ACADEME'S ENGINEERING LEADERS

Presented by:

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Member, National Monitoring Committee

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MATRADE Hall,
MATRADE Exhibition & Convention Centre

Engineering

Application of **mathematics** and **natural sciences** and a body of **engineering knowledge**, **technology** and **techniques**

Meeting the needs of **people**, **economic** development and the provision of services to society.

Produce **solutions** of which the effects are predicted to the greatest degree possible, in often **uncertain contexts**.

While bringing **benefits**, it has potential **adverse consequences**

Must carry out **responsibly** and **ethically**, use **resources efficiently**, be **economic**, safeguard **health** and **safety**, be **environmentally sound** and **sustainable** and generally **manage risks** throughout the entire **lifecycle** of a system

Engineers as Problem Solvers

1. Design and build projects that meet basic human needs (potable water, food, housing, sanitation, energy, transportation, communication, resource development and industrial processing).
2. Solve environmental problems (create waste treatment facilities, recycle resources, clean up and restore polluted sites and protect or restore natural ecosystems) with social consideration.

Addressing **SDG** in solving Engineering Problems

In doing so, use skills and/or information that include the following:

- The results of scientific discoveries
- Empirical experience gained from centuries of construction
- Innovative approaches gained from recent projects
- Analyses of costs versus benefits over the life of projects
- Evaluation of environmental impacts versus benefits
- Consideration of political, cultural and social environments at project locations

Knowledge & Attitude Profiles

Engineering Graduate Attributes & Professional Competencies

PROFESSIONAL REGISTRATION Maintain and expand competence

EDUCATION Build knowledge base and attributes

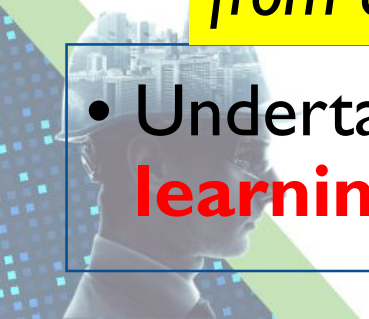
- Clear and succinct statements of the **expected capability**
- **Not** expected to have **identical outcomes** and **content**

Academia

FORMATIVE DEVELOPMENT Develop the competences required for independent practice (*works with engineering practitioners from an assisting role to taking more individual and team responsibility*)

- Undertake a programme of **training and experiential learning** leading to **professional competence**

Industry



Engineering Education

WA1 ENGINEERING KNOWLEDGE WA2 PROBLEM ANALYSIS (SDG)	WK1 natural sciences social science	WK5 engineering design & operation	WA3 DESIGN/ DEVELOPMENT
	WK2 mathematics, numerical analysis, data analysis, statistics, computer and information science	WK6 engineering practice +WK2	WA5 TOOL USAGE
		WK7 engineering in society +WK1 & WK5	WA6 ENGR & WORLD SDG
	WK3 engineering fundamentals	WK8 research literature	WA4 INVESTIGATION +WA11 LIFELONG
	WK4 engineering specialist knowledge	WK9 ethics	WA7 Ethics +WA8 INDIVIDUAL & COLLABORATE

BEM CONVENTION 2023
ENGINEERING ESG FOR THE NATION

UNIVERSITY EXPERIENCE

AFFECTIVE

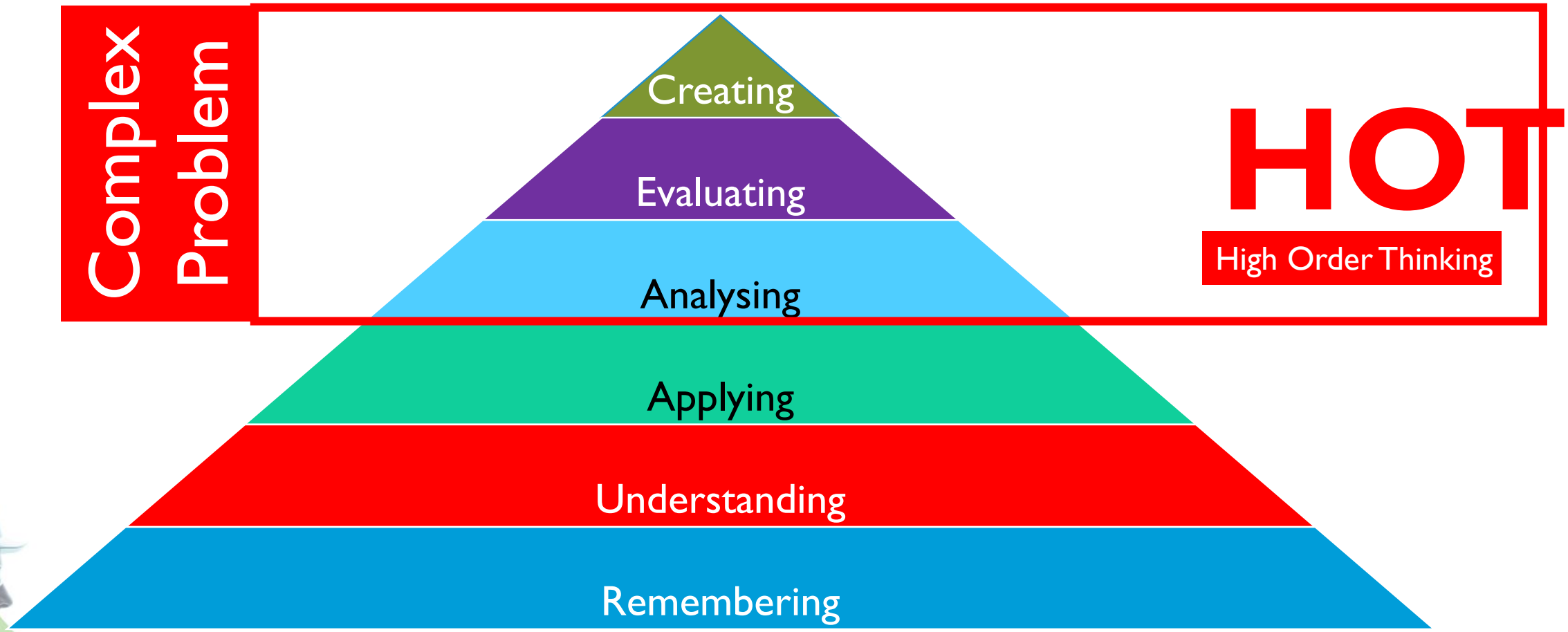
WA9 COMMUNICATION

WA10 PROJ MGMT & FINANCE

SKILL

Cognitive

Education Taxonomy



Leadership

Academics ?

Strength

Quwah & Amanah

Trustworthy

Family | Department | Faculty | University | Agency | Company

Ministry | Community | Country | Region | World | Sector ……

Skills & Affective

Knowledge & Integrity

Team | **Purposeful** | **Managerial**

Empathy | **Motivational**

Creative & Innovative

Communication | **Embracing Digital**

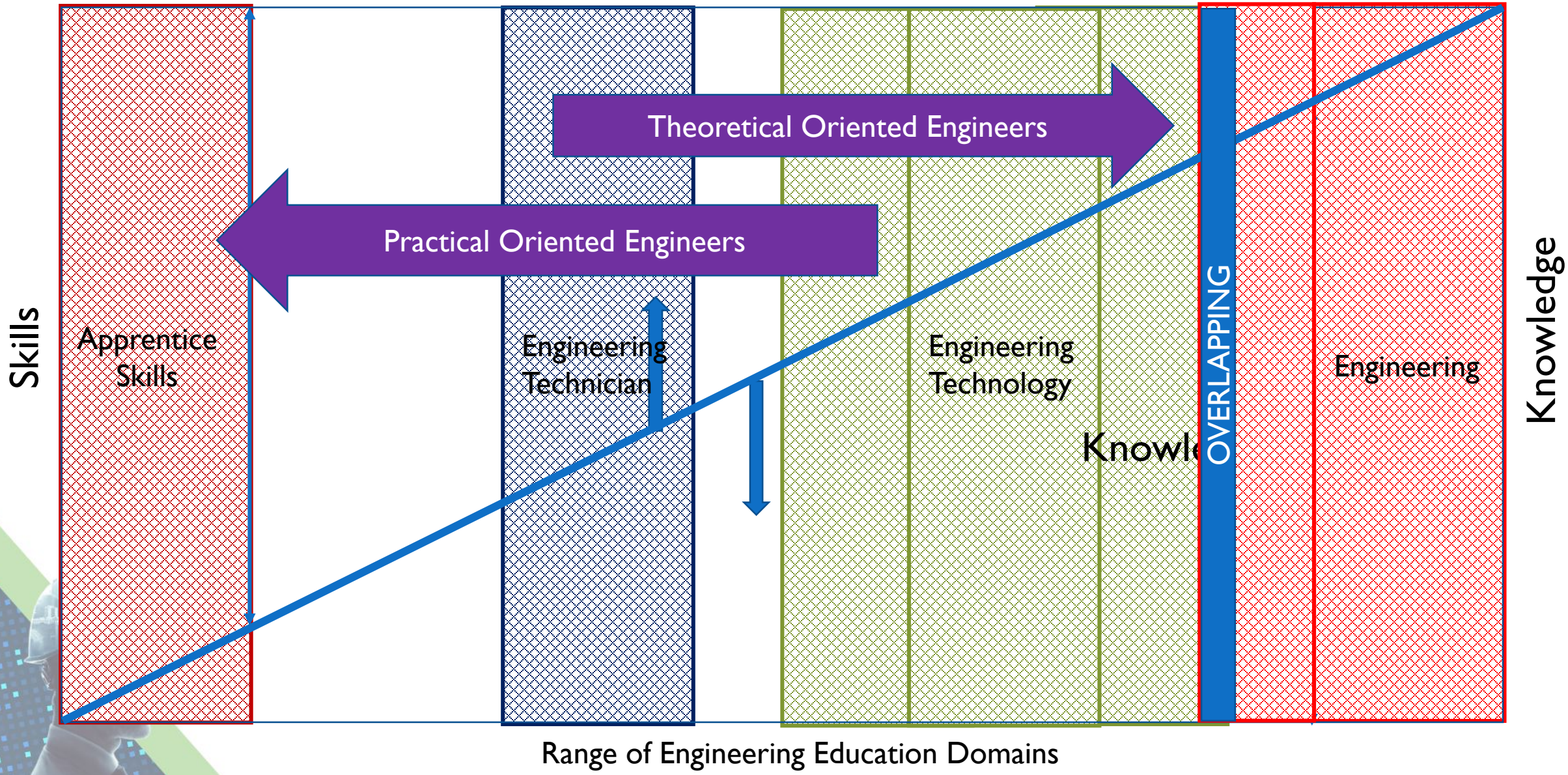
Ethical

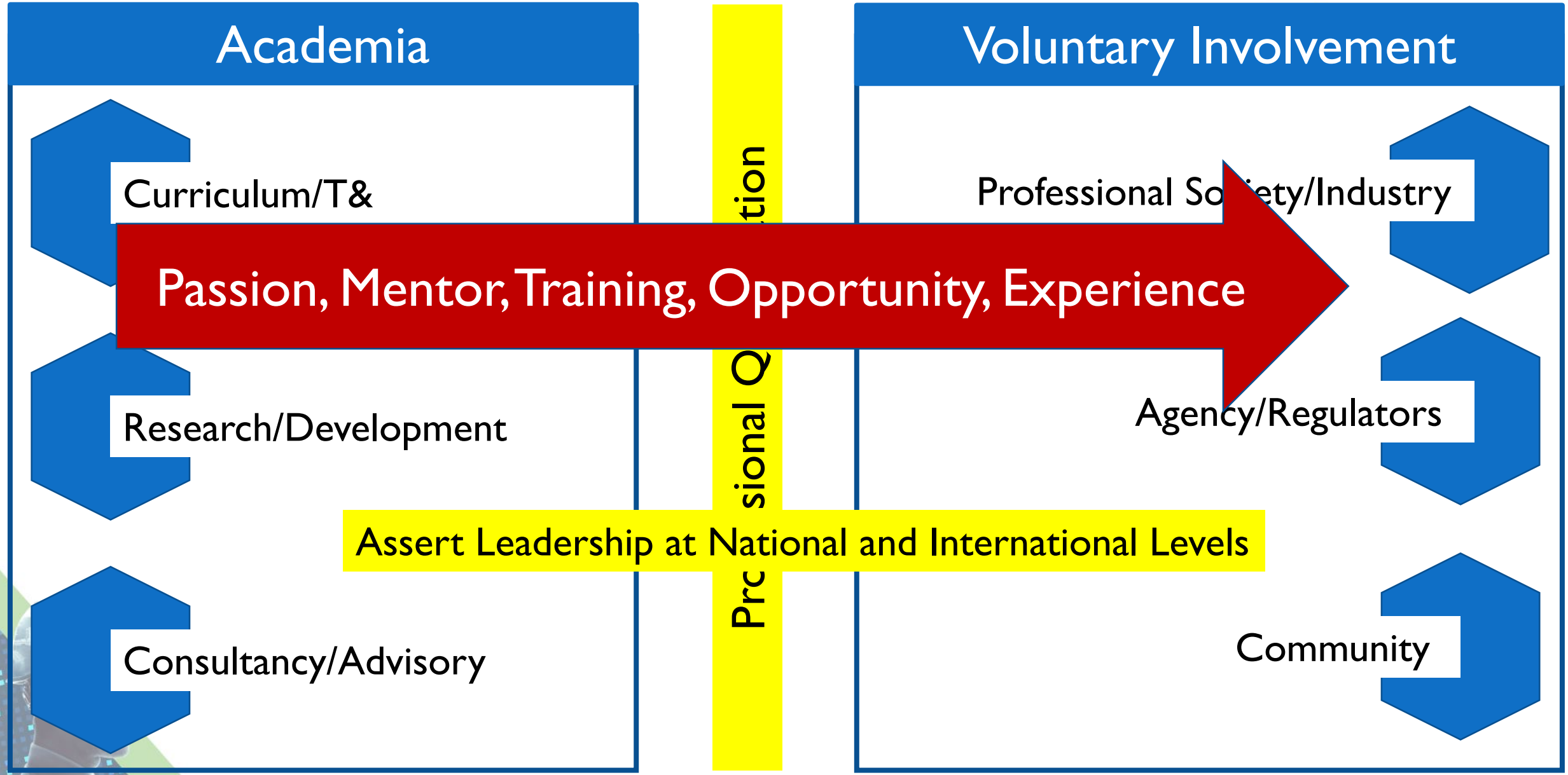
Committed

Steadfast

Passion
Mentor
Training
Opportunity
Experience

Difference between Engineering and Engineering Technology Curricular




Academia
Voluntary Involvement
Curriculum/T&
Professional Society/Industry
Passion, Mentor, Training, Opportunity, Experience
Research/Development
Agency/Regulators
Assert Leadership at National and International Levels
Consultancy/Advisory
Community

Terima kasih

Thank You

Q & A

THANK YOU

"Committed To Engineering Excellence"

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