



Engaged Education: Developing the Next Generation of Globally Competent Engineers

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Beyond-the-Degree:

- International Programs in Engineering
 - Tauber Institute for Global Operations
 - Multidisciplinary Design Program
 - Center for Entrepreneurship
 - Center for Research on Learning Teaching in Engineering
 - U of M Transportation Research Institute
 - Center for Socially Engaged Design
 - Engineering Career Resource Center
 - Technical Communication
- Honors & Engagement
 - ArtsEngine
 - ***& More!***



Michigan Engineering Student Teams

M-Fliv built two aircraft for the first time in team history, placing **8th** in the basic class and **5th** in the advanced class at the SAE Aero Design East Competition

Michigan Autonomous Aerial Vehicles (MAAV)

Michigan Aeronautical Science Association (MASA) earned **2nd place** overall in the advanced class at the International Rocket Engineering Competition, the only student-built hybrid rocket to make it off the launch pad, reaching an altitude of 13,830 ft and a maximum velocity of 480 mph

Michigan Baja Racing

earned the Mike Schmidt Memorial Iron Team Award for placing **1st overall** among all US teams to compete in all three SAE Mini Baja competitions, for the **2nd consecutive year**.

Michigan Concrete Canoe Team placed 3rd

overall at the North Central Regional Competition (1st place required to qualify for nationals)

Michigan Hybrid Racing

finished **5th** overall at the SAE Formula Hybrid competition

U-M Solar Car

finished **4th** overall in the World Solar Challenge in Fall 2015, and finished **1st** in the 2016 American Solar Challenge for the 6th consecutive time, by a margin of over 11 hours. Most notably they were the only team to complete the entire race on solar power alone.

U-M Supermileage

electric vehicle Acacia raced for 10 laps reaching **74 mi/kWh** or roughly **2,493 mpg** at the Shell Eco-Marathon Americas competition

Steel Bridge Team

placed **2nd** overall at the North Central Regional Competition, earning a trip to the National Student Steel Bridge Competition where they took **3rd** in aesthetics and **9th** overall

Michigan Mars Rover

finished **12th** in the University Rover Challenge Ares Finals after a **3rd** place finish in the semifinal round of competition

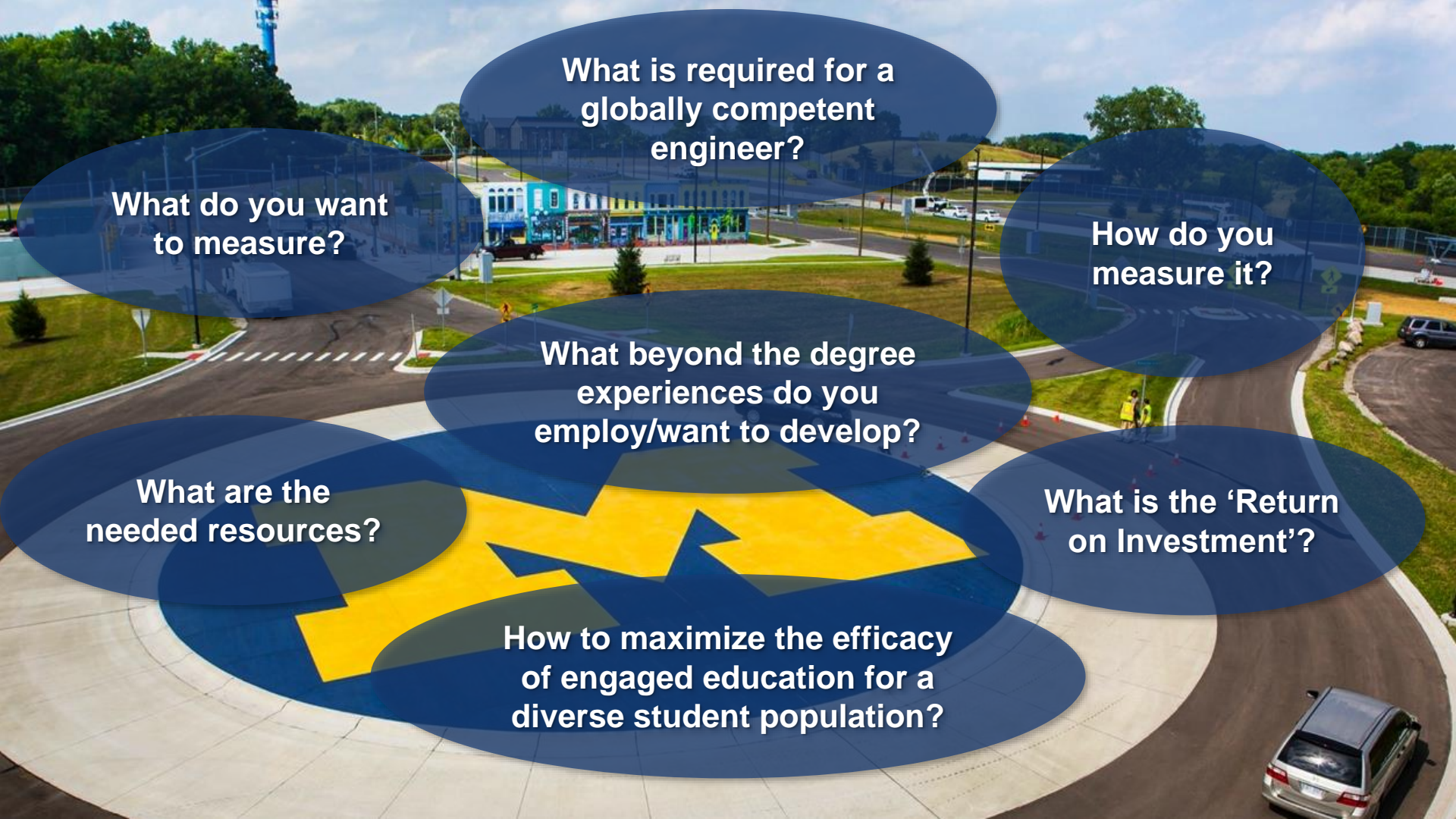
U-M::Autonomy

finished **6th** in the AUVSI International RoboBoat Competition

Electric Motorcycle Racing

set new **1/4 mile** and **1/8 mile world records** for the National Electric Drag Racing Association 48-volt street legal class

120 Michigan Engineering Teams and Student Organizations



What is required for a globally competent engineer?

What do you want to measure?

How do you measure it?

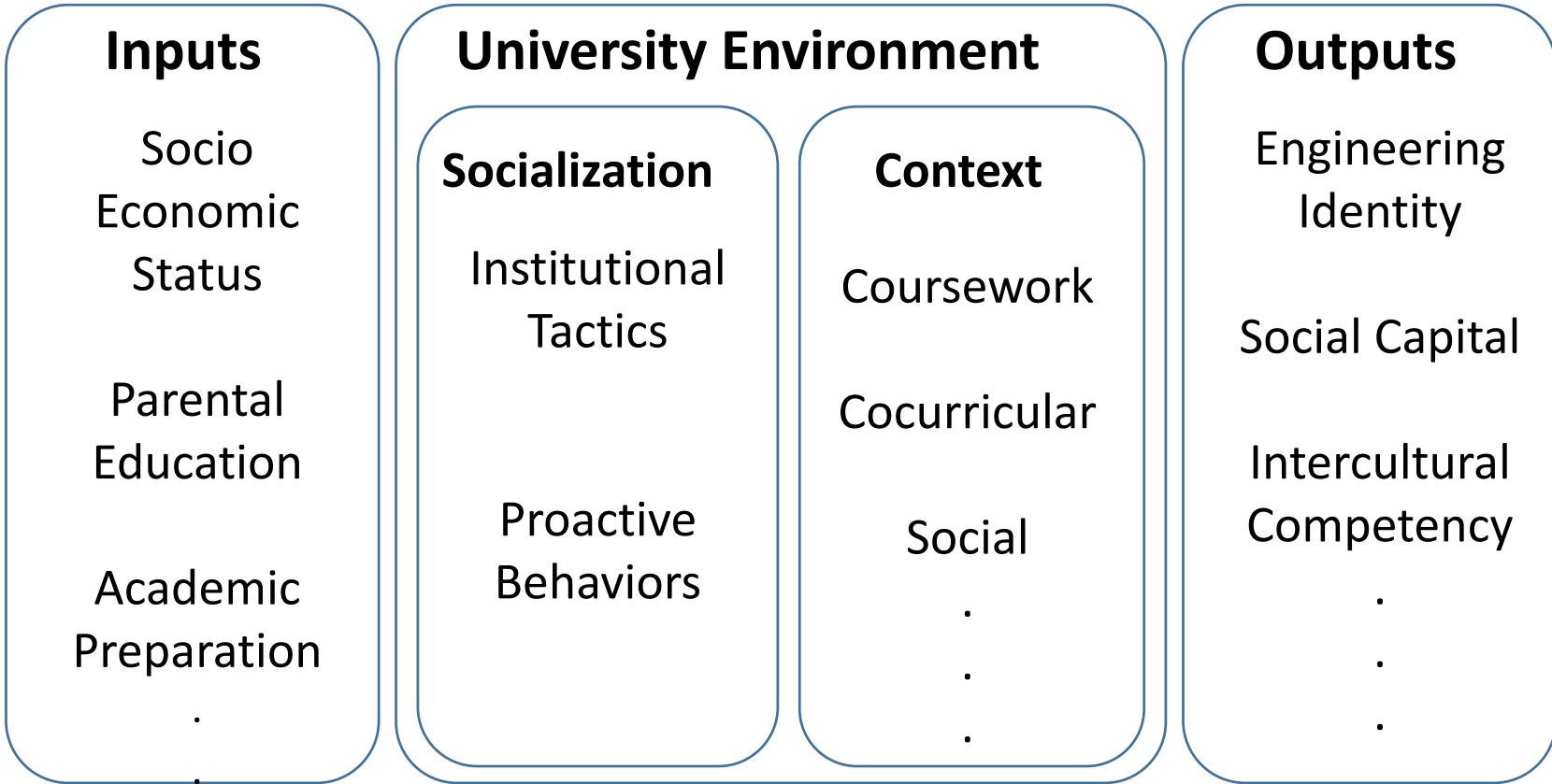
What beyond the degree experiences do you employ/want to develop?

What are the needed resources?

What is the 'Return on Investment'?

How to maximize the efficacy of engaged education for a diverse student population?

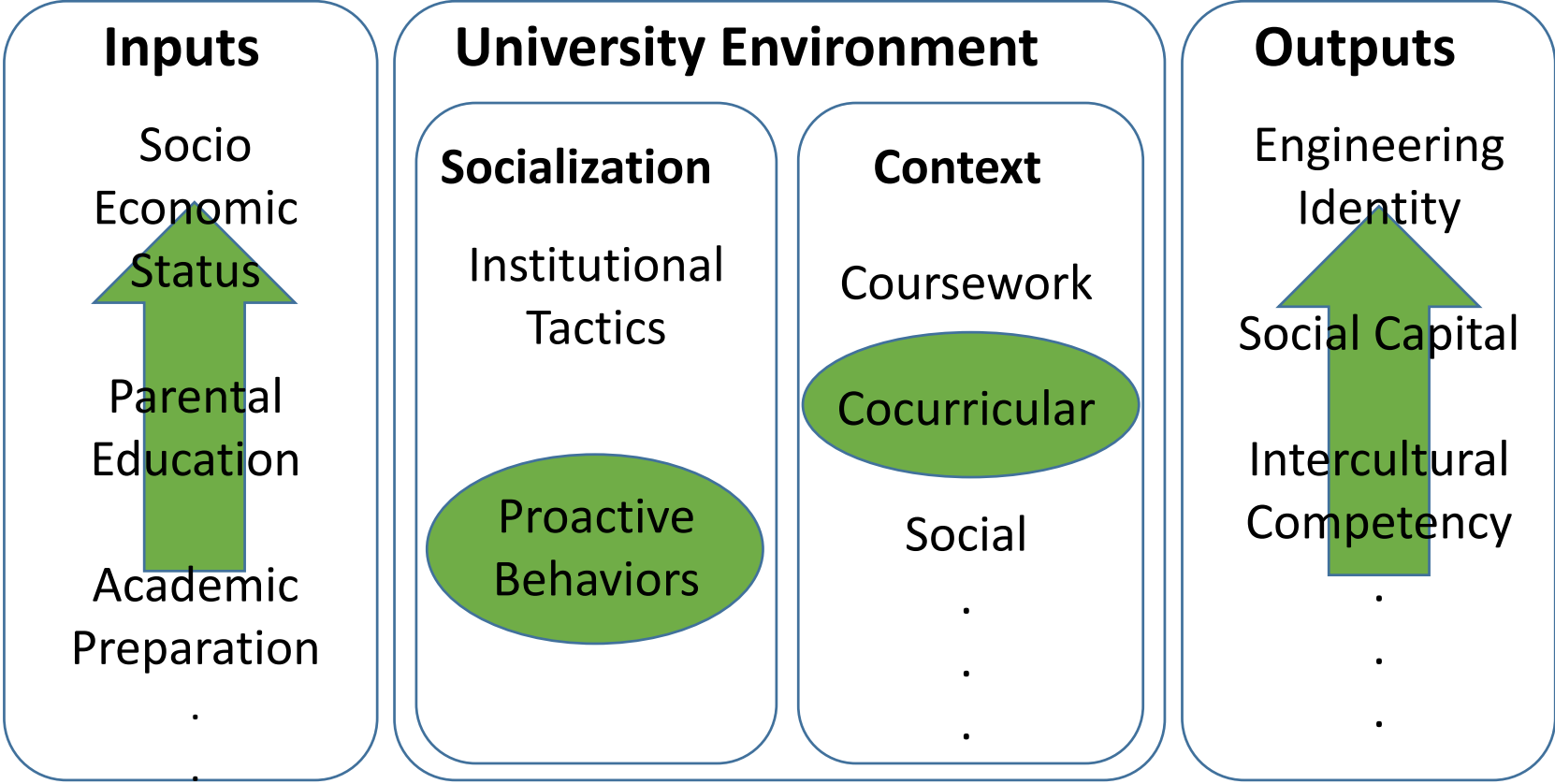
A Theoretical Framework



Weidman (1986) *Higher Education: Handbook of Theory and Research, Volume V.* (pp 289 – 322).

Henderson et al (accepted) *Proceedings of the 2018 ASEE Annual Conference and Exposition*

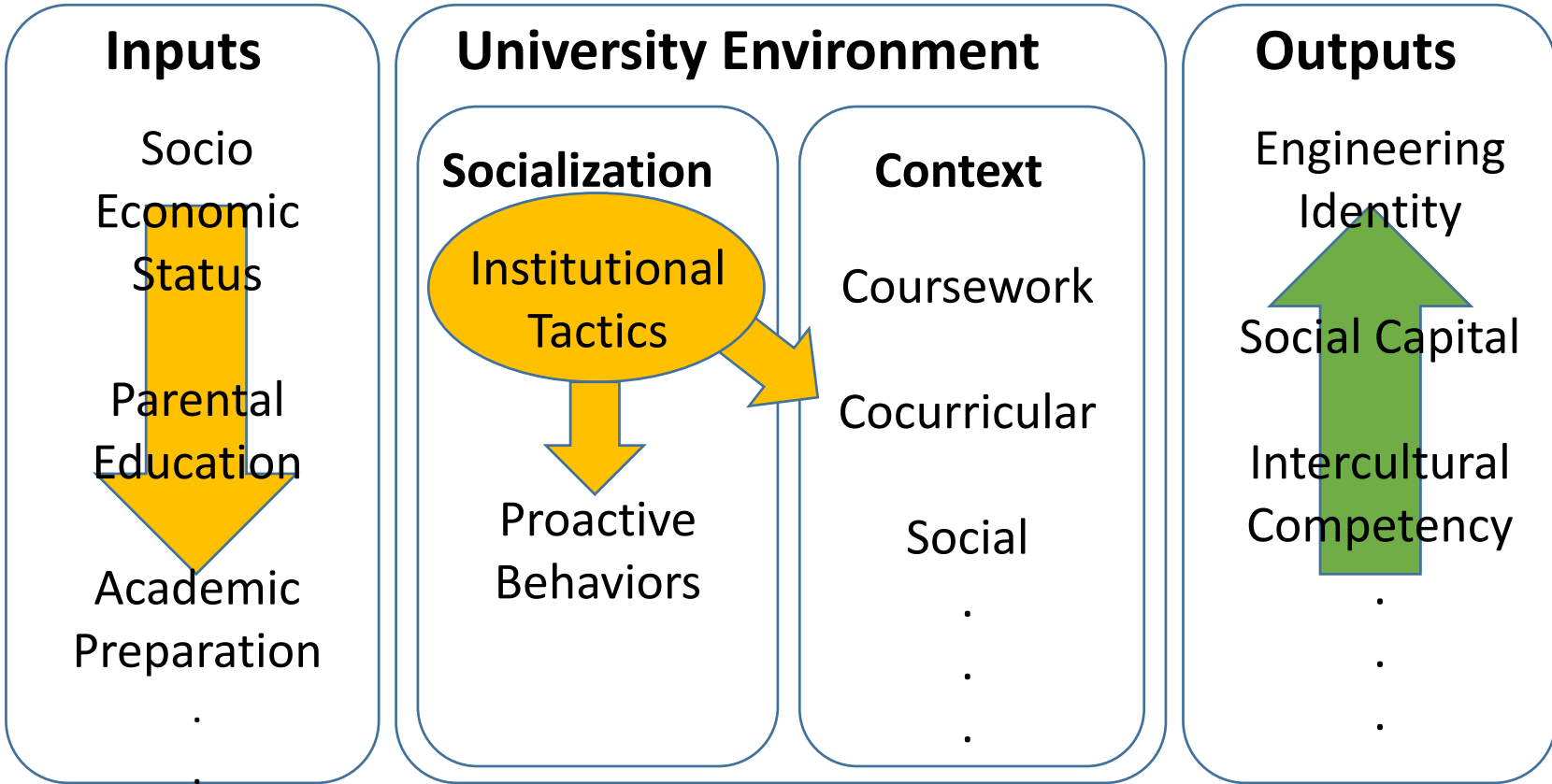
A Hypothesis



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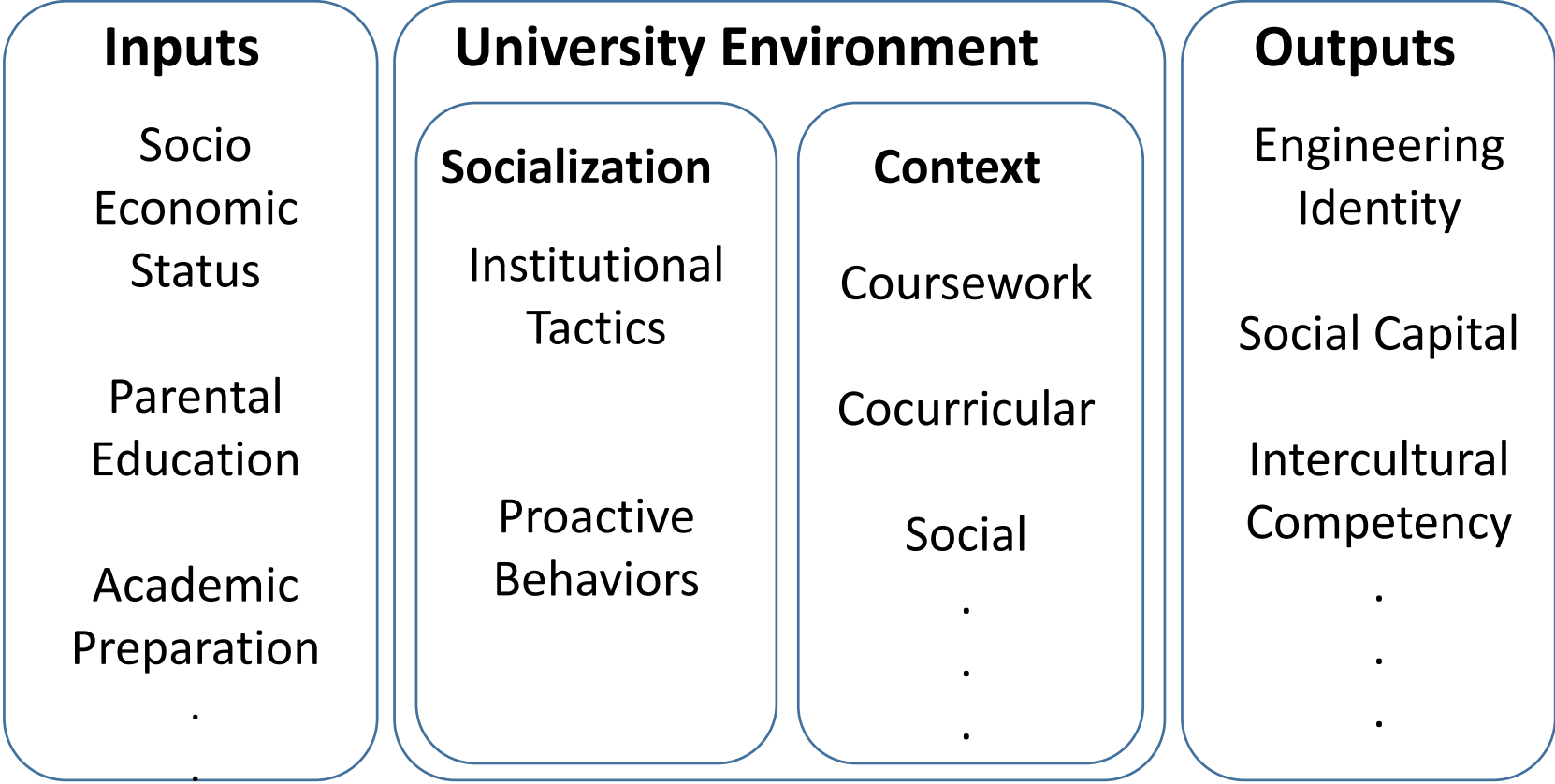
A Call to Action



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