

|  |
| --- |
| Performance Measurement in Universities 2021 |
|  |
| October 24  College Name: Northeastern University  Course: MS Information System  Authored by: Manisha Bagora & Anmol Sharma |



# Table of Content

# Summary

# List of Abbreviations

# Introduction

# Topic

# Background

# Research objective and research questions

# Methodology

# 3.1 University characters and constraints in performance measurement and Proposed Solution

# 3.2 Dashboard- college and university administrators to compare the performance of their academic units.

# 3.3 Sequence diagrams showing how to navigate the university object model to deliver performance metrics needed for performance and feedback.

3.4 A class diagram showing the changes to the university model to support the new capabilities. This diagram must include the additional methods and attributes required to deliver the results.

Conclusion

Reference

# Summary

This report is about research on performance measurement in universities. The research is to figure out how the performance of universities can be measured and instill the techniques for turning an object model into a machine for information gathering and data aggregation.

Used software engineering techniques to improve the quality of education anywhere and hold people accountable for improving the quality of life through education, learning to learn, and feedback.

The paper aims to develop a framework for performance measurement in universities.

One of our deliverables will be to design a dashboard that enables college and university administrators to compare the performance of their academic units. One additional question is to consider ways to define your own ranking system for students to decide where they want to go for their studies. The current system is biased toward research.

Deliverables

1. Report outlining your proposed solution.
2. Sequence diagrams showing how to navigate the university object model to deliver performance metrics needed for performance and feedback.
3. A class diagram showing the changes to the university model to support the new capabilities. This diagram must include the additional methods and attributes required to deliver the results.

# Acknowledgment

We Would like to express my deep gratitude to the Professor Kal Bugara for the patient guidance, enthusiastic encouragement, teaching & useful critiques of this research work.

We would like to especially thank TA’s who has provided us with much knowledge regarding performance indicators in the university. they encouraged us when we were frustrated in the research. I would also like to thank other people who provided us with information related to the filed.

We would also sincerely thank our parents, whose unconditional supports help us to reach here for study.

# Introduction

|  |
| --- |
| 1.1Topic This Report is written about a Qualitative perspective of performance measurement of graduate student in universities in Boston. The topic of performance measurement is popular in public sector. People are interested to know how the performance of universities can be measured comprehensively and effectively. By far, few frameworks from public sector have been developed for performance measurement in universities. This report aims to devote to this field and tries to develop a tailored framework in university settings. |
| *“A Performance Management System’s Effectiveness Lies in Increasing Performance and Fostering Employee Development and Motivation”* |
| To tackle this issue, University must define [what student success means to them](https://evisions.com/resources/blog/key-initiatives-to-help-with-enrollment-retention-and-student-success/) based on their mission and student goals. Once defined, a policy to measure progress can be developed. It should use metrics tracked over time, and then improved through means of student engagement or enrollment strategies. Our objective here is to gain a better understanding by reviewing the five most commonly seen metrics used in student success: retention rates, graduation rates, time to completion, academic performance, and tracking educational goals. 1.2 Background 1.3 Objectives and research questions  The main objective of this report is to instill the techniques for turning an object model into a machine for information gathering and data aggregation. How to use software engineering techniques to improve the quality of education anywhere and hold people accountable for improving the quality of life through education, learning to learn, and feedback. This paper is to look at a Academic perspective of performance measurement in universities and to develop a tailored framework in university settings. The approach will be to look into how an educational system in terms of faculty and courses contribute to the growth of their graduates over a 5-year period and figure out ways to track the jobs and promotions graduates get over time and assign rankings accordingly. In addition, track the connection of courses and their relevance to graduates' growth.  By its robust design, we hope to learn from it and adapt its balanced concept to the development of framework in this paper.  What are different ways to define your own ranking system for students to decide where they want to go for their studies. The current system is biased toward research. As a further step toward clarification of the main research question, sub-research questions are developed:  What are the courses we teach?  What are the courses we offer at any given semester?  Which courses are core and which ones are electives? What are the course requirements?  What are the degree requirements?  What is our current capacity? How many seats are empty?  What is our faculty/student ratio per class? How do we compare with other depts in the college?  What is the average number of students per class? Largest class? Smallest class?  What is the current student enrollment in our department?  What is the administrative staff to faculty ratio?  What is the ratio of full time faculty vs part-time?  What is the percentage of faculty with Ph.Ds? |

Department Stakeholders and Users

* Students

Needs: Review course offered, Register for the courses, Review Teacher Profile, Graduation requirements, Review Academic Status, Departmental student portal, etc.

* Teacher

Student profiles, Grade submission, contact info

* Departmental Staff

Maintain course catalog, Manage course schedule, student grade submission, course enrollment numbers, student status, Manage teachers and their profiles.

* College Administrators

Department enrollment numbers, Departmental performance evaluation

* Parents

Real time access to student class standing?

* Employment

Track jobs, Promotions,

University academic performance

Academic performance is a primary indicator to most universities in performance measurement. It is an icon that people see whether good or bad a university is. As universities differ, emphases on academic performance differ from one discipline to another. For example, research universities may place more resources on research activities than educational activities. Thus, indicators in research dimension may take 23 more credits in the overall measurement of academic performance. The goals of a university affect what kind of academic activities in the measurement. They can further influence what kind of management activities should be done in accord with production process in academic activities. Academic activities traditionally include two components, research and education. The balance between research and education activities may be an important character in universities. Criteria in academic performance disclose a university’s expectations on academic activities. They provide managers with guidance to measure academic performance at different levels within the university. Criteria are mostly derived from university goals and mission statements, which they take on different characteristics at different hierarchies of university. At university level, criteria for academic performance are broad and show the university’s general expectations in academic activities. At faculty, departmental and individual level, they become more specific and concrete to measure academic excellence. From broad to specific criteria, it leaves much flexibility to managers in interpretation and developing appropriate indicators that are in line with their situations. To measure whether a university has excellent research performance, we may perhaps generally see whether it meets the following broad criteria. 1. Excellent research personnel and recognized research groups or faculty 2. The amount of annual expenditures on researching activities 3. The number of doctorates granted 4. The amount of governmental and third-party research funding granted 5. Excellence in research output and outcome The University of XYZ is an enterprising research university which focuses on technological development. It helps students, companies and governments to achieve competitive advantages through research and educational activities. The character of enterprising indicates a close link between university academic activities and market. It brings research activities with more features of commercialization in research products. Hence, in addition to the above general criteria for a university, the university should also bring in the criteria of enterprising in research performance measurement. For example, criteria such as excellence in commercialization of research outputs, annual increase in the number of entrepreneurs, spin-off companies etc. Research activities are mostly carried out by academic staff and PhD students in universities. Some research programs may be project-based with definite time frame and are contracted with outside agents. Research performance is usually evaluated by peer review of outputs e.g. refereed journals. Indicators such as the number of refereed publications and the number of patents is used in measurement. Research performance can also be evaluated by external rankings and awards etc. Criteria for educational performance focus much on characteristics in educational 24 activities. In the measurement of educational performance, we may perhaps see the following broad criteria 1. wide range of competitive degree programs 2. Excellent academic staff 3. diversity of intake of students from abroad and home, culture and religion 4. graduate’s employability 5. High retention rate and graduation rate Most educational activities are carried out at undergraduate and graduate stages in universities. Factors influencing a university’s educational performance vary. The factors may include students, quality of teacher force and instruction facilities etc. Students can be regarded as a determining factor because their level of commitment to study may have decisive influence on cognitive increase. They directly involve in the production of educational activities as both customers and producers. Academic staff is another factor in educational performance. Staff experience, skills, commitment and motivation may influence how much knowledge is transferred to students in educational process. Input indicators in educational activities will include intake of students, degree programs, academic staff etc. Educational programs usually take years for student to complete. Process indicators in educational performance measurement will include student’s study efficiency, drop-out rates and retention etc. Output indicators in educational performance measurement include the number of diplomas issued, the number of students graduated etc. The final outcomes of university educational activities are students with enough trainings and knowledge for employment in the society. Hence outcome indicators will focus on student’s employment conditions and graduate’s starting salaries etc.

### Definition & Objective

To tackle this issue, an institution must define [what student success means to them](https://evisions.com/resources/blog/key-initiatives-to-help-with-enrollment-retention-and-student-success/) based on their mission and student goals. Once defined, a policy to measure progress can be developed. It should use metrics tracked over time, and then improved through means of student engagement or enrollment strategies. Our objective here is to gain a better understanding by reviewing the five most commonly seen metrics used in student success: retention rates, graduation rates, time to completion, academic performance, and tracking educational goals.

### Retention Rates

Retention is the most discussed topic for student success. Retained students persist through an academic program to graduate with a degree. Retention rates assist institutions in determining how many students progressed with satisfactory academic results. They also help identify why students left the institution, and help uncover issues such as insufficient resources. Higher retention rates also lead to certain benefits. These include the potential for increased funding and an elevated ranking to attract quality prospects and faculty.

Still, there are issues when focusing solely on retention rates. As mentioned, many students no longer follow the traditional path in higher education. A student can transfer, take a leave of absence, or leave prematurely. These situations are especially prevalent at 2-year institutions, where there are higher transfer rates and where degree completion may not be the student’s goal. These examples explain why poor retention rates may not tell the whole story at an institution. Retention rates should be framed in different ways and utilized in conjunction with other metrics, to create a more meaningful metric.

### Graduation Rates

Closely related to retention rates are graduation rates. This is the number of students

enrolled in an institution who sought and achieved a degree. There are different ways to frame this metric. One is the federal definition. This is defined as a first-time, full-time student graduating with a bachelor’s degree after six years or an associate’s degree after three years. Depending on the definition, the resulting metrics can change drastically.

Many of the issues with retention rates also apply to graduation rates, such as the unpredictability of student paths. For example, the federal definition of graduation rates would not count many transfers or part-time students. Again, this is more common at community colleges. To address this issue, you can gather data in separate student categories by closely examining student types and tracking them in ranges (six years, three years, etc.) that better fit the institution.

### Time to Completion

Time to completion is the time it takes for a student to attain the desired degree. This metric, while slightly different, can also be measured in terms of total credit accumulation. This metric allows institutions to measure whether students are taking longer than average to complete their degrees. One can then identify if there are excess courses, inefficient use of resources (e.g., institutional spending or student tuition), or delays in core courses that lead to higher costs for the students and the institution.

The key to tracking this metric is setting the proper policies and practices to help accelerate student success. By evaluating programs, courses, and degree requirements, institutions can track [higher education data](https://evisions.com/solutions/) over time to find out the rate in which students are completing credits and to determine if they will complete their degree on time.

### Academic Performance

Academic performance refers to metrics that measure and track academic progress and achievement. They include GPA, rank-in-class, or first-year performance in core subjects. GPA is a straightforward metric that correlates to student grades. First-year performance in core subjects can indicate better performance in future terms. These metrics determine how well students are persisting through terms and predict the overall success in the students’ program of study. Poor academic performance can affect other metrics such as retention and graduation rates, and lengthen time to completion, resulting in more time that a student stays in the institution.

By tracking these metrics over time, institutions can identify patterns – both positive and negative – and tie them to specific courses, programs, or instruction. This provides the institution an opportunity to improve quality in these places and/or implement changes to better assist the students.

### Tracking Educational Goals

Many 2-year institutions have been placing increasing importance on a student’s educational goal rather than common metrics such as retention rates. Unlike context-dependent metrics like retention rates, focusing on the student’s educational goal may be more indicative of student success. These institutions see students who enroll with the intention of transferring, or who take courses to earn certifications for specific careers and then leave prematurely without a degree. These students would not be counted in retention and graduation rates. However, if these were the intentions of the students when they enrolled in the institution, they should be viewed as successful.

To track the progress of educational goals, institutions must plan and set policy. Students should be encouraged to meet with an adviser and set a goal from a list of predetermined goals (including earning a degree and specific job placement). A workflow should be put in place, one with data points and that tracks the student’s academic life. This process is more involved. It requires resources and coordination among technical staff, instructors and advisers to provide student engagement. However, it can also result in benefits such as enhanced student satisfaction and a reputation for meeting student goals.

### Dashboard

Graphical user interface

Description automatically generated with low confidence

### Conclusion

Defining student success is often difficult and confusing. There may never be complete agreement on how student success should be defined. Hopefully, by understanding the five metrics listed above, We can drive discussions at our institution and work toward a solution that benefits students and staff alike.