A Case Study for Performance Improvement in the 2024 Impact Rankings

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Abstract

The SDGs (Sustainable Development Goals) were proposed by the United Nations in 2015 that set common goals for balancing economic, social and environmental development for individuals and organizations. Based on SDGs, the Impact Rankings of THE (Times Higher Education) is a platform for universities to demonstrate sustainable achievements and international influence. This article analyzes the 2024 ranking performance of a Taiwanese university and offers suggestions for improvement. Other universities can adjust their goal selection strategies and sustainable development practices to improve their performance on the Impact Rankings accordingly.

Keywords: Impact Rankings, SDGs, sustainable development, Times Higher Education, university

1 Introduction

1.1 SDGs

In 2015, the United Nations proposed 17 sustainable development goals (SDGs) in *the 2030 Agenda for Sustainable Development* (see Figure 1). The SDGs [1] provide a universal plan for global sustainable development strategies and illustrate the common goals of every individual and organization in pursuit of sustainable development. The 17 SDGs also provide specific guidance for governments, businesses, non-profit organizations, universities, schools, communities, and every individual to practice sustainable development.

Figure 1: 17 SDGs [1]

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As global social, environmental, climate, ecological and other relevant issues become increasingly severe, SDGs have received widespread attention around the world. Many Taiwanese organizations have also introduced the concept of SDGs and are working with government agencies, non-profit organizations, and communities at all levels to achieve sustainable development at the global, regional, institutional, and individual aspects. The UN has set targets for each of the 17 SDGs [1], allowing all governments, businesses, and universities to plan, promote and adjust their operational strategies in order to pursue overall sustainable and coordinated development of social progress, environmental protection, and economic development.

1.2 THE's Impact Rankings

The Times Higher Education (THE) Impact Rankings uses 17 SDGs as the measurement benchmark, allowing universities to demonstrate their sustainable development achievements and highlight their international influence [2]. A university's participation in this ranking mechanism helps the university to analyze, plan and promote sustainable development performance [3, 4, 5], and thereby becoming a more sustainable and competitive university.

The Impact Rankings respects and recognizes the differences among universities. A university can choose to participate in several appropriate goals from 17 SDGs based on its characteristics and sustainable development achievements, and use those goals it participates in to continuously strengthen its own sustainable development advantages. The metrics of the overall Impact Rankings are introduced as follows [6]:

- SDG 17 is a required goal (22%). Weight of the score reflects the university's efforts in fostering robust international partnerships and cooperation for achieving all SDGs.
- Three optional goals (each 26%). A university can participate in more than three optional goals where the Impact Rankings only adopts three highest-scoring goals to recognize its areas of greatest impact and contribution to sustainable development.
- The Impact Rankings announces the rankings of the SDG 17 and three adopted optional SDGs, and the overall ranking of all participating universities every year.

A total of 2,152 universities around the world participated in the 2024 Impact Rankings, of which 1,963 universities participated in the overall ranking and 189 universities participated in the ranking of a single goal only. In the same year, a total of 51 universities in Taiwan participated in the overall ranking [2, 7].

1.3 Research Subject: University M of Taiwan

This paper takes univ. M as the research subject, which is one of the most famous and successful private technology-oriented vocational universities located in northern Taiwan. The university offers 17 doctoral, master, and bachelor programs with approximately 210 faculty and 4,200 students in three colleges: College of Engineering, College of Environment and Resources, and College of Management and Design.

Univ. M is surrounded by five industrial parks, which is conducive for the university to develop the cooperation with the industry. The university also established ten research centers such as smart manufacturing, green energy, environment and health, etc., for

innovative development. The university is committed to building a healthy and happy campus, actively participating in social affairs, and maintaining close ties with the local community. In recent years, the university has actively recruited foreign students and developed the internationalization of the campus.

2 The Methodology: Data Collection and Analysis

2.1 Ranking Performance of Taiwan and World Universities

This article focuses on univ. M's 2024 ranking performance, and hence concerns only eight indices that are the overall ranking and the seven SDGs (including the required SDG 17.) univ. M participated in (see Table 1). Generally, each index is divided up to nine ranking intervals from "1-100", "201-300" to "1501+" according to the number of world participating universities in the index [2]. Table 1 shows the number of Taiwan universities in each ranking interval of each index, and based on this, Table 2 is generated to analyze the ranking performance of Taiwan universities.

Table 1: Taiwan universities' 2024 rankings of the 8 indices univ. M participated in [2]

Ranks of Taiwan univ. of 8 indices \ Ranking intervals	1-100	101-200	201-300	301-400	401-600	601-800	801-1000	1001-1500	1501+	Total
SDG 3	6	3	6	-	4	4	5	8	-	36
SDG 7	3	3	11	5	10	3	2	-	-	37
SDG 8	2	-	3	4	13	10	4	-	-	36
SDG 9	6	7	8	8	3	3	2	-	-	37
SDG 11	5	4	4	2	17	3	1	-	-	36
SDG 12	4	4	10	11	9	1	-	-	-	39
SDG 17	3	8	2	9	12	4	5	8	-	51
Overall Ranking	4	3	4	2	15	9	14	-	-	51

The authors of this article have proposed a conference paper [8] (in Chinese) studying univ. M's ranking performance in the previous year's (2023) Impact Rankings. This article analyzes the improvement of 2024 ranking performance of univ. M for each of the eight indices. Due to language restrictions, this article omits the discussions about the previous conference paper.

Table 2: The accumulative ranks of SDG 17 of Taiwan and world universities [2]

SDG 17 \ Accum. Intervals	1-100	1-200	1-300	1-400	1-600	1-800	1-1000	1-1500	1-all
Accum. number. of world univ. (A)	100	200	300	400	600	800	1000	1500	2031
Accum. number of Taiwan univ. (B)	3	11	13	22	34	38	43	51	-
Accum. ratio of world univ. (C) = (A)/2,031 (2,031 univ. in total)	4.9%	9.8%	14.8%	19.7%	29.5%	39.4%	49.2%	73.9%	100%
Accum. ratio of Taiwan univ. (D) = B/51 (51 univ. in total)	5.9%	21.6%	25.5%	43.1%	66.7%	74.5%	84.3%	100%	-

(a) SDG 3. Good health and well-being

(b) SDG 7. Affordable and clean energy

(c) SDG 8. Decent work and economic growth

(d) SDG 9. Industry, innovation and infrastructure

(e) SDG 11. Sustainable cities and communities

(f) SDG 12. Responsible consumption and production
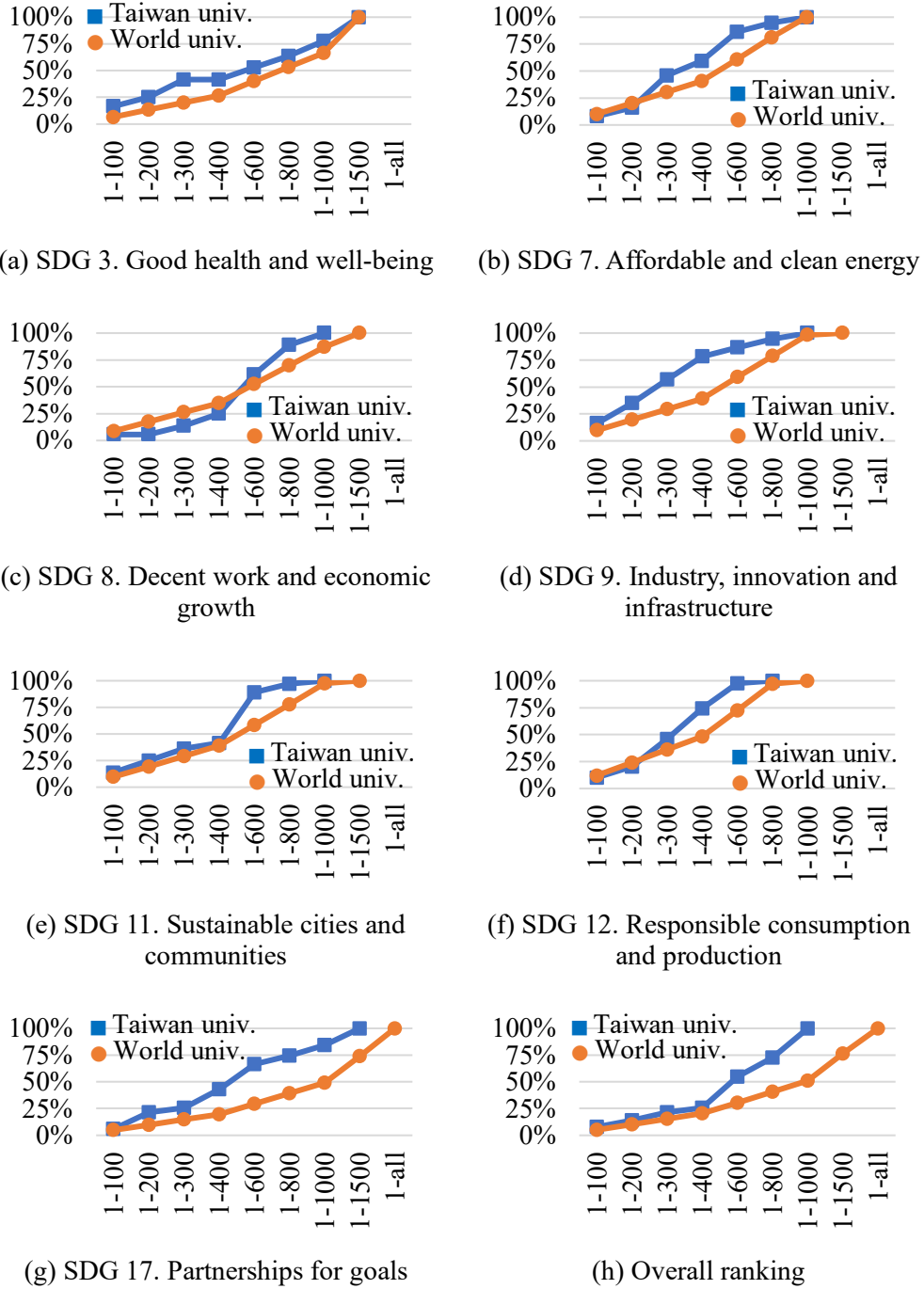

(g) SDG 17. Partnerships for goals

(h) Overall ranking

Figure 2: Taiwan and world universities' 2024 accumulative performance of the 8 indices univ. M participated in [2].

Table 2 shows 2024 ranking performance of SDG 17 of 51 Taiwan universities by analyzing their accumulative ranking performance among all 2,031 world universities participated in SDG 17. We introduce the concept of *accumulative intervals* where the number in an accumulative interval is the sum of the numbers in the current interval and all previous intervals. By taking the 1-300 accumulative interval of SDG 17 as an example, the corresponding numbers in Table 2 are introduced as follows:

- For world universities, apparently the *accumulative number of world universities* is 300 in the 1-300 accumulative interval. Thus, the *accumulative ratio of world universities* of this accumulative interval is 300/2,031 = 14.8%.

- For Taiwan universities, the *accumulative number of Taiwan universities* is 13 in the 1-300 accumulative interval (3 universities in the 1-100 interval, 8 in the 101-200 interval and 2 in the 201-300 interval, see Table 1). Thus, the *accumulative ratio of Taiwan universities* of this accumulative interval is 13/51 = 25.5%.

Taiwan universities' performance of other accumulative intervals of SDG 17 in Table 2 among world universities can be obtained similarly. Furthermore, the analysis for ranking intervals of other seven indices can also be obtained through similar inference, and such discussion is omitted. Figure 2 can then be obtained based on Tables 1-2 and the above discussion, which shows the accumulative ranking performance of Taiwan universities for all 8 indices that univ. M participated in the 2024 Impact Rankings.

For SDG 17, 25.5% of Taiwan universities and 14.8% of world universities are in the 1-300 accumulative interval (see Table 2) which indicates that Taiwan universities outperformed world universities in this accumulative interval. In fact, Taiwan universities outperformed world universities in all accumulative intervals of SDG 17 which may indicate that Taiwan has an overall advantage over the world in SDG 17.

2.2 Univ. M's Taiwan and World Ranking Performance

This article concerns the ranking performance of univ. M among all 51 Taiwan universities and 2,031 world universities in the 2024 Impact Rankings. The information of the 2024 ranking performance of univ. M of each of the 8 participating indices is collected from [2] as follows:

- SDG 3. Univ. M is ranked 1001+ out of 1,498 world participating universities.
- SDG 7. Univ. M is ranked 401-600 out of 987 world participating universities.
- SDG 8. Univ. M is ranked 301-400 out of 1,149 world participating universities.
- SDG 9. Univ. M is ranked 101-200 out of 1,018 world participating universities.
- SDG 11. Univ. M is ranked 301-400 out of 1,026 world participating universities.
- SDG 12. Univ. M is ranked 301-400 out of 825 world participating universities.
- SDG 17. Univ. M is ranked 801-1000 out of 2,031 world participating universities.
- Overall. Univ. M is ranked 401-600 out of 1,963 world participating universities.

Table 3 shows the ranking and score performance of univ. M among Taiwan and world universities in the 2024 Impact Rankings [2]. Figure 3 can be obtained from Table 3 to show the comparisons of univ. M's 2024 world and Taiwan ranking performance. We take SDG 17 in Table 3 as an example to show the data generating process for each relevant item in Table 3. The data of other indices in Table 3 can be inferred similarly.

- Univ. M's Taiwan rankings. Taking SDG 17 as an example where univ. M is ranked in the 801-1000 interval as shown above. Table 1 shows that there are 5 Taiwan universities in this interval and Table 2 shows that there are 38 Taiwan universities accumulated in previous intervals (ranked 1-800). Thus, the *upper* and *lower bounds of univ. M's Taiwan ranks* are 39 and 43, respectively. Their average is called *univ. M's Taiwan mid-rank* which is (39+43)/2 = 41. The *number of Taiwan participating universities* of SDG 17 is

51, and the relevant *ratio of univ. M's Taiwan mid-rank* is 41/51 = 80% (see Table 3) which indicates that approximately 80% of Taiwan universities outperformed than univ. M in SDG 17. Obviously, univ. M's ranking performance in SDG 17 is relatively weak among the 51 Taiwan universities.

- Univ. M's world rankings. Taking SDG 17 in Table 3 as an example, univ. M's 2024 world rank is 801-1000. The *upper* and *lower bounds of univ. M's world rank* is 801 and 1000, respectively and the relevant *univ. M's world mid-rank* is their average, 900.5. The *number of world participating universities* of SDG 17 is 2,031, and the relevant *ratio of univ. M's world mid-rank* is 900.5/2031 = 44%, which is better than the relevant *ratio of M's Taiwan mid-rank* (which is 80%, see Table 3), indicating that the challenges that univ. M faces from Taiwan in SDG 17 are far greater than those from the world. Univ. M should consider to learn from Taiwan universities' various high-quality practices to enhance its own sustainable competitiveness.

- Univ. M's scores. Univ. M's 2024 scores are 69.9-75.7 for all 8 indices with the *upper and lower bound scores* being 75.7 and 69.9, respectively, and the *mid-scores* being the average 72.8 for each index (see Table 3). Since each index has the same mid-score, it is obviously more challenging for univ. M to participate in lower ranking indices, while participating in higher ranking indices helps improve univ. M's overall ranking performance (see Figure 3.(a)).

Table 3: Univ. M's 2024 Taiwan and world ranking performance [2]

Performance of univ. M Ranking intervals of SDGs	SDG 3	SDG 7	SDG 8	SDG 9	SDG 11	SDG 12	SDG 17	Over all
Upper bound of M's Taiwan rank in its ranking interval (A)	29	23	6	7	14	19	39	14
Lower bound of M's Taiwan rank in its ranking interval (B)	36	32	9	13	15	29	43	28
M's Taiwan mid-rank (C)=(A+B)/2	32.5	27.5	7.5	10	14.5	24	41	21
Number of Taiwan participating universities (D)	36	37	36	37	36	39	51	51
Ratio of M's Taiwan mid-rank (E)=(C/D)	90%	74%	21%	27%	40%	62%	80%	41%
Upper bound of M's world ranks (F)	1001	401	301	101	301	301	801	401
Lower bound of M's world ranks (G)	1498	600	400	200	400	400	1000	600
M's world mid-rank (H)=(F+G)/2	1249.5	500.5	350.5	150.5	350.5	350.5	900.5	500.5
Number of world participating universities (I)	1498	987	1149	1018	1026	825	2031	1963
Ratio of M's world mid-rank (J)=(H/I)	83%	51%	31%	15%	34%	43%	44%	26%
Upper bound of M's score (K)	75.7	75.7	75.7	75.7	75.7	75.7	75.7	75.7
Lower bound of M's score (L)	69.9	69.9	69.9	69.9	69.9	69.9	69.9	69.9
M's mid-score (M)=(K+L)/2	72.8	72.8	72.8	72.8	72.8	72.8	72.8	72.8

(a) Univ. M's mid-scores and world mid-ranks
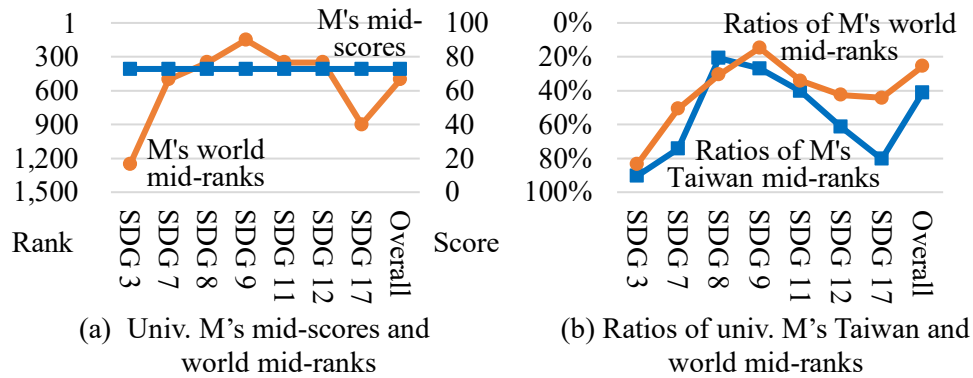
(b) Ratios of univ. M's Taiwan and world mid-ranks

Figure 3: Univ. M's 2024 scores, and world and Taiwan ranking performance

3 Analysis and Suggestions to Univ. M

3.1 The Rationality of Univ. M's Goal Selection

Figure 2 presents univ. M's 2024 ranking performance among Taiwan and world universities by the accumulative ranking performance of the overall ranking and seven goals that univ. M participated in. In addition to the overall ranking (which is comprehensively generated by the Impact Rankings), we discuss the performance of the seven goals that univ. M participated in as follows:

- SDG 3, 17 (required): Taiwan universities are outperformed than world universities in every accumulative interval of these two goals (see Figure 2.(a, g)), which indicates that Taiwan is likely to have overall advantage in these two goals, and hence it could be appropriate for Taiwan universities, including univ. M, to participate in these two goals. However, univ. M is ranked relatively low in the 1001-1498 interval for SDG 3 and the 801-1000 interval for SDG 17 (see Table 3), which indicates that univ. M performed bad in these two goals and should more aggressively promote and demonstrate the sustainable development achievements relevant to these two goals.

- SDG 9, 11: Taiwan universities are outperformed than world universities in every accumulative interval of these two goals (see Figure 2.(d, e)) where univ. M is ranked rather good in the 101-200 interval for SDG 9 and the 301-400 interval for SDG 11 (see Table 3), which indicates that for these two goals, Taiwan is likely to have overall advantage, and univ. M also has matching characteristics, and it may be appropriate for Taiwan universities, including univ. M, to participate in these two goals.

- SDG 7, 8, 12: For these three goals, Taiwan universities are slightly underperformed than world universities in their first several accumulative intervals, but outperformed than world universities in their following accumulative intervals (see Figure 2.(b, c, f)) where univ. M is fairly ranked in the 401-600 interval for SDG 7, the 301-400 interval for SDG 8, and the 301-400 interval for SDG 12 (see Table 3), indicating that univ. M's characteristics meet these three goals, and it may be appropriate for univ. M to participate in these goals.

3.2   The Analysis of Univ. M's 2024 Ranking Performance

There are 51 Taiwan universities participated in the 2024 Impact Rankings. In addition to developing their own characteristics, these universities also share the overall situation of Taiwan's economy, society and environment. Univ. M's advantages in its 7 participating goals are analyzed as follows (see Figure 3.(a, b)):

- SDG 9 is the goal that univ. M should improve continuously. The relevant *ratio of univ. M's world mid-rank* is 15% (see Table 3), indicating that univ. M performed rather good in this goal than other participating goals (see Figure 3.(b)). However, the relevant *ratio of univ. M's Taiwan mid-rank* is only 27% (see Table 3), indicating that although univ. M performs well in SDG 9 globally, a number of Taiwan universities outperformed than univ. M in SDG 9. It may be concluded that more innovative practices should be adopted and implemented if univ. M plans to improve its ranking performance to surpass those outstanding Taiwan universities in SDG 9.

- SDG 8 is the goal that univ. M may review and improve carefully. Univ. M performs well in SDG 8 (see Figure 3.(a)). However, Table 3 shows that the *ratio of univ. M's Taiwan mid-rank* (21%) is better than the *ratio of univ. M's world mid-rank* (31%), indicating that although univ. M's performance in SDG 8 is good among Taiwan universities, its world performance is slightly insufficient. Univ. M may consider a deep understanding of the sustainable development focus of SDG 8 in order to compete with universities around the world.

- SDG 11 and 12 are goals that univ. M may improve strictly. The *ratios of univ. M's world mid-ranks* are 34% for SDG 11 and 43% for SDG 12, and the *ratios of univ. M's Taiwan mid-ranks* are 40% for SDG 11 and 62% for SDG 12 (see Table 3), indicating that univ. M performed relatively challenging in these two goals among Taiwan and world universities in the 2024 Impact Rankings. Strictly improving univ. M's performance of these two goals may help univ. M to improve its overall rank.

- SDG 7 and 17 are goals that univ. M may review and improve seriously. Univ. M's *mid-scores* of these two goals are consistent with other goals, but the two relevant *univ. M's world mid-ranks* are relatively low (51% for SDG 7 and 44% for SDG 17, see Table 3), indicating that world universities are quite competitive in these two goals and hence, it may be rather challenging for univ. M to improve its performance in these two goals. Univ. M may consider a deeply understanding the focus of these two goals to improve its scores and the overall ranking.

- SDG 3 is the goal that univ. M may rigorously consider giving up or working towards more aggressively. The relevant *ratio of univ. M's world mid-rank* is 83% and the relevant *ratio of univ. M's Taiwan mid-rank* is 90% (see Table 3). Obviously, univ. M is underperformed than most of Taiwan and world universities in SDG 3, and hence, it may be inappropriate for univ. M to participate in this goal. Univ. M should rigorously consider giving up this goal or come up with more innovative practices to improve its relevant ranking performance.

3.3   Univ. M's Ranking Improvement Strategies

Based on the above performance analysis of the rankings and scores of univ. M participated in the 2024 Impact Rankings, we suggest the following strategies to improve univ. M's ranking performance.

- Strategy 1. Improve the four optional goals, SDG 8, 9, 11, and 12 (see Figure 3.(a)) that univ. M performed relatively well, and improve their ranking performance on the current basis. The relevant practices are as follows:

  − Univ. M may consider fully understanding the focus of the four goals set by the Impact Rankings, so as to identify its own shortcomings and strengthen the sustainable development mechanism of relevant university affairs accordingly.

  − Univ. M may consider establishing relevant reward mechanisms within the university based on the focus of these four goals to enhance the interest of all faculty, staff, students and partner organizations in relevant issues to sustainable development and encourage them to actively participate in corresponding work.

  − Univ. M may consider allocating resources in these four goals to improve the relevant measures currently being implemented, develop and promote specific innovative practices, and accumulate relevant performance for further improvement of ranking performance.

- Strategy 2. Improve the ranking performance of univ. M in SDG 3, 7 and the required SDG 17 (see Figure 3.(a)). Univ. M performed poorly on these three goals. It is recommended to raise up the rankings of these three goals by one interval respectively (see Table 1) as interim objectives. The relevant practices are as follows:

  − Univ. M may consider gaining a deeper understanding of the focus of these three goals set by the Impact Rankings and understanding the reasons for its own underperformance, so as to adjust and implement its efforts to promote sustainable development.

  − Univ. M may consider strengthening and implementing horizontal reviews to understand the university-wide sustainable development performance. In addition, univ. M should avoid underreporting its performance and enhance efforts to promote sustainable development in areas where performance is insufficient.

  − Taiwan universities performed better than world universities in all of these three rankings (see Figure 2). Univ. M may consider understanding and referring to the promotion practices and performance of Taiwan universities to improve its own focus on promoting sustainable development.

- Strategy 3. For other goals that univ. M does not participate in, the feasibility of participating in these goals should be explored based on the focus set by the Impact Rankings and the development of univ. M. The relevant practices are as follows:

  − The Impact Rankings may adjust the focus of each goal every year. Univ. M may consider establishing an official team to continuously monitor such adjustments of various goals and understand the performance priorities of high-ranking Taiwan

universities in order to enhance its own ranking competitiveness.

- University development has a wide range of aspects. Univ. M should promote SDGs across the university so that all faculty, staff, students and partner organizations understand the importance of sustainable development and enhance the performance based on univ. M's sustainable development characteristics.

- Univ. M may consider adopting a horizontal review mechanism to help understand the sustainable development performance of these kind of goals, and participate in or replace goals as appropriate to avoid the situation where significant sustainable development performance is overlooked.

4 Summary

The Impact Rankings is based on the SDGs and becomes an important platform for universities around the world to demonstrate their sustainable development achievements and international influence. Taking university M as an example, this article analyzes its 2024 ranking performance for each of its participating goals and the overall ranking, and also suggests strategies to improve its ranking performance. Other universities can refer to this article to plan their own practices for promoting sustainable development and improving their ranking performance in the Impact Rankings.

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