



University Performance Metrics – Introduction and Methodology

1. Introduction

UPM is a rating system of university performance metrics initiated and developed by the Vietnam National University, Hanoi to assess the responsiveness of the Third Generation Universities in the Industrial Revolution 4.0 (4IR) era. According to this system, besides the traditional features, the core indicators related to innovation and entrepreneurship; smart university and digital transformation; future-ready training are all integrated.

UPM provides a detailed look at an institution, enabling you to identify university's strength at what in the specific topics like strategic governance; education & training; research; innovation; innovation ecosystem; IT infrastructure & digital learning resource; internationalization and community service.

In the methodology used for UPM, universities are evaluated against 54 indicators falling into 8 categories. Universities can use these key performance indicators KPIs (and corresponding assigned software) for their self-benchmarking. After the assessment of UPM, universities would be awarded an overall star, as well as a score for each category, which ranges from 1 to 5 stars corresponding to the sum of the points achieved for the indicators.

UPM does not support the world's top 100 or top 1000 universities, but is a suitable rating tool for universities of Vietnam and in the region, who aim to benchmark with the Asian top 100 universities. Therefore, UPM can be useful for a large number of universities.

2. Methodology

2.1. Institution profile

This general information will be used not only to build up a webpage for the university, but also to submit primary data for rating tool. It consists of

- Name of institution:
- Address:
- Total training size:
 - + Undergraduate students:
 - + Master's students:
 - + Doctoral students:

- Total number of academics:
 - + Full-time faculty staff: _____ Past-time lecturers/professors: _____
 - + Full-time faculty staff with doctorate degree: _____
 - + Full-time faculty staff bearing titles of Professor or Assoc. Professor: _____
- Total number of education programs:
 - + Undergraduate programs: _____
 - + Master's programs: _____
 - + Doctoral programs: _____

2.2. UPM's data sheet

No.	Criterion & Indicators	Descriptions and Requirements	Weight	Minimum benchmark point	Real achievement	Evidence and explanations
Criterion 1. Strategic governance (60 points)						
1.1	Strategy	The university's strategy reflects (i) vision, mission and culture as well as strategic goals of education, research and community service, (ii) innovation & entrepreneurship orientation and (iii) development of the smart, digitalized university in response to the demands of 4IR. Assessment is done using a 7-level rating scale. Satisfying all requirements of (i) does not exceed level 5. The accumulated point for the criterion will be higher if the minimum requirements for (ii) or/and (iii) are attained.	15	1-7		
1.2	Plan	Mid-term and short-term plans of the institution and units in the institution are aligned, assuring the	10	1-7		

		<p>implementation of the contents (i), (ii) and (iii) in the development strategy.</p> <p>Assessment is done based on a 7-level rating scale. Satisfying all requirements of (i) does not exceed level 5. The accumulated point for the criterion will be higher if the minimum requirements for (ii) or/and (iii) are attained (cf. 1.1).</p>				
1.3	Organizational structure and management	<p>Related units/divisions are established and have specific functions to perform strategic tasks (in particular for the functions of innovation, entrepreneurship, digital transformation), with reasonable size and performance.</p> <p>Assessment is done based on a 7-level rating scale. Satisfying all requirements of (i) does not exceed level 5. Only when the minimum requirements for (ii) or/and (iii) are attained can the accumulated point for the criterion be higher (cf. 1.1).</p>	10	1-7		
1.4	Implementation	<p>Documents, policies and resource allocation to carry out missions and achieve goals are established and implemented, especially resource investment for achieving the goals of innovation, start-up and building a smart university.</p> <p>Assessment is done based on a 7-level rating scale. Satisfying all</p>	15	1-7		

		requirements of (i) does not exceed level 5. Only when the minimum requirements for (ii) or/and (iii) are attained can the accumulated point for the criterion be higher (cf. 1.1).				
1.5	Accreditation and ranking	Having got the results of institutional accreditation or/and national/international ranking for the institution or related field /subject areas. Assessment is done in 2 scales: national: 5 points, international: 10 points	10	5-10		
Criterion 2. Education (350 points)						
2.1	Quality of incoming students	The average score (or the admission percentage) of incoming freshmen in national university entrance exams of all disciplines in the last 3 consecutive years. Assessment is done for the range from 25 pts or higher with scaled scores down to 12 pts. The admission percentage of 30% with scaled scores of 80%.	40	12-20		
2.2	Size of academic faculty	The proportion of academic staff to the total number of undergraduate and postgraduate students (8% with scaled scores down to 3%).	35	3-8%		
2.3	Size of academic faculty quality	The proportion of academic faculty staff with a Ph.D. degree in the total number of academic staff (70% with scaled scores down to 5%).	40	5-70%		

2.4	Faculty reputation	The proportion of lecturers bearing titles of professor or associate professor to the total number of faculty staff (20% with scaled scores down to 2%).	35	2-20%		
2.5	Size of graduate education	The proportion of graduate education (MSc. and Ph.D. students) to the overall scale of the institution's education (20% or higher).	30	20%		
2.6	Size of doctoral education	The average number of Ph.D. degrees awarded in the last 3 consecutive years (20 or higher).	20	20		
2.7	Program's expected learning outcomes (ELOs)	The program's ELOs are stated approaching the requirements of 4IR: <i>(i) aligned with the national qualification framework; (ii) related to innovation competence and entrepreneurship; (iii) digital skills and lifelong learning abilities</i> Assessment is done based on a 7-level rating scale. If content <i>(i)</i> is achieved, the result does not exceed level 5. Only when the minimum benchmark point for <i>(ii)</i> or/and <i>(iii)</i> are attained can the accumulated point for the criterion be higher.	15	1-7		
2.8	Updating and adjusting conventional curriculum structure	The conventional curriculum structure is updated to be open, flexible with broad foundation knowledge and highly responsive to the requirements of 4IR.	15	1-7		

		<p>The program has courses (i) to develop the ability to respond to future professions; (ii) introduction to digital skills and 4.0 technology, intellectual property, innovation, start-up and start-up projects; and (iii) a term with industry or an experiential learning term.</p> <p>Assessment is based on a 7-level rating scale. If the requirements in (i) are met, the result does not exceed level 5. Only when the minimum benchmark points for (ii) or/and (iii) are attained, can the accumulated point for the criterion be higher.</p>				
2.9	Developing new training programs directly related to 4IR	<p>The new programs are related to basic 4.0 technologies such as IoT, AI, Big Data, Robotics, 3D printing technology, Material and Sensor technology, Energy, Biotechnology, or integration of all the above technologies, Digital Economy, Creative and Culture Industries...</p> <p>Assessment is done according to 3 scales: Having 1-2 programs: 10 points; 2-4 programs: 15 points; more than 5 programs: 20 points.</p>	20	1-5		
2.10	Personalized learning	Bring into full play of the advantages of credit-based training, reaching the goal of individualization and/or personalization in training; encouraging cooperation among the	10	1-7		

		<p>faculties in the institution, with other universities and industries.</p> <p>Assessment is done based on a 7-level rating scale. Ensuring free selections of courses and personal learning routes/plans: not more than level 4; Higher levels can be achieved if the wide selection of courses within one faculty, across faculties and beyond the institution is allowed and facilitated; and a term with industry is organized.</p>				
2.11	Students' research start-up projects	<p>Student research is organized effectively, national and ministerial-level prizes are attained: does not exceed level 5. Higher levels are achieved if projects are carried out, good results of start-up competition or international prizes are attained.</p>	15	1-7		
2.12	Student's satisfaction with the teaching	<p>90% of student satisfaction with scaled scores down to 50% of student satisfaction. Results conducted by the institution applied to all the education programs.</p>	20	90%		
2.13	Employers' satisfaction with the teaching	<p>90% of employers satisfaction with scaled scores down to 50% (following university surveys) or 50% down to 10% (ranking surveys).</p>	20	90%		
2.14	Student employability	<p>The percentage of graduates have jobs after 12 months (90% with scaled scores down to 50%).</p>	20	90%		

2.15	Student academic awards	The percentage of awards for research, innovation, start-up, Olympic competition... at ministerial, national, international and equivalents related to the training fields of the institution in the last 3 years (0.5% or higher).	15	0,5%		
Criterion 3. Research (200 points)						
3.1	International publications	The average number of ISI and/or Scopus research papers per academic staff in the last 5 years. Benchmarking point: 2.0 or higher (1.0 for Social Sciences & Humanities and Economy oriented institutions).	100	2,0		
3.2	Research quality	The average number of citations per ISI-Scopus research papers per academic staff in the last 5 years. Benchmarking point: 8 or higher.	10	8		
3.3	Academic/scholarly books publication	The average number of academic/scholarly books with respect to a post-graduate discipline and field in the last 3 years. Benchmarking point: 2 or higher (3 for Social Sciences & Humanities and Economy oriented institutions).	20	2-3		
3.4	Prolific researches	The percentage of faculty staff getting ministerial, national or international academic awards in the last 5 years (0.5% or higher).	20	0,5%		
Criterion 4. Innovation (110 points)						

4.1	Nationally recognized intellectual property	The number of copyrights, utility solutions, patents registered with national IP offices during the last 5 years (25 or higher).	30	25		
4.2	Globally recognized intellectual property	The number/proportion of patents registered with international IP offices during the last 5 years (05 or higher).	10	5		
4.3	Budget for research and innovation	The average proportion of revenue sponsored for research, R&D, innovation and start-up to the total revenue in the last 3 years (15% or higher).	50	15		
4.4.	Start-up businesses and spin-off companies	Start-up businesses and spin-off companies developed from faculty staff's and students' research outcomes in the last 5 years (05 or higher).	20	5		
Criterion 5. Innovation Ecosystem (60 points)						
5.1	Research, R&D and innovation facilities	Education programs have adequate laboratories and equipment for (i) practice, (ii) research, (iii) R&D and innovation. Assessment is based on a 7-level rating scale. If the requirements in (i) are met, the result does not exceed level 5. Only when the minimum benchmark points for (ii) or/and (iii) are attained, can higher levels be granted.	20	1-7		

5.2	Creative co-working space and start-up supports	Space for innovation and start-up support is where faculty staff, students and start-up community share ideas, design, construct and develop new products. Assessment is based on a 7-level scale, according to the scale/size, frequency and outcomes of the activities.	20	1-7		
5.3	Business incubator	A business incubator is a unit/section that provides services, office space, management training... to nurture start-ups to develop into independent businesses (01 incubator operating efficiently).	10	1-7		
5.4	Business/industry partners	The number of businesses, industries and organizations that have (i) collaboration in students' research, start-up projects; (ii) provide fundings/grants for customized research or/and (iii) collaboration in R&D resulting in co-publications and shared IP license/industry co-patents. Benchmarking point: 02/tertiary discipline and/or major.	10	02		
Criterion 6. IT infrastructure and Digital Learning Resource (100 points)						
6.1	Network infrastructure and information connection capacity	Equipped with information sharing/connection system (QR cards, sensor, camera, ...) to ensure 7 of the following administrative procedures can be carried out online: staff and students attendance	10	1-7		

		<p>checking/roll-call; monitoring of classroom use and security condition; electronic library; tuition fees submission; course register; library book borrowing and returning; use of online learning materials by the staff and students.</p> <p>Assessment is based on a 7-level scale, according to the effectiveness of each procedure.</p>				
6.2	Competence in quality analysis and management	<p>Database and statistics software for 7 key fields: education, research, staff, finance, infrastructure & facilities, learners and quality assurance database.</p> <p>Assessment is based on a 7-level scale, according to the effectiveness of each procedure.</p>	10	1-7		
6.3	Digital scholarly resources	<p>The number of digitalized learning materials and copyrighted digital documents on the institution's website/repository per faculty member.</p> <p>Benchmarking point: 20 digitalized materials/faculty members or higher (results of Google Search: <i>filetype:pdf site:domain name</i>).</p>	10	20		
6.4	Learning resource access	<p>Statistics of access frequency to digitalized learning resources (5 times/student/week or higher), counted by specialized analytic tools of the library.</p>	10	5		

6.5	Degree of online academic interaction	Frequency of average connection, interaction among faculty staff and students in the course group (twice/student/week), counted by specialized tools).	10	2		
6.6	MOOC and digital lessons (e-Learning)	The average number of online or/and MOOC courses of the total number of education programs with necessary links demonstrated in the institution's portal. Minimum benchmarking/satisfactory point: 5 e-courses/program.	10	5		
6.7	Application of Cyber Physical System (CPS)	Virtual practice laboratories and/or manufacture factories related to the copyrighted applications of IoT, AI... are being in use for the total number of tertiary programmes. Assessment is done on two scales: having 1-3 laboratories: 5 points; more than 3 laboratories: 10 points.	10	3		
6.8	Wifi access	WIFI access across 75% of campus area (excluding classrooms, lecture halls, administration and library places).	10	75		
6.9	Duplication check and research ethics	Use at least 01 copyrighted software for duplication-checking and research ethics.	10	1		

6.10	Webometrics index	Webometrics Ranking assess the visibility and accessibility of the institution's web learning materials and academic publications. Information on the website of Webometrics http://www.webometrics.info/en , scaled scores within the top 100 universities of Vietnam.	10	1-100		
Criterion 7. Internationalization (60 points)						
7.1	Using a foreign language as the medium of instruction	The number of active programs using mainly a foreign language as the medium of instruction, whose degrees are granted by the institution. Assessment is done on two scales: having 1-3 programs: 5 points, more than 3 programs: 10 points.				
7.2	International joint training programs	The number of active international joint training programs, the degrees of which are granted by a foreign university or co-granted by the institution and a foreign university. Assessment is based on two scales: having 1-3 programs: 5 points; more than 3 programs: 10 points.	5	1-3		
7.3	International students	2% of students with foreign nationalities studying in formal degree programs (to the total number of the students in the institution).	10	2%		
7.4	International faculty	5% of academic staffs with foreign nationalities (to the total number of	5	5%		

		faculty), who teach at least one subject/course or spent at least 3 consecutive months teaching or doing research at the institution.				
7.5	Inbound exchange students	3% of students holding foreign citizenship to take course(s) or do internship the credits of which can be transferred.	5	3%		
7.6	Outbound exchange faculty	5% of academic staff (to the total number of faculty), who teach at least one subject/course or spent at least 3 consecutive months teaching or doing research at an institution abroad.	5	5%		
7.7	Outbound exchange students	2% of students studying or doing internship the credits of which can be transferred.	5	2%		
7.8	International conferences or symposiums	The number of international conferences or symposiums hosted by department or institution per discipline in the last three years. Benchmarking point: 2/discipline.	5	2		
7.9	International research collaboration	The proportion of ISI-Scopus publications affiliated with international scientists (scaled from 90% down to 50%)	10	50-90%		
Criterion 8. Community Service (60 points)						
8.1	Life-long learning capacity enhancement	The average number of short-term courses is designed to efforts to tailor education to meet the life-long	20	1		

		learning requirements (01 course or higher for one discipline or major).				
8.2	Sustainable development	Activities promoting and/or implementing the university's impact on the community sustainable development, such as climate change, energy conservation program, water conservative program, recycle program, transportation policies and the realization of the UN's 17 sustainable development goals. At least 01 activity for one discipline or major per year.	20	1		
	Social norm promotion	Community engagement activities (between the university and sociopolitical organizations) to support and foster harmoniously social norms effectively and on a large scale. Assessment scale: 1-5 activities: 10 points; more than 5 activities: 20 points.	20	1-5		

2.3. Data submission and publication

Universities who participate in UPM would submit self-report data for the institution as a whole. The data can be submitted online through the webpage created for each institution on the UPM system or the data-sheet can be sent to the UPM office by email.

All data are secured by the institution as well as the UPM responsible. After assessing and awarding the stars, UPM can publish the institution profile and the results of the overall star, as well as the score for each category on its website. The details of all indicators, however, can be published by the institution. The institutions, however, can provide third parties with the details of all printed or digital data released from a UPM dataset. These publications shall be informed to UPM to evaluate the impact of the event.