



Consulting Engineers South Africa

INFRASTRUCTURE
Indaba
2024

Engineering the Future Now!

Transformation and Capacity Building

Where are our Engineers?

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Knight Piésold (Pty) Ltd

About Speaker



- Darren Pillay
- Professional Engineer
- Principal Bridge/Structural Engineer



- CESA Young Engineer of the Year 2023: Commendation
- Representing: CESA Transformation and Development Committee Member



Why “Where are the Engineers?”



Brain Drain

**Mass
Exodus of
Engineers**

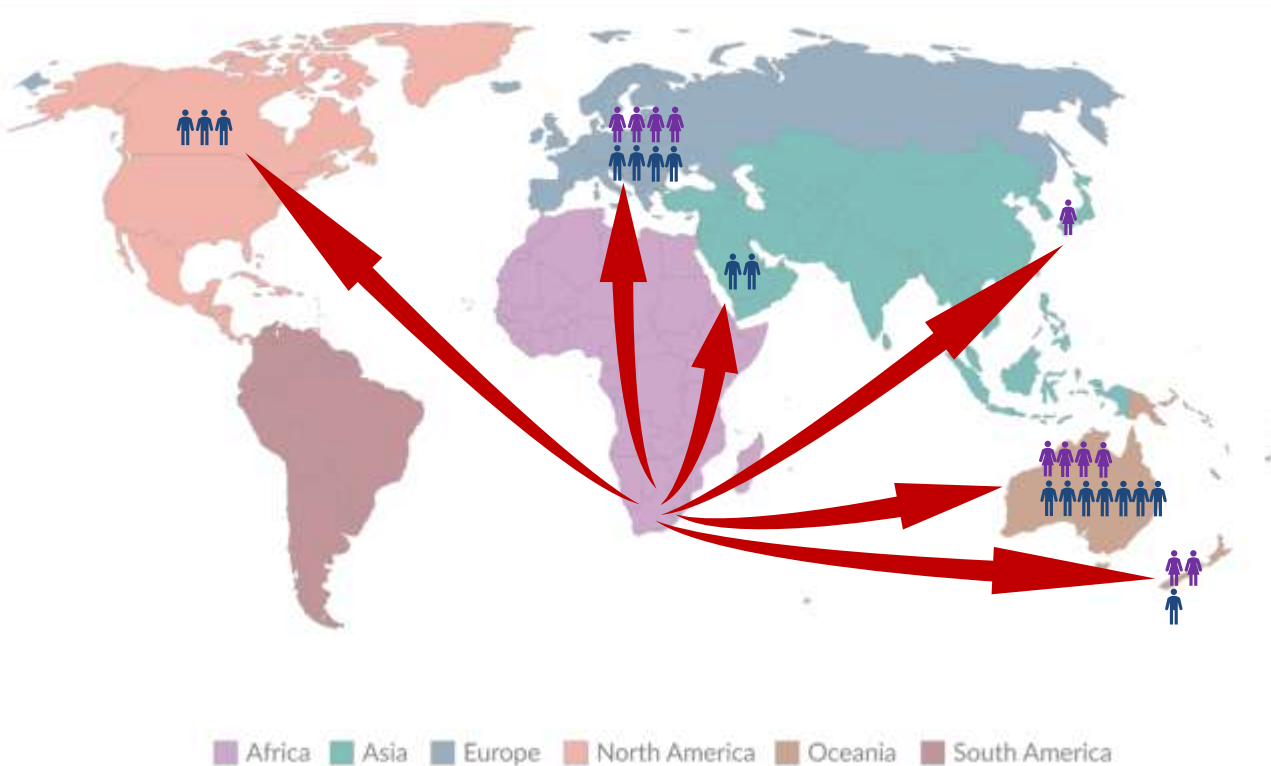
**Skills
Shortage**

“It is clear that we are in dire need of more Engineering practitioners.”

~ Christopher Campbell, Pr Eng
ECSA President

“The message is clear: we just don’t have enough Engineers. There’s one engineering professional for just over 3 000 citizens in South Africa” — *ECSA Bulletin Dec 2011*

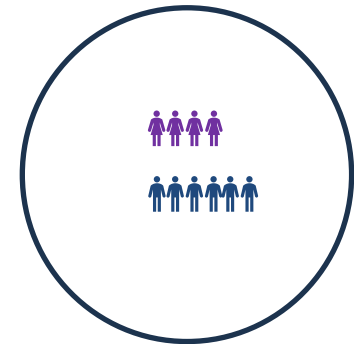
Why “Where are the Engineers?”



Left South Africa

18
12

Left Engineering Completely



So “Where are the Engineers?”



This trend of emigration has a negative effect on Transformation and Capacity Building

- What do the numbers say?
- What is happening globally?
- Why did they leave and how are they managing?

“What do the numbers say?”



ECESA Annual Reports for 2021/2022/2023

Year	Professionals	Population	Rate 1 in every
2021	32 950	58 801 927	1785

PrEng	PrTech Eng	PrCert Eng	PrTechniEng
19 772	6 425	1 033	5 720

Professionals (Engineer, Engineering Technologist, Certificated Engineer, Engineering Technician)

Population from [Worldometers.info](https://worldometers.info)

“What do the numbers say?”



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ECESA Annual Reports for 2021/2022/2023

Year	Professionals	Population	Rate 1 in every
2021	32 950	58 801 927	1785
2022	37 042	59 893 885	1616

PrEng

20 296

PrTech Eng

11 854

PrCert Eng

975

PrTechniEng

3 917

“What do the numbers say?”



ECESA Annual Reports for 2021/2022/2023

Year	Professionals	Population	Rate 1 in every
2021	32 950	58 801 927	1785
2022	37 042	59 893 885	1616
2023	30 221	60 414 495	1999

PrEng

18939

PrTech Eng

6 479

PrCert Eng

912

PrTechniEng

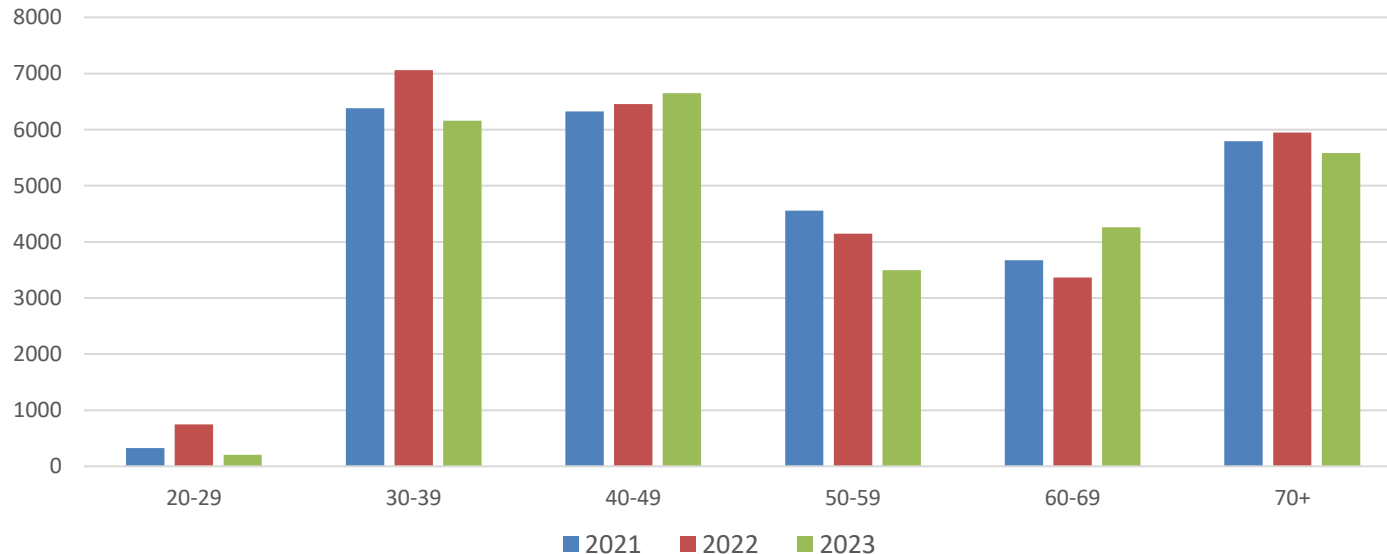
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“What do the numbers say?”



ECSA Annual Reports for 2021/2022/2023

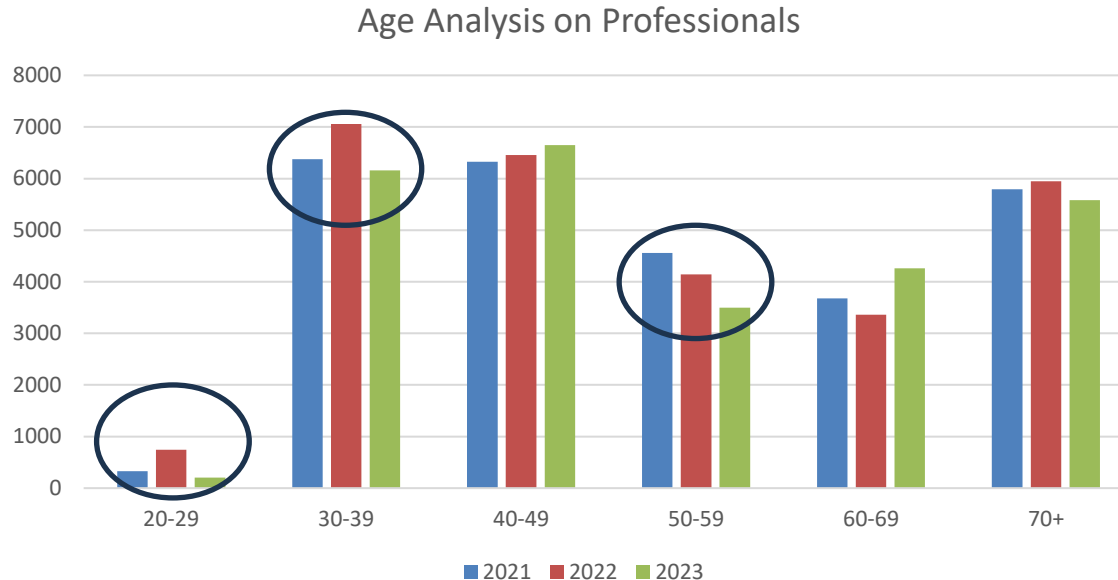
Age Analysis on Professionals



“What do the numbers say?”



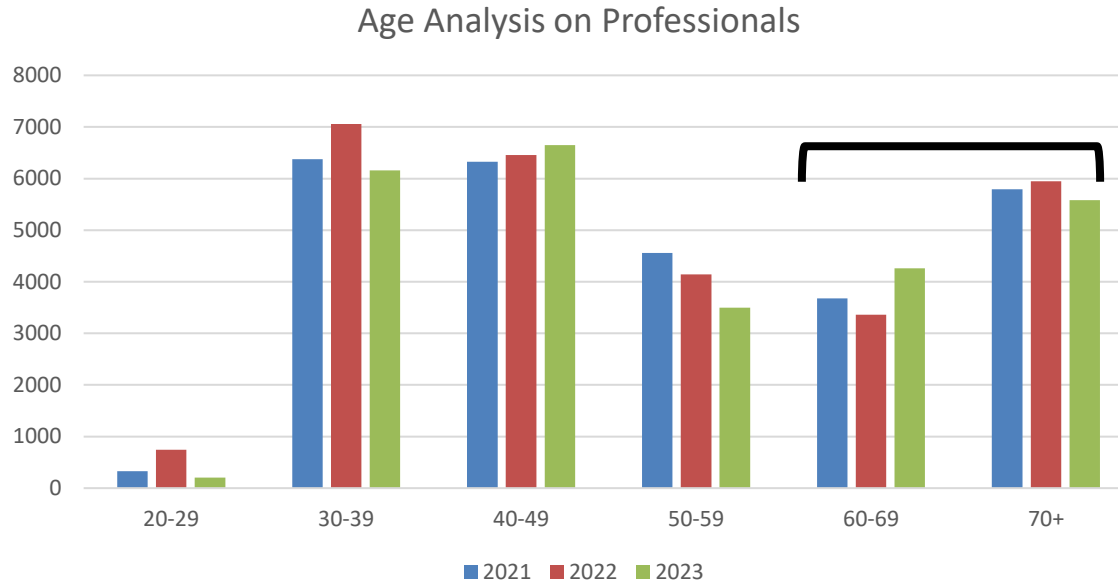
ECSA Annual Reports for 2021/2022/2023



“What do the numbers say?”



ECSA Annual Reports for 2021/2022/2023



“What do the numbers say?”



Year	Professionals	Population	Rate 1 in every
2023	16510	60 414 495	3659

“What do the numbers say?”



Hope for the future.

Year	Candidates
2023	22 159

Candidate:	Engineer	Technologist	Certificated Engineer	Technician
	9879	5415	633	6232

So “Where are the Engineers?”



This trend of immigration has a negative effect on Transformation and Capacity Building

- What do the numbers say? **No Real Change from 2011 but hope for the future**
- What is happening globally?
- Why did they leave and how are they managing?

“What is happening globally?”



Global Skills Shortage

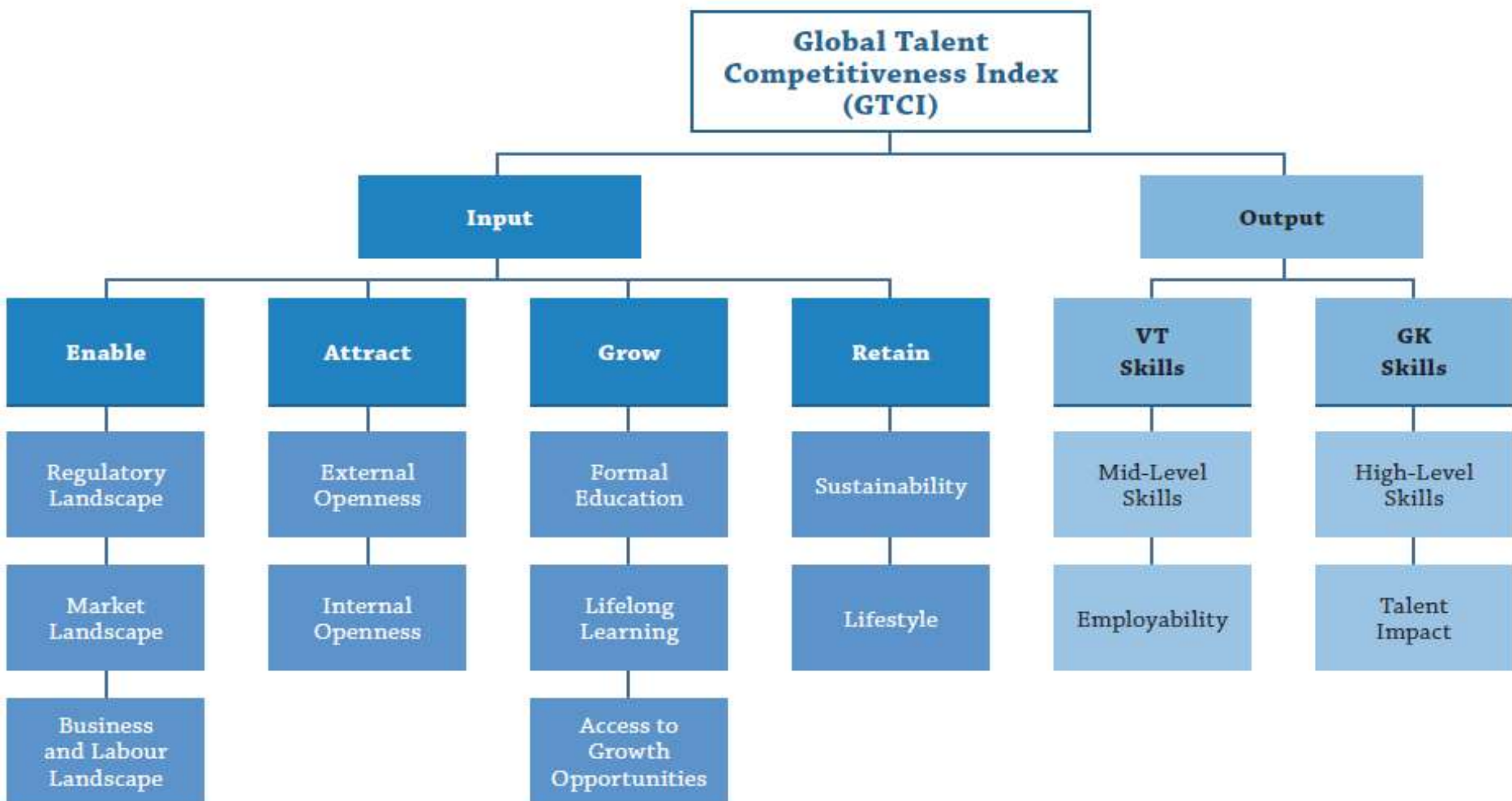
- Demographics
- Age gap and lack of upskilling
- Looking for the easiest path to success

An extensive new Korn Ferry report finds that by 2030, more than 85 million jobs could go unfilled because there aren't enough skilled people to take them.

“How do we compare globally?”



Global Talent Competitiveness Index (GCTI)



Note: GK Skills = Global Knowledge Skills; VT Skills = Vocational and Technical Skills.

“Key Indicators?”



- Political stability and absence of violence (www.govindicators.org)
- Corruption (<http://www.transparency.org/en/cpi>)
- Professional Management (<https://www.weforum.org/reports/>)
- Relationship of pay to productivity (<https://www.weforum.org/reports/>)
- Brain Gain (<https://www.weforum.org/reports/>)
- Economic empowerment of women (<https://wbi.worldbank.org/en/wbi>)
- Reading, Maths and Science (www.oecd.org/pisa)
- University rankings (<https://www.topuniversities.com/qs-world-university-rankings>)
- Employee development (<https://www.weforum.org/reports/>)
- Brain retention (<https://www.weforum.org/reports/>)
- Personal Safety (<https://www.socialprogress.org/>)

“Where is South Africa?”



2013	2014	2015 2016	2017	2018	2019	2020	2021	2022	2023
55/103	51/93	57/109	67/118	63/119	71/125	70/132	67/134	77/133	68/134

So “Where are the Engineers?”



This trend of immigration has a negative effect on Transformation and Capacity Building

- What do the numbers say? **No Real Change from 2011 but hope for the future**
- What is happening globally? **Global Shortage of Skills, South Africa faring well against 1st world countries**
- Why did they leave and how are they managing?

“Why did they leave?”

- Security and crime
- Government effectiveness poor
- Lifestyle benefits
- Better work opportunities



“How are they managing?”



- Cost of living is too high
- Pay is more than what they were receiving in SA but standard of living far lower
- Weather
- Not what they expected

So “Where are the Engineers?”



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- What do the numbers say? **No Real Change from 2011 but hope for the future**
- What is happening globally? **Global Shortage of Skills, South Africa faring well against 1st world countries**
- Why did they leave and how are they managing? **Surviving on little expecting better things to come.**



THANK YOU