

Key Performance Indicators (KPIs) Report

Master of Data Science

2019-2020

<p>Kingdom of Saudi Arabia Ministry of Education Princess Sattam bin Abdulaziz University College of Computer Engineering and Sciences (056)</p>	 <p>جامعة الأمير سطام بن عبد العزيز Prince Sattam Bin Abdulaziz University</p>	<p>المملكة العربية السعودية وزارة التعليم جامعة الأمير سطام بن عبد العزيز كلية هندسة وعلوم الحاسب (056)</p>
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Prince Sattam bin Abdulaziz University
College of Computer Engineering
and Sciences
Key Performance Indicators (KPIs) Report
Data Science Master Program
Academic year: 2019-2020

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I-Key Performance Indicators (KPIs) Report for Data Science Master Program Academic year: 2019-2020

1-Introduction

1.1-Measurement and evaluation processes are one of the important mechanisms that indicate the program's achievement of quality assurance standards. Therefore, the current report aims to describe the results of the 19 key performance indicators for the Master's Program in Data Science for the year 2019-2020, which include the 19 main key performance indicators identified by the NCAAA. The program key performance indicators include a number of qualitative indicators that depended on the results of opinion polls for the beneficiaries of the program in addition to quantitative indicators based on statistics. The current report provides a logical analysis of the results and data achieved by examining the various and relevant data and comparing them with reference points. The internal and external identification of areas of strength and weakness, and disclosure of the reasons behind the achieved results. The report also includes the program's development plans to address weaknesses, which the results indicated did not achieve the target levels.

1.2- Internal benchmarks: The Data Science master program has taken its own performance for the past year as an internal benchmark, since the academic year 2019-2020 is the first year of the program, the internal benchmarking is not available for this year.

1.3- External benchmarking: Executive master program of data science of other universities in KSA, the data for the academic year 2019-2020 is not available for the external program.

1.4- Check performance indicators: The results of measuring the main key performance indicators for the year 2019-2020 showed that almost of these indicators achieved the targeted levels.

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2-List of Program Performance Indicators

Standard	KPIs Code	Key Performance Indicators
Standard 1: MISSION AND GOALS	KPI-PG-1	Percentage of achieved indicators of the program operational plan objectives
Standard 3: TEACHING AND LEARNING	KPI-PG-2	Students' Evaluation of quality of learning experience in the program
	KPI- PG-3	Students' evaluation of the quality of the courses
	KPI- PG-4	Students' evaluation of the quality of scientific supervision
	KPI- PG-5	Average time for students' graduation
	KPI- PG-6	Rate of students dropping out of the program
	KPI- PG-7	Graduates' employability
	KPI- PG-8	Employers' evaluation of the program graduates' competency
Standard 4: STUDENTS	KPI-PG-9	Students' satisfaction with the provided services
Standard 5- FACULTY MEMBERS	KPI-PG-10	Ratio of students to faculty members
	KPI-PG-11	Percentage of faculty members' distribution based on academic ranking
	KPI-PG-12	Proportion of faculty members leaving the program
Standard 6- Learning Resources, Facilities, and Equipment	KPI-PG-13	Satisfaction of beneficiaries with learning resources
	KPI-PG-14	Satisfaction of beneficiaries with research facilities and equipment

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Standard 7- RESEARCH AND PROJECTS	KPI-PG-15	Percentage of publications of faculty members
	KPI-PG-16	Rate of published research per faculty member
	KPI-PG-17	Citations rate in refereed journals per faculty member
	KPI-PG-18	Percentage of students' publication
	KPI-PG-19	Number of patents, innovative products, and awards of excellence

3- A summary of the indicators that achieved the target

Standard	number of performance indicators	The number of performance indicators that have achieved the target
Standard 1: MISSION AND GOALS	1	0
Standard 3: TEACHING AND LEARNING	7	3
Standard 4: STUDENTS	1	0
Standard 5- FACULTY MEMBERS	3	1
Standard 6- Learning Resources, Facilities, and Equipment	2	0
Standard 7- RESEARCH AND PROJECTS	5	2
Total	19	6

4- Presentation of the results of the performance indicators of the program

Code	Key Performance Indicators	Actual Benchmark	Target Benchmark	Internal Benchmark	External Benchmark	New Target Benchmark
KPI-P G-1	Percentage of achieved indicators of the program	70%	95%	NA	NA	95%

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	operational plan objectives					
KPI-P G-2	Students' Evaluation of quality of learning experience in the program	4	3.75	NA	NA	4.5
KPI-PG-3	Students' evaluation of the quality of the courses	4.5	3.75	NA	NA	4.45
KPI-PG-4	Students' evaluation of the quality of scientific supervision	4.1	3.75	NA	NA	4.3
KPI-PG-5	Average time for students' graduation	4	4	NA	NA	4
KPI-PG-6	Rate of students dropping out of the program	15.3%	0%	NA	NA	0%
KPI-PG-7	Graduates' employability	73%	90%	NA	NA	90%
KPI-PG-8	Employers' evaluation of the program graduates' competency	4.9	3.75	NA	NA	4.5
KPI-P G-9	Students' satisfaction with the provided services	4	3.75	NA	NA	4
KPI-P G-10	Ratio of students to	1.3:1	1:1	NA	NA	1:1

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	faculty members					
KPI-P G-11	Percentage of faculty members' distribution based on academic ranking	Prof: 0% Assoc.: 28.5% Assist: 71%	Prof: 22.9% Assoc.: 22.9% Assist: 54.1%	NA	NA	Prof: 22.9% Assoc.: 43.8% Assist: 33.3%
		Male: 71.4% Female: 28.5%	Male: 66.7% Female: 33.3%			Male: 50% Female: 50%
KPI-P G-12	Proportion of faculty members leaving the program	28.6%	0%	NA	NA	0%
KPI-P G-13	Satisfaction of beneficiaries with learning resources	2.3	3.75	NA	NA	3.75
KPI-P G-14	Satisfaction of beneficiaries with research facilities and equipment	3	3.75	NA	NA	4
KPI-P G-15	Percentage of publications of faculty members	100%	75%	NA	NA	90%
KPI-P G-16	Rate of published research per faculty member	1.4:1	2:1	NA	NA	3:1

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KPI-P G-17	Citations rate in refereed journals per faculty member	19.5:1	2:1	NA	NA	25:1
KPI-P G-18	Percentage of students' publication	45%	50%	NA	NA	50%
KPI-P G-19	Number of patents, innovative products, and awards of excellence	0	1	NA	NA	1

5-Analyze the results of each indicator

Standard 1: Mission and Goals

Table1: KPI-PG-1: Percentage of achieved indicators of the program operational plan objectives.

NCAAA KPI Reference Number: KPI-PG-1: Percentage of achieved indicators of the program operational plan objectives				
Data Science Master Program KPI Reference Number: KPI-PG-1				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
70%	95%	NA	NA	95%

-KPI Analysis of Percentage of achieved indicators of Data Science Master Program operational plan objectives

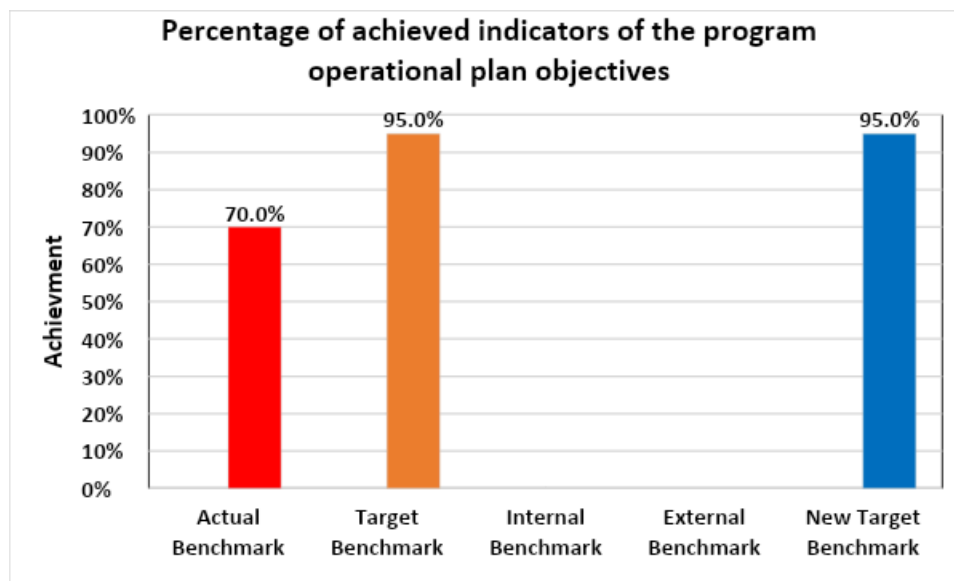


Figure 1: Percentage of achieved indicators of the program operational plan objectives.

Analysis (strengths and recommendations): The above table indicates the achievement and implementation of program operational plan objectives for the year 2019-2020. The Data Science master program at PSAU University selected 19 KPIs in order to measure the objectives of the program and follow up of the operational plan implementation annually. As per the recommendations of NCAAA, this is a newly introduced KPI during the academic year 2019-2020. The Data Science Master Program starts at 2019-2020 therefore data was not available before this year and hence, the achievement of performance indicators was not measured. Although, it was concluded in 2019-2020, the KPI indicated a progress and achieved an average value of 70%. Therefore, it is important to concentrate on the fact that the evaluation of the department of Computer Engineering’s operational plan objectives is lower than the target benchmark.

Strengths:

- A clear mission and the involvement of the faculty members and students.
- Students’ satisfaction over the courses offered the facilities and services available to them.
- Program advisory committees evaluate the program and recommend updates in order to measure the extent of the performance in accordance with the strategic plan.

Recommendations:

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- The involvement of the program alumni with the job market should be encouraged.
- Actual performance should be improved based on the suggested improvement plans.

*Explanation:

No internal Benchmark. Data Science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Percentage of performance indicators of the operational plan objectives of the program that have achieved the targeted annual level to the total number of indicators targeted for these objectives in the same year.

**Explanation:

No external Benchmark

Standard 3: TEACHING AND LEARNING

Table2: KPI-PG-2: Students' evaluation of quality of learning experience in the program.

NCAAA KPI Reference Number: KPI-PG-2: Students' Evaluation of quality of learning experience in the program				
Data Science Master Program KPI Reference Number: KPI-PG-2				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
4	3.75	NA	NA	4

1-KPI Analysis of Students' Evaluation of quality of learning experience in the program

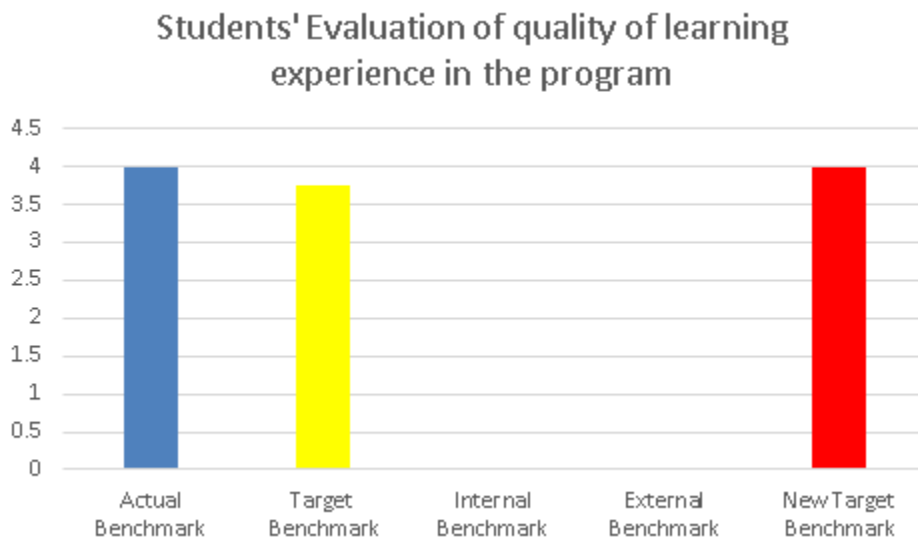


Figure 2: Students' Evaluation of quality of learning experience in the program.

2-Analysis (strengths and recommendations): The actual benchmark is exceeded the target benchmark this academic year 2019-2020 that it is the first year of the program and this benchmark has been measured through the program evaluation survey. No internal and external benchmark.

-Strengths: None

- -Recommendations: None

*Explanation:

No internal Benchmark. Data Science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Average of overall rating of final year students for the quality of learning experience in the program on a five-point scale in an annual survey.

**Explanation:

No external Benchmark

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Table3: KPI-PG-3: Students' evaluation of the quality of the courses.

NCAAA KPI Reference Number: KPI-PG-3: Students' evaluation of the quality of the courses				
Data Science Master Program KPI Reference Number: KPI-PG-3				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
4.5	3.75	NA	NA	3.75

1-KPI Analysis of Students' evaluation of the quality of the courses

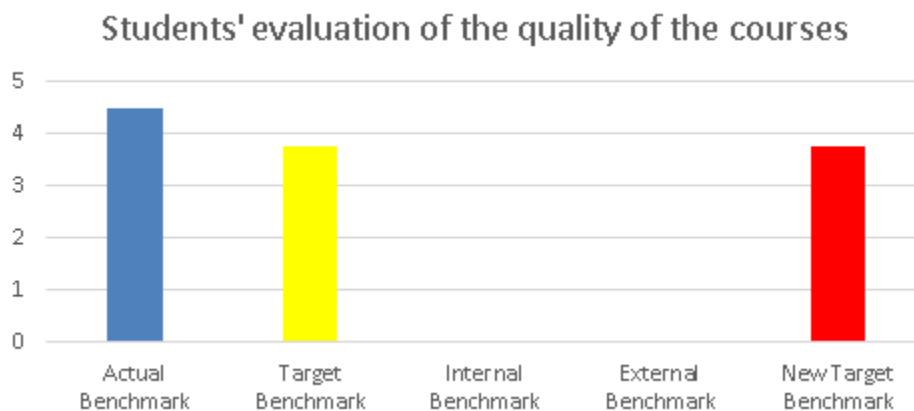


Figure 3: Students' evaluation of the quality of the courses.

2-Analysis (strengths and recommendations): Based on the table above the actual benchmark is less than the target benchmark. No internal and external benchmark.

-Strengths:

- Registration procedures for courses are easy and efficient.
- Motivation offered by the program to students for better learning.

-Recommendations:

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- Information Systems department needs to improve the quality of courses experience offered to the students.
- The master program of Data science has to develop new techniques in courses, these techniques will help to satisfy the course quality.

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Average students' overall rating of the quality of courses on a five- point scale in an annual survey. **Explanation:

No external Benchmark

Table4: KPI-PG-4: Students' evaluation of the quality of scientific supervision.

NCAAA KPI Reference Number: KPI-PG-4: Students' evaluation of the quality of scientific supervision				
Data Science Master Program KPI Reference Number: KPI-PG-4				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
NA	4	NA	NA	4

1-KPI Analysis of Students' evaluation of the quality of scientific supervision

Students' evaluation of the quality of scientific supervision

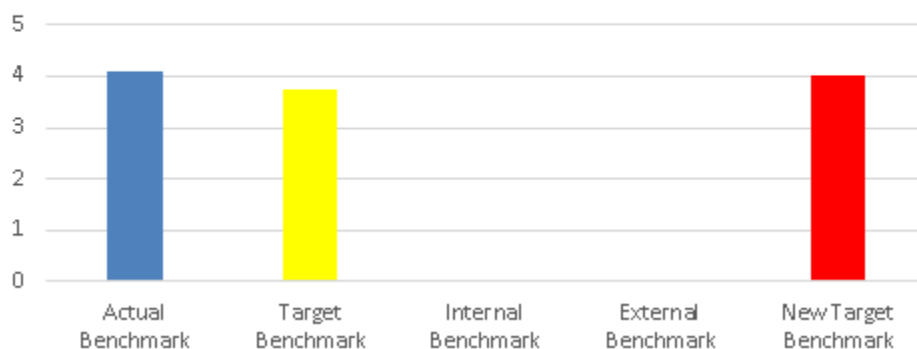


Figure 4: Students' evaluation of the quality of scientific supervision.

2-Analysis (strengths and recommendations): The actual benchmark is exceeded the target bench mark in the first academic year of the program and this benchmark should be measured at the graduation date. No internal and external benchmark.

- Strengths: supervisors of researches have done brilliant jobs with students. In term of research, the capstone projects have been well supervised.

- Recommendations: None

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Average students' overall rating of the quality of scientific supervision on a five-point scale in an annual survey.

**Explanation:

No external Benchmark

Table5: KPI-PG-5: Average time for students' graduation.

NCAAA KPI Reference Number: KPI-PG-5: Average time for students' graduation
Data Science Master Program KPI Reference Number: KPI-PG-5

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Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
NA	4	NA	NA	4

1-KPI Analysis of Average time for students' graduation

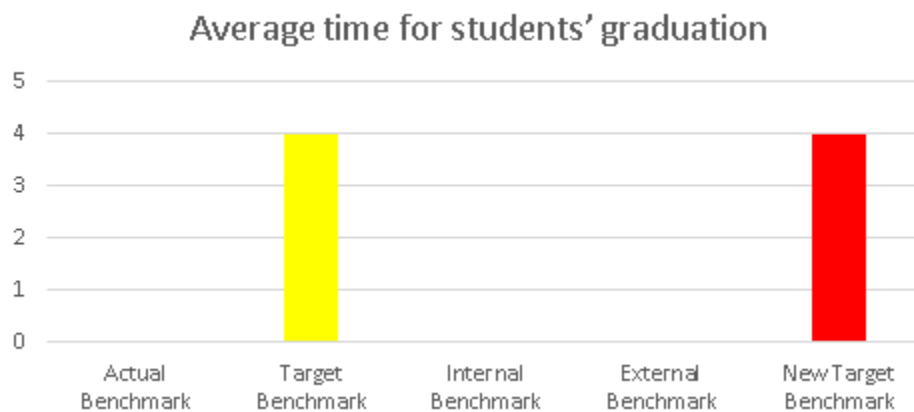


Figure 5: Average time for students' graduation.

2-Analysis (strengths and recommendations): The actual benchmark is not available through this academic year that it is the first year of the program and this benchmark should be measured at the graduation date. No internal and external benchmark.

- Strengths: None

- Recommendations: None

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Average time (in semesters) spent by students to graduate from the program.

**Explanation:

No external Benchmark

Table 6: KPI-PG-6: Rate of students dropping out of the program.

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NCAAA KPI Reference Number: KPI-PG-6: Rate of students dropping out of the program				
Data Science Master Program KPI Reference Number: KPI-PG-6				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
15.3%	0%	NA	NA	0%

1-KPI Analysis of Rate of students dropping out of the program

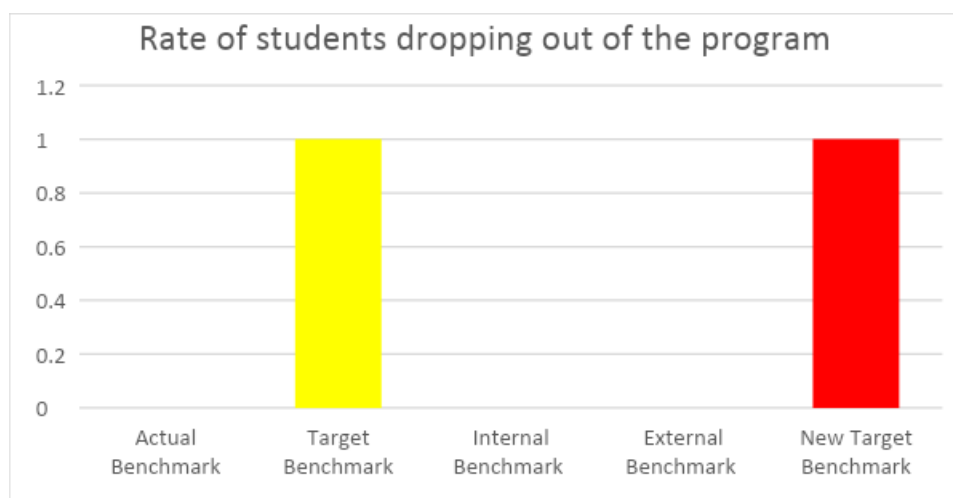


Figure 6: Rate of students dropping out of the program.

2-Analysis (strengths and recommendations): Based on the table above the actual benchmark clarifies that there were two students drop the program in the first year 2019-2020.

as the target benchmark. No internal and external benchmark.

- Strengths:

- student who were drop the program are two students which represent 15.3%, and it is to some extend is not huge percent.

- Recommendations:

- The data science master program should study the dropping situation and to working to eradicate such difficulties to students' intake as possible.

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*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Percentage of students who did not complete the program to the total number of students in the same cohort.

**Explanation:

No external Benchmark

Table 7: KPI-PG-7: Graduates' employability.

NCAAA KPI Reference Number: KPI-PG-7: Graduates' employability				
Data Science Master Program KPI Reference Number: KPI-PG-7				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
NA	90%	NA	NA	90%

1-KPI Analysis of Graduates' employability

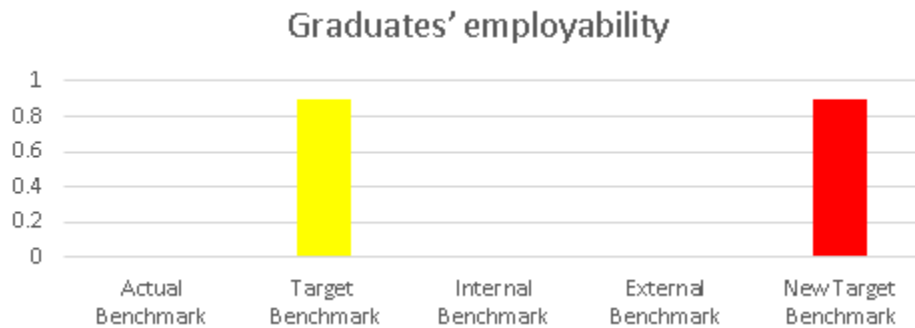


Figure 7: Graduates' employability.

2-Analysis (strengths and recommendations): The actual benchmark is not available through this academic year that it is the first year of the program and this benchmark should be measured after the graduation date. No internal and external benchmark.

- Strengths: None

- Recommendations: None

- Continue the same strategies of teaching and learning.
- Focus should be given to the development of a graduate's abilities.

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Percentage of graduates from the program who within a year of graduation were employed to the total number of graduates in the same year.

**Explanation:

No external Benchmark

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Table 8: KPI-PG-8: Employers' evaluation of the program graduates' competency.

NCAAA KPI Reference Number: KPI-PG-8: Employers' evaluation of the program graduates' competency				
Data Science Master Program KPI Reference Number: KPI-PG-8				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
4.9	3.75	NA	NA	4.5

1-KPI Analysis of Employers' evaluation of the program graduates' competency

Employers' evaluation of the program graduates' competency

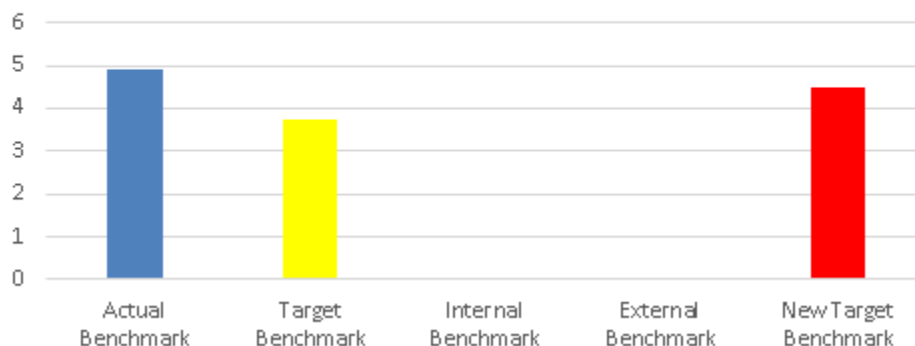


Figure 8: Employers' evaluation of the program graduates' competency.

2-Analysis (strengths and recommendations): The actual benchmark is exceeded the target benchmark and this benchmark represents the strength of our program graduates' competency. No internal and external benchmark.

- Strengths: our students have exhibited a professional in their career.

- Recommendations: None

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Average of overall rating of employers for the competency of the program graduates on a five-point scale in an annual survey.

**Explanation:

No external Benchmark

Standard 4: STUDENTS

Table 9: KPI-PG-9: Students' satisfaction with the provided services.

NCAAA KPI Reference Number: KPI-PG-9: Students' satisfaction with the provided services				
Data Science Master Program KPI Reference Number: KPI-PG-9				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
NA	3.75	NA	NA	3.75

1-KPI Analysis of Students' satisfaction with the provided services

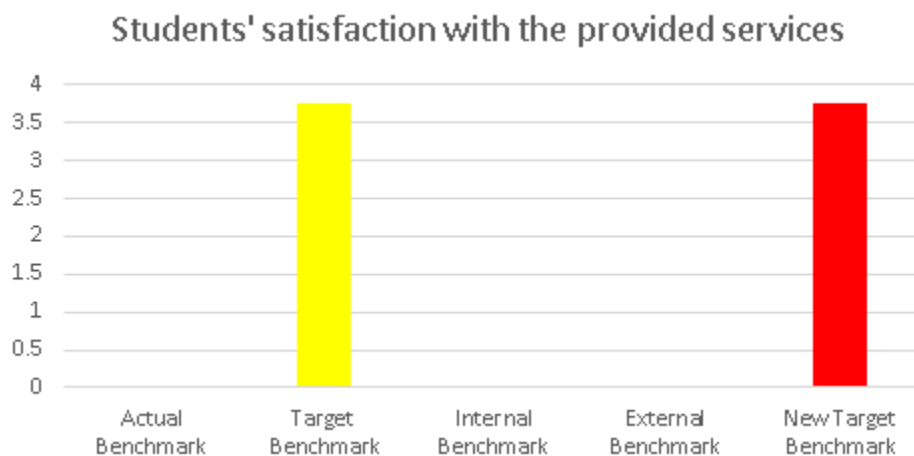


Figure 9: Students' satisfaction with the provided services.

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2-Analysis (strengths and recommendations): The actual benchmark is not available through this academic year that it is the first year of the program and this benchmark should be measured at the graduation date. No internal and external benchmark.

-Strengths: None

-Recommendations: None

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Average of students' satisfaction rate with the various services provided by the program (food, transportation, sport facilities, academic advising ...) on a five-point scale in an annual survey.

**Explanation:

No external Benchmark

Standard 5: FACULTY MEMBERS

Table 10: KPI-PG-10: Ratio of students to faculty members.

NCAAA KPI Reference Number: KPI-PG-10: Ratio of students to faculty members				
Data Science Master Program KPI Reference Number: KPI-PG-10				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
1:1	5:1	NA	NA	5:1

1-KPI Analysis of Ratio of students to faculty members

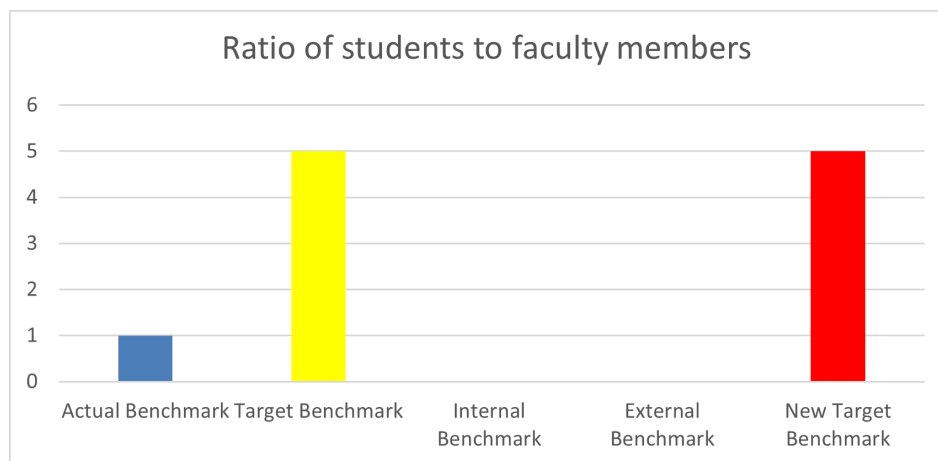


Figure 10: Ratio of students to faculty members.

2-Analysis (strengths and recommendations): Based on the table above the actual benchmark is less than the target benchmark, is a new master program starts at 2019-2020.

. No internal and external benchmark.

-Strength:

- None.

-Recommendation:

- Most of the PhD teaching staff are Assistant Professors. There is a need to increase the proportion of Associate and Full Professors in the Master of Data Science.

*Explanation:

No internal Benchmark. Data Science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Ratio of the total number of students to the total number of full-time and full-time equivalent faculty members participating in the program.

**Explanation:

No external Benchmark

Table 11: KPI-PG-11: Percentage of faculty members' distribution based on academic ranking.

NCAAA KPI Reference Number: KPI-PG-11: Percentage of faculty members' distribution based on academic ranking				
Data Science Master Program KPI Reference Number: KPI-PG-11				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
Prof: 0% Assoc.: 28.5% Assist: 71% Male: 71.4% Female: 28.5%	Prof: 22.9% Assoc.: 22.9% Assist: 54.1% Male: 66.7% Female: 33.3%	NA	NA	Prof: 33.3% Assoc.: 33.3% Assist: 33.3% Male: 50% Female: 50%

1-KPI Analysis of Percentage of faculty members' distribution based on academic ranking

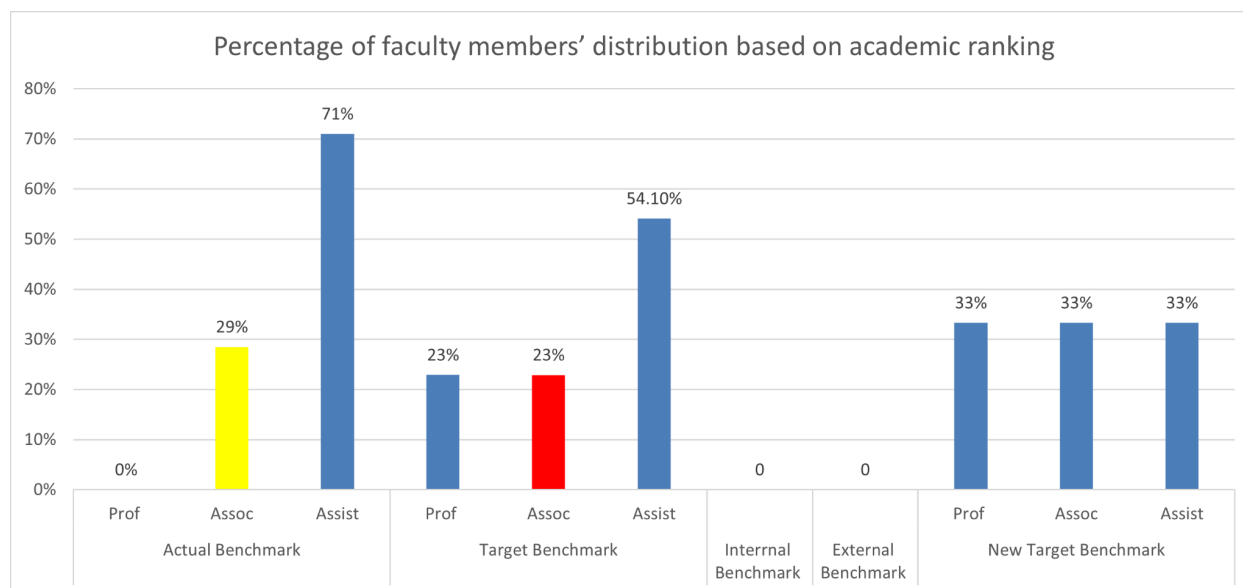


Figure 11: Percentage of faculty members' distribution based on academic ranking.

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2-Analysis (strengths and recommendations): The actual benchmark is far behind the target benchmark. No internal and external benchmark.

- Strengths:

- Recommendations:

- Recruit associate professors.
- Encourage faculty to pursue higher education.

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Percentage distribution of faculty members participating in the program based on academic ranking.

**Explanation:

No external Benchmark

Table 12: KPI-PG-12: Proportion of faculty members leaving the program.

NCAAA KPI Reference Number: KPI-PG-12: Proportion of faculty members leaving the program				
Data Science Master Program KPI Reference Number: KPI-PG-12				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
0%	0%	NA	NA	0%

1-KPI Analysis of Proportion of faculty members leaving the program

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Figure 12: Proportion of faculty members leaving the program.

There is no teaching staff leaving the master program of data science in the actual and target benchmark. No internal and external benchmark.

- Strengths:

- There is job satisfaction in the department, which leads to higher retention rates.

- Recommendations:

- It is recommended to continue the efforts to obtain feedback from the teaching staff regarding their job satisfaction in order to rectify their issues and promote sense of ownership in the faculty members.

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Proportion of faculty members leaving the program annually for reasons other than age retirement to the total number of faculty members.

**Explanation:

No external Benchmark

Standard 6: FACULTY MEMBERS

Table 13: KPI-PG-13: Satisfaction of beneficiaries with learning resources.

NCAAA KPI Reference Number: KPI-PG-13: Satisfaction of beneficiaries with learning resources				
Data Science Master Program KPI Reference Number: KPI-PG-13				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
NA	3.75	NA	NA	3.75

1-KPI Analysis of Satisfaction of beneficiaries with learning resources

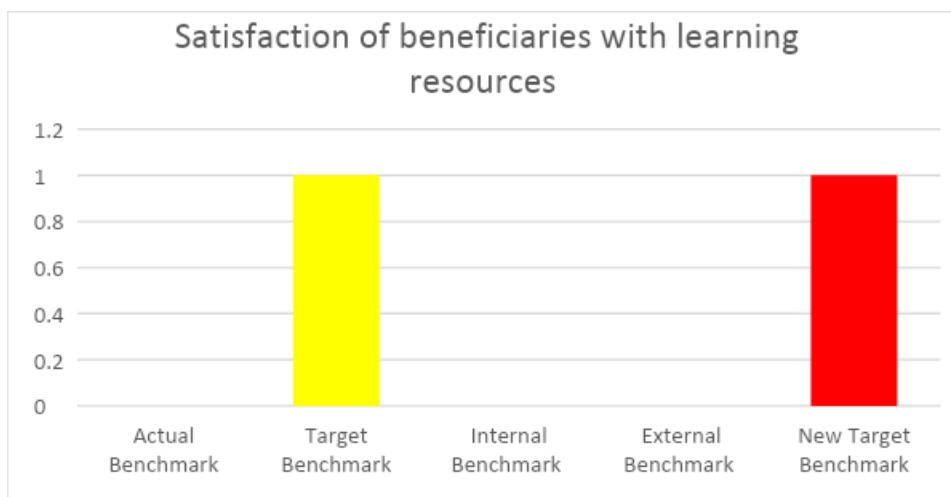


Figure 13: Satisfaction of beneficiaries with learning resources.

2-Analysis (strengths and recommendations): The actual benchmark is not available through this academic year that it is the first year of the program and this benchmark should be measured at the graduation date. No internal and external benchmark.

Strengths: None

Recommendations: None

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

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1. How was the benchmark calculated?

Average of beneficiaries' satisfaction rate with learning resources on a five-point scale in an annual survey in terms of:

- a. Their adequacy and diversity (references, journals, databases... etc.)
- b. The support services provided for their utilization.

**Explanation:

No external Benchmark

Table 14: KPI-PG-14: Satisfaction of beneficiaries with research facilities and equipment.

NCAAA KPI Reference Number: KPI-PG-14: Satisfaction of beneficiaries with research facilities and equipment				
Data Science Master Program KPI Reference Number: KPI-PG-14				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
2.6	3.75	NA	NA	4

1-KPI Analysis of Satisfaction of beneficiaries with research facilities and equipment

Satisfaction of beneficiaries with research facilities and equipment

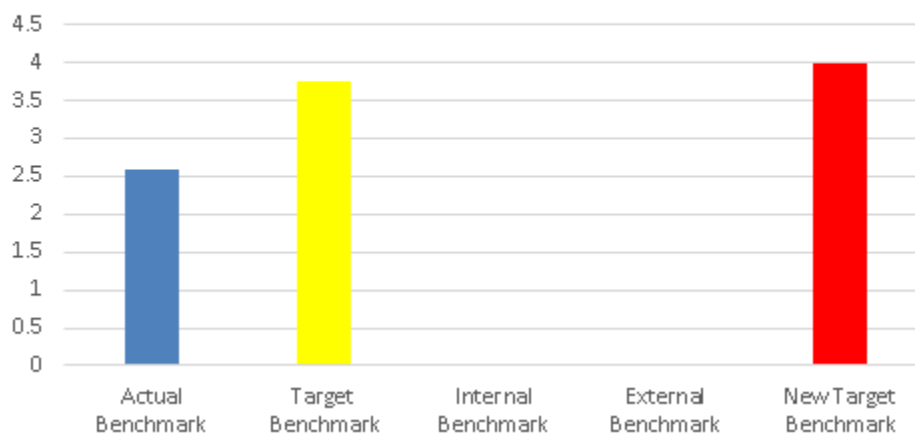


Figure 14: Satisfaction of beneficiaries with research facilities and equipment.

2-Analysis (strengths and recommendations): The actual benchmark is less than and this because of the new born program of master of data science program, which started 2019.

No internal and external benchmark.

-Strengths: None

- Recommendations: acquiring new research labs.

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Average of beneficiaries' satisfaction rate with research facilities and equipment (depending on the nature of the program) on a five-point scale in an annual survey.

**Explanation:

No external Benchmark

Standard 7: RESEARCH AND PROJECTS

Table 15: KPI-PG-15: Percentage of publications of faculty members.

NCAAA KPI Reference Number: KPI-PG-15: Percentage of publications of faculty members				
Data Science Master Program KPI Reference Number: KPI-PG-15				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
80%	75%	NA	NA	90%

1-KPI Analysis of Percentage of publications of faculty members

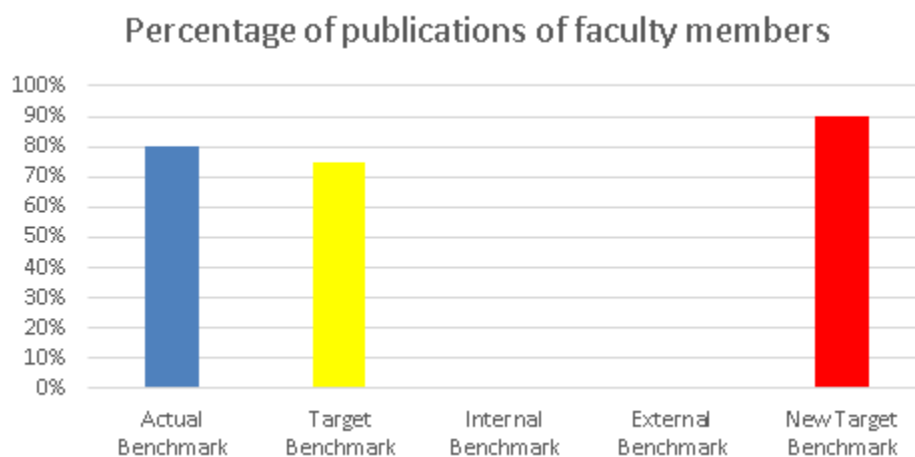


Figure 15: Percentage of publications of faculty members.

2-Analysis (strengths and recommendations): The data calculation showed that the number of publications is better than the target benchmark. No internal and external benchmark.

-Strengths:

- Most of the counted papers (all refereed) were published in ISI indexed journals
- The teaching staff is actively involved in research although they are busy with other tasks

-Recommendation:

- The department has to encourage the staff for more publications.

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- Encouraging formation of research groups within the department would help create a stronger culture of collaboration while also affecting the KPI positively.
- Efforts need to be made to ensure an even higher proportion of publications are in ISI indexed journals. The department must disseminate more actively the positive outcomes of Faculty Members’

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Percentage of faculty members participating in the program with at least one research publication during the year to total faculty members in the program.

**Explanation:

No external Benchmark

Table 16: KPI-PG-16: Rate of published research per faculty member.

NCAAA KPI Reference Number: KPI-PG-16: Rate of published research per faculty member				
Data Science Master Program KPI Reference Number: KPI-PG-16				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
1.4:1	2:1	NA	NA	3:1

1-KPI Analysis of Rate of published research per faculty member

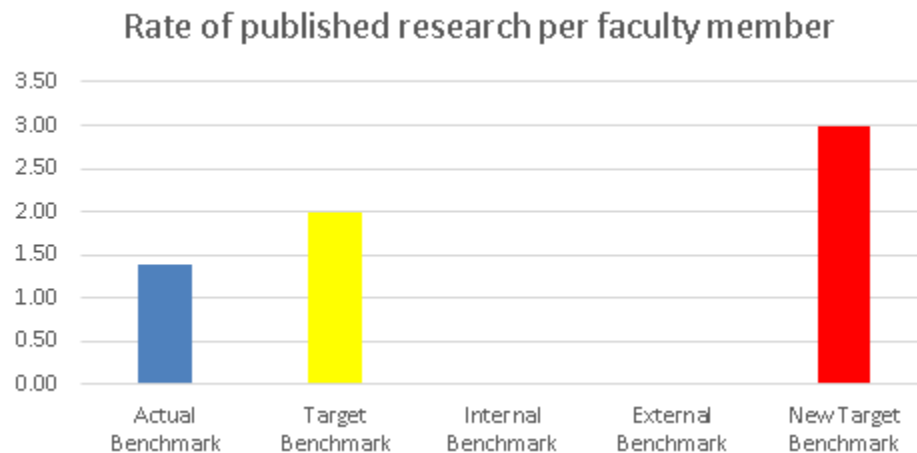


Figure 16: Rate of published research per faculty member.

2-Analysis (strengths and recommendations): The data calculation showed that the rate of publications is better than the target benchmarks. No internal and external benchmark.

- Strengths:

- The publishing rate is higher than the target; despite the members are very active in their research activities.
- More than 90% of the counted papers (all refereed) were published in ISI indexed journals

- Recommendations:

- The department has to encourage the staff for research publication.
- The department must disseminate more actively the positive outcomes of program staffs' Research Performance Evaluation and its impact on their promotional activities.

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

The average number of refereed and/or published research per each faculty member participating in the program during the year (total number of refereed and/or published research to the total number of faculty members during the year).

**Explanation:

No external Benchmark

Table 17: KPI-PG-17: Citations rate in refereed journals per faculty member.

NCAAA KPI Reference Number: KPI-PG-17: Citations rate in refereed journals per faculty member				
Data Science Master Program KPI Reference Number: KPI-PG-17				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
19.5:1	2:1	NA	NA	5:1

1-KPI Analysis of Citations rate in refereed journals per faculty member

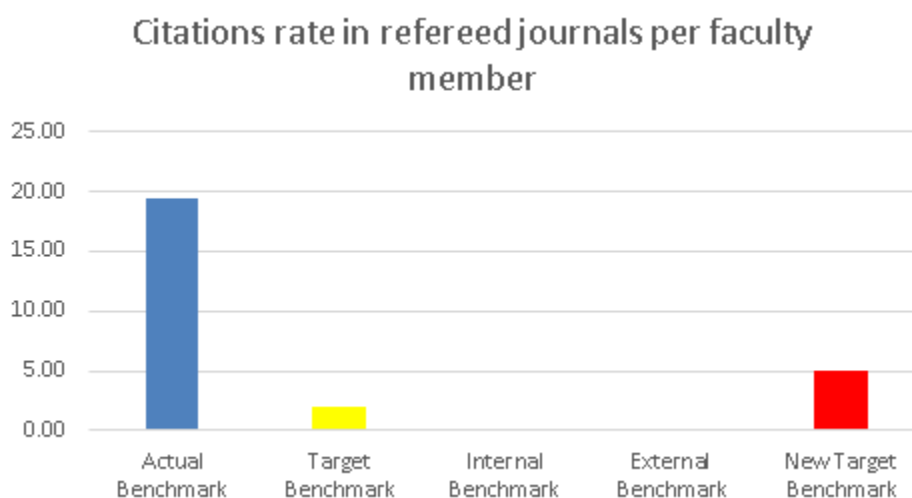


Figure 17: Citations rate in refereed journals per faculty member.

2-Analysis (strengths and recommendations): The data calculation showed that the rate of citation is more than the target benchmark. No internal and external benchmark.

- Strengths:

- Most of the papers were cited in ISI indexed journals.

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- The faculties in the master program of data science have published much papers, therefore, they earned much citation.

- Recommendations:

- The department must disseminate more actively the positive outcomes of Faculty Members' Research Performance Evaluation and its impact on their promotional activities

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

The average number of citations in refereed journals from published research (total number of citations in refereed journals from published research for faculty members to the total published research)

**Explanation:

No external Benchmark

Table 18: KPI-PG-18: Percentage of students' publication.

NCAAA KPI Reference Number: KPI-PG-18: Percentage of students' publication				
Data Science Master Program KPI Reference Number: KPI-PG-18				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
0	10%	NA	NA	10%

1-KPI Analysis of Percentage of students' publication

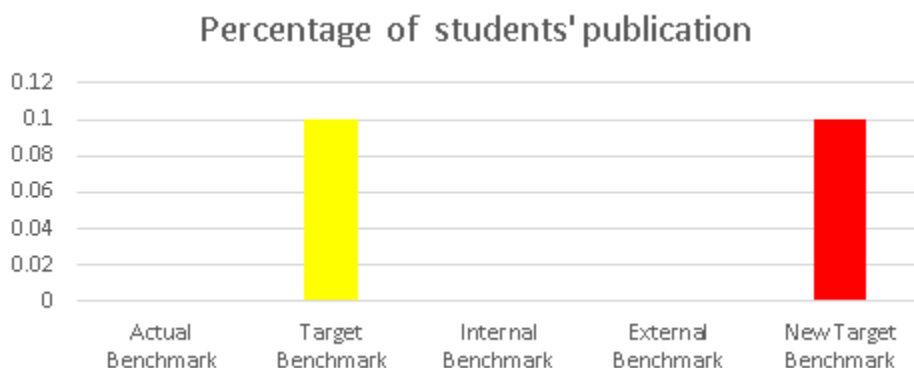


Figure 18: Percentage of students' publication.

2-Analysis (strengths and recommendations): The actual benchmark is no publications, because students have not yet started their capstone projects. No internal and external benchmark.

- Strengths: None

- Recommendations: None

*Explanation:

No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Percentage of students who :

a. published their research in refereed journals

b. presented papers in conferences

to the total number of students in the program during the year.

**Explanation:

No external Benchmark

Table 19: KPI-PG-19: Number of patents, innovative products, and awards of excellence.

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NCAAA KPI Reference Number: KPI-PG-19: Number of patents, innovative products, and awards of excellence				
Data Science Master Program KPI Reference Number: KPI-PG-19				
Actual Benchmark 2019-2020	Target Benchmark	Internal Benchmark 2019-2020	External Benchmark 2019-2020	New Target Benchmark
0	1	NA	NA	1

1-KPI Analysis of Number of patents, innovative products, and awards of excellence

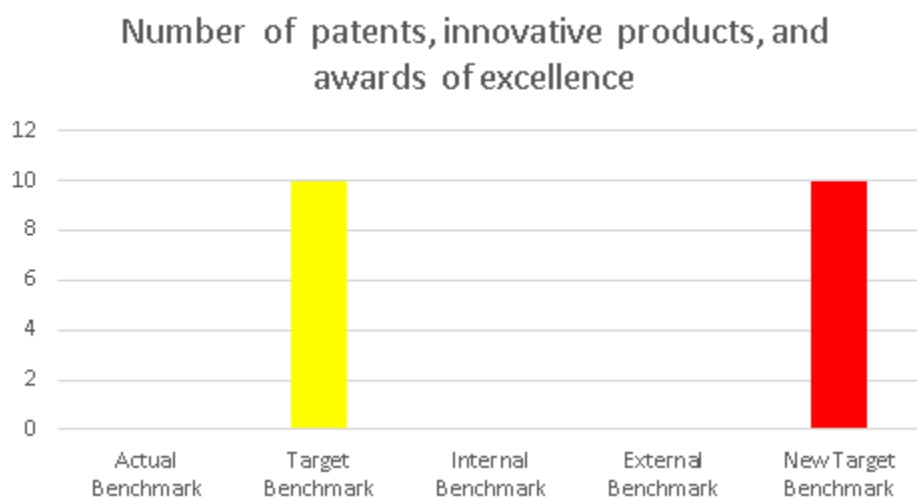


Figure 19: Number of patents, innovative products, and awards of excellence.

2-Analysis (strengths and recommendations): The data calculation showed that there is no patents, innovative products, and awards of excellence. No internal and external benchmark.

- Strengths:

- Recommendations:

- The department has to encourage the student and teaching staff to have patents, innovative products, and awards of excellence.

*Explanation:

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No internal Benchmark. Data science master program is a new master program starts at 2019-2020.

1. How was the benchmark calculated?

Number of:

a. Patents and innovative products

b. National and international excellence awards

obtained annually by the students and staff of the program.

**Explanation:

No external Benchmark