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ECSA
ENGINEERING COUNCIL OF SOUTH AFRICA

Outline of the presentation

- ECSA's core functions
- Engineering Competencies
- How is technology impacting ECSA and the engineering profession?
- How is ECSA preparing to meet its future technological needs?
- What is the way forward in leading the engineering profession?

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ECSA’s core functions

Register professional engineering practitioners

Accredit engineering programmes

Ensure professional competency

Regulate the engineering profession through the Code of Conduct and Code of Practice

- ECSA plays a pivotal role in ensuring the competency of professionals and the quality of engineering programmes in South Africa.
- The accreditation process of ECSA guarantees that engineering professionals have the necessary skills and knowledge to meet the country's engineering needs.
- Hence, it is imperative for professionals and programmes in South Africa to obtain ECSA registration and accreditation, respectively, to maintain the highest standards of competence and quality, and to ensure that they stay ahead of the competition.

Professional Competencies

- Competence is defined as the possession of the necessary knowledge, training, and experience to perform the activities within the respective professional category to the standards expected in independent employment or practice as per the ECSA's Competency Standard for Registration in Professional Categories **R-02-STA-PE/PT/PN**.
- **Competency area**: The performance area in which all the outcomes can be demonstrated at the level prescribed by the specific technology in an integrated manner.
- Competence is demonstrated in an integrated manner in a workplace context by satisfying each of the 11 outcomes.

Professional Competencies: 11 Outcomes

Outcome 1 - Define, investigate and analyse engineering problems

Outcome 2 - Design or develop solutions to engineering problems

Outcome 3 – Comprehend and knowledge that is specific to the jurisdiction of the professional category

Outcome 4 - Manage part or all of one or more engineering activities

Outcome 5 - Communicate clearly using multiple mediums and collaborate inclusively with a broad range of stakeholders in the course of engineering activities.

Outcome 6 - Recognise the reasonably foreseeable economic, social, cultural and environmental effects of engineering activities seeking to achieve sustainability.

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Professional Competencies: 11 Outcomes

Outcome 7 - Meet all legal and regulatory requirements and protect the health and safety of persons during all engineering activities.

Outcome 8 - Conduct engineering activities ethically.

Outcome 9 - Exercise sound judgement by evaluating the outcomes, impacts and alternatives in the course of engineering activities.

Outcome 10 - Be responsible for making decisions on part or all of engineering activities.

Outcome 11 - Undertake sufficient professional development activities to maintain, extend competence and enhance the ability to adapt to **emerging technologies** and the ever-changing nature of work.

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Professional Competencies: CPD

CPD refers to “continuous education and training as contemplated in section 13(k) of the Act and also refers to the systematic maintenance improvement and broadening of knowledge and skills and the development of personal qualities necessary for the execution of professional and engineering duties through a person’s engineering career. It is the learning and development that takes place after completion of educational studies and by refers to of which registered persons maintain and develop competencies to continue to perform their role competently” as stated in the ***Rules: Continuing Professional Development and Renewal of Registration***

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Professional Competencies: CPD Categories

Categories	Activities	Credits
Category 1	Developmental activities (Conferences, lectures, seminars, e-learning, large workshops)	Minimum of 5 credits per 5-year cycle
Category 2	Work-based activities Engineering work	Maximum of 2 credits per year (300 notional hours / 1 credit)
	Mentoring of candidate engineering Practitioners	Maximum 1 credit per year (50 notional hours)
Category 3	Individual activities Membership of a recognised VA	A Maximum 1 credit per year
	Other activities	Refer to Annexure A of the Rules Government Gazette, No. 40847 of 19 May 2017

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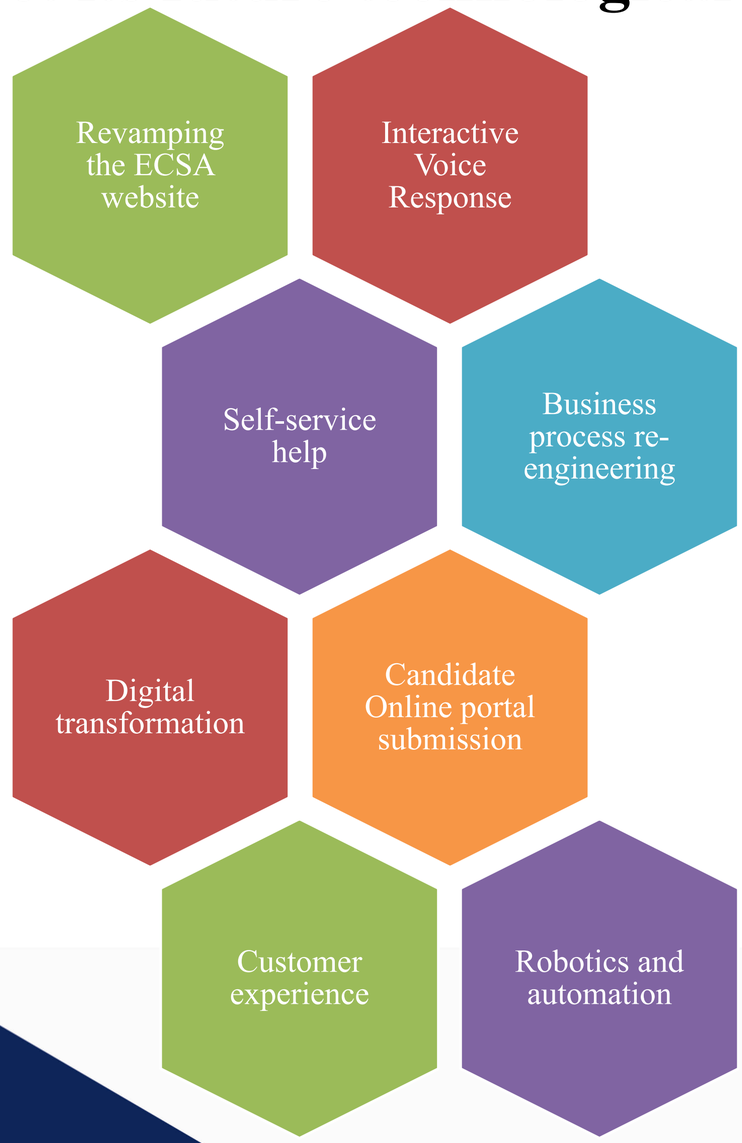
How is technology impacting ECSA and the engineering profession?

Background

- **Technology innovation….** refers to the process of creating, developing, and implementing new or improved technologies to address existing challenges, improve efficiency, drive progress, and create value.
- It involves applying knowledge, creativity, and resources to invent or enhance products, services, processes, or systems.

How is ECSA preparing to meet its future technological needs?



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What is the way forward in regulating the engineering profession?

- ECSA should encourage CPD providers to offer more relevant courses to enhance the technology and innovation
- The registered professionals, where possible and in a position to do so, should facilitate the exposure of the engineering candidates as trainees during internships/industrial attachments to the technology and innovation applications to enhance the related skills.
- ECSA should encourage professionals to attend technology and innovation CPDs programmes to improve their knowledge and skills
- ECSA should encourage research and knowledge sharing among its various stakeholders regarding emerging technologies
- Identification of Engineering Work (IDoEW) consultation process

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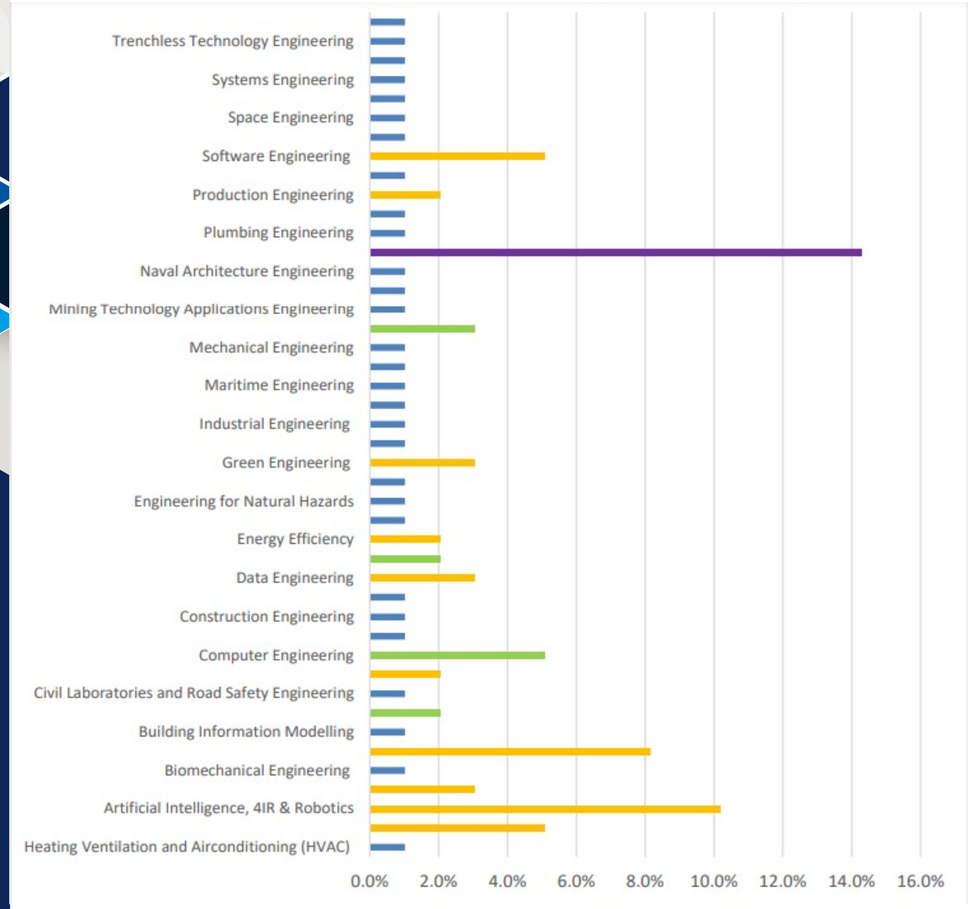
Possible emerging disciplines Research



There are some areas of specialized sub-disciplines not covered.

- Maritime Engineering (Marine, Naval Architecture, Marine Electrical)
- Sound engineering is still not recognized in South Africa.
- Alternative energy is a multidisciplinary field requiring to be recognized
- Automation, through advanced technology.
- Integration of AI, Robotics and 4IR with current curriculum.
- Biomedical and Systems Engineering.

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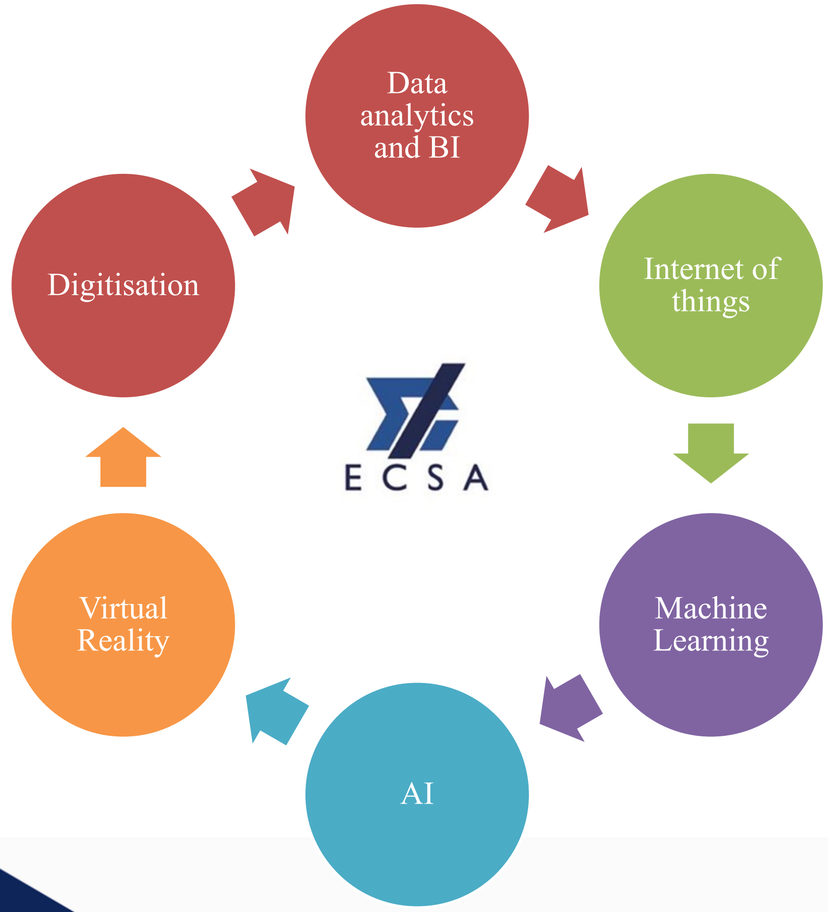
What is the way forward in leading the engineering profession?

- The PE/PT/PN should consider the increase in adoption of technology and innovation:



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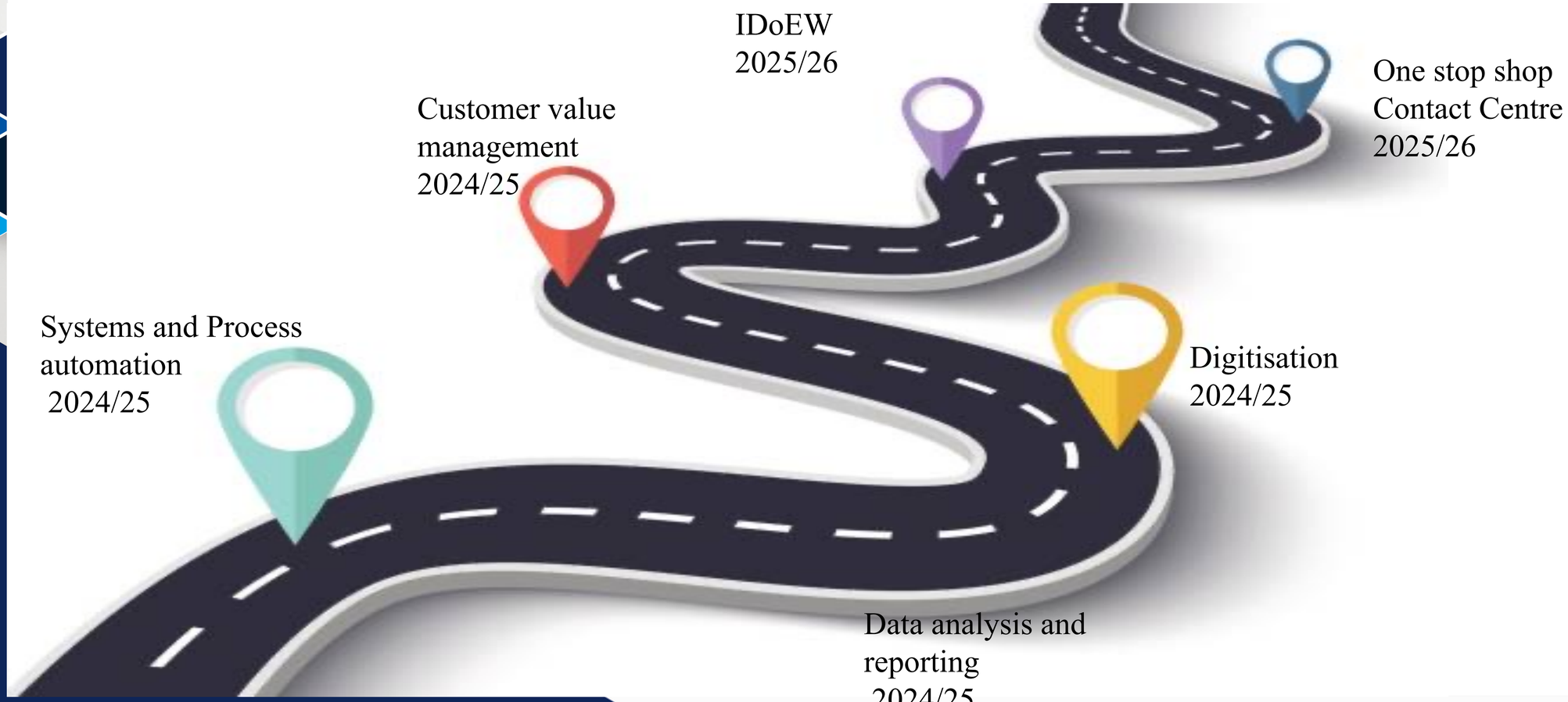
JOURNEY ROAD MAP



Thank You