2021 ICM
Problem F: Checking the Pulse and Temperature of Higher Education

What does it mean for a nation to have a **healthy, sustainable higher education system**? What issues matter? Is it cost, access, equity, funding, value of a degree, quality of education, level of research, exchange of ideas of the world's brightest minds, some of the above, all of the above, or something else altogether?

A **system of higher education** is an important element in a nation's efforts to further educate its citizens beyond required primary and secondary education, and therefore has value both as an industry itself and as a source of trained and educated citizens for the nation's economy. As we look around the world from Germany to the United States to Japan to Australia, we see a variety of national approaches to higher education, with each of these nations not only educating their own students, but also drawing large numbers of international students every year. Each of these national systems of higher education has its strengths and weaknesses, and in the wake of adjustments required during the current pandemic, nations have had the opportunity to reflect on what is working and what could be even better. However, change is often difficult. The institutional changes required to advance any system require policies implemented over an extended period of time in order to reach a more healthy and **sustainable system**.

In this problem, you are to develop a model to measure and assess the health of a system of higher education at a national level, to identify a healthy and sustainable state for a given nation's higher education system, and to propose and analyze a suite of policies to migrate a nation from its current state to your proposed healthy and sustainable state.

Specifically, you are being asked to:

- develop and validate a model or suite of models that allow you to assess the health of any nation's system of higher education;
- apply your model to several countries, and then select a nation whose system of higher education has room for improvement based on your analysis;
- propose an attainable and reasonable vision for your selected nation's system that supports a healthy and sustainable system of higher education;
- use your model to measure the health of both the current system and proposed, healthy, sustainable system for your selected nation;
- propose targeted policies and an implementation timeline that will support the migration from the current state to your proposed state;
- use your model(s) to shape and/or assess the effectiveness of your policies; and
- discuss the real-world impacts (e.g., on students, on faculty, on schools, on communities, on the nation) of implementing your plan both during the transition and in the end state, acknowledging the reality that change is hard.

The ICM-F Committee, an interdisciplinary and diverse group from the fields of policy, higher education, social and political science, and mathematics, looks forward to your final report.

Your PDF solution of no more than 25 total pages should include:

- One-page Summary Sheet.
- Table of Contents.
- Your complete solution.
- References list.

Note: New for 2021! The ICM Contest now has a **25-page limit**. All aspects of your submission count toward the 25-page limit: Summary Sheet, Table of Contents, Main Body of Solution, Images and Tables, Reference List, and any Appendices.

Glossary

Higher Education (post-secondary education, third-level, or tertiary education): an optional final stage of formal learning that occurs after completion of the required (many times secondary) level of education.

Sustainable System: a system that maintains its effectiveness over time.

System Health: a measure of the ability of an organization or system to align around a common vision, execute against that vision effectively, and renew itself through innovation and creative thinking.

System of Higher Education: an organizational structure that consists of higher educational institutions (colleges, universities, etc.) as well as personnel and infrastructure required to educate students beyond the secondary level.