ENSURING THE EXPERTISE TO GROW SOUTH AFRICA

Identifying reasons for the decline in the renewal rate of registered persons

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ECSA

EXECUTIVE SUMMARY

The Engineering Council of South Africa (ECSA) is a statutory body that acquires its mandate from the Engineering Profession Act, 46 of 2000 (EPA). The focus of the EPA is the promotion of public health and safety and all aspects relevant to the actions of persons registered with ECSA. ECSA's main legislative mandate is to register engineering practitioners.

Over the years, there has been a decline in ECSA's renewal rate and cancellation among those who are already registered as professionals. Consequently, this research study combines qualitative interviews and documentary research to propose strategies that ECSA can implement to retain professional registered persons. The research process included a comparison of retention rates with peer councils for registered persons and global benefits; the trends that preclude engineering professionals from renewing their registration status; and an analysis of the data gathered from stakeholders involved in the engineering profession on the main reasons for the decline of renewal rate.

The study contains the attractive strategies that ECSA can adopt from other international peer engineering bodies and those emanating from the responses from the questionnaires used to collect primary data. Some of the major recommendations are as follows:

- In support of the IDoEW campaign, ECSA must partner with the government for legislation review to encourage tax benefits for employers in classified engineering categories.
- ECSA must also partner with major employers to support payment for employees' professional fees.
- ECSA must expedite the automation of most registration steps; submission of applications should also be automated to improve the transparency of the process.

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DEFINITIONS

Act means the Engineering Profession Act, 46 of 2000 "as amended".

Branch of Engineering / Engineering discipline means a generally recognised major sub-division of engineering such as the traditional disciplines of Chemical, Civil, or Electrical Engineering or a cross-disciplinary field of comparable breadth, including combinations of engineering fields (e.g., Mechatronics) and the application of engineering in other fields (e.g., Bio-medical Engineering).

Broader Definition of "Specified Category" means a category of registration created for persons who must be licensed through the Engineering Profession Act or a combination of the Engineering Profession Act and external legislation as having specific competencies related to an identified need to protect the public safety, health and interest or the environment, in relation to an engineering activity.

Category means a mode of registration defined in or under the Engineering Profession Act, 46 of 2000, that has a distinctive purpose, characteristic competencies, educational requirements and defined principal routes to registration.

Code of Conduct means the Code of Conduct for Registered Persons: Engineering Profession Act, 46 of 2000, Board Notice 41 of 2017 – Government Gazette 142 No. 40691.

Competency means a combination of knowledge, training, experience, and applicable qualifications that enables an individual to perform a task or an activity successfully.

Engineering work means the process of applying engineering and scientific principles, concepts, contextual and engineering knowledge to the research, planning, design, implementation, maintenance and management of work in natural and built environments. It includes advisory services, assessment of engineering designs and determination of the risks posed by the design on workers, the public and the environment.

Practitioner (or engineering practitioner) means a person who performs engineering work or provides advisory services relating to engineering work. It includes both registered persons and unregistered persons.

Profession means Engineering Profession.

Professional Registration Category means a professional registration category as specified under Section 18(1)(a)–(c) of the Act including Professional Engineer, Professional Engineering Technologist, Professional Certificated Engineer, Professional Engineering Technician, Candidate and Specified Category Practitioner.

Registered Person means a person registered under a category referred to in Section 18 of the Act.

Specified Category means a category created for registered persons under the provision of the Act, other than professionals or candidates, who has specific training pertaining to a specialised field that has to be regulated.

Unregistered Person means any person undertaking engineering work who is not registered in terms of the Act. This does not include persons registered by other statutory bodies and is part of teams undertaking engineering work.

ABBREVIATIONS

ABET	Accreditation Board for Engineering and Technology
CBE	Council for the Built Environment
CPD	Continuing Professional Development
ECSA	Engineering Council of South Africa
EPA	Engineering Profession Act
IDoEW	Identification of Engineering Work
IEA	International Engineering Alliance
UK	United Kingdom
USA	United States of America

1. GENERAL INTRODUCTION

1.1 Introduction

ECSA is a statutory body that acquires its mandate from the Engineering Profession Act, 46 of 2000 (EPA). The focus of the EPA is the promotion of public health and safety and all aspects relevant to the actions of persons registered with ECSA. ECSA's main legislative mandate is to register engineering practitioners. The registration of engineering professionals plays a vital role in the quality of work they produce for the country's socioeconomic development. These engineering professionals undergo a rigorous process that tests their knowledge, experience, capabilities and expertise in various fields of practice. Once registered, such professional should abide by the code of conduct as outlined in the EPA for as long as they are registered with ECSA.

This study aims to explore the dimensions linked to the decline in the renewal rate of registered persons in ECSA. This section begins by introducing the research background, followed by the problem statement, research questions, aims, objectives, scope and limitations. The key concepts are defined and the approach, population composition and methods of data collection and data analysis are described. The section concludes with the report structure.

1.2 Background of the research

Recently, ECSA has been involved in ensuring engineering professionals of all disciplines within the built environment become registered on large scale through the Identification of Engineering Work (IDoEW) gazetted on 26 March 2021. In 2016, ECSA introduced a new registration model to streamline the registration process to the requirements of the key strategic objectives. One of ECSA's key strategic objectives is for applicants to be registered through an accessible, fair, transparent, efficient and credible system. Of great concern therefore is the professional registration status renewal rate which has a 5-year cycle.

A decline in the renewal rate of registered persons has been noted in the preliminary data available at ECSA. It is believed that this decline could be caused by the following factors: financial, health, no longer practising in the engineering field, unemployment, no incentives, emigration and voluminous documentation, among others.

South Africa's growth has trended downwards since 2010, averaging just 1.7% between 2011 and 2018. In 2019, South Africa was plunged into its third recession since 1994. Precipitating factors included the global downswing following the global financial crisis, declining commodity prices, deindustrialisation, 'state capture' (that is, systemic corruption), budgetary cuts, restrictive macroeconomic policies and slowed investment because of economic stagnation among others. Consequently, precipitating factors underlie the economic dynamics in South Africa with an impact on vast industries, with the engineering fraternity included. It is imperative to explore contributing factors in the engineering sector. It could be argued that the economic recession, Covid-19, high registration costs and the extensive ECSA process added fuel to the decline in the ECSA registration renewals.

1.3 Problem statement

Over the years, ECSA has seen a decline in the renewal rate of registered persons. Changes have occurred in the renewal rate without a clear understanding of the contributing factors or root causes. The consequence of the decline comes with a dire impact on the engineering fraternity at large. ECSA has principles that guide the behaviour of engineering professionals to be consistent with the highest possible standards of ethics, integrity and professionalism, as cited in the ECSA Code of Conduct. The outcomes anticipated for this research will be useful in identifying the main reasons for the ECSA re-registration renewal rate and informing ECSA of what measures could be put in place to achieve above 90% of re-registration.

1.4 Research questions

1.4.1 Main research question

What are the reasons for the decline in the renewal rate of registered persons in ECSA?

1.4.2 Sub-questions to the research question:

- What is the decline rate in the renewal of registered persons with ECSA?
- What are the international renewal rate processes and status?
- What are possible remedial actions?

1.5 Aim

This research aims to identify the reasons for the decline in the renewal rate of registered persons proactively and recommend mitigation strategies that ECSA could implement to turn around the situation.

1.6 Objectives

The objectives of the research are to:

- determine the causes for the decline in the renewal rate
- study the current ECSA renewal system
- determine the international renewal rate status of councils within the Washington Accord.

1.7 Scope and limitations of study

The scope area is a 5-year dataset of registered professionals. The research was confined by the following areas of limitations:

- It excludes specified categories.
- It excludes professionals out of the roll due to misconduct.
- It includes only five case studies (USA, Canada, Australia, United Kingdom, Republic of Ireland).

1.8 Research methodology

The study adopted a mixed-method research approach to soliciting comments and views from stakeholders involved in the engineering profession on the main reasons for the decline in renewal rate. This was achieved through interaction with various stakeholders within engineering practice. The survey and questionnaire tools were utilised to solicit information required to substantially justify the aim of this research. The methods of data collection used were online survey questionnaires and interviews with international engineering bodies. The focus group discussions were held with Engineers Canada and Engineers Ireland. The comprehensive data collected was analysed using descriptive and inferential statistics, and thematic analysis.

1.9 Report Structure

The report structure is as follows:

- PEER REVIEW TREND
- METHODOLOGY
- STAKEHOLDER ENGAGEMENT
- DATA PRESENTATION, ANALYSIS AND DISCUSSION
- SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

2. PEER REVIEW TREND

2.1 Introduction

As stated in **Section 1.1**, ECSA's main reason for existence is to protect the public and the environment. The EPA details ECSA's roles as follows:

- To provide for the registration of professionals, candidates and specified categories in the engineering profession
- To provide for the regulation of the relationship between ECSA and the Council for the Built Environment (CBE)
- To provide for matters connected therewith.

This section details the peer review trend of other international engineering bodies in terms of retention and growth of registered professionals and an overview of ECSA. It further details a 5-year trend within the South African context and compares the current registration and renewal process.

2.2 International registration context

ECSA is a co-signatory to the Washington Accord – an agreement in which the registering bodies of countries such as Australia, New Zealand, the United Kingdom and Ireland recognise each other's accredited university degrees in engineering. This not only confirms a person's academic qualification is internationally acceptable, but it also enhances marketability. Thus, it is important to compare ECSA's performance with other peer international engineering bodies on the Washington Accord. This section compares peer international engineering bodies' retention rates in two ways: retention trends and comparisons of the benefits.

2.2.1 Comparison of retention rates with peer international engineering bodies

The graphs below show the retention trends from five of the Washington Accord members (United States of America (USA), Canada, Australia, United Kingdom (UK), Republic of Ireland) over the past 5-year period.

Table 1: Comparison of retention rates with peer international engineering bodies

Item	Year	International engineering bodies					Local
		Canada	Australia	Ireland	UK	USA	ECSA
1	2017	Data unavailable	89.62%	Data unavailable	Data unavailable	Data unavailable	Data unavailable
2	2018	Data unavailable	90%	Data unavailable	Data unavailable	Data unavailable	Data unavailable
3	2019	Data unavailable	91%	Data unavailable	80.43%	Data unavailable	Data unavailable
4	2020	Data unavailable	91%	90%	84.41%	Data unavailable	Data unavailable
5	2021	Data unavailable	91.5%	94%	93.08%	Data unavailable	Data unavailable

Table 2: Comparison of growth in numbers with peer international engineering bodies

Item	Year	International engineering bodies					Local
		Canada	Australia	Ireland	UK	USA	ECSA
1	2017	295 926	59 470	17 436	221 984		49 304
2	2018	302 876	66 527	18 092	221 957		52 446
3	2019	304 785	69 146	18 537	224 656		57 867
4	2020	300 605	72 748	18 395	222 37		55 730
5	2021	302 549	77 573	19 084	221 675		56 472

2.2.2 Comparison of global benefits with peer international engineering bodies

Table 3: Comparison of global benefits with peer international engineering bodies

No.	Activity/ Criteria	International engineering bodies					Local
		Canada	Australia	Ireland	UK	USA	ECSA
1	Annual Fees	R7 700.00	R4 969.31	R4 709.33	R812.29	• R2 295.50 (if < 28 years) • R4 591.26 (if > 29 years)	R4 675.00
2	Incentives	• Subsidies for postgrads studies • Seminars discounts	• Discount membership if belong to other technical societies or are a member • Awards and recognition programmes	• Reduced Insurance rates • Company rewards • Highly recognised by customer	Not clear on incentives	Discounts on journals, webinars, travel, insurance and loans	Membership in professional societies discount
3	Accessibility	• Access to meet peers • Access to engineering events	• Access to technical journals and resource library	• Access to council election and chapters	Access to journal and peers	• Technical resources • Insights and resources	• Access to ECSA documents • Access to council election

No.	Activity/ Criteria	International engineering bodies					Local
		Canada	Australia	Ireland	UK	USA	ECSA
		• Access to technical documents	• Engineering webinars information • Publication of engineering work and companies			• Contract documents	
4	Process	Online	Online and fully automated	• Website • Automated process • Not time-consuming	Online application	Online application	Online and manual application
5	Opportunities	• Employment chances increase • Networking with peers in the industry	• Local and national networking opportunities • Training and CPD Opportunities	• Better position in finding jobs • Signing off public documents	Greater mobility and career progression	• Turbocharge career • Make connections and engage	• Peer recognition • Employment marketability • International recognition
6	Renewal Period	Yearly	3-year audit	Yearly	5 years	Data unavailable	5 years

2.3 The South African context: ECSA

ECSA was established in terms of the EPA. The profession is currently not mandatory for practitioners to register with ECSA, but with the gazetting of the IDoEW, registration will become mandatory for individuals practising engineering work.

The category of registration of engineering professionals is determined by the category under which ECSA registers them in terms of Section 18(1) of the EPA. The categories of registration include the following:

(a) **Professional**, which is divided into:

- Professional Engineer (Pr Eng)
- Professional Engineering Technologist (Pr Tech Eng)
- Professional Certificated Engineer (Pr Cert Eng)
- Professional Engineering Technician (Pr Techni Eng)

(b) **Candidate**, which is divided into:

- Candidate Engineer
- Candidate Engineering Technologist
- Candidate Certificated Engineer
- Candidate Engineering Technician

2.3.1 Analysis of current registration categories

This section summarises the uptake of registration from 2017 to 2021; most of the registration is in the professional categories. As shown in **Figure 1**, the highest number in the professional registration categories is the professional engineers' category.

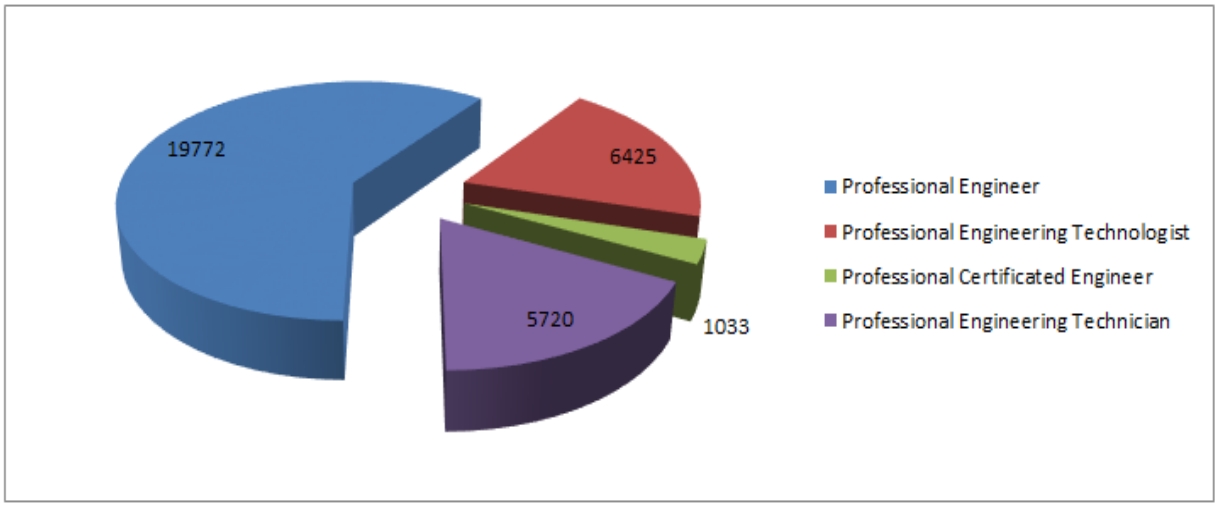
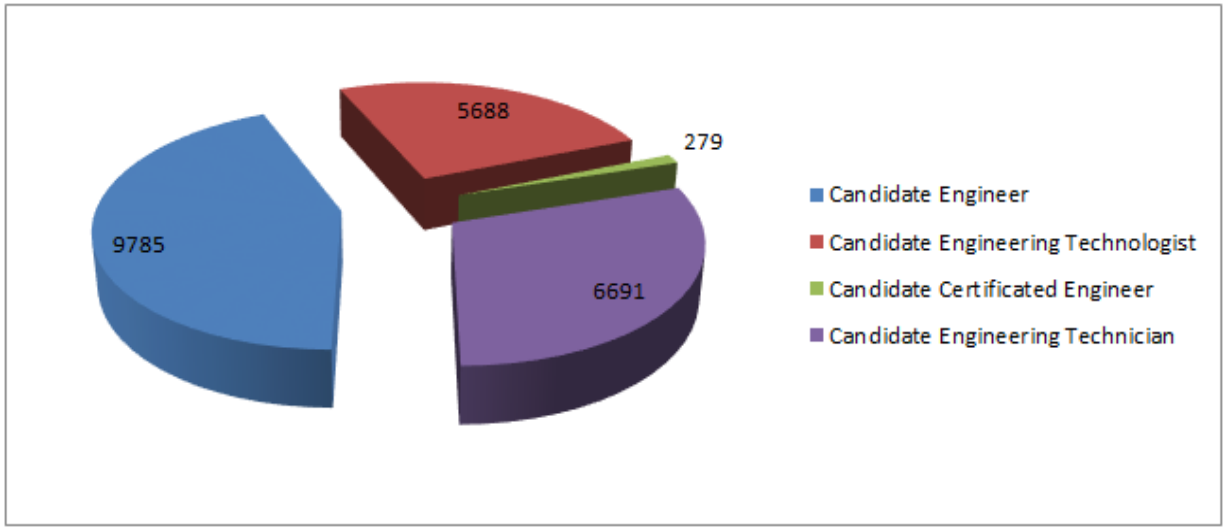


Figure 1: Professional category registration statistics by category

Source (ECSA)

Regarding the uptake in the candidate category, the candidate engineers have the highest registration as shown in **Figure 2**.



Source (ECSA)

Figure 2: Candidate category registration statistics by category

2.3.2 Comparison of registration and renewal process

Error! Reference source not found. below shows the process flows for professional registration versus the process flow for re-registration. The comparison shows a simplified process for the re-registration process, where all required documentation and required competencies are confirmed through only moderation as a gatekeeper. If all competencies are indicated, the re-registration process will be endorsed. If not all eleven (11) competencies cannot be indicated, the application will follow the Experience Appraisal interview process to confirm competencies and finalise the outcome of the application. The process is simplified and quicker compared to the full registration process.

Table 4: Professional registration versus re-registration process flows

Stage	Professional registration process	Professional re-registration process
Preliminary	Application form	Application form
Report	• 3 referee report forms (all 3 must be registered with ECSA) • Engineering report	• 1 referee report form (must be registered with ECSA) • Training and experience summary report
Evaluation	• Professional review • EA interview	• Review application • Professional review
Outcomes	Accept/Reject	Renew / Reject re-registration
Total estimated time	**4 months**	**4 Months**

3. METHODOLOGY

A mixed research design was adopted as the most appropriate approach to verify the reasons for the decline in the renewal rate of registered persons with ECSA. The mixed method (qualitative and quantitative) provides a better understanding of the problem and yields more complete evidence.

3.1 Qualitative method

To determine the renewal process of engineering professionals in other countries and the services provided by international professional bodies to their members, a qualitative research approach was employed. Two online focus group interviews with engineering professional bodies in Ireland and Canada were conducted.

To collect data from international engineering professional bodies, a series of open-ended questions were designed. Also, the services provided by these engineering professional bodies to applicants and the strategies for motivating the applicants to be registered were sought through open-ended questions that focused on the value of being a registered member. The qualitative data collected was analysed using content analysis and the results are presented in **Section 5**.

3.2 Quantitative method

Evaluating the historical data and statistics of renewal registration of ECSA over the past 5 years provide adequate perspective of the trend in renewal rate, retention rate, etc. The initial statistical analysis outcomes assisted in developing a structured questionnaire for an online survey to collect more data from practitioners who had successfully renewed their membership and those who had cancelled their ECSA memberships recently. This was necessary to obtain the reasons for the renewal or cancellation of memberships and identify potential issues in the renewal process.

The questionnaire comprised three sections directed at the study objectives. The items in the first section focused on eliciting general background information about practitioners. The second section of the questionnaire collected the reasons for the renewal or cancellation of professional memberships. The third section of the questionnaire was designed to find out whether the respondents would consider re-registering as professionals in future if conditions change and

what they propose as areas of improvement are carried out. The questionnaires were pre-tested by pilot small groups of experts and made available to 99 re-registered professionals and 10 470 de-registered practitioners in the ECSA database as of 24 August 2022.

Sixteen re-registered and 650 de-registered practitioners completed the survey, with participation rates of 16% and 6.2% respectively. Finally, the data collected was analysed using descriptive statistical techniques to quantify the cancellation rate and determine the reasons for cancelling practitioners' memberships.

4. STAKEHOLDER ENGAGEMENT

The stakeholder engagement is divided into two sections: the local stakeholders and the international stakeholders. This chapter details the questionnaires and interviews with the stakeholders.

4.1 International stakeholder engagement

The purpose of the international stakeholder engagement was to solicit input and views from international engineering bodies on the factors influencing or affecting the retention rate of registered engineering professionals. This was used to improve strategies that ECSA can consider in mitigating the reasons behind the decline in the renewal rate of registered persons.

The following International Engineering Alliance (IEA) members were consulted:

Table 5: International Engineering Alliance survey sample

	Country/Continent	International engineering body
1.	Australia	Engineers Australia
2.	United States of America	Accreditation Board for Engineering and Technology (ABET)
3.	United Kingdom	Engineering Council
4.	Canada	Engineers Canada
5.	Republic of Ireland	Engineers Ireland

The international engineering bodies were requested to respond to the following questions:

1. What were the main contributors to growth in registration numbers over the past 5 years? This is related to the following:

   (a) Increase rates in registration fees?

   (b) Are the systems and processes fully automated?

   (c) Is professional registration compulsory in that country?

(d) Are there any new economic, legislation and government initiatives that might have influenced the pattern?

(e) What was the impact of Covid-19 on the rate of renewal of registration?

2. What are the renewal rates in the past 5 years?

3. What is the rate of re-registration in the past 5 years?

(a) What is the cost associated with re-registration?

(b) Is the process different from a new registration?

4. What are the main reasons for not renewing the registration?

5. Are student chapters part of their pipeline at institutions of higher learning?

(a) Is this part of the registration categories?

(b) If yes, is it related to a paid registration category or free for students to register in this category?

4.2 Local stakeholder engagement

The survey purpose was to solicit comments and views from stakeholders involved in the local engineering profession on the main reasons behind the decline in the renewal rate of registered persons.

The stakeholders consulted were as follows:

1. ECSA re-registered professionals:

(a) Professional categories

2. ECSA deregistered engineering practitioners/professionals

(a) Professional categories.

The survey sample considered is presented in **Table 6**. It is critical to reiterate that the scope of the research excludes those de-registered due to Misconduct.

Table 6: ECSA survey sample

Population Composition		
1.	ECSA re-registered professionals	
1.1	Professional categories	99
2.	ECSA de-registered engineering practitioners	
2.1	Professional categories	10 470
Total survey sample		**10 569**

4.2.1 Survey questionnaire (Re-registered professional)

Table 7 below shows details of the questionnaire used for consultation with the re-registered professionals. The survey aimed to find out ECSA re-registered professionals' views concerning the reasons behind the decline in the renewal rate of registered persons.

Table 7: Survey questionnaire (re-registered professionals)

Questions	**Choose one of the following answers**	
Gender	Male	Female
Sector	• Public • Private • Parastatal • Other: please specify	
Discipline	• Aeronautical • Agricultural • Chemical • Civil • Computer • Electrical • Industrial • Mechanical	

Questions	Choose one of the following answers		
	• Mechatronics • Metallurgical • Mining		
Registration category	Professional categories		
Years of experience in the engineering field?	• 3–10 years • 11–20 years • 21 years and above		
What are the reasons for not renewing your registration?	• Financial • Health • Not practicing in the engineering field • Unemployed • Retired • No incentive • Emigration • Other		
Are you going to renew your registration again? (yes/no - if no, please explain)	Yes	No	Explain:
If the Identification of Engineering Work (IDoEW) is approved, will you consider re-registering?	Yes	No	Explain:
What are the suggestions for improvement of the registration process?			

4.2.2 Survey questionnaire (de-registered engineering practitioners)

Table 8 below shows details of the questionnaire used for consultation with the de-registered engineering practitioners. The survey aimed to find out ECSA de-registered engineering practitioners' views about the reasons behind the decline in the renewal rate of registered persons.

Table 8: Survey questionnaire (De-registered engineering practitioners)

Questions	Choose one of the following answers	
Gender	Male	Female
Sector	• Public • Private • Parastatal • Other: please specify	
Discipline	• Aeronautical • Agricultural • Chemical • Civil • Computer • Electrical • Industrial • Mechanical • Mechatronics • Metallurgical • Mining	
Registration category	Professional categories	
Years of experience in the engineering field?	• 3–10 years • 11–20 years • 21 years and above	
What are the reasons for not renewing your registration?	• Financial • Health • Not practicing in the engineering field • Unemployed • Retired • No incentive • Emigration	

Questions	Choose one of the following answers		
	• Long process • Maintenance of Continuous professional development • Other: please specify		
Are you going to renew your registration again? (yes/no - if no, please explain)	Yes	No	Explain:
If the Identification of Engineering Work (IDoEW) is approved, will you consider re-registering?	Yes	No	Explain:
What are the suggestions for improvement of the registration process?			

5. DATA PRESENTATION, ANALYSIS AND DISCUSSION

5.1 Introduction

This section summarises the data received and the analysis.

5.2 International data analysis

5.2.1 Consultation feedback – Engineers Ireland

The regulatory context in Ireland

Engineers Ireland is not a regulated council. It has a membership of about 19 000 professionals in various categories. The pattern of registration and renewal of registration is linked to the economic patterns in Ireland, especially the performance of the construction industry. The average retention rate is 94% across all grades. Most engineering professional membership fees in Ireland are paid by the employer and this has a direct impact on the renewal rate. The section provides responses to the questionnaire.

Responses to the questionnaire

Question 1: What were the main contributors to their growth in registration numbers over the past 5 years?

- *Increase rates in registration fees?*

Responses: The council has had few increases; the last increase was in 2018, from €265 to €280. The majority, about 60%, of fees are paid by employers.

- *Are the systems and processes fully automated?*

Responses: The systems are not fully automated but are continuously improved. Uploading documents and payment of fees are automated. The registration process takes about 4–6 weeks if all documents are in order. It takes up to 6 months if there are challenges.

- *Is professional registration compulsory in their country?*

Response: Registration is not regulatory, not compulsory.

- *Are there any new economic, legislation and government initiatives that might have influenced the pattern?*

Responses: The growth in the construction sector has had a positive impact on the growth of registered professionals. The government has been moving the focus toward quality and compliance which will have a positive impact on the registration numbers. The Regulation Control regulation applicable to the construction industry has a positive impact on registration by those operating in the certification of the building sub-sector, which is regulated. This can only be performed by chartered engineers in this specific field. There was also the introduction of tax benefits for the professional membership fee.

- *What was the impact of Covid-19 on the rate of renewal of registration?*

Response: The outbreak of the Covid-19 pandemic did not affect the engineering sector hence the growth.

Question 2: What are the renewal rates in the past 5 years?

The data available focuses more on the growth rate. The retention rate reporting started in 2021 and is at 94%, from 90% in 2020. The retention is higher at the higher level categories, with the fellow category being retained at 98% versus the lowest grade at 90%.

Question 3: What is the rate of re-registration in the past 5 years?

- *What is the cost associated with re-registration?*
- *Is the process different from a new registration?*

The members' information will be in the system; renewals are just based on the fees. The de-registration depends on the time that has elapsed, if not more than about 3 years has elapsed, they will have to follow a quick re-registration process.

Question 4: What are the main reasons for not renewing the registration?

- *What are the main reasons for not renewing the registration?*

Response: None that the councils know of.

Question 5: Do they have student chapters as part of their pipeline at institutions of higher learning?

- *Is this part of the registration categories?*
- *If yes, is it related to a paid registration category or free for students to register in this category?*

Response: The pipeline focus is rooted in the academic partnerships and culture of registration and the value of registration is built up from the academic champions and student chapters.

5.2.2 Consultation feedback – Engineers Canada

The regulatory context in Canada

Professional registration in Canada is compulsory, therefore no practitioner is allowed to practice as an engineer without a licence. It has a practising membership of about 211 917 professionals in the professional engineer category, spread out across all 12 provinces. The renewal of licences in Canada is year to year and the cost is minimal as indicated in **Table 3**. The renewal rate is always on the rise since it is mandatory. Engineers Canada is only responsible for the regulation of engineers; technologists and technicians are regulated differently from the engineers and no depth of information was gathered. The typical engineering activities in Canada have several roles and duties for engineers, technologists and technicians and are defined by their distinctive competencies for various types of professionals and chartered engineers.

The section below provides responses to the questionnaire.

Responses to the questionnaire

Question 1: What were the main contributors to their growth in registration numbers over the past 5 years?

- *Increase rates in registration fees?*

Responses: The cost of registration and maintenance is very low in Canada. There is no direct impact on the decline and growth of registration because it is compulsory.

- *Are the systems and processes fully automated?*

Responses: The systems are fully automated. The registration process is done online and applicants can take exams remotely. However, each province in Canada has different requirements. The turnaround time for registration can take up to a month.

- *Is professional registration compulsory in their country?*

Responses: It is compulsory. Engineers Canada is only responsible for the engineers' category. Their requirements are a bachelor degree of 4 years coupled with 4 years of experience.

- *Are the any new economic, legislation, and government initiatives that might have influenced the pattern?*

Response: Registration being compulsory in Canada contributes to the growth of registered professionals. It is a serious offence to use engineering titles for individuals without licences to practise.

- *What was the impact of Covid-19 on the rate of renewal of registration?*

Response: The outbreak of the Covid-19 pandemic did not affect the renewal of registration since it is compulsory.

Question 2: What are the renewal rates in the past 5 years?

Response: Registration in Canada is compulsory, therefore, Engineers Canada has not found it necessary to track the statistical renewal rate.

Question 3: What is the rate of re-registration in the past 5 years?

- *What is the cost associated with re-registration?*
- *Is the process different from a new registration?*

Response: Engineers are not subjected to re-registration and the process is fully automated.

Question 4: What are the main reasons for not renewing the registration?

- *What are the main reasons for not renewing the registration?*

Response: Registration being compulsory and the cost of maintaining it being low contributes to the increase in professional registration.

Question 5: Do they have student chapters as part of their pipeline at institutions of higher learning?

- *Is this part of the registration categories?*
- *If yes, is it related to a paid registration category or free for students to register in this category?*

Responses: They have no student programmes; graduates must take exams after 4 years of working to acquire the licence. Good character and background checks are of paramount important in Canada.

5.3 ECSA data analysis

5.3.1 Renewal rate status quo over 5 years

This section provides the results of the data analysis on the ECSA registration and cancellation database from 2017 to 2021. As shown in **Figure 3**: Total re-registered and new registered professional members (2017–2021 the number of new registered and re-registered professional members with ECSA varied over the 5 years. In 2017, 189 professional members registered with ECSA. However, the number of registrations significantly increased to 1 171 in 2018 and reduced to 981, 804 and 821 in 2019, 2020 and 2021, respectively.

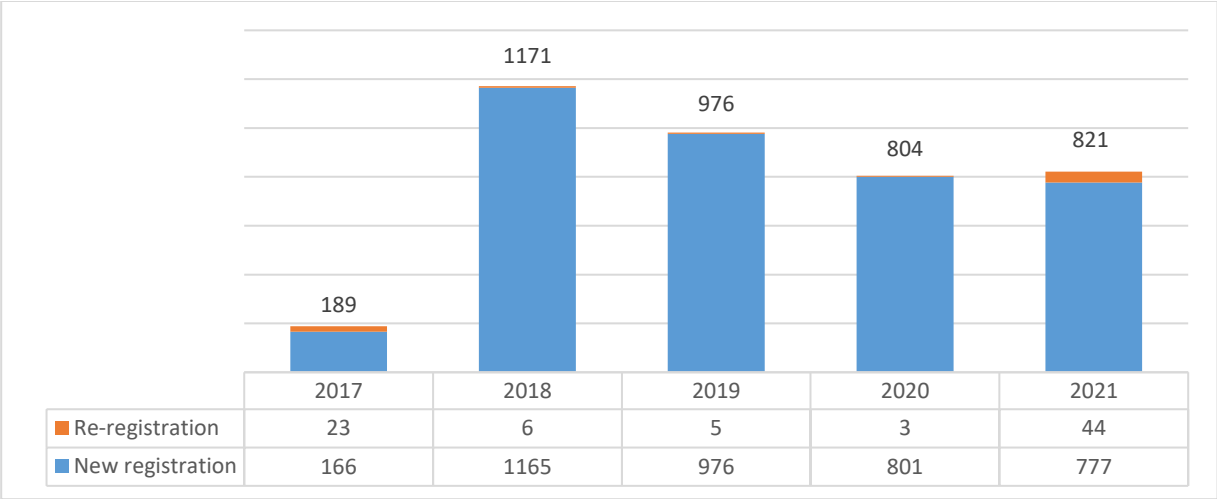


Figure 3: Total re-registered and new registered professional members (2017–2021)

The registration rate of professional members with ECSA was calculated based on a comparison of the number of registrations with the preceding year and the results stated in **Table 9**: Registration rate for re-registered and new registered professionals**Error! Reference source not found.**.

Table 9: Registration rate for re-registered and new registered professionals

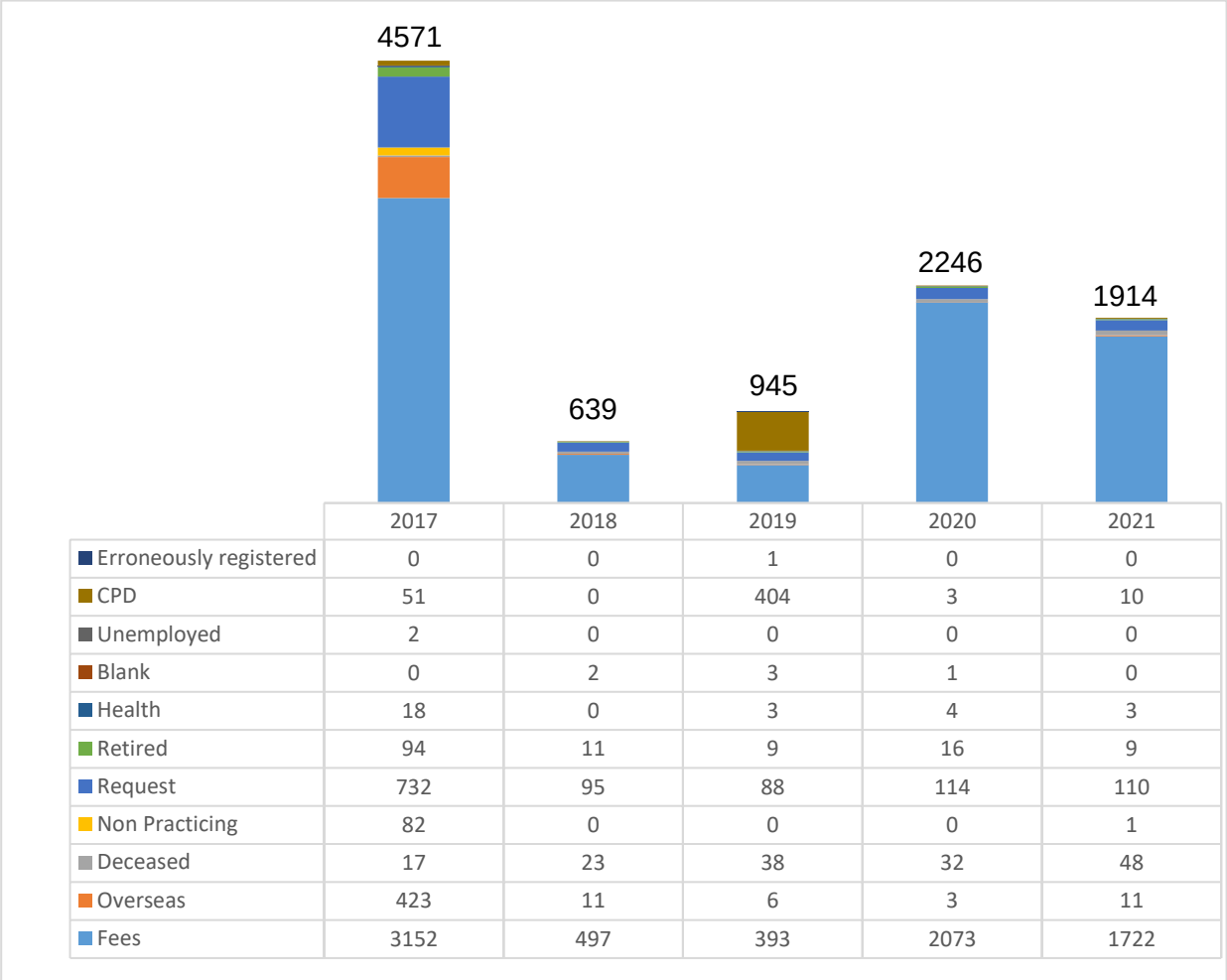
Year	2018	2019	2020	2021
Compared to preceding year	520%	-16%	-18%	2%

As listed in **Table 9**: Registration rate for re-registered and new registered professionalshe registration rate fluctuated from 520% to -18%. In 2018, the registration rate increased by 520% compared to 2017. However, the registration rate suddenly became negative in 2019 and 2020, with only a small positive increase rate recorded in 2021.

5.3.2 Cancelled members 2017–2021

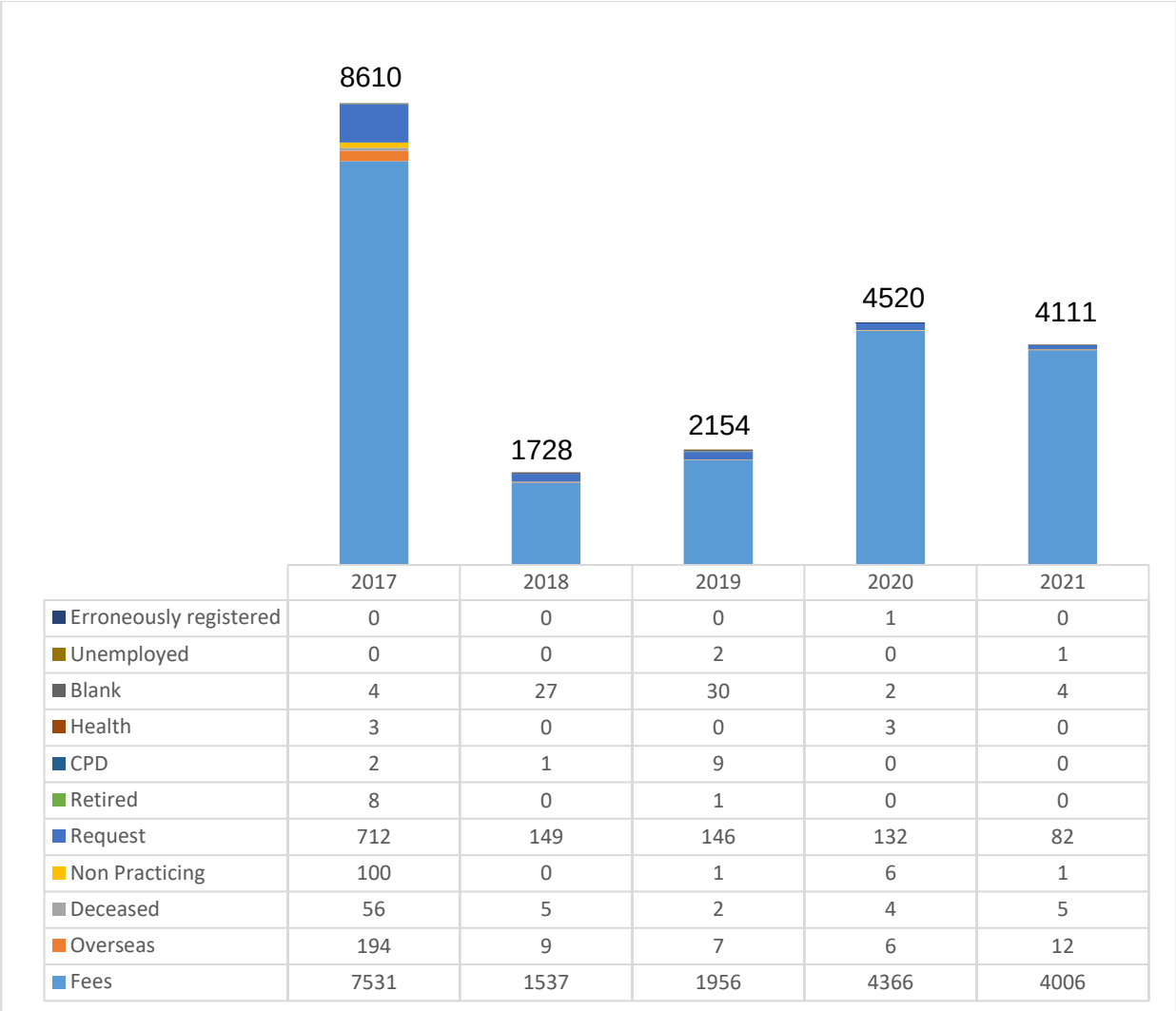
The numbers of cancelled professional and candidate members in the past 5 years (2017–2021) with the reasons for cancellation of membership are shown in **Figure 4**: Cancelled professional

memberships with reasons (2017–2021 and **Figure 5**: Cancelled candidate memberships with reasons (2017–2021.



	2017	2018	2019	2020	2021
Erroneously registered	0	0	1	0	0
CPD	51	0	404	3	10
Unemployed	2	0	0	0	0
Blank	0	2	3	1	0
Health	18	0	3	4	3
Retired	94	11	9	16	9
Request	732	95	88	114	110
Non Practicing	82	0	0	0	1
Deceased	17	23	38	32	48
Overseas	423	11	6	3	11
Fees	3152	497	393	2073	1722

Figure 4: Cancelled professional memberships with reasons (2017–2021)



	2017	2018	2019	2020	2021
Erroneously registered	0	0	0	1	0
Unemployed	0	0	2	0	1
Blank	4	27	30	2	4
Health	3	0	0	3	0
CPD	2	1	9	0	0
Retired	8	0	1	0	0
Request	712	149	146	132	82
Non Practicing	100	0	1	6	1
Deceased	56	5	2	4	5
Overseas	194	9	7	6	12
Fees	7531	1537	1956	4366	4006

Figure 5: Cancelled candidate memberships with reasons (2017–2021)

The highest number of cancellations was recorded in 2017 for both professionals and candidates. Despite a significant reduction in the number of cancellations in 2018, the cancellation among both groups increased in the following 3 years.

The membership fee was the main reason for cancelling memberships in both categories over the last 5 years. The other predominant reasons for cancellation of members were request

(abeyance) and migration as shown in in **Figure 4**: Cancelled professional memberships with reasons (2017–2021 and **Figure 5**: Cancelled candidate memberships with reasons (2017–2021.

The cancellation rate for professionals and candidates members in the past 5 years were listed in **Table 10**: Cancellation rate of professional members and **Table 11**: Cancellation rate of candidate members

Table 10: Cancellation rate of professional members

Year	2018	2019	2020	2021
Compared to preceding year	-86%	48%	138%	-15%

Table 11: Cancellation rate of candidate members

Year	2018	2019	2020	2021
Compared to preceding year	-80%	25%	110%	-9%

The cancellation rate in 2018 and 2021 was negative (reduced cancellation); however, the rates in 2019 and 2020 were positive (increase in cancellation), and the highest rate of cancellations was recorded in 2020 compared to 2019.

Consequently, the difference between the number of registration and cancellation of professional members in the last 5 years is illustrated in **Figure 6**: Difference between professional registrations and cancellations (2017–2021.

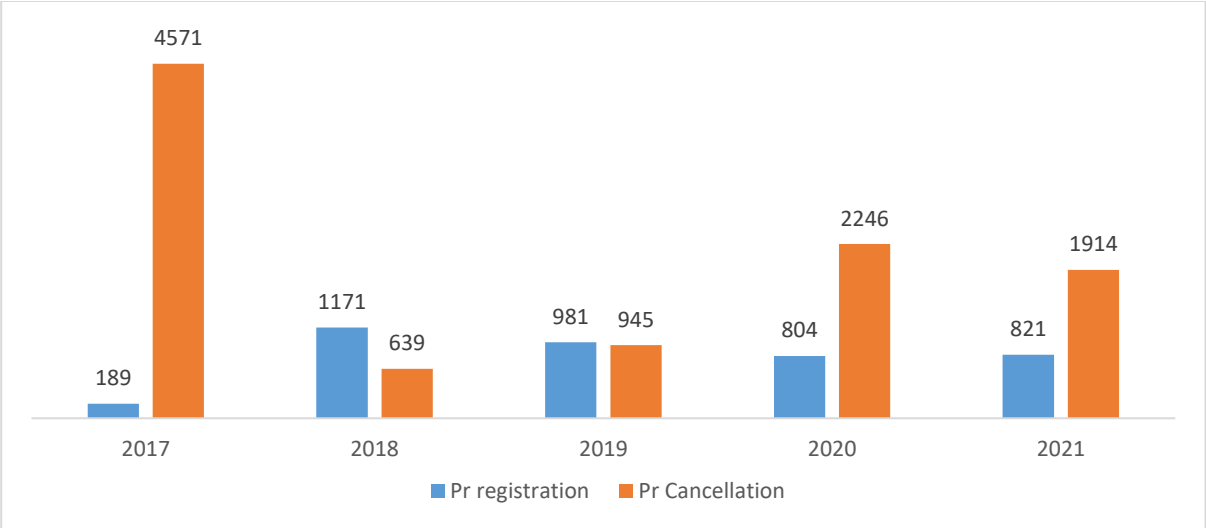


Figure 6: Difference between professional registrations and cancellations (2017–2021)

As illustrated in **Figure 6**: Difference between professional registrations and cancellations (2017–2021, the number of cancellations in 2017, 2020 and 2021 was greater than the number of registrations, which notably impacted the retention rate of ECSA members. In 2018 and 2019, the number of registrations was greater than the number of cancellations.

Table 12: Variation between professional registration and cancellation

Year	2017	2018	2019	2020	2021
Variation	-4 382	532	36	-2 162	-1 093

As shown in **Figure 6**: Difference between professional registrations and cancellations (2017–2021 and **Table 12**: Variation between professional registration and cancellation, the biggest difference between registration and cancellation numbers was recorded in 2017 with 4 382 members, followed by 2020 (2 162 members) and 2021 (1 093 members).

As shown in **Table 12**: Variation between professional registration and cancellation, the negative variation in 2017, 2020 and 2021 is notably larger than the positive variation in 2017 and 2019.

5.4 Analysis of survey questionnaire

This section presents the analysis of data collected from both de-registered and re-registered questionnaire surveys.

5.4.1 De-registered survey

Figure 7: De-registered participants' gender to **Figure 14**: Participants' suggestions for improvement show the descriptive analysis of the 650 participants who de-registered recently with ECSA.

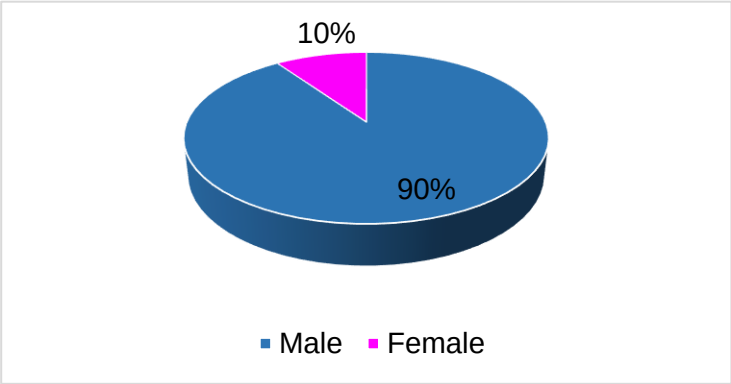


Figure 7: De-registered participants' gender

As illustrated in **Figure 7**: De-registered participants' gender, most participants are male (90%) with only 10% of participants being female.

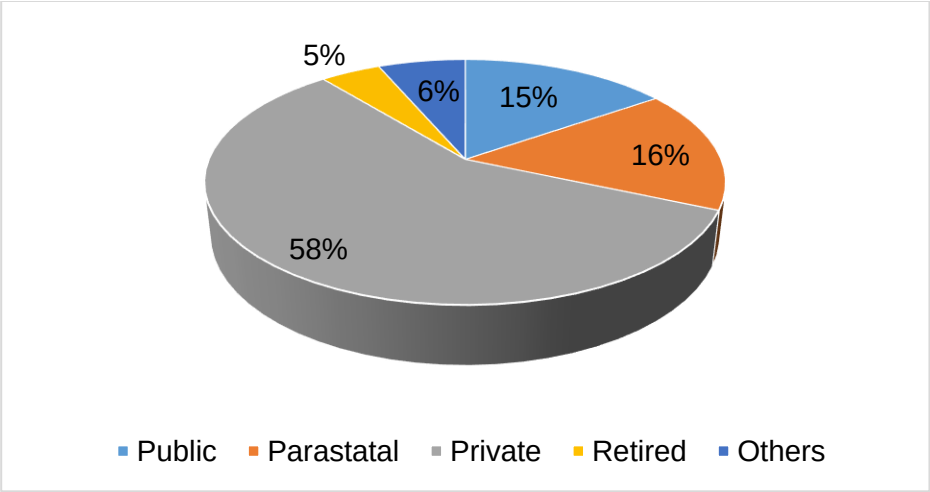


Figure 8: De-registered participants' employment sector

Most participants worked in the private sector (58%), followed by parastatals (16%) and public sector (15%), while 6% of participants work in other sectors and 5% of participants are already retired.

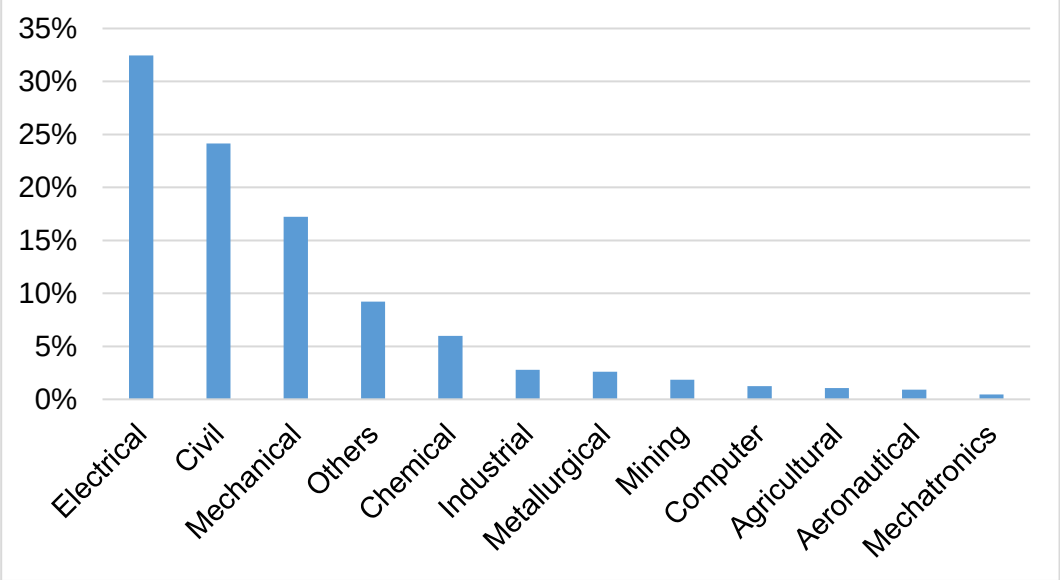


Figure 9: De-registered participants' engineering discipline

Electrical (32%), civil (24%), and mechanical (17%) are the top three engineering disciplines of participants as shown in **Figure 9**: De-registered participants' engineering discipline

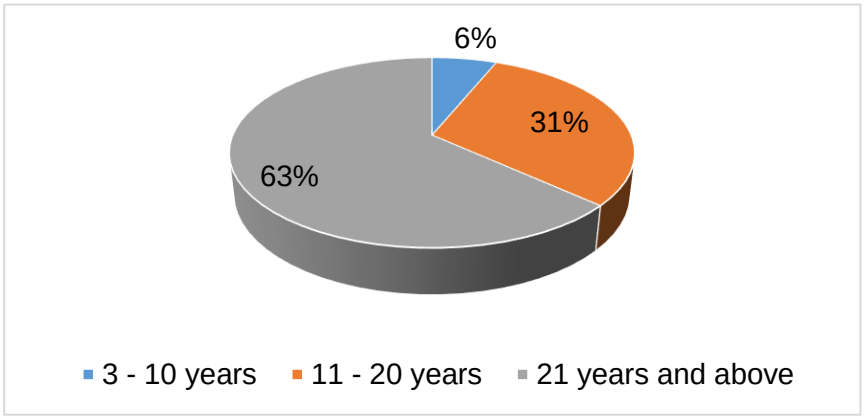


Figure 10: De-registered participants' experience

As illustrated in **Figure 10**: De-registered participants' experience, most participants are highly experienced with more than 21 years of experience, followed by 31% with 11–20 years of experience, while only 6% of participants have 10 years or less of experience.

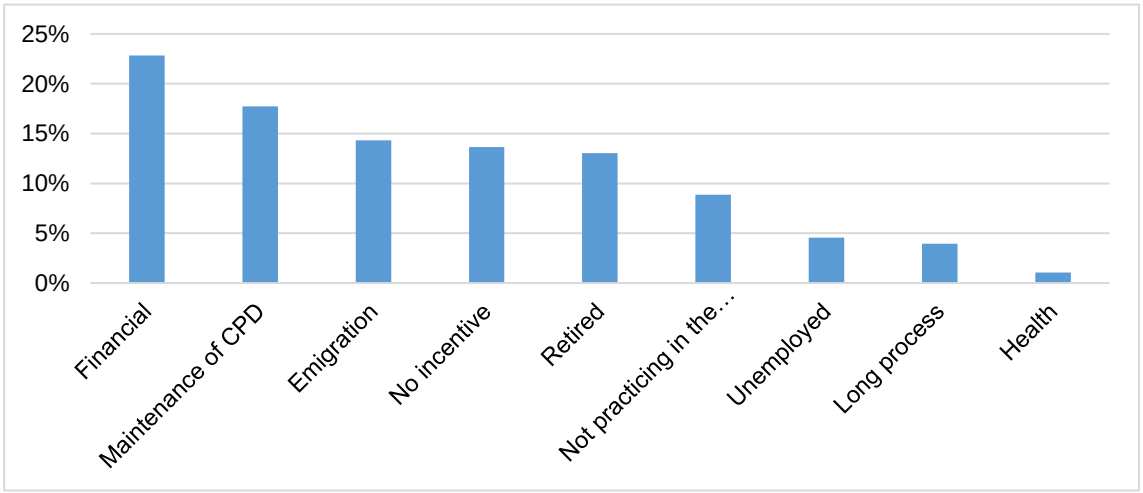


Figure 11: Reasons for de-registration

Figure 11: Reasons for de-registration shows that financial, maintenance of CPD and emigration are the highest contributors to de-registration.

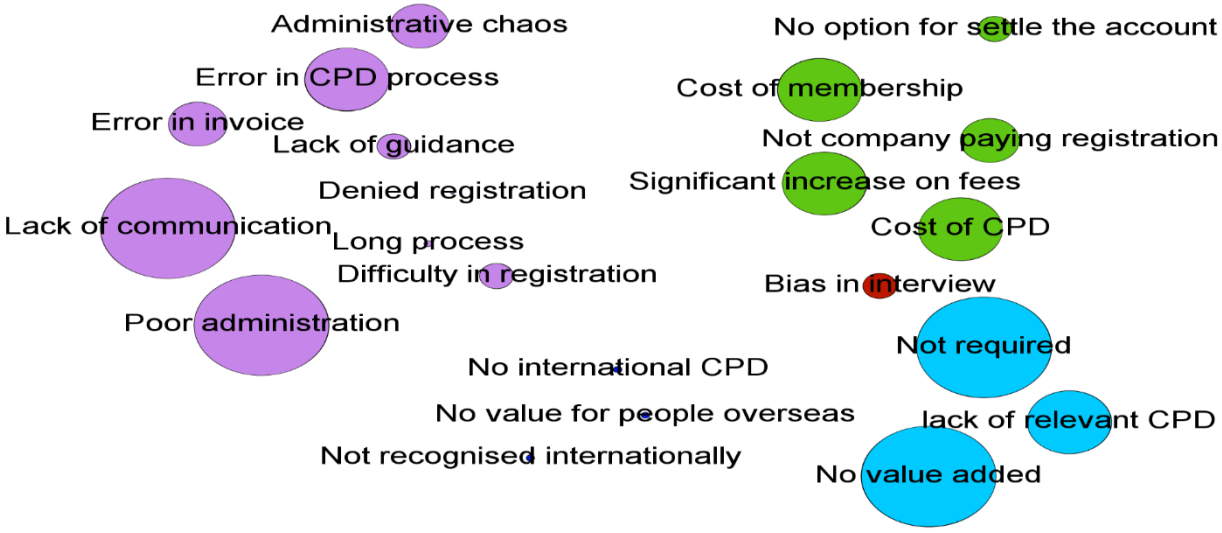


Figure 12: Participants' causes for de-registration

Participants' causes for de-registration were classified into five categories of administration (purple), financial/cost (green), value (blue), international (dark blue) and prejudice (red). As shown in **Figure 12**: Participants' causes for de-registration administration and cost groups contain the largest number of causes for de-registration respectively.

The size of each node in **Figure 12**: Participants' causes for de-registration represents the prevalence of de-registration causes stated by participants. As illustrated by the size of nodes in **Figure 12**: Participants' causes for de-registration no value added, lack of communication, poor administration, not required to be a professional, cost of CPD and cost of membership are the most predominant motivations for members to de-register among the participants.

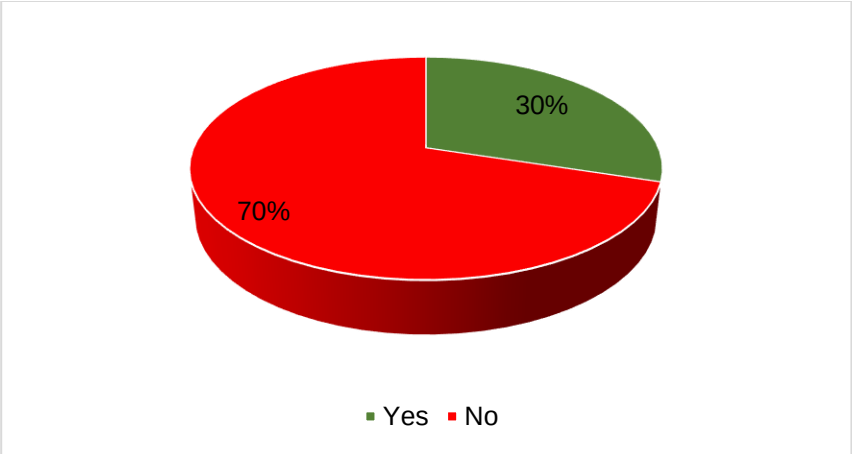


Figure 13: De-registered participants' willingness to re-register

Most participants (70%) indicated that they would not consider re-registering with ECSA; only 30% stated that they would consider applying for re-registration.

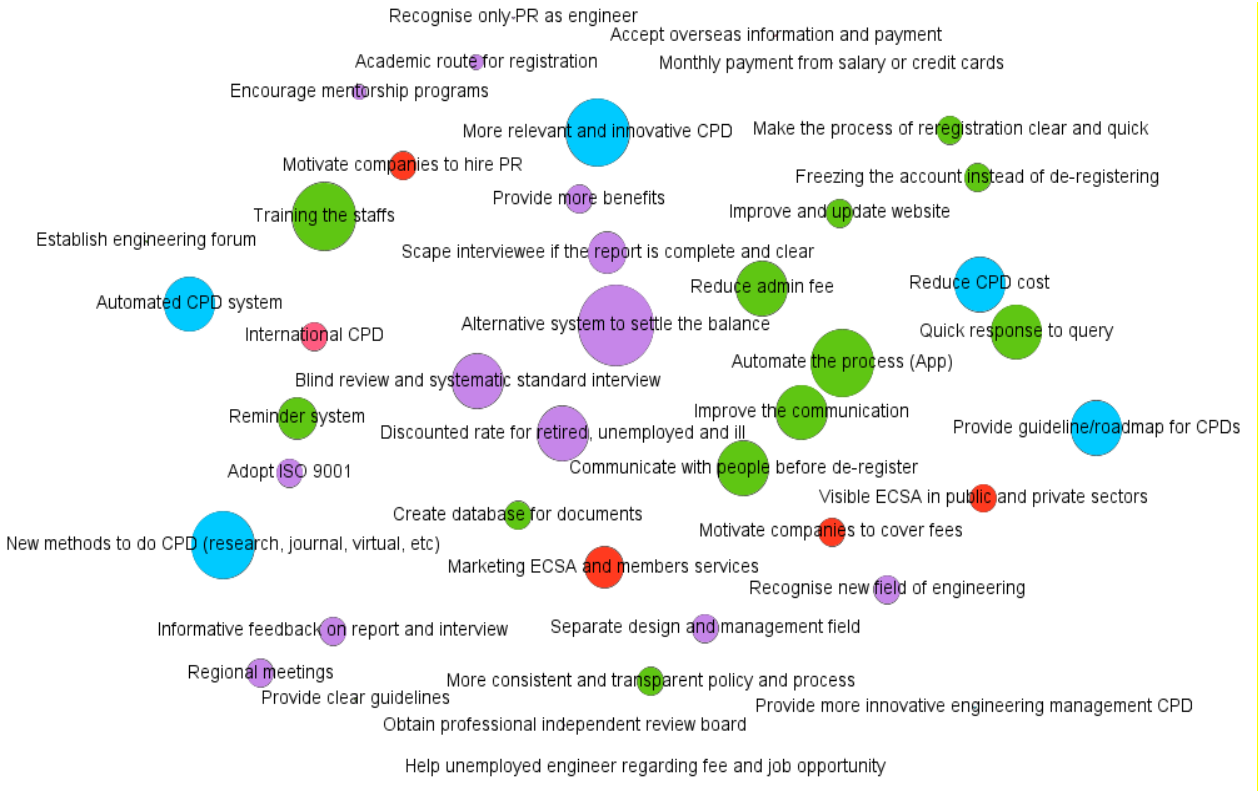


Figure 14: Participants' suggestions for improvement

Similarly, the suggestions provided by de-registered participants have been classified into five groups: administration (green), the structure of process (purple), CPD (blue), marketing (red) and international (pink). As shown in **Figure 14**: Participants' suggestions for improvement, most suggestions are classified under the structure and administration groups.

The most predominant suggestions recommended by the participants to improve the ECSA services are: provide an alternative system to settle the balance; train the ECSA staff; automate the process for registration (App) and CPDs; provide more relevant and innovative CPDs; use new methods to do CPD (research, journal, virtual, etc.); improve the communication between ECSA and members; reduce administration fees; utilise blind review and systematic standard interview systems; discounted rate for retired, unemployed and ill members; quick response to a query; provide guideline/roadmap for CPDs; and communicate with people before de-registration.

5.4.2 Re-registered survey

Figure 15: Re-registered participants' gender presents the results of the data collected from 16 participants who recently re-registered as professionals with ECSA.

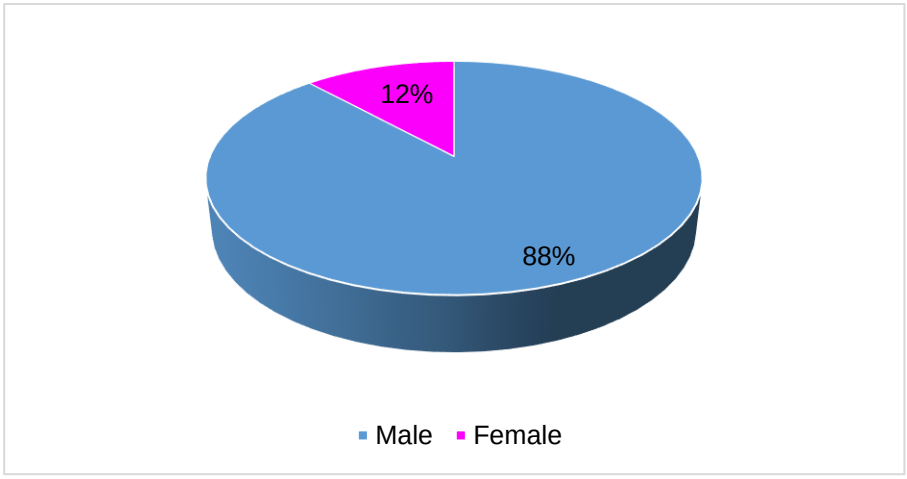


Figure 15: Re-registered participants' gender

Similar to the de-registered category, the majority of participants who re-registered are male (88%) with only 12% of participants being female.

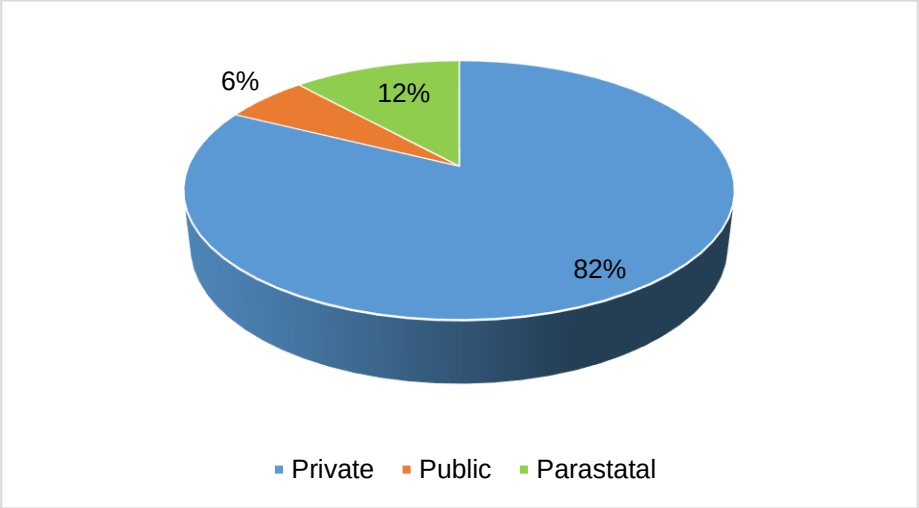


Figure 16: Re-registered participants' employment sector

Figure 16: Re-registered participants' employment sector illustrates that 82% of participants who re-registered with ECSA are working in the private sector, 12% in the parastatal sector and only 6% in the public sector.

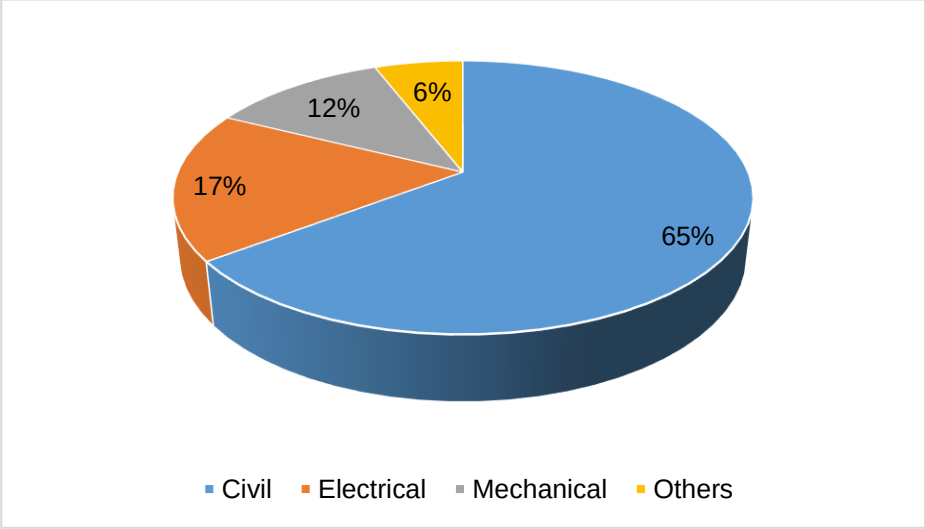


Figure 17: Re-registered participants' engineering discipline

As shown in **Figure 16**: Re-registered participants' employment sector, most re-registered participants are working as civil professionals (65%).

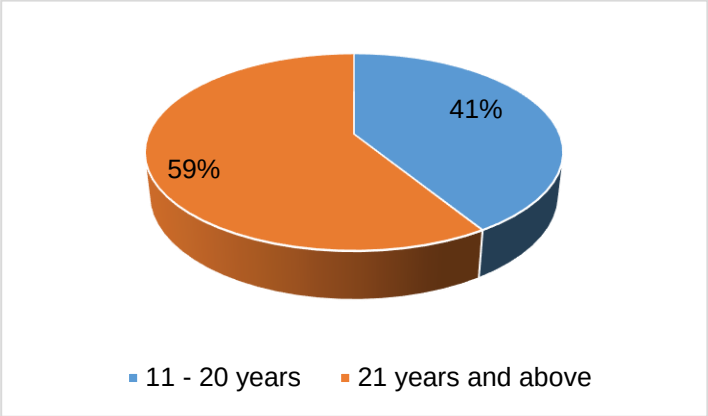


Figure 18: Re-registered participants' experience

Figure 18: Re-registered participants' experience shows that 59% of re-registered participants have more than 21 years of experience in engineering fields.

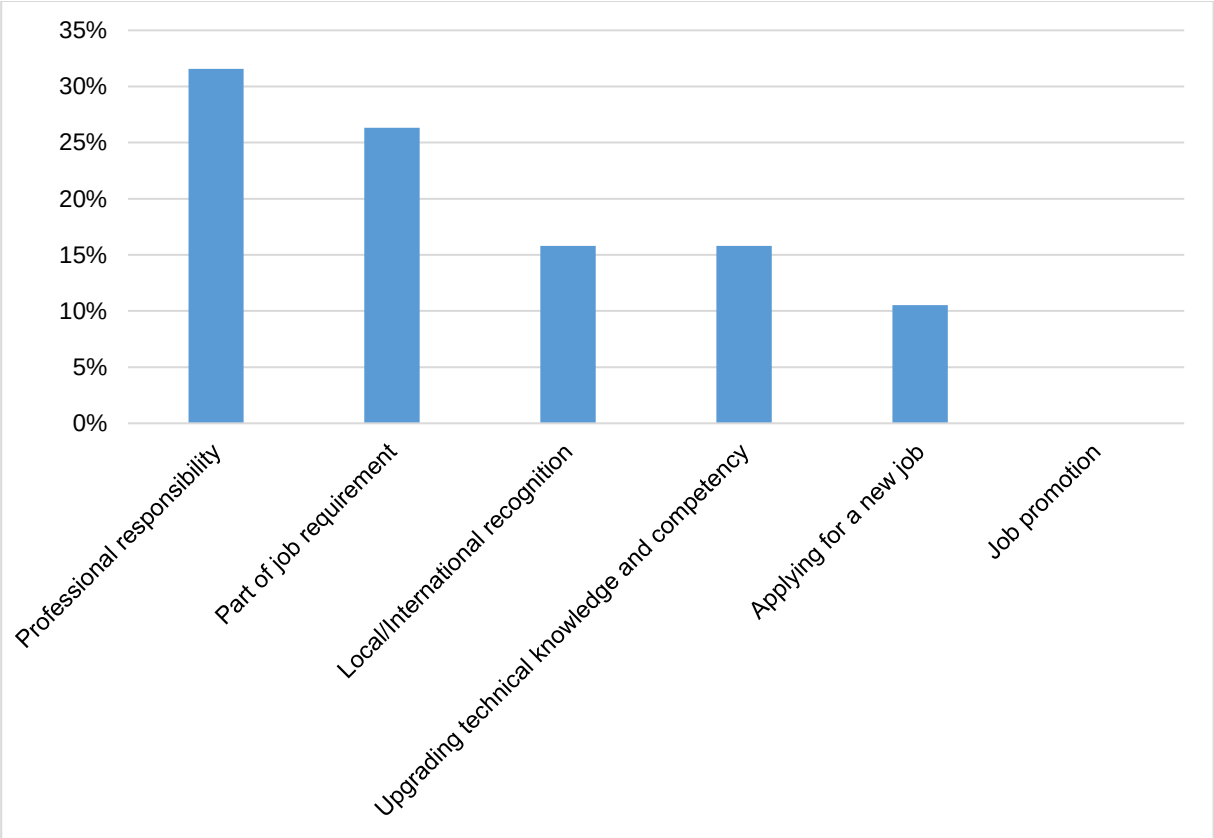


Figure 19: Participants' reasons for re-registration

The main reasons participants re-registered with ECSA are professional responsibility (32%), part of job requirement (26%), local/international recognition (16%), updating technical knowledge and competency (16%) and applying for a new job (11%). No participants re-registered with ECSA for a job promotion.

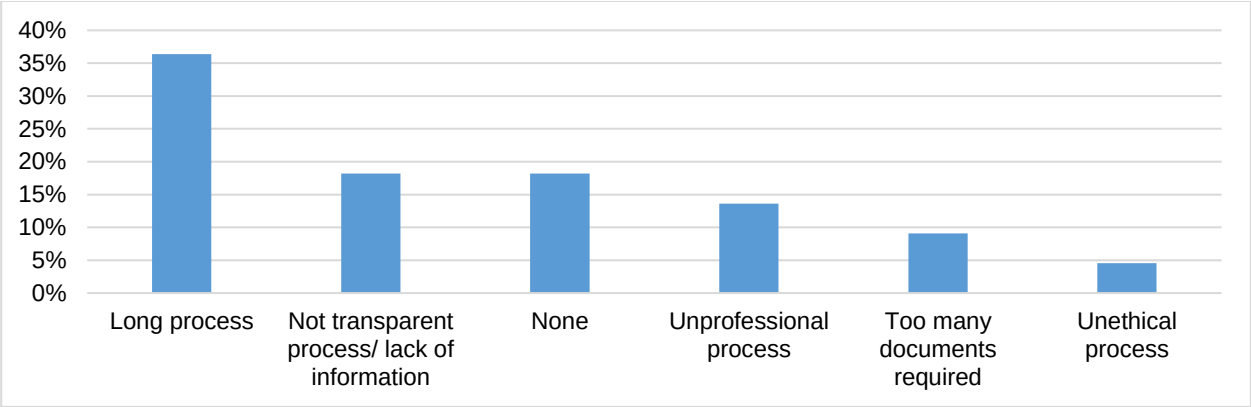


Figure 20: Participants' challenges with re-registration

Most participants encountered a long process of re-registration (36%) and not transparent processes or lack of information (18%), while 18% of participants did not encounter any challenges. Some participants faced the following difficulty while re-registering with ECSA: unprofessional process (14%), too many documents required (9%) and unethical process (5%).

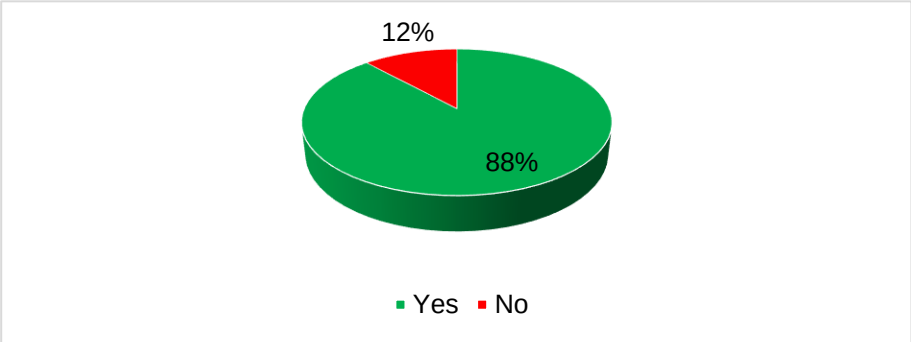


Figure 21: Re-registered participants' willingness to continue with ECSA

Among the participants who re-registered recently with ECSA, 88% of them will renew their membership after 5 years.

6. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary

6.1.1 South African analysis: ECSA

The analysis of historical data showed that changing the policy and registration process in 2017 significantly increased the number of cancellations of professional membership and decreased the number of new registrations. Moreover, the historical data shows that the main reasons for membership cancellation in both professional and candidate categories were the registration fees, which link to the high cost of memberships; and CPD for professional ECSA members. Similarly, the primary data analysis proved that the financial difficulty and maintenance of CPD are the two main reasons for not renewing membership or de-registering. The study of primary data showed that only a small portion of de-registered participants were willing to apply to be a member of ECSA again and more than 70% of de-registered members would not apply for re-registration.

Clustering the causes for de-registration revealed that admission and financial/cost are the two groups with the most significant number of causes for de-registration. In contrast, the most predominant causes of unmotivated participants were no value added to their career, lack of communication, poor administration and high cost of CPD and membership. To decrease the number of de-registrations, the participants suggested that ECSA should improve its services and processes by providing alternative, innovative and efficient registration and administration systems and reduce the cost of membership.

The analysis of responses collected from re-registered professional members reveals that professional responsibilities and job requirements were the predominant reasons that motivated participants to re-register as professional members, while several administrative challenges, such as the long process of re-registration, no transparency and lack of information, still exist in the re-registration process. However, most re-registered participants were willing to renew their professional membership with ECSA.

6.1.2 Peer review with international peer engineering bodies

Registration and renewal fees

Table 3: Comparison of global benefits with peer international engineering bodies provided a comparison of the benefits of ECSA and five other engineering bodies. The registration fees ECSA charges are comparable to its peers when converted to South African rand. In Ireland, 60% of the fees are paid by employers. Partnerships with major employers in the industry, linked to the culture of professionalism, can increase registration and renewal rates.

Compulsory registration vs voluntary registration

In countries like Canada, where registration is compulsory, growth in registration is guaranteed. In Ireland, increased growth is seen where the legislation is enforced by the Built Control Regulations versus unregulated fields. The partnership with government and tax laws also supports the increase in registration if there are benefits to both employers and professionals.

Systems and processes

Most councils focus on the efficiency of their systems and automating most parts of their process as part of continuous improvement and service delivery to the members. The turnaround time is 4–6 weeks.

Monitoring of the retention rates

Figure 1: Professional category registration statistics by category shows that the councils focus on the retention rate, report on the retention rate and have a steady increase in the retention rate. ECSA does not focus on this and it is not part of ECSA's reporting in its annual report. **Table 9** reports on its growth in membership from one financial year to the other. A combination of focus on both the growth and the retention rates may result in a higher rate of growth, a better pipeline from candidates to professional categories and a depth of competency in the membership. Australian growth is a good example of the benefit of a targeted focus on retention rates being monitored and reported at annual report level. A common positive trend is noted of better retention plans in councils with more categories of registration.

Pipeline and registration culture

Engineering regulatory bodies with compulsory registration as a legislative requirement have an automatically high retention rate and growth rate. However, where registration is not compulsory, the engineering regulatory bodies must build a culture of registration as a value-add and brand in the profession. The build up to increase in the registration rate and retention rate is also linked to culture and pipeline development from tertiary feeding into the professional members.

6.2 Conclusion

The study indicated that the decline in the renewal rate is characterised by many precipitating factors such as financial, health, not practising in the engineering field, unemployment, no incentives, emigration and voluminous documentation, among others. The factors contributing to the decline in the renewal rate were anticipated, because South Africa has been in a recession and economic breakdown in the past few years. This, in turn, left most people in a financial crisis.

Remarkably, the research study showed that the main reasons for professionals not renewing their registration are the fees, which link to the high cost of memberships, and CPD for professional ECSA members. Moreover, this was evident from the primary data analysis undertaken that financial difficulty and maintenance of CPD are the two main reasons for not renewing membership or de-registration. Annual fees are a serious concern in that some employers do not recognise ECSA as the statutory body and as a result, refuse to pay for their employees who are ECSA registered. This challenge is made worse by registration being not compulsory, as ECSA has no regulatory power over unregistered persons or their employer organisations. ECSA needs to be relevant to the needs of the profession and the industry for professional registration. Mechanisms to retain and encourage professionals to retain their registration statuses through benefits is evident from the international peer councils and the mechanisms should be provided by both ECSA and the employer.

ECSA could improve its strategies by adopting the strategies of international peer engineering bodies to mitigate the decline in the renewal rate of registered persons. The strategies to retain the registered persons mainly are medium- to long-term and the onus is on ECSA to implement

them. The major strategy highlighted by peer engineering bodies is for ECSA to ensure that its systems and processes are fully automated, and turnaround is kept minimal.

However, ECSA must investigate and adopt whichever strategies would benefit professionals given the prevailing global economic conditions. Naturally, different strategies require different durations to implement; as such, ECSA should prioritise the support and retention strategies according to implementation duration. The easy and quick-to-implement strategies should be prioritised.

6.3 Recommendations

Registration and renewal fees

Partnerships with major employers in the industry, linked to the culture of professionalism, may increase the registration and renewal rate. ECSA must have a targeted focus on major employers for payment of fees.

Compulsory registration vs voluntary registration

The peer council where registration is regulated and compulsory indicated that the growth rate is on the rise. In support of the IDoEW campaign, ECSA must partner with the government for legislation review to encourage tax benefits for employers in the engineering sector. ECSA must also partner with major employers to support payment for employees' professional fees. This would ensure that the engineering industry is well-regulated for the accountability and safety of the public at large.

Systems and processes

It is recommended that ECSA expedite automation of most registration steps and submission of applications should be automated to improve the transparency of the process. ECSA must review the efficiency of its systems and improve its process further to have a turnaround of 4–6 weeks. ECSA should improve its communication systems and use different channels to connect with applicants and registered professionals. ECSA should consider some special categories for retired members and the diaspora.

Monitoring retention rates

ECSA currently reports on new registration per category each year but does not focus on the retention of existing members per category versus the increases per category. It has been observed that in engineering bodies where retention is a targeted focus, retention improves every year. ECSA should add the retention rates as part of the annual report reporting and monitor the reasons for withdrawals as part of continuous improvement measures.

Pipeline and registration culture

Professional registration must be improved in South Africa as part of cultural change to build up graduates who hold professional registration in high regard. In support of the IDoEW, it is recommended that ECSA reviews the student chapters as part of its pipeline at institutions of higher learning and registration in this category to build up the culture and pipeline of graduates that aspire to be professionally registered. Australia, like Ireland, includes graduate membership numbers as an organisational KPI. Having more specialised categories to allow for membership growth also improves retention of members. In Ireland, the retention rate of fellows is 98% and chartered engineers is 95%.

Registration benefits

ECSA should add more benefits for registered professionals.

	Revision Date	Revision Details	Approved By
Draft A	31 March 2023	A complete report from the Research Business Unit	EL Nxumalo
Draft B	04 April 2023	Customization to ECSA format and preparation for approval by RPSC	EL Nxumalo
Rev. 0	13 April 2023	Consideration and approval	RPSC
Rev. 0	02 June 2023	Consideration and approval	Council

Research report on identifying reasons for the decline in the renewal rate of registered persons

Revision 0, dated 13 April 2023, consisting of 53 pages was reviewed for adequacy by the Business Unit Manager and is approved by the Executive: Research, Policy and Standards **(RPS)**.

Business Unit Manager

2023/06/19

Date

Executive: RPS

2023/06/19

Date

This definitive version of this research report is available on our website.