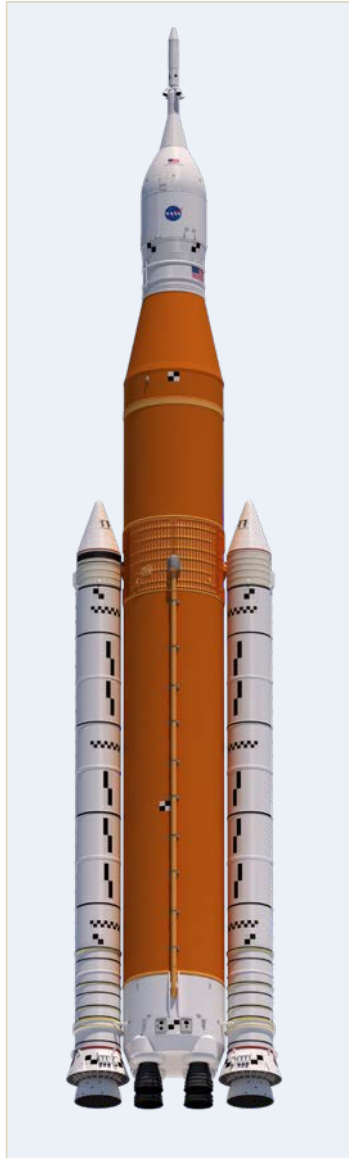


John Vickers
Principal Technologist
Space Technology
Mission Directorate

www.nasa.gov/spacetech



NASA Missions





The Next Generation



<https://youtu.be/q2FEbIUv-o4>

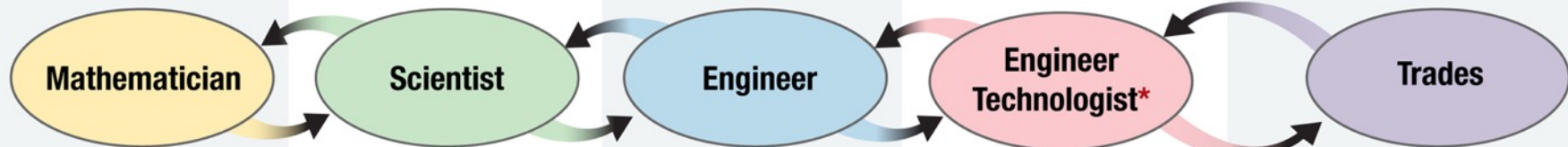
THEORY

SKILL COMPONENTS

"HANDS-ON"

Craftsmanship

Theoretical Physics ↔ Experimental Physics



Discover languages to quantitatively describe existing world

Discover & describe existing world

Design & build new systems

Fabricate & operate new systems

Build or repair existing systems/components

Algebraist
Geometer
Topologist
Statistician
Cryptologist

Physicist
Chemist
Biologist
Biochemist
Research MD
Astronomer
Astrobiologist
Geologist

Aerospace
Automotive
Chemical
Bio
Bio-chemical
Geo
Electronics
Computer
Civil
Model & Simulation
Research Surgeon

Wind Tunnel Tech
Aircraft Maintenance
Airframe/Powerplant
Particle Detectors
Integrated Circuits
Adv. Manufacturing

Traditional

Welding
HVAC
Electricity
Plumbing
Electronics
Manufacturing
(Surgeon 19th C.)

21st Century

A+ Comp Repair
Comp Network Admin
CISCO Network
ORACLE Internet
CAD
Model & Simulation

Rationalist



Empiricist

"Middle Skills"

4-yr College (+)

4-yr College (+)

4-yr College (+)

2-yr college/
Apprenticeship

HS with National
Certifications

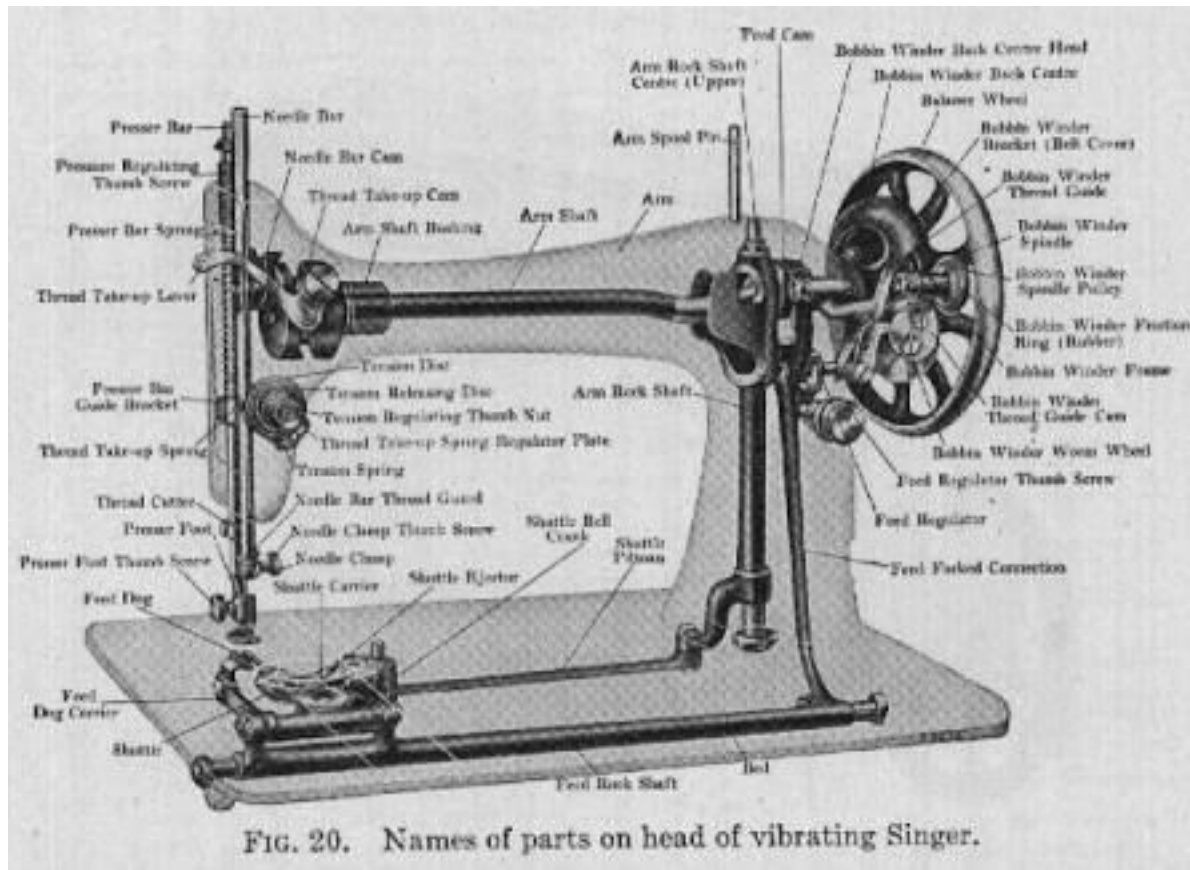
Traditional Academic

Current K-12 "Gap"

CTE



Fortune Favors the Bold

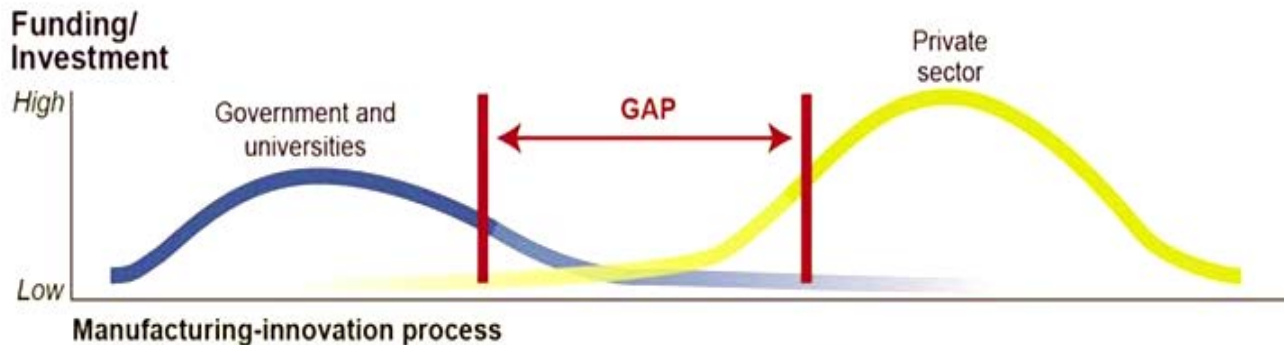




Call to Action

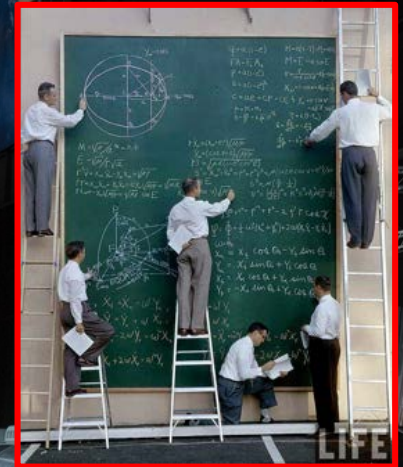
EDUCATION AND WORKFORCE DEVELOPMENT

You can't
bridge this...



...without a
workforce

The Mars Generation



Systems Thinking, Entrepreneurship, Cultural Agility, Critical Thinking
Joseph E. Aoun, "Robot-Proof, Higher Education in the Age of Artificial Intelligence"