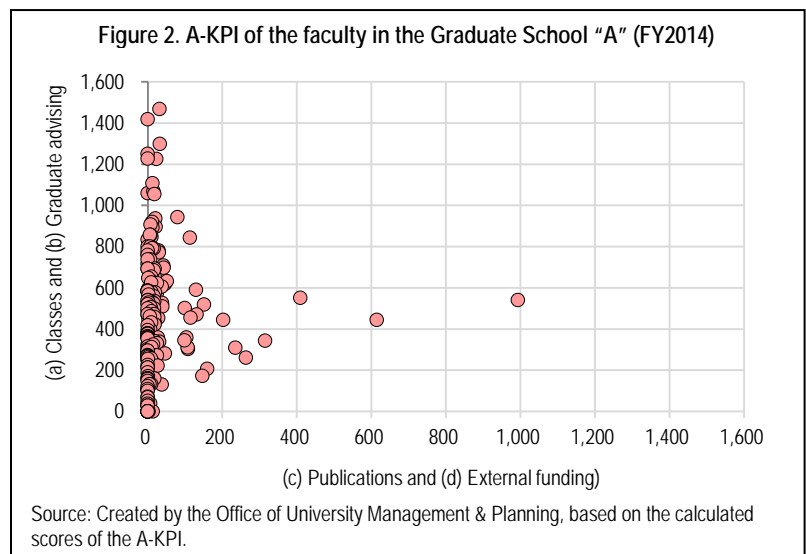
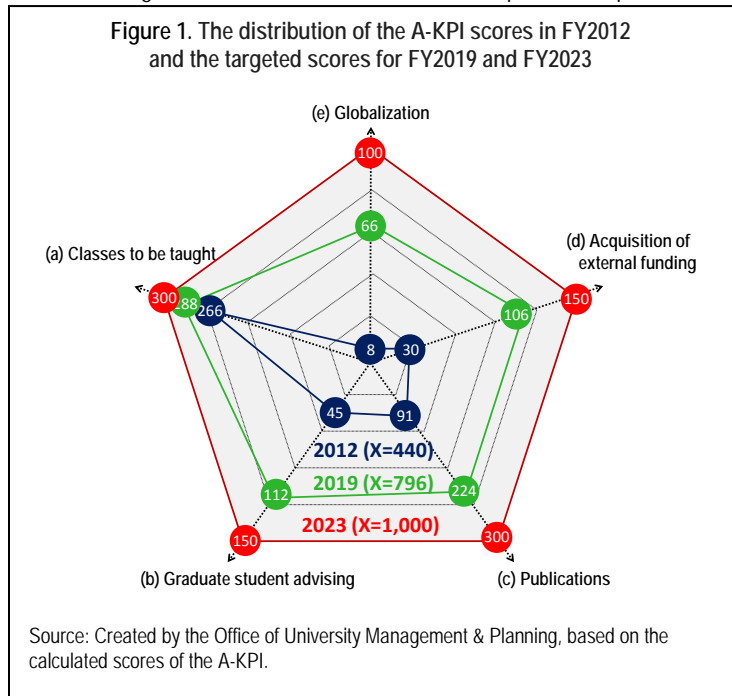
Clearly, these score composites could be altered freely with a different combination of weights, depending on the institutional emphases and missions. The weights presented in Table 1 are based on and solely reflect institutional priorities set by Hiroshima University, and so these weights may be uniquely determined by any institution to be made consistent with their own long-term goals. For example, the weights on “internationalization” can strategically be raised if the institution’s priority is placed on promoting such activities.

#### D. Analysis: Visualizing the strengths and weaknesses through the A-KPI

By using the total computed score of  $X$  and the score in each of five areas, it will be possible to compare activities of individual faculty members over time and to set a targeted score for each member, in consideration of his or her strengths and weaknesses as well as preferences. That is, all faculty members are not necessarily required to achieve each of these targeted values. There may be a situation where some faculty members teach a large number of large-scale classes but do not publish many journal articles, or some faculty members acquire little external funding but take on the task of supervising many international students. Faculty members can be optimally allocated throughout the university based on these values in a long term.

A per-faculty A-KPI score was computed based on the record of university-wide faculty activities as of 2012, and the scores for each of five areas are depicted with connected blue lines in Figure 1.

The result clearly indicates that Hiroshima University faculty members on average engaged mostly in (a) classroom teaching and tasks related to entrance examination (266/300 points), and much less engaged in the areas of (b) graduate advising/supervision (45/150 points), (c) the number of published articles (91/300 points), and (d) acquisition of external funding. The faculty activities related to (e) internationalization is the weakest area of Hiroshima University with only 8 points out of the target 100 were achieved per faculty in 2012.



With this as the starting point, we have set our 5-year goal at  $X=796$  by the year 2019 (green connected lines in Figure 1) and the 10-year goal of  $X=1,000$  by 2023 (red connected lines) by gradually reinforcing and supporting activities in relatively weak areas.

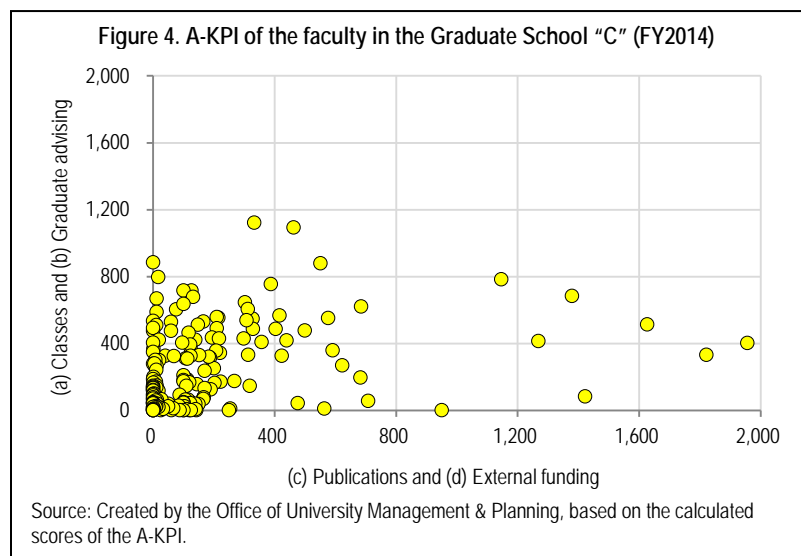
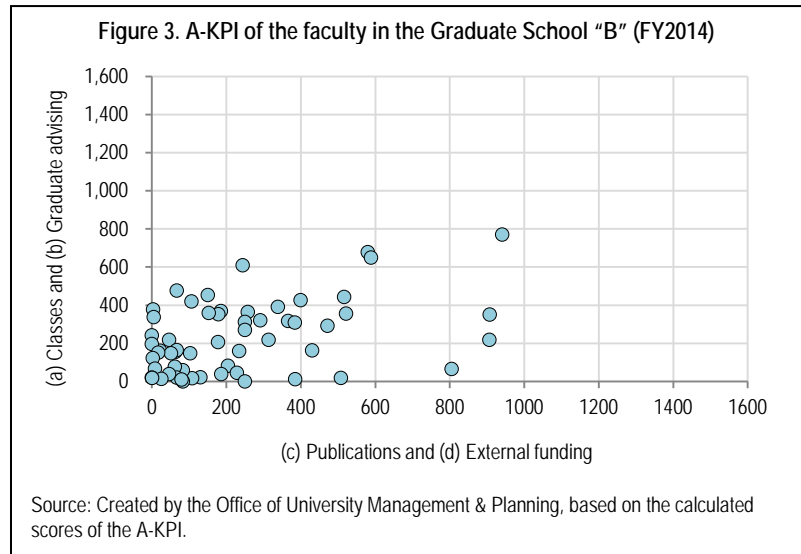
Hiroshima University, as one of the leading comprehensive research universities in Japan houses 11 undergraduate schools, 11 graduate schools, and a total of over 20 research centers, institutes, museums, and a university hospital. All faculty members of the university are affiliated with at least one of these teaching, research or practical organizations as full-time academic staff. There are approximately 1,800 full-time faculty members as of April 2014, and the A-KPI scores are computed for each individual to capture the entire picture of various activities undertaken by all the full-time employed academic staff of the university. In this paper, we present some examples of the A-KPI scores for the faculty in the (anonymously) selected graduate schools below and demonstrate how these results can be interpreted.

The scatter plot of the A-KPI scores for all the academic staff affiliated with the Graduate School "A" is depicted in Figure 2. As is clear in the figure, a majority of the faculty members in this school in FY2014 are shown to be predominantly "teaching-oriented," with particularly higher performing professors scoring more than 1,000 in the area of student instruction and graduate advising, while a few professors are found active in the mixture of both dimensions (teaching and research). At a glance of the distribution of the faculty activities quantified by the A-KPI scores, it is obvious that promotion of research activities should be encouraged for the faculty members in the Graduate School "A" by incentivizing the publishing of articles and acquiring external funding, in order to keep balanced school-wide activities between teaching and research as a research university.

In doing so, however, it should be kept in mind that it is not our intent for every professor in this graduate school to be high performers in every area of activity. Some professors who are already strongly engaged in teaching and advising (particularly those scoring 1,000+ in this area) may wish to continue to do so. It may also be unrealistic to expect a high volume of publications contributed by these already high performing professors in teaching and advising. However, a cluster of faculty members in the lower range of scores on teaching may have time to spare for production of research outputs.

In contrast to the faculty in Graduate School "A," there are not extremely high performing professors, *e.g.*, with the A-KPI scoring higher than 1,000, in Graduate School "B" (Figure 3). However, a larger proportion of academic staff are found in the middle range of the two dimensions, demonstrating a good balance of activities among the faculty members. The internal strategy taken toward Graduate School "B" might then be to incentivize the existing faculty found near the origin in Figure 3, *i.e.*, those with low scores on both teaching and research dimensions, to be engaged in the activities that they have a comparative advantage.

Finally, an example from Graduate School "C" is presented in Figure 4, which shows a similar picture as that of Graduate School "B" but with more high achievers in either/both teaching and research activities. Graduate School "C" is particularly characterized





with a few "super star"-like professors, with extremely high scores in the research dimension. Even in Graduate School "C," however, it is clear that there are clusters of faculty members found near the origin, and how the activities of these faculty members can be revitalized in either/both dimensions in the end, we believe, becomes critical in forming an academic environment where everyone contributes to shaping a highly respected comprehensive research university.

## F. Conclusion

An objective measure of gauging faculty performance, which has uniquely been developed by Hiroshima University as part of its IR efforts, is introduced and discussed in this paper. The "Achievement-Motivated Key Performance Indicator" (A-KPI) may be utilized to quantify diverse faculty activities and to analyze institutional strengths and addressing the weaknesses in research and teaching productivity.

As documented in Fukudome (2008), Kobayashi and Kato (1996), Morgan (1996) and Watanabe (2011), the workload among Japanese professoriate has changed dramatically in the last two decades. These studies all document that the work content of Japanese professors has shifted considerably from teaching- and research-oriented activities towards more administrative and service-related tasks. As a result, optimal time allocation by faculty has become an important policy agenda in the recent debate about domestic higher education policies at a macro-level (MEXT 2003, 2009).

The averages of the A-KPI scores by school and department, or by rank of full-time teaching staff, may readily be computed, although such comparisons are not discussed in this paper. It is not our intent to instigate excessive competition among our professors in the numbers of published articles, acquired external grants, and the classes they teach, but to create an environment where each faculty member can pursue and achieve their individual goals, while facilitating a more accurate understanding the overall balance of activities fulfilled by faculty. It is important to keep in mind, however, that the A-KPI is only a tool to capture the status quo, and building the system of incentivizing our faculty members in the direction we all agree remains a critical institutional agenda.

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## ENDNOTES

1. Author's translation.
2. For instance, the government subsidies appropriated to individual national universities in Japan for basic operational expenses have been reduced by one percent on average each year since 2004.
3. The A-KPI has been developed by Hiroshima University to quantify faculty productivities (and their distribution) primarily in three dimensions, namely (1) academic affairs, *i.e.*, teaching, thesis advising, entrance examination-related tasks, (2) research activities, *i.e.*, publications and external funding, and (3) internationalizing efforts (see Table 1 on Page 4 for details), which reflect the areas of emphases strategically placed by the University. Other important faculty activities such as internal, *i.e.*, academic councils, recruitment committees, organizational management, etc. as well as external public service provided by our faculty members are incorporated into the "Basic-effort Key Performance Indicator" (B-KPI) which has also been developed by Hiroshima University and thus are not discussed in this article.
4. The actual name of specially-appointed faculty in Japanese may differ by each university.
5. The system of qualified teaching assistants (TA) which employs graduate students, mainly those at a doctoral level, has been introduced only recently by many Japanese universities as a form of both supporting the teaching functions as well as providing a means to train them in university pedagogy. However, it is expected to take a few more years for the TA system to function optimally in Japanese universities.
6. Unlike the U.S. college admissions where the standardized tests such as SAT and ACT are used, each college and university writes an original entrance examination that is assessed by the faculty members.
7. Unlike many research universities in the U.S., the graduate degree programs at Hiroshima University, as well as most other universities in Japan, are separated into two stages, e.g., two-year masters' and three-year doctoral degree levels. Thus, students who wish to study in a doctoral program must first complete the master's program with a successful completion of the required master's thesis, or an equivalent form of academic achievement on a specific research topic, then successfully pass the doctoral entrance examination. The "en route" masters' degree is not common in Japan.

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