



ENSURING THE EXPERTISE TO GROW SOUTH AFRICA

Candidate Retention Strategies

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EXECUTIVE SUMMARY

The Engineering Council of South Africa (ECSA) as a statutory body, among others, provides for the registration of candidates, professionals and specified categories in the engineering profession, and then regulates the engineering profession through a register and a code of conduct. During candidacy, a person normally registers as a candidate, undergoes training and gains experience to develop the competencies required for registration. While training through a structured programme is the advised method of developing the competencies for registration, a person may not have registered as a candidate. During the period of training and experience, the person is in employment and works with and under the supervision of qualified engineering professionals. A person who demonstrates his or her competence against standards determined by ECSA at an entry level to the engineering profession within one of the basic disciplines of engineering is eligible to be registered. Registration confirms that a person is capable of working independently.

Though registration with ECSA remains voluntary, it is required to perform certain engineering work. Over the years, there has been a decline in ECSA candidate registration as well as cancellation of those who are already registered as candidates. Thus, this research study proposes strategies that ECSA can implement to retain candidates and encourage (attract) graduates to register as candidates, although it was by no means an exhaustive exercise to deal with the issues related to professional registration. The rationale behind the present research study is that candidate registration is located within its wider work-based context and the complex, multi-dimensional, multi-actor nature of the strategies that are required to assist candidates are considered. This research study combines qualitative and documentary research, with the aim of proposing mechanisms to identify possible approaches to retaining candidates that are systemic in nature while remaining sensitive to context.

The research process included explaining the process for training engineering candidates towards professional registration, presenting the trends that preclude engineering candidates from obtaining relevant candidacy training towards professional registration, analysis of the data gathered from the candidates, the data received from the ECSA Registration Business Unit and the data received from the five Councils within the Built Environment. The research study showed that the main reasons for candidates cancelling their registration are interlinked and integrated. This was anticipated, as the process of candidacy is not formalised, hence not all employers have signed a Commitment and Undertaking (C&U) with ECSA. Though the process of candidacy is not

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formalised, ECSA has documents and information on its website to guide the candidates, but the process is left entirely to the candidates to achieve, with superficial guidance from mentors.

Annual fees were flagged as the other 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 candidates. Due to the unaffordability of the annual fees, the overall claim is that the annual fees are ‘too high’. This challenge is made worse by registration being not compulsory, as ECSA does not have regulatory power over unregistered persons or their employer organisations.

The thorny issue of mentorship was also under scrutiny. More mentors and a more formalised system (i.e. structured program) are needed to participate in the journey to registration of candidates. The Academies will assist to address the challenges and gaps that exist in the C&U from the legacy system. ECSA has developed policies to give effect to the concept of Academies for training candidates. The implementation of the Academies concept will improve the retention of registered candidates. Academies will provide structured training aligned to ECSA outcomes as opposed to the C&U concept where the structured training is more aligned to the employer. In the C&U, the employer commits to training candidates to the standard required for registration in an identified professional category, which can only be tested when the candidate applies for professional registration. With the introduction of these Academies, many candidates will be properly trained and able to register as professionals within the shortest possible time. ECSA needs to be relevant to the needs of the profession and the industry in relation to professional registration. Mechanisms to retain candidates and encourage graduates to register as candidates are in the mentorship guidance that should be provided by both ECSA and the employer. The implementation of the Academies concept to supplement the C&U will retain candidates and encourage graduates to register as candidates.

The rest of the strategies are medium- to long-term implementation plans if ECSA deems them doable. The major strategy highlighted by candidates is for ECSA to setup a database of registered mentors that candidates can access at any time to get active support on challenges they face. The proposal was for ECSA to pay these mentors using the candidates’ fees and offer the mentors free CPD points for mentoring. However, it is crucial for ECSA to investigate and adopt whichever strategies would benefit candidates in South Africa given the prevailing economic conditions. Naturally, different strategies require different durations to implement; as such, ECSA should

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prioritise the support and retention strategies according to the implementation duration. The easy and quick to implement strategies should be prioritised.

ECSA can expand on some of the interventions already in place:

- Upon registration as a candidate, ECSA should direct candidates to the candidate-related documents.
- The Academies model should be finalised and implemented as soon as possible and promoted nationwide.
- The Road-to-Registration presentations should be presented online as often as possible and shared on all ECSA online platforms.
- ECSA should organise other, similar to Road-to-Registration presentations and cover topics that to resolve challenges that candidates face. Recordings should be saved where candidates can access them at any time.
- Availability of the mobile office should be communicated across the industry; not many candidates and companies are aware of this support mechanism that ECSA offers.
- Since funding from the SETAs can be accessed, internship programmes for candidates should be encouraged.
- Candidates from client organisations can be placed with organisations that have projects with the client as part of contractual arrangements to obtain the necessary skills for registration.
- Mentorship programmes need to be deliberate and purposeful – not incidental. Employers need to allow time in their professional billable hours to be used for mentoring. Supervisors need special training on how to formally mentor candidates.

The research study achieved its objective through the research process by gathering the necessary information that has assisted in determining the mechanisms of retaining candidates and encouraging graduates to register as candidates.

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ABBREVIATIONS

APS	Assessment of Professional Competence
CBE	Council for the Built Environment
CETA	Construction Education and Training Authority
Covid-19	Coronavirus disease of 2019
CPD	Continuous Professional Development
C&U	Commitment and Undertaking
ECSA	Engineering Council of South Africa
EPA	Engineering Profession Act, 46 of 2000
ER	Engineering Report
IDP	Initial Professional Development
IEA	International Engineering Alliance
MoU	Memorandum of understanding
MRICS	Member of the Royal Institution of Chartered Surveyors
n.d.	No date
NRS	New Registration System
PrQs	Professional Quantity Surveyor
QS	Quantity Surveyor
SACAP	South African Council for the Architectural Profession
SACLAP	South African Council for the Landscape Architectural Profession
SACPCMP	South African Council for the Project and Construction Management Professions
SACPVP	South African Council for the Property Valuers Profession
SACPE	South African Council for Professional Engineers
SACQSP	South African Council for the Quantity Surveying Profession
SETA	Sector Education and Training Authority
TEO	Training and Experience Outline
TER	Training and Experience Report
VA	Voluntary Association

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1. BACKGROUND ON THE ENGINEERING PROFESSION IN SOUTH AFRICA

The engineering profession in South Africa has been self-regulated on a statutory basis since 1968 under the auspices of the regulatory body, the South African Council for Professional Engineers (SACPE) (Gericke, n.d.; Kruger, n.d.; ECSA, 2020a). In the 52 years of self-regulation, three founding statutes have provided for the registration of engineering practitioners inclusive of the current governing statute, the Engineering Profession Act, 46 of 2000 (EPA). The initial Act was the Professional Engineers' Act, 81 of 1968, followed by the Engineering Profession Act, 114 of 1990, which was repealed in its entirety in 2000 by the EPA.

Although ECSA, as a juristic person, was established in terms of the Engineering Profession of South Africa Act, 114 of 1990, its history dates to its predecessor, SACPE (Gericke, n.d.; Kruger, n.d.; Engineering Profession of South Africa Act, 1990). The EPA also provided for ECSA's establishment as a juristic person (Engineering Profession Act, 2000).

ECSA as a statutory body (ECSA, 2020b), among others, provides for the registration of candidates, professionals and specified categories in the engineering profession (Engineering Profession Act, 2000). ECSA then regulates the engineering profession through a register and a code of conduct (ECSA, 2013; Engineering Profession Act, 2000; South Africa, 2017). It is a special quality of a profession to allow its conduct and ethics to be subject to the scrutiny of its peers and the public. The objects of the Rules of Conduct for Registered Persons (better known as the Code of Professional Conduct) are to ensure that registered persons apply their knowledge and skill in the interest of humanity and the environment; to execute their work with integrity and sincerity and in accordance with generally accepted norms of professional conduct; and to respect the interest of their fellow beings and honour the standing of the profession. Promoting the safety, health and interest of the public is an important focus of EPA as they are affected by the engineering work and professional conduct of persons registered with ECSA (ECSA, 2020c).

Furthermore, ECSA's jurisdiction to act in the public's interest extends beyond registered persons as its legal mandate includes accreditation visits to accredit programmes offered by other institutions apart from traditional universities¹, comprehensive universities² and universities of

¹Universities that offer theoretically orientated education.

²Universities that offer a combination of academic and vocational education.

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technology³ (Engineering Profession Act, 2000; BusinessTech, 2015; Luke & Cassingena Harper, 2015).

A person who demonstrates his or her competence against standards determined by ECSA at an entry level to the engineering profession within one of the basic disciplines of engineering is eligible to be registered (Engineering Profession Act, 2000). Registration confirms that a person is capable of working independently (Engineering Profession Act, 2000; Watermeyer, 2017). ECSA thereafter relies on the integrity of registered persons (self-regulation) not to take on work they are not competent to perform and to perform work within the “norms of the profession” (Engineering Profession Act, 2000; Watermeyer, 2017). Registration must therefore be fully compliant with this enactment.

Section 1(xiv)(a) of the EPA defines “registration” as the *process* of “*assessment of competency* of applicants for the purpose of registration...” Therefore, a full understanding of the three key words is required. Section 11 sets out the powers of Council regarding registration, while section 19 deals with registration itself.

Section 18(1) of EPA refers to the categories of registration in which a person may register in the engineering profession as follows:

- (a) professional, which is divided into –
 - (i) Professional Engineer;
 - (ii) Professional Engineering Technologist;
 - (iii) Professional Certificated Engineer; or
 - (iv) Professional Engineering Technician; or
- (b) candidate, which is divided into –
 - (i) Candidate Engineer;
 - (ii) Candidate Engineering Technologist;
 - (iii) Candidate Certificated Engineer; or
 - (iv) Candidate Engineering Technician; or

³Universities that are focused on vocationally orientated education and were previously called ‘Technikons’.

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Categories of registration

(a) Specified categories prescribed by the Council.

Section 18(2) of EPA states that a person may not practise in any of the categories contemplated in section 18(1) unless he or she is registered in that category. Section 18(3) of EPA indicates that a person may practise in a consulting capacity in the category in which he or she is registered. Section 18(4) of EPA clarifies that a person who is registered in the category of candidate must perform work in the engineering profession only under the supervision and control of a professional of a category as prescribed.

Section 19(2)(b) of EPA states that the Council must register the applicant in the relevant category and issue a registration certificate to the successful applicant in the prescribed form if, after consideration of an application, the council is satisfied that the applicant –

- (b) in the case of a person applying for registration as a candidate or a candidate in a specified category, has satisfied the relevant educational outcomes determined by the Council for this purpose, by –
- (i) having passed accredited or recognised examinations at any educational institution offering educational programmes in engineering; and
 - (ii) having passed any other examination that may be determined by the Council; or
 - (iii) presenting evidence of prior learning in engineering.

Section 19(3) clearly sets out the circumstances under which registration may be refused.

One of the most critical EPA provisions is enshrined in section 26. The provision is for ECSA to reserve certain engineering work exclusively for registered persons. The Council for the Built Environment (CBE) is responsible for identifying work based on ECSA's recommendations (Council for the Built Environment Act, 2000; Watermeyer & Smith, 2016). The CBE in turn is required to consult with the Competition Commission before doing so (Competition Commission, 2020). The Competition Act, 89 of 1998 permits the Competition Commission to exempt all or part of the rules of a professional association (including a statutory body) from the restrictive horizontal provisions of this Act if they substantially prevent or lessen competition in a market.

Section 26(3) of the EPA states that a person who is not registered in terms of EPA, may not –

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- (a) perform any kind of work identified for any category of registered persons;
- (b) pretend to be, or in any manner hold or allow himself or herself to be held out as a person registered in terms of EPA;
- (c) use the name of any registered person or any name or title referred to in section 18 or 21⁴; or
- (d) perform any act indicating, or calculated to lead persons to believe, that he or she is registered in terms of the EPA.

Section 26(4) then contradicts section 18(2) and subsection 26(3)(a) in that it may not be construed as prohibiting any person from performing work identified in terms of this section, if such work is performed in the service of or by order of and under the direction, control, supervision of or in association with a registered person entitled to perform the work identified and who must assume responsibility for any work so performed.

Candidate registration, needless to say, is a more complex and contested issue than it might seem. It is therefore important to look beyond a simple quantification and description of the registration challenge if ECSA is to better understand the issues and seek workable and realistic solutions.

In summary, ECSA is the statutory body for the engineering profession in South Africa, and its aims are to promote a high level of engineering education and training of practitioners, professionalism in the engineering profession and the interests of the profession in the country.

2. PROCESS FOR TRAINING ENGINEERING CANDIDATES FOR PROFESSIONAL REGISTRATION

The main stages in the development of an engineering professional are described in Table 1 and depicted partially in Figure 1 (ECSA, 2017b; ECSA, 2020d). This description applies to the development process between graduation with an accredited or recognised qualification and applying for registration as a professional. This period is bracketed by two important stages in the development of an engineering practitioner at which assessment takes place:

- Stage 1: *Meet the education requirements for registration in the category.*
- Stage 2: *Meet the professional competency requirements for registration.*

⁴Section 21 refers to the “authorised titles” that includes candidates.

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During this time, the person undergoes training and gains experience to develop the competencies required for registration. During this time, a person is normally registered as a candidate (ECSA, 2017b; Engineering Profession Act, 2000; ECSA, 2020e). A programme of training and experience designed to develop a person is called a *candidacy programme* or the *candidacy phase*. Therefore, a person working toward registration is referred to as a *candidate*. While training through a structured programme is the advised method of developing the competencies for registration, a person may not have registered as a candidate. When the candidate reaches the stage of applying for registration and during this process, the term *applicant* is used.

During the period of training⁵ and experience⁶, the person is in employment and works with and under the supervision of qualified engineering professionals (ECSA, 2017b; ECSA, 2020d). The training process may involve structured activities including induction and training courses on specific skills or technologies. The candidate also participates in self-initiated professional development activities, termed *initial professional development* activities.

Table 1: The Engineering Professional Lifecycle and Process of Professional Development (ECSA, 2017b; ECSA, 2020d)

The Engineering Professional Lifecycle and Process of Professional Development
<p>The benchmark engineering professional lifecycle has a number of stages:</p> <ol style="list-style-type: none"> 1: <i>School Education</i>: achievement of literacy, numeracy and a first level of mathematics, science and language proficiency. 2: <i>Higher Education</i>: completion of an accredited programme and the attainment of a required level of engineering education. 3: <i>Candidacy Phase</i>: a programme of training and experience that builds on the higher education qualification to develop the competencies required for registration. 4: <i>Practice as a Registered Person</i>: registration certifies that the person has demonstrated, through work performed, that he or she has satisfied the generic baseline competency standards for the profession and is permitted to practise and take responsibility for engineering work for which he or she is competent by virtue of education, training and experience. There is a recognition that the person's competence will grow with further experience. <p>The process of developing competency for registration normally proceeds in the above sequence. The educational requirement is fulfilled first. This step means that requirement for registration as a candidate is met. Registration as a candidate in the relevant category is</p>

⁵Training is a process of learning specific practical knowledge, skills, attitudes and values under the direction and supervision by competent persons. Training may be supported by formal courses and other learning activities such as conferences, seminars etc. The majority of training time is spent in engineering work (ECSA, 2017b).

⁶Experience is a process of gaining competence by active involvement in the work environment (ECSA, 2017b).

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strongly recommended.

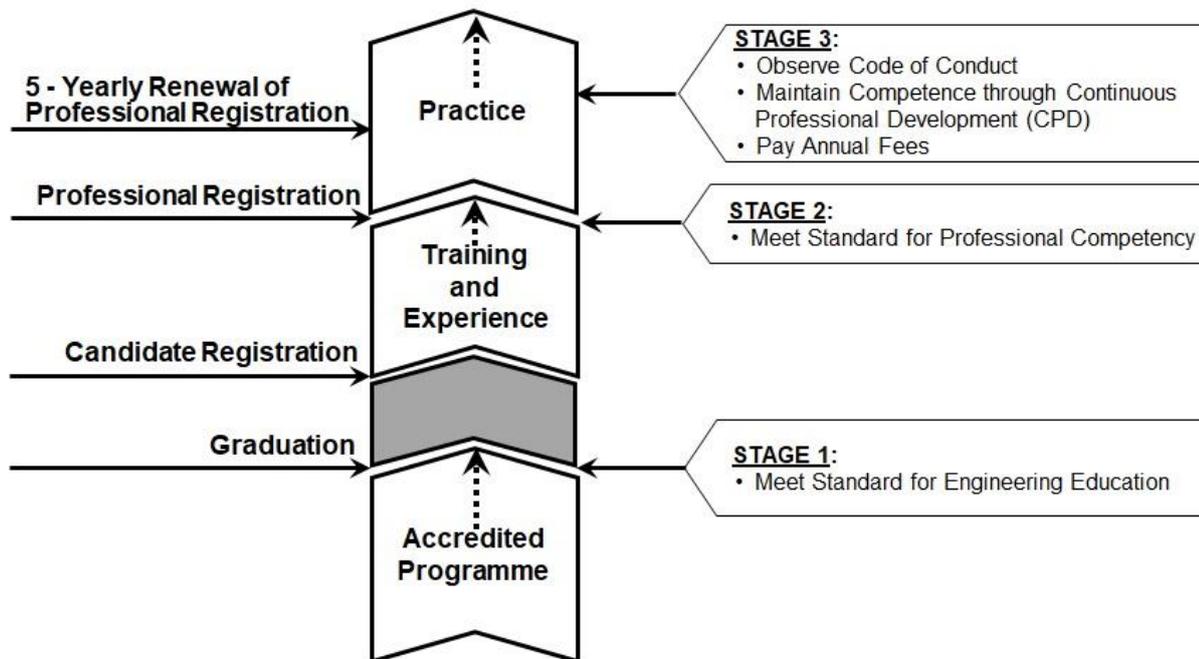


Figure 1: Professional Development Model (ECSA, 2020d)

A candidacy programme (ECSA, 2017b; ECSA, 2020e) is a framework for employers to plan and execute training towards registration in a professional category. A candidacy programme is one means of implementing a Commitment and Undertaking (C&U). A candidacy programme has the following components:

- The candidate is employed in a candidacy programme by the employer who provides the training and experience. The programme objective is for the candidate to become registered with ECSA in the appropriate candidate category.
- The competency standards generated by ECSA are used as workplace standards. They define the exit level outcomes of the training programme; the employer must define the process to build up competence to the required level. The employer must specifically refer to the workplace standards in its workplace skills plan. In addition, context-specific training guides generated by the sector may be used. These must not conflict with the generic competencies but rather provide amplification in the particular work context.

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- The employer provides supervisors internal to the company and a mentor who should preferably be internal but may be external. While supervisor and mentor may change from time-to-time, employers must ensure continuity of supervision and mentoring.
- Structured work experience is provided by the employer to the candidate. This work is managed using a standard format training record. The candidate's progress is assessed on an ongoing basis by supervisors and mentors, also using the Training and Experience Reports (TERs) for documentation.
- When the candidate is considered to be ready for professional registration, he or she applies to ECSA for professional registration. Evidence of competence is provided as required by ECSA, including the training record, called IPD (Initial Professional Development). ECSA performs the summative assessment of competence.
- Success in attaining registration is considered evidence of the quality of the training programme. The work-place learning programme is not subject to formal quality assurance.

Candidates are required to gain structured workplace training and experience with the support of a mentor (registered professional) at an employer over a period of usually 3–5 years against ECSA prescribed competency standards, as outlined in the R-02 series of documents (ECSA, 2020f) and summarised in section 5 of R-04-P (ECSA, 2017b). The focus of candidacy programmes is not attending courses but gaining work experience in a team delivering engineering solutions. As outlined in clause 7.1 of R-04-P (ECSA, 2017b), candidates should engage in a sequence of activities that may be the completion of a particular aspect of training or unit of work as shown as a development phase in Figure 2.

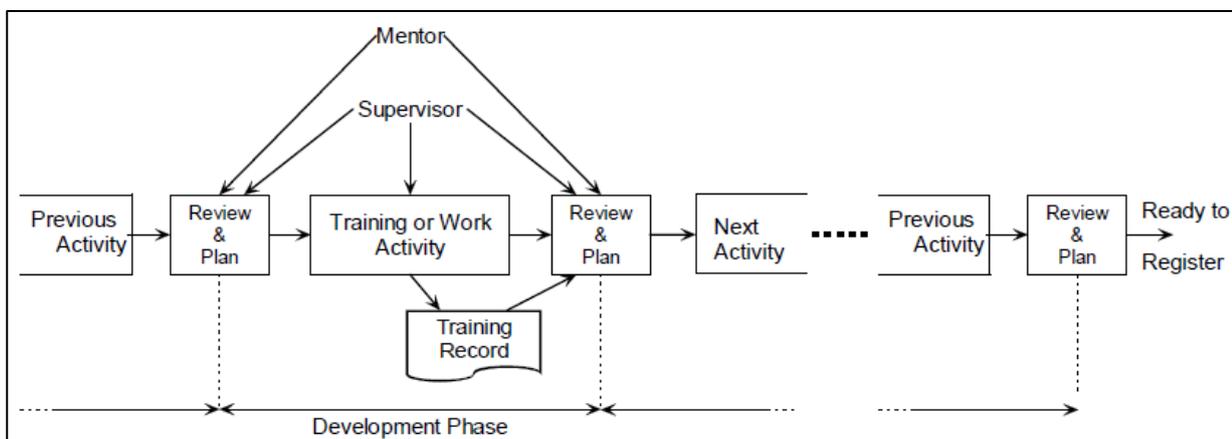


Figure 2: Main elements of the professional development process through a candidacy programme (ECSA, 2017b)

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Each of the development phases consists of the following sequenced activities:

- Planning
- Working in a team (including training)
- Recording and reporting
- Reviewing and assessing.

The training process is governed by standards, policies and procedures. For each of the development phases, the candidate, working with the supervisor and mentor, sets and documents the competency development objectives of the phase. At the end of the phase, they review the achievements of the just-completed phase against the objectives set for the phase. Objectives are then set for the next phase.

As outlined in clause 7.2 of R-04-P (ECSA, 2017b), the goal of the training process is to allow the candidate to develop his or her competency to the point of being able to demonstrate the outcomes at the required level on a sustained basis and to take responsibility for the work performed. Key players in the training of candidates are *supervisors and mentors*.

It is clear from the above that considerable onus rests on the employer to provide all the elements required to support candidates with training and experience towards professional registration (ECSA, 2017b). As outlined in section of 5.4.4 of policy document R-01-POL-PC (ECSA, 2020e), employers should enter into a C&U with ECSA. Under a C&U, the employer commits to train candidates to the standard required for registration in an identified professional category. In entering a C&U, the employer signifies the intent to:

- structure and execute training of candidates in accordance with the competency statements, policies and guidelines laid down by ECSA for the applicable category of registration
- ensure adequate supervision of candidates by registered persons
- register mentors with ECSA and ensure adequate mentoring of candidates
- provide regular guidance to the candidates through competent supervisors and mentors.

The benefit to the employer is the development of professionals in the shortest possible time after graduation, thus increasing the organisation's capacity and ability to attract high calibre graduates.

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A candidate in early years in the working environment would need to undergo a period of training and obtaining experience (ECSA, 2017b). This experience aims to further develop the abilities to investigate and analyse engineering problems, design solutions, take responsibility for actions and apply sound engineering judgement in making decisions in their candidacy phase. A candidate must prove that he or she is constantly improving his or her knowledge in their area of competence in that he or she must have sufficient exposure in the engineering industry environment and prove that he or she has taken part in a structured mentoring programme under the guidance of competent mentors (preferably registered with ECSA). During this period of candidacy, a candidate undergoes sufficient training and gains experience in the workplace to develop the competencies against the 11 outcomes required for professional registration (ECSA, 2020e).

Professional competence refers to having the attributes necessary to perform the activities within the profession to the standards expected in independent employment or practice (ECSA, 2017b; ECSA, 2020d; ECSA, 2020e). The EPA uses a competency-based approach to registration in that “Council must register an applicant in a professional category who has demonstrated competency against standards that it has determined for the category.” This statement embodies the notion of standards of competency and demonstration of competency (ECSA, 2020e).

A candidate would typically begin with little to no responsibility. During this time, focus would be on development and being exposed to the engineering world, while being mentored, supervised and assisted by senior professionals in the workplace. Following this period, the level of responsibility gradually increases to actively participating and contributing to the work, until they start taking responsibility for specific roles in the workplace, while under a low amount of supervision from senior professionals. The final phase of development into a professional occurs when the graduate undergoes a period of performing independently with little guidance from senior professionals. The training progression referred to is summarised in Table 2.

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Table 2: Training Progression (ECSA, 2020d)

Level	Nature of work	Responsibility	Level of support
A: Being exposed	Induction/Observes	None	Explains challenges/solutions
B: Assisting	Performs under close supervision	Limited for work output	Coaches and feedback
C: Participating	Performs under limited supervision	Full for supervised work	Progressively reduces support
D: Contributing	Performs with approval of work output	Full to supervisor for quality of work	Candidate articulates own reasoning and compares
F: Performing	Works without supervision	Full appropriate for a registered person	Candidates takes on without support/limited guidance

For each of the ECSA 11 outcomes (ECSA, 2020e), a candidate must begin their learning curve as an observer of a senior professional. The candidate should start working under full supervision and then gradually work independently. It is important to note that the period provided by ECSA for each of the responsibility levels should be adhered to at all times. This provides the candidate with the utmost power to develop his or her skills in the engineering field.

To ensure that candidates achieve the level of competence required for professional registration in as short a time as possible, employers should provide candidates with appropriate structured training and relevant experience and should provide for regular interaction between candidates and their mentors to plan and monitor progress. The level of commitment on the part of the candidate, mentor and employer towards achieving the required competencies generally determines the rate of progress towards professional registration. To this end, it is expected that employers and mentors sign a C&U with ECSA as an expression of their intent to train candidates towards professional registration in an optimum manner and duration (ECSA, 2017b).

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3. TRENDS THAT PRECLUDE ENGINEERING CANDIDATES FROM OBTAINING RELEVANT CANDIDACY TRAINING FOR PROFESSIONAL REGISTRATION

Researchers (Rooplall, Marnewick & Pretorius, 2016) have established some of the reasons why a candidate does not develop into a professional:

- Insufficient training during candidate's studies at tertiary level.
- Having supervisors and managers who do not support the candidacy once they are in the working environment (no active mentoring).
- Having mentors that are not well versed or intimate with the requirements of ECSA's new registration system.
- Companies not registering a C&U (ECSA, 2017b), which assists with a company specific training programme to address all the requirements of registering as a professional.
- A lack of personal self-leadership morals, ethics and values in the candidate.
- Not being exposed to the correct platforms to work on, to harness their natural strengths and develop their weaknesses to enhance the skills.

A large number of candidates are not getting the basic supervision and mentorship they require from older professionals to help them develop into professionals. Candidates usually lack the required experience and the level of responsibility that is needed to achieve professional registration on their own (Rooplall, Marnewick & Pretorius, 2016).

4. ECSA CANDIDATE STATUS

4.1 Candidate status from 2015 to 2019

Information on registered persons by registration status is depicted in Figure 3, while registrations/cancellations by year grouped by status are depicted in Figure 4. The number of registered candidates per discipline is shown in Figure 5.

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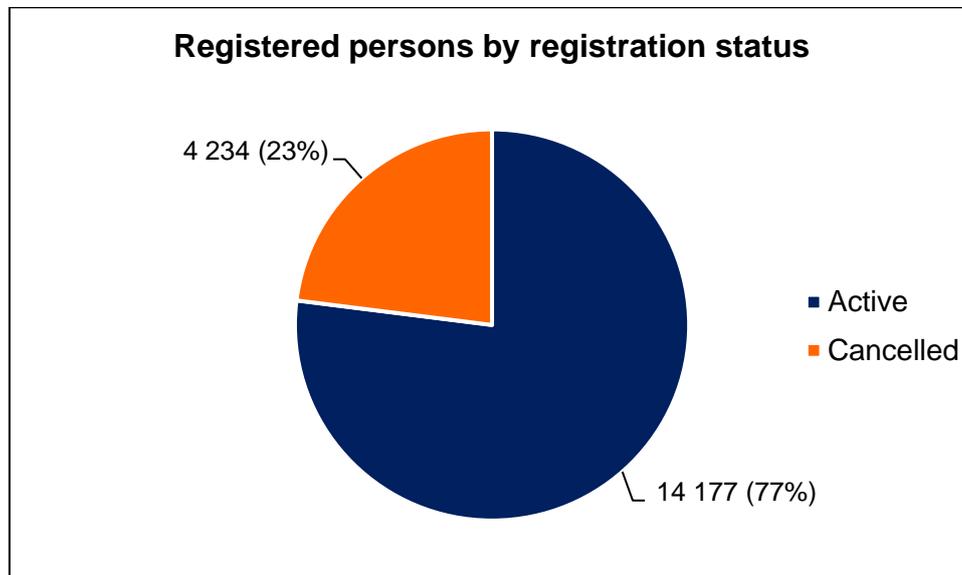


Figure 3: Registered persons by registration status

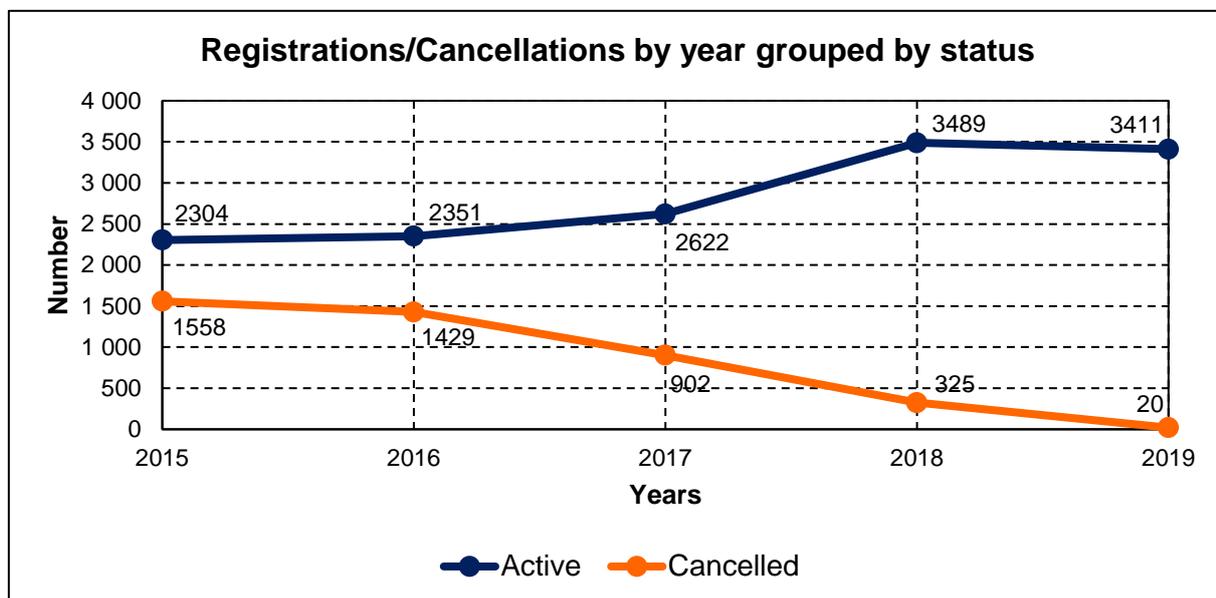


Figure 4: Registrations/Cancellations by year grouped by status

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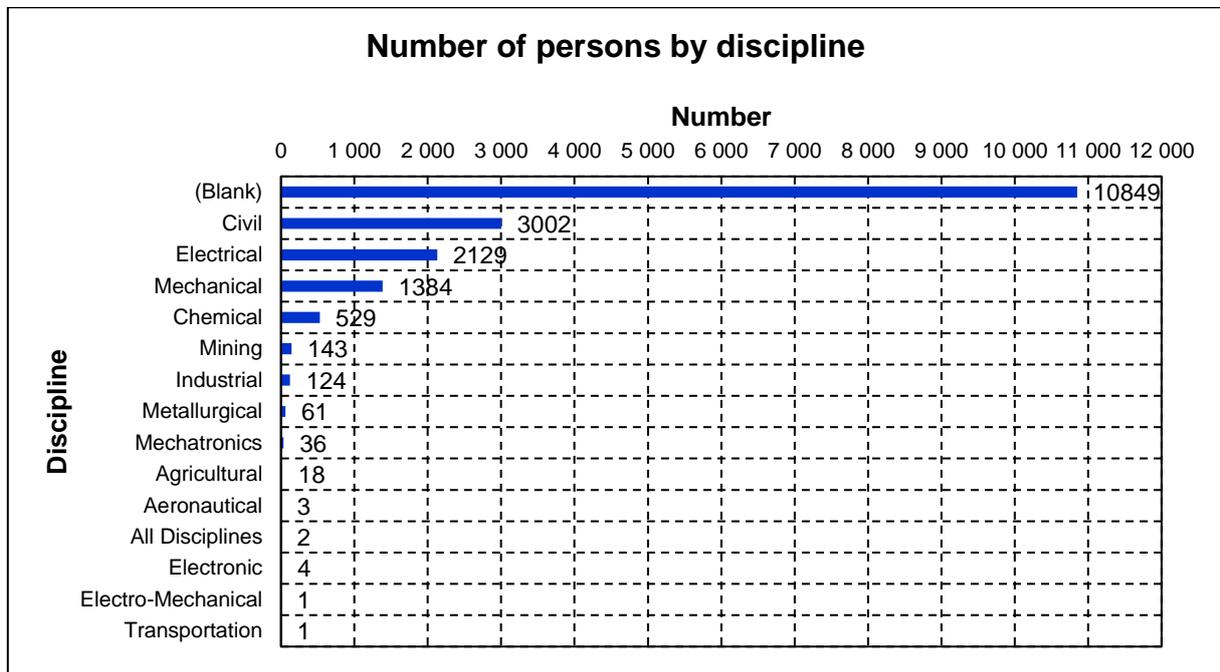


Figure 5: Number of persons by discipline

4.2 Candidate statistics per discipline

Information on registrations by year is depicted in Figure 6, while registrations by category are depicted in Figure 7.

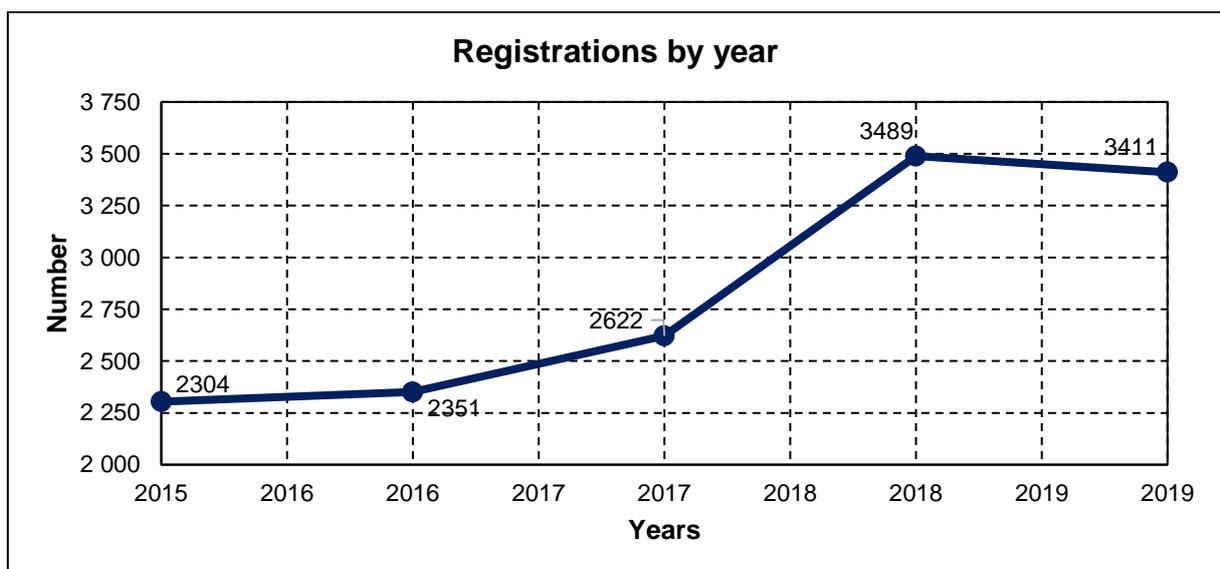


Figure 6: Registrations by year

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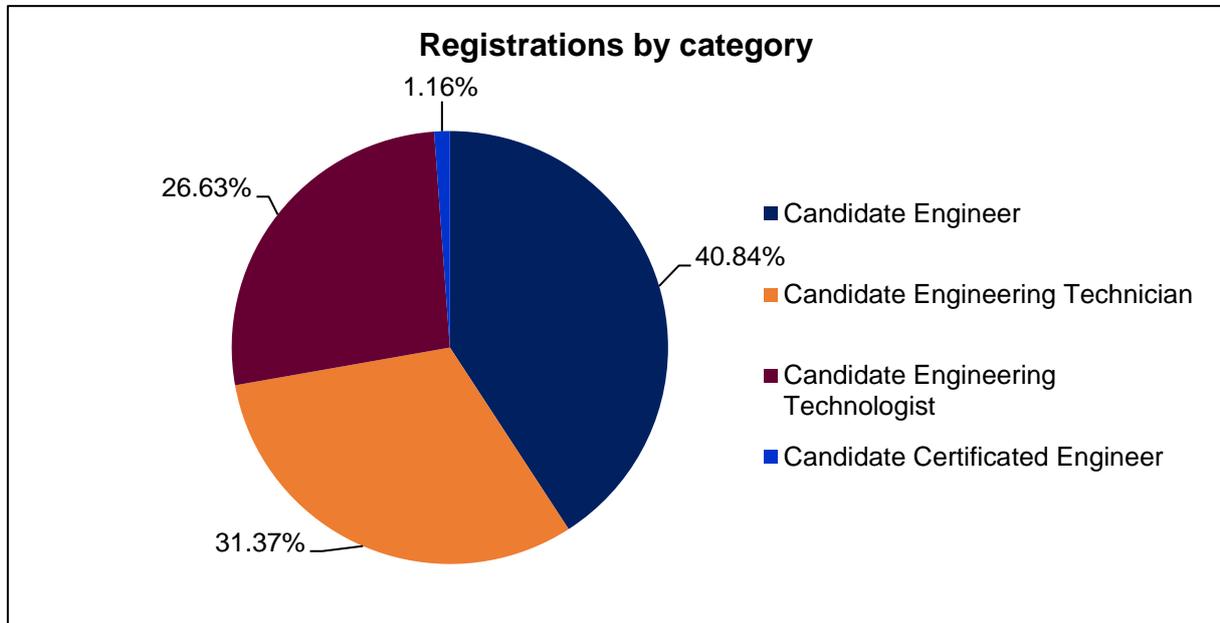


Figure 7: Registrations by category

4.1 Cancelled candidates 2015–2019

Information on cancellations per year is depicted in Figure 8, while cancellations by category are depicted in Figure 9.

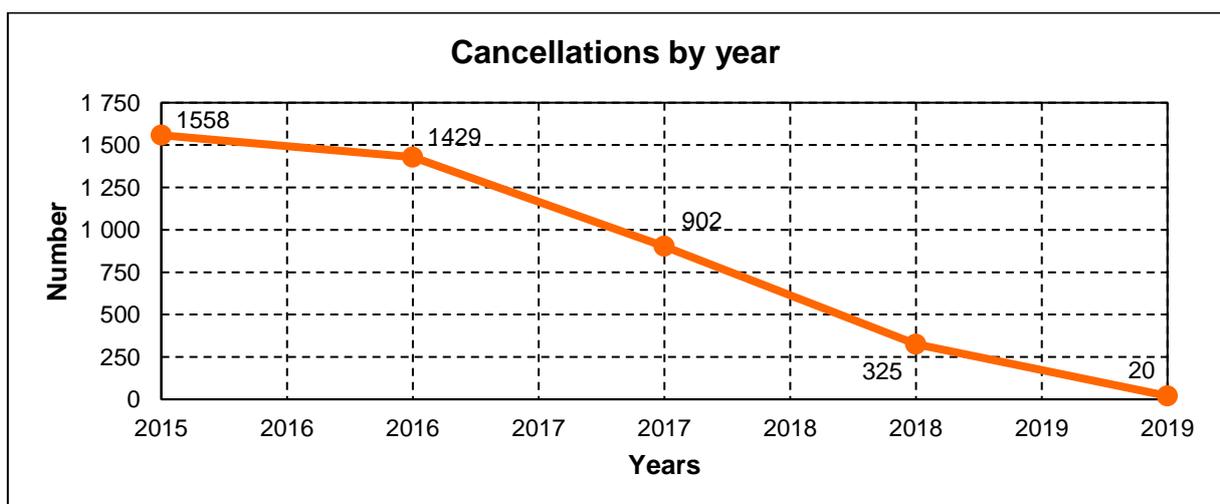


Figure 8: Cancellations by year

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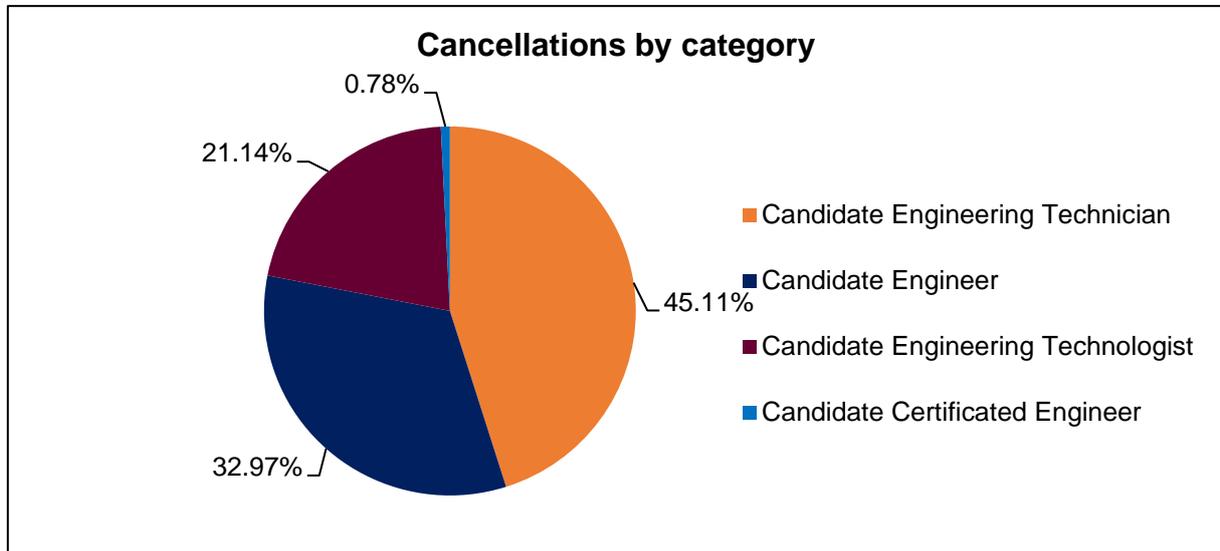


Figure 9: Cancellations by category

5. PROBLEM STATEMENT

It is important to note that registration with ECSA remains voluntary (Du Toit & Roodt, 2009) as stipulated in section 26(4) of the EPA. Thus, engineering practitioners can practise without being registered either as candidates (subsection 18(1)(b) of EPA) or as professionals (subsection 18(1)(a) of EPA) with ECSA. However, registration is required to perform certain engineering work as per section 18(2) and subsection 26(3)(a) of the EPA. Over the years, there has been a decline in ECSA candidate registration as well as cancellation of those already registered as candidates (Du Toit & Roodt, 2009; ECSA, 2019a; n.d.). Thus, this research study proposes strategies that ECSA can implement to retain candidates and encourage (attract) graduates to register as candidates.

6. OBJECTIVES OF THE RESEARCH STUDY

The primary objective of the research study is to determine mechanisms for retaining candidates and encouraging graduates to register as candidates.

The research is guided by the following sub-objectives:

- Identification of the reasons from graduates of non-registration as candidates.
- Identification of the reasons from candidates of their cancellation/deregistration.

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- Attraction of graduates to register as candidates.
- Proposal of a framework and firm recommendations for retaining the candidates.
- Proposal of a strategy that will attract, motivate, encourage and incentivise candidates.

This research study is by no means an exhaustive exercise to deal with the issues related to professional registration.

7. RESEARCH QUESTIONS

The eight research study questions posed to the candidates were as follows:

Question 1: What was the primary reason for you cancelling your candidate registration?

Question 2: What are the appropriate mitigating measures that ECSA can implement to retain you as a candidate?

Question 3: What benefits can ECSA introduce to incentivise the candidate status?

Question 4: What journey to registration support can ECSA offer additional to the road to registration presentations?

Question 5: How can ECSA assist to bridge the gap in the candidacy period? What kind of support can ECSA provide to a candidate who is not making progress, more specifically considering availability of complex projects, the rate of unemployment and the availability of new registration system (NRS) knowledgeable mentors?

Question 6: Are you as a candidate that is ready for applying for professional registration assisted in completing your submissions in the workplace?

Question 7: What kind of support can ECSA give to a candidate who has gained relevant experience overtime?

Question 8: What are the appropriate mitigating measures that ECSA can implement to attract graduates to register as candidates?

To shape the proposed mitigating measures, five questions posed to ECSA via email are as follows:

Question 1: What does ECSA currently offer candidates and how can these offering be improved?

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Question 2: What is the current status and plans to upgrade the C&U because it is modelled around the legacy system?

Question 3: What benefits can ECSA introduces to incentivise companies to register a C&U?

Question 4: How should the link between ECSA and industry look like so that it can be aligned?

Question 5: Why did ECSA increase candidates' fees to be the same as professional fees after 6 years?

The research study questions posed to the five Councils⁷ within the Built Environment are as follows:

Question 1: How is your candidacy phase work programme structured?

Question 2: How is the candidacy phase work programme monitored to ensure professional registration readiness?

Question 3: What is your candidate retention strategy (ie how do you ensure that candidates stay motivated and remain registered on the system until professional registration)?

8. DESIGN AND METHODOLOGY

This research study combined quantitative, qualitative and documentary research, with the aim of both quantifying and understanding the nature of the candidate registration challenges and identifying possible approaches to improving candidate registration that are systemic in nature while remaining sensitive to context. Registered candidates and the ECSA registration department were selected to provide responses to the research questions. Data from candidates was collected via the online interviews (via Microsoft Teams⁸) of over four sessions of 1 hour and 30 minutes each, in which the eight structured research questions (mentioned in section 7) were used. Sessions 1, 2, 3 and 4 had respectively 89, 99, 177 and 262 attendees. A quantitative analysis was then done from the eight structured questions, including the five questions asked of ECSA's registration department via electronic mail (email). To enhance the content and quality of the

⁷ECSA is one the six statutory Councils within the Built environment that are overarched by the Council for the Built environment (CBE) under the custodianship of the department of Public Works and Infrastructure.

⁸Microsoft Teams is a proprietary business communication platform developed by Microsoft, as part of the Microsoft 365 family of products. Teams offers workspace chat and videoconferencing, file storage, and application integration (Microsoft Teams, 2020).

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research study, comparison with other South African regulatory professional bodies that are overarched by CBE was a necessity.

9. LIMITATIONS OF THE RESEARCH STUDY

The study was limited to the candidates in the built environment in the South African context in which comparison was made with the five Councils within the Built Environment overarched by CBE.

10. GATHERING OF DATA APPROACH

10.1 Data from interviews with the candidates

Data gathered via the workshop conducted via the digital platform in terms of the eight research study questions is summarised as follows:

Question 1: What was the primary reason for you cancelling your candidate registration?

Answers from the industry engagement

- Annual fees are too high. Candidates gave several reasons for being unable to afford the fees:
 - Lack of funds due to:
 - Retrenchments
 - Unemployment
 - Employers not paying for the candidate.
- Restriction for being a member of the profession as a professional as opposed to a candidate.
- Support from ECSA for being a candidate.
 - Candidates expressed that ECSA is only interested in sending an invoice every year.
 - ECSA staff are unreachable; they do not respond to emails or answer phone calls (candidates are frustrated).
 - The candidate category does not add value in terms of contributing to the industry.
- Registration does not carry weight in terms of career progression. Candidates gave several reasons to support this challenge:
 - Availability of mentors.
 - Mentors are not registered, as such they do not know the requirements for registration.

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- Mentors are unavailable to monitor the candidate's progress towards achieving the outcomes.
- Mentors are unavailable to review and ensure that what is written in the report and how it is written are correct.
- Experience that is relevant to address some of the outcomes is unavailable.
 - Examples of relevant experience mentioned were design and construction experience.
 - Candidates also mentioned they could see they do not and cannot meet the requirements for professional registration and ECSA does not guide candidates through the process but expects candidates to be able to register professionally at the end of the candidacy phase that ECSA has recently limited to maximum 6 years.
 - The type of work done is repetitive in nature.
- ECSA does not accommodate academic practitioners (lecturers). Candidates indicated that there are no clear requirements for academic practitioners.
- Municipalities do not recognise ECSA, as such they do not have a budget for annual and registration fees.
 - Municipalities only recognise the town planning council.
 - In municipalities, candidates do not do designs (complex problem solving), as such the generic list of requirements is not working for candidates employed in municipalities.
- There are no mentors and referees in the railway industry.
- Candidates cannot afford the cost of reviewing the application. Some said it costs between R8 000 and R10 000.
- Candidates' annual fees increase after 6 years. Candidates asked why the fees could not stay the same until you register as a professional.
- The C&U in companies is modelled around the legacy system, as such seniors have no knowledge of the requirements of the new registration system (11 outcomes).
- Gathering of Continuous Professional Development (CPD) points; candidates are not aware of the difference between CPD and IDP.

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Question 2: What are the appropriate mitigating measures that ECSA can implement to retain you as a candidate?

Answers from the industry engagement

- ECSA can offer support to the candidates. Examples of the support ECSA can offer are listed below.
 - ECSA needs to be more active on all social media platforms.
 - ECSA can regularly post YouTube videos and host workshops to explain the 11 outcomes. The presentations can be circulated to candidates via email using the candidate database. Candidates mentioned that the Voluntary Associations (VAs) are doing more for candidates than ECSA.
 - ECSA can be active on social media platforms e.g. LinkedIn, Twitter and Facebook.
 - ECSA can interact with the candidates e.g. through competitions.
- ECSA should proactively reach out to each candidate annually and help candidates expedite their path to registration (more critical for candidates who have been registered as candidate for more than 4 years).
- ECSA should implement a centralised system/platform or provide a database on the ECSA website of accessible mentors per category and discipline; ECSA can pay the mentors.
 - Mentors should also review and verify what the candidates write in the reports.
 - ECSA should register a programme that candidates can follow for training.
- ECSA should create a path that will recognise academic work with no industry exposure.
- Documents are not easy to understand. Candidates mentioned that:
 - the outcomes are not clear
 - ECSA should create a check sheet that candidates can use to self-assessment against the 11 outcomes
 - ECSA should allow candidates to self-assess their progress via a track and trace system
- ECSA could create alternate pathways for candidates to meet the 11 outcomes; many industries in the profession do not fit into the current 11 outcomes.
- Payment of annual candidates' fees could be every 3 years instead of paying fees annually (candidates mentioned that this would be discouraging if you do not have progress).

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Question 3: What benefits can ECSA introduce to incentivise the candidate status?

Answers from the industry engagement

- Companies are using candidates as professionals but pay them as graduates, as such ECSA can protect candidates against such unfair practices.
- ECSA can introduce an online helpline system/platform where candidates can submit what they have done and ECSA can nominate mentors to review and verify the work.
- ECSA can reduce registration fees.
- ECSA can organise discounts for technical courses that candidates can attend to build their competence and fulfil IPD requirements.
- The key benefit for registering as candidate must be ECSA creating a network of other professionals so candidates can enhance their competence through knowledge transfer.
- ECSA should visit companies and government departments to communicate why registration is important and make registration compulsory.
- ECSA can encourage active mentorship that allows candidates to submit annual reports for ECSA to access and review their progress.

Question 4: What journey to registration support can ECSA offer additional to the road to registration presentations?

Answers from the industry engagement

- ECSA presence online and a community where candidates can interact with registered professional (questions and answers sections).
 - This will also afford registered professionals CPD points for mentoring.
- A database of ECSA outsourced mentors who are available online to assist with mentorship (mentors that understand the requirements as per the new registration process).
 - ECSA to offer discounts to registered professionals that mentor candidates.
- ECSA to collaborate with universities for CPD course, workshop and offer discounts for registered persons (both candidate and professional).
- The biggest stakeholder is employers; the employer must have its clearly defined role to assist candidates with their journey to professional registration.
- The turnaround time is too slow; responses from ECSA take too long so candidates are stuck.

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- Road to registration is one sided; not all disciplines are represented to cover design experience requirements.
 - Road to registration can be put online and candidates can be accepted in staggered stages, ie ECSA should not wait until all 11 outcomes are achieved, but rather when the applicant has achieved, for example outcomes 1, 2 and 5, that information can be assessed and recorded by ECSA (in cases where it is acceptable) and later when the other outcomes are achieved, the same process be applied until all the 11 outcomes are achieved.
- The process and documents for registration are not clear.
 - ECSA can clarify the requirements via online workshops.
 - ECSA can relook at the standards and the discipline specific guidelines.
 - ECSA should offer online presentations that explain how to write the TERs and the Engineering Report (ER).

Question 5: How can ECSA assist to bridge the gap in the candidacy period? What kind of support can ECSA provide to a candidate who is not making progress, more specifically considering availability of complex projects, the rate of unemployment and the availability of new registration system (NRS) knowledgeable mentors?

Answers from the industry engagement

- ECSA can recognise projects done outside of employment; eg research done when the applicant is working for a company on voluntary basis.
- Set up working relations with mentors that can help candidates work in-house for companies and create access to government to fund these companies through incentives like tender adjudication, CPD points, discounted annual registration and grants.
- Graduate training programmes are not structured well to address the outcomes; employers should get the programme accredited by ECSA.
- Funding for employers to assist candidates to register (state contribution).
- ECSA to push for government support that will afford candidates opportunities and exposure to complex engineering problems.
- ECSA to make it mandatory for companies to assist candidates and by the time the programme ends, the candidate should be ready to register as a professional.

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- ECSA can visit companies to share the requirements and look into candidates' challenges.
- ECSA can incentivise companies to ensure candidates register quickly.
- ECSA should collaborate with the VAs.
 - ECSA should consider placing candidacy programmes under VAs because VAs offer solid candidacy support.
- Road to registration should be the first step on the journey and then it should be followed up with other presentations that clarify the requirements in detail.
- ECSA should introduce the requirements for registration immediately after graduation.

Question 6: Are you as a candidate that is ready for applying for professional registration assisted in completing your submissions in the workplace?

Answers from the industry engagement

Candidates mentioned the following challenges:

- The seniors are not registered.
- They do not receive any assistance and support.
- There are no mentors that are knowledgeable on NRS.
- Public sector has no support; it outsources the support.
- I have attended the course on the road to registration for mature candidates twice. The after service is required to fit 20 years of experience into the required format, understanding what is requested and presenting oneself in a manner that is acceptable for the professional registration review process. This comes from private people (not on the directive of ESCA) who offer the Road-to-Registration courses privately and most of them, if not all, are not aware of the new updated ESCA documents/policies and the NRS of 2016. The course provided still refers to what was once called, "the old-man's clause", which stated that if the person has 20 years' experience they can register in the relevant professional category.

Question 7: What kind of support can ECSA give to a candidate who has gained relevant experience overtime?

Answers from the industry engagement

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- Candidates indicated that they struggle to understand what is required in the application form.
 - Candidates mentioned that the registration process is not transparent.
- ECSA can create an online registration forum that can review registration documentation and assist with enquiries.
- ECSA can conduct workshops on how to fill in the application form.
- ECSA can afford struggling candidates an opportunity to register under Sectoral Education and Training Authorities (SETAs) to ensure that the requirements are adequately met.
- ECSA can assist candidates that do not have registered referees and mentors.
- Government is not keen on ECSA registration (ECSA to verify this).

Question 8: What are the appropriate mitigating measures that ECSA can implement to attract graduates to register as candidates?

Answers from the industry engagement

- ECSA can collaborate more with education institutions and government plans.
- ECSA should convey the seriousness of being registered.
- ECSA should be part of the curriculum at universities.
 - ECSA should collaborate with lecturers in universities and create synergy.
 - Universities should encourage graduates to register as candidates.
- ECSA should identify engineering companies that encourage professional registration and incentivise them with awards to encourage other companies.
- ECSA should communicate the benefits and importance of registering both as candidate and as a professional.
- ECSA should host workshops at universities to promote registration.

General comments

- What benefits does ECSA offer for being candidate?
 - If graduates can register without being a candidate, what are the benefits of being a candidate?
 - ECSA must communicate the benefits of being registered as a candidate.
 - ECSA should get feedback on candidates' progress and development annually.

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- Candidates mentioned that in the private sector they see no tangible benefits to being part of ECSA.
 - What are the incentives for registration as candidate, what is ECSA's plan?
- Candidates mentioned that the biggest challenge is funding.
- Turnaround times for both candidate and professional registration is too long.
- ECSA does not answer the telephone or respond to emails.
 - ECSA must answer as fast as possible (answering an email is not complex).
- ECSA as an arm of the government can institute changes that will assist candidates to register.
 - Candidates asked what is ECSA plan to transform the statistics?
- Employers do not know what ECSA is about.
- For the ER, candidates cannot use projects older than 3 years.
- ECSA to instil respect for the profession.
- ECSA to create a platform for candidates to ask questions and get answers from registered persons.
- Lack of communication from ECSA; ECSA should use email as the preferred communication mode.
- Candidates mentioned that perhaps the candidate category could be free.
- In cases where the candidates do not have complex problems, ECSA can maybe set up an examination to test the candidate's knowledge.
- Candidates do not understand the difference between ECSA and the VAs. In addition, Candidates think ECSA can help with employment.
- Candidates think that you cannot register without a C&U.
- ECSA should create networking opportunities.
- ESCA can establish an email for candidates to further comment on this workshop and ECSA can consolidate the feedback for the roadmap.
- Candidates would like a follow-up meeting that gives feedback on what ECSA is going to do about the feedback given during this workshop.
- The ECSA website is not user friendly.

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- Mentors are not incentivised.
- Fees for candidates are not sensitive to what the candidates do; the rate is too high.
- ECSA to communicate the registration process for the international register.
- What is the replacement for the C&U from the legacy system?
- Candidates shared that other colleagues who have gone for interviews shared the following undesirable occurrences:
 - The reviewers did not have relevant experience, meaning they are not well-versed in the candidate's area of competence.
 - The reviewer was my previous classmate.

10.2 Data from the answers by ECSA

Data gathered via the five research study questions posed to ECSA is summarised as follows:

Question 1: What does ECSA currently offer candidates and how can these offering be improved?

Answer received from ECSA via email

ECSA offers candidates through their employers C&U and road to registration presentations to assist them with the steps towards professional registration. To guide their mentors on how to provide relevant mentorship against the outcome-based assessment, Mobile ECSA via their employer is also offered. ECSA also offers Mobile ECSA via the organisations/employers who have candidates that are eligible to apply where ECSA screens their submission for readiness prior to formally submitting their applications to the ECSA for professional registration. This is continuous improvement of ECSA's proactive approach to enhance the quality of applications for professional registration.

Question 2: What is the status and plans to upgrade the C&U because it is modelled around the legacy system?

Answer received from ECSA via email

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The plan is to eventually substitute C&U or replace it with the Academies concept⁹ instead of improving it, as this concept seems to be more effective in terms of ECSA's practical participation during a graduate's candidacy stage.

Question 3: What benefits can ECSA introduce to incentivise companies to register a C&U?

Answer received from ECSA via email

The benefit for companies to register as Academies is ECSA's participation in collaboration with the employer to ensure relevant and adequate exposure of candidates to the relevant training and experience from the very first year after graduation. This will be done through certifying the training courses the Academy offers to graduates, by endorsing that Academy, and by annual incremental submission of training and experience reports, which will be assessed by the ECSA accredited assessors, where progression of candidates will be monitored closely and guidance on any deficiencies pointed out at the earliest opportunity. This will result in quick registration once the candidate has been adequately exposed to all the relevant experience against the 11 competence outcomes.

Question 4: How should the link between ECSA and industry look like so that it can be aligned?

Answer received from ECSA via email

ECSA would like to be very accessible to the industry by collaborating or participating as much as possible in all industry endeavours in the engineering profession. This will be through Memorandum of Understandings (MoUs) with institutions of higher learning and by aligning education with industry expectations. Assessment and registration of engineering practitioners in public and private sectors for effective regulation of the profession is key. ECSA would like to be at the lead as an advisor on national and global engineering platforms as far as the engineering sector is concerned.

Question 5: Why did ECSA increase candidates' fees to be the same professional fees after 6 years?

Answer received from ECSA via email

⁹The idea of the Academy is to up skill the Engineering Profession and address the Scarce and/or Critical Skill shortage in the country, by ensuring appropriate training is given at the correct level (ECSA, 2017a).

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This is a way of encouraging progression in development of a candidate to a professional stage. ECSA believes that 5 years as a candidate is more than adequate in all sectors of industry, across all disciplines for a candidate to have successfully progressed from candidacy/engineering practitioner in training to a person who is eligible for professional registration/endorsement of the engineering practitioner.

10.3 Data from the answers by the five Councils within the Built Environment

Data gathered via the three study research questions posed to the other five Councils within the Built Environment overarched by the CBE is summarised as follows:

South African Council for the Architectural Profession (SACAP)

Question 1: How is your candidacy phase work programme structured?

Answer received from SACAP via email:

The SACAP candidacy phase work programme is structured over 2–3 years. All registered candidates have to complete a period of structured practical training in a professional practice before being allowed to write an examination to register as professionals. SACAP sets the requirements for the completion of the candidacy phase, the submission and the approval of monthly training records so that candidates can write the Professional Practice Examination.

Question 2: How is the candidacy phase work programme monitored to ensure professional registration readiness?

Answer received from SACAP via email

The training of candidates takes place under the supervision of a registered professional who is in good standing with the SACAP. The training has been structured to place progressively more responsibility on candidates ensuring they are capable of applying academic knowledge to practice and making and executing professional decisions.

In the event the candidate experiences difficulties with the training, they should attempt to resolve the issues with their employers and/or mentors. The submission of monthly training records must be approved by the employer/mentor before being submitted to SACAP and should reach SACAP by the end of each month.

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Basically, candidates have to submit monthly, which in most cases they are doing; if a candidate does not submit, the problem would be addressed and so far, there has been no such issue.

Question 3: What is your candidate retention strategy (i.e. how do you ensure that candidates stay motivated and remain registered on the system until professional registration)?

Answer received from SACAP via email

Employers/mentors are morally obliged to assist candidates to obtain the required breadth of training by providing opportunities for a variety of experiences and by actively imparting knowledge. The employers/mentors should verify and sign-off on the monthly training records, submitted online by the candidate, indicating that they agree with the nature and level of work performed and the competence displayed by the candidate.

South African Council for the Landscape Architectural Profession (SACLAP)

Question 1: How is your candidacy phase work programme structured?

Answer received from SACLAP via email

Candidates must attend a compulsory Candidate Workshop at least once during their candidate period.

Question 2: How is the candidacy phase work programme monitored to ensure professional registration readiness?

Answer received from SACLAP via email

Candidates are expected to have a mentor who undertakes to mentor them during the candidacy programme. Candidates have to maintain a logbook that is signed by their mentor. The logbook is submitted at least once a year.

Question 3: What is your candidate retention strategy (ie how do you ensure that candidates stay motivated and remain registered on the system until professional registration)?

Answer received from SACLAP via email

SACLAP does not really have a Candidate Retention Strategy.

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South African Council for Project and Construction Management (SACPCMP)

Question 1: How is your candidacy phase work programme structured?

Answer received from SACPCMP via email

The structured candidacy programmes within Council are those funded by the Construction Education and Training Authority (CETA¹⁰). All candidates must cover all the deliverables during the training and their mentors must sign off their logbooks before they can be submitted for evaluation.

Question 2: How is the candidacy phase work programme monitored to ensure professional registration readiness?

Answer received from SACPCMP via email

The registered candidates must submit the logbooks on an annual basis for the purpose of annual evaluation. Candidates are reminded through a notice to submit their logbooks every year. The period of annual submission varies according to when the candidate was registered. The purpose of the annual submission of logbooks is to track the progress of their training and candidates receive the feedback which details which areas need attention. The feedback is helpful for both the candidates and their mentors.

Question 3: What is your candidate retention strategy (i.e. how do you ensure that candidates stay motivated and remain registered on the system until professional registration)?

Answer received from SACPCMP via email

SACMPCMP does not have a candidate retention strategy but is in the process of developing one.

¹⁰CETA is a Schedule 3A Public Entity established in April 2000 in terms of the Skills Development Act, 1997 (Act No. 97 of 1998) to ensure accredited training and skills development in the construction sector.

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South African Council for the Property Valuers Profession (SACPVP)

Question 1: How is your candidacy phase work programme structured?

Answer received from SACPVP via email

Candidate valuer categories:

- (a) *Candidate Valuer 222*: First year Students who are undergoing their first-year studies. They are awarded a 1-year certificate.
- (b) *Candidate Valuer 221*: Second/third year students, who are still undergoing their studies. They are awarded a 1-year certificate.
- (c) *Candidate Valuer 220*: Students who have completed studies. They are awarded a 5-year certificate.
- (d) *Candidate Valuer 210*: Candidates who have been registered for more than 5 years. Their membership may be cancelled anytime. Candidates with slow progress (more than 5 years of studying), those who have not completed their studies and are non-compliant to the registration requirements; but their names still appear in the Council's registration database.
- (e) *Candidate Valuer 236*: These are people who are registered as candidates as single residential property assessor, they only specialise in one specific area of valuation.

NB: To qualify to register as a candidate valuer, a candidate needs to be registered at an accredited higher learning institution recognised by the Council.

Question 2: How is the candidacy phase work programme monitored to ensure professional registration readiness?

Answer received from SACPVP via email

- For 221, 222 and 210, it is through their certificate of registration which is awarded for a period of 1 year. When the certificates expire, candidates are required to renew them for another financial year by submitting proof of enrolment including transcripts and proof of payment for the annual fee.
- The Council encourages students to register for candidacy programme in their first year of enrolment at a recognised higher learning institution. This enables them to undergo their practical learning under the supervision/mentorship of a registered professional.

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- A candidate valuer remains a candidate until they have passed the professional valuation examination.
- The candidate is required to have completed their practical schoolwork before they can apply to write the professional valuation examination. They are also required to submit their valuation report with the letter from their mentor to confirm that all valuations submitted were performed under the supervision of a registered professional mentor or a professional valuer.
- Candidates are required to attend the preparatory workshop to prepare them for the board examination, but not compulsory like the practical schoolwork.

Question 3: What is your candidate retention strategy (ie how do you ensure that candidates stay motivated and remain registered on the system until professional registration)?

Answer received from SACPVP via email

- To retain their candidates, those who have been registered for less than 5 years are offered a lesser annual fee, and those who remain in the same category for more than 5 years are penalised with a higher annual fee.
- The Council was planning to launch a youth desk (social podium/helpdesk) to monitor and administer candidate challenges but has since been delayed due to the Covid-19 pandemic and budgetary constraints.
- Previously they had a partnership with the Local Government Sector Education and Training Authority (LGSETA) whereby they were administering the internships process by allocating candidates in different municipalities to enable the candidates to gain practical learning.
- Registration with the Council is compulsory to practice as a Valuer in South Africa.
- The Council faces the same retention challenges as ECSA so its retention strategy is still in the pipeline.

South African Council for the Quantity Surveying Profession (SACQSP)

Question 1: How is your candidacy phase work programme structured?

Answer received from SACQSP via email

Potential applicants for registration need to check the routes to registration to see if they are academically eligible to register as a candidate Quantity Surveyor. The point at which the candidate is eligible to start the Assessment of Professional Competence (APC) depends on:

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- The candidate having completed a qualifying entry qualification.
- If the qualification is a SACQSP accredited.
- Whether the qualification is undergraduate or postgraduate (360 or 480 credits).
- If the candidate is a legal resident of South Africa.
- If the candidate has full-time suitable employment under the constant supervision of a PrQS or Member of the Royal Institution of Chartered Surveyors (MRICS) Chartered Surveyor.

The SACQSP registration department verifies all qualifications directly with the issuing academic institutions and confirms employment. Based on the registration committee's directives, the registration manager allocates the candidates' route to registration and issues the Candidate Registration Certificate with the registration number, the prescribed route to registration, indicating minimum workplace skills duration, any supplementary skill education required, plus the various reports to be submitted during the candidacy period. This document and certificate are both lodged electronically on candidates' profiles and are sent to the address provided. In addition, the candidate is registered on the on-line QS DIARY application.

Question 2: How is the candidacy phase work programme monitored to ensure professional registration readiness?

Answer received from SACQSP via email

As per the above route to registration, candidates are required to submit two reports during their candidacy under the supervision of a good standing Professional Quantity Surveyor (PrQS) plus additional supplementary examinations for those holding a qualification credit rated less than 480 (Honours). The portfolio submissions are in line with the registration route the candidate followed to register. The Council completely relies on mentors to ensure that candidates are exposed to all the construction competencies prior application to an APC.

Question 3: What is your candidate retention strategy (i.e. how do you ensure that candidates stay motivated and remain registered on the system until professional registration)?

Answer received from SACQSP via email

The registration committee did a survey a while ago to determine the cause of the high rate of de-registration and resignations among candidates. The main response was the *registration fees and lack of mentorship*. Consideration must also be given to the candidates not all being employed by professional firms; many are with contractors and government departments. Council is cognisant of

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the lack of professional capacity within these employment spheres, which is why it has made provision for external mentoring and secondment of candidates to private companies.

Council has also noted candidates' financial challenges, which is why the SACQSP applied for the CETA discretionary grant. Council is currently running one with 38 candidates and has applied for another one in November 2020 for 64 candidates. This way SACQSP has at least one source of funding that is strictly monitored and that pays for the registration fees, CPD events, mentor fees and supplementary exams.

In the past, Council has seen a drop by a third in its total numbers and it seems inevitable with the Covid-19 pandemic because there is no work for professional practices, which means no work for these candidates.

11. ANALYSIS OF GATHERED DATA

It is important to appreciate that the research data obtained from the respondents (interviewees, ECSA Registration Business Unit and the five Councils within the Built Environment), is the outcome of the research questions only. While the explanation of the process for training engineering candidates and the presentation of the trends that preclude engineering candidates from obtaining relevant candidacy training guided the formulation of the research questions, the responses obtained from the participants in the research study were not influenced by the contents of the explanation and presentation referred to respectively.

The analysis of the gathered data that pertains to the research study questions, which the research study must answer, is presented in this section. The common core reasons that featured dominantly in the structured questions were grouped together under a theme and are presented as such to avoid repetition of the same reasons under the different questions. The research questions are presented in Chapter 7. This was also done to ensure that the essence of the research study objective was not lost. The structured questions were only used to gather the data in a formal way. A general perusal of the results shows that all reasons that arose are interlinked and require an integrated discussion. The following core reasons that featured dominantly and are related to the candidacy were identified during the research addressing the research questions:

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11.1 Communication

Concern over communication between ECSA and candidates cuts across all the questions

“ECSA does not respond to emails and phone calls when candidates seek clarity.” Depending on which clarity; if it is technical clarity, yes indeed, ECSA cannot give clarity as such candidates are referred to their mentors and/or supervisors. This is not ECSA’s role in a candidate’s life, but that of the other role players, and those are mentors and/or supervisors as detailed in document R-04-P, Training and Mentoring Guide for Professional Categories (ECSA, 2017b). If ESCA provides such a service, it will be overstepping its mandate – ECSA cannot be referees and players at the same time. As ECSA is the regulator¹¹.

11.2 Annual fees, payments and costs

Question 1: What was the primary reason for you cancelling your candidate registration?

“Annual fees are unaffordable as they are regarded as too high. Reasons that were given for not being able to afford the fees among others includes retrenchment, unemployment and employers not willing to pay for the candidates.” Unfortunately, an explanation or benchmark of relativity with regard to the ‘too high’ was not given. Though the difficult situation of the factors referred to, it remains the responsibility of the candidate to pay the annual fees.

“Municipalities do not recognise ECSA as a regulatory body as such candidates in this space struggle with both payment of fees and availability of registered mentors.” This challenge is made worse by registration being not compulsory, as ECSA does not have regulatory power over unregistered persons as well as employer organisations who employ them.

“Most industries do not understand the importance and relevance of ECSA. It seems that ECSA does not do awareness of its relevance.” This is strange as ECSA was established by an act of parliament. At first for the candidates, they should know that their academic programmes are accredited by ESCA. Since 2015, ECSA has done roadshows across the country in which it met with the public. Maybe it is the other way round, that the public is not aware of ESCA’s relevance.

¹¹Regulatory function involves imposing requirements, conditions or restrictions, setting the standard for activities, and enforcing in these areas or obtaining compliance. The primary goal for a regulatory body is to protect the public, such as the providing and enforcing on adequate standards for health and safety in the profession. Unlike professional organisations such the Voluntary Associations (VAs), which require regulating, a regulatory body is created on the basis of a legal mandate or legislation, in this the Engineering Profession Act, 46 of 2000.

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“Candidates cannot afford the cost of reviewing the application. Some said it costs ranges between R 8k to R 10k.” This statement is not related to ECSA but to the registered persons who assist the candidates to review the applications when they (candidates) deem themselves ready for professional registration.

“Candidates’ annual fees increase after 6 years. Candidates asked why the fees could not stay the same until the application for registration as professional is done.” The minimum period of training and experience post-graduation is set at 3 years (ECSA, 2017b). Therefore, ECSA gives 3 extra years to candidates who are unable to achieve the required competency and deems this period of 6 years as sufficient, hence candidates who exceed this duration are charged like persons who have professionally registered. ECSA also gave this response in Question 1 that was posed to it which concurs with the narrative of the analysis. This is a way of encouraging progression in development of a candidate to a professional stage. ECSA believe that 5 years as a candidate is more than adequate in all sectors of industry, across all disciplines, for a candidate to have successfully progressed from candidacy/engineering practitioner in training to a person who is eligible for professional registration/endorsement of the engineering practitioner.

“ECSA is requested to implement a centralised system/platform or avail a database on the website of accessible mentors per category and discipline of which those mentors can be paid by ECSA.” As ECSA is the engineering profession regulator, it cannot be the referee and a player at the same time, therefore as per R-04-P (ECSA, 2017b), mentors are industry-based, professionally registered persons.

“Payment of annual candidates’ fees can be every 3 years instead of paying fees annually. Candidates mentioned that the payment of annual is discouraging in the case of candidates who are not making progress.” Payment of annual fees and the lack of progress during the candidacy phase should be separated. ECSA does receive public, money but thrives on the annual subscription fees from the registered persons, therefore the services rendered should be paid for.

“ECSA can reduce registration fees.” Unfortunately, an explanation or benchmark of reduced to what amount was not given.

“Fees for candidates are not sensitive to what the candidates do, the rate is too high.” Unfortunately, an explanation of “sensitive to what the candidates do” in this context was not given, and/or the benchmark of relativity with regard to the “too high” was not given. Despite the difficult situation of the factors referred to, it remains the candidate’s responsibility to pay the annual fees.

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11.3 Mentorship

“Professionally registered mentors are not available to guide the competency development of candidates in an appropriate category.” R-04-P (ECSA, 2017b) states that to ensure that candidates achieve the level of competence required for professional registration in as short a time as possible, employers should provide candidates appropriate training and experience and should provide for regular interaction between candidates and their mentors to plan and monitor progress. The level of commitment on the part of the candidate, mentor and employer towards achieving the required competencies generally determines the rate of progress towards professional registration. To this end, it is expected that employers and mentors sign a C&U with ECSA as an expression of their intent to train candidates towards professional registration in an optimum manner. Since mentorship is voluntary, it seems as if many employers do not offer such support to the candidates.

“ECSA should implement a centralised system/platform or avail a database on the ECSA website of accessible mentors per category and discipline and ECSA can pay the mentors.” ECSA has a database of all professionally registered persons, but as ECSA is the regulator and as per the prescripts of the Protection of Personal Information Act, 4 of 2013, as amended, ECSA cannot provide those details without the consent of the registered persons. Mentorship lies with the employer as training is done there. Since registration is voluntary, the same applies to the mentors as their assistance is based on their willingness.

“ECSA can introduce an online helpline system/platform where candidates can submit what they have done and ECSA can nominate mentors to review and verify the work.” These are valid suggestions, but this can only be done once ECSA has formalised a candidacy system in which the mentors are engaged.

“Candidates also asked as to how can ECSA check their progress while they are in training instead of assessing their competence at the end of the candidacy period as it is already too late to pick up the challenges.” A formalised candidate programme should be able to address this request.

Due to the change in the registration assessment process from the legacy system to the NRS, which has different requirements for the application process for registration as it uses the competency outcome-based system of assessing applications towards registration, which is uniform across the categories of registration, a gap was identified in the mentorship process. Most mentors who went through the registration process via the legacy system could not adequately assist candidates who were going through the registration process via the competency outcome-

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based system. ECSA closed gap by offering mentorship-training workshops to a number of stakeholders nationwide using the pools of registered peers, who are also experts in the mentorship space. This was done via contact workshops in the years 2016, 2017, 2018 and 2019.

To this end, as reported in the Legacy Report of the Fifth Term Council of September 2020 – August 2020 (ECSA, 2020g), as part of the continued effort by Council to professionalise the engineering fraternity, Council resolved to provide for a structured regime for the candidacy phase by supporting the establishment of accredited Academies. This is a gap created when the economy deteriorated in the past forcing private engineering companies to close down the Academies. The Academies intervention model is intended to close the gap for training support. ECSA will facilitate the accreditation of academies. Engineering graduates will be directed to enrol with academies to fast-track the throughput of professional registration. Academies will function independently of ECSA except that ECSA will play a licensing role.

The benefits of the proposed Academies model will in the long run directly benefit the nation as follows:

- That candidates have real on the job experience in engineering projects to address the critical shortages for exposing graduates to complex projects.
- That the programme will ensure structured quality training that is aligned with ECSA's competence outcomes to meet ECSA's standards for professional registration.
- An opportunity for graduates to log-in experiential learning on an ongoing basis to circumvent the loss of information which is predominantly an inhibitor for effective professional registration. Virtual pigeonholes for the registered candidates will be created for depositing information as and when an assignment in line with the requirements is completed.
- To facilitate for the reduction of application approval times. The posted reports will either be evaluated on an ongoing basis or 3 years after completion of the candidature phase.
- To encourage improvement and innovation in the training programme given the fast-paced technological development and the artificial intelligence era.
- To enable tracking of candidates' progress and for employers to monitor progress.

Council has approved the accreditation policy regime via the Academies. Discussions are at an advanced stage with some government departments and state-owned entities to roll-out the pilot phase.

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11.4 Support during candidacy phase

“ECSA does not offer clear and transparent support during candidacy phase. Majority of the candidates are not aware of the two (2) core support instruments that ECSA uses on-site as requested by the employers, namely, (a) Road to Registration presentation and (b) the mobile office¹²”. These support instruments are often requested by the employer organisations hence those candidates whose employers do not request for them would find that ECSA does not offer support during the candidacy phase. For candidates to complete the ER, they can use more than one project, and some of the outcomes can be demonstrated in a project that is more than 3 years old, as long as that project can be cross-referred to the TERs/TEOs. However, they should strive to use recent projects considering that ECSA is testing their level of responsibility in the last 3 years of their engineering experience, or in alternative route, the last 5 years of their experience.

11.5 Contents of the road to registration from ECSA

“Road to registration is one-sided; not all disciplines are represented to cover design experience requirements.” The 11 outcomes are defined and conveniently grouped in five sets. The stem of each outcome is the same in the Competency Standards (ECSA, 2020f) for (a) Professional Engineer, (b) Professional Engineering Technologist, and (c) Professional Engineering Technician. The Competency Standards are differentiated by the insertion of level descriptors (defined in the Competency Standards) at the locations shown by [level]. Therefore, it is not about the ‘discipline’, but rather the level descriptors that differentiate the categories.

11.6 Access to road to registration from ECSA

“Road to registration can be put online and candidates can be accepted in staggered stages ie ECSA should not wait until all 11 outcomes are achieved, but rather when the applicant has achieved. for example, outcomes 1, 2 and 5 that information can be assessed and recorded by ECSA (in cases where it is acceptable) and later when the other outcomes are achieved the same process be applied until all the 11 outcomes are achieved.” The development of the candidates in terms of experience and training is a combined competence that is measured from the interrelated outcomes; therefore, the assessment of that competence is seen holistically. It will be difficult for

¹²An on-site application screening system that is used by ECSA to facilitate the review of applications to review the applicants ‘readiness for submission (ECSA, 2019b).

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ECSA to assess competence in staggered format as the outcomes are synchronised to provide for competence holistically.

11.7 Contents of the road to registration from private providers

“I have attended the course on the road to registration for mature candidates twice. The after service is required to fit in 20 years of experience into the required format, understanding what is requested and presenting oneself in a manner that is acceptable to the review board.” This comes from the private providers who offer the Road to Registration courses privately. Some of them are unaware of the new, updated ECSA documents/policies and the new registration system (NRS) that came into effect in 2016. The private provider still refer to what was once called, “the old-man’s clause”, which is that if the person has 20 years’ experience they could be considered for professional registration. The NRS refers to the outcomes and not only the 20 years’ experience. This goes back to the need for this study, that ECSA should formalise the candidacy training phase so that applicants can know what is expected from them.

11.8 New registration system

“Private training providers that offer road to registration support are not aligned with the NRS that was commissioned in 2016.” The NRS was introduced in 2016, hence some providers may not be aware of the changes in terms of alignment.

11.9 Online platforms

“ECSA does not have active online engagements with candidates on social media platforms.” ECSA uses all the social media platforms, for example Facebook and Twitter, among others.

11.10 Interpretation of ECSA documents

“ECSA registration-related documents are not easy to interpret.” ECSA has provided the guides to the competency standards by creating the R-03-PRO and R-08-P series and further explanatory notes on the website. Reference can be made to this web link, <https://www.ecsa.co.za/register/SitePages/StepByStepGuide.aspx>.

11.11 ECSA website

“The ECSA website is not user friendly.” ECSA has acknowledged the challenges with regard to finances; hence the project to update the website has not taken place as yet.

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11.12 Restriction to the profession

“Restriction for being member of the profession as a professional as opposed to a candidate.” This referred to ECSA not helping them or being there for them during candidacy; candidates felt that they were being restricted to the profession, rather to register than being a member.

11.13 Curriculum at universities

“ECSA should be part of the curriculum at universities, in that ECSA should collaborate with the candidate in universities and create synergy with universities, so that universities should encourage graduates to register as candidates.” ECSA’s jurisdiction to act in the public’s interest extends beyond registered persons as the legal mandate also includes accreditation visits to accredit programmes offered by other institutions, apart from traditional universities, comprehensive universities and universities of technology; therefore ECSA is already part of the curriculum.

11.14 Academic lecturers’ registration

“ECSA does not accommodate academics practitioners (lecturers). Candidates indicated that there are no clear requirements for academic practitioners. ECSA should create a path that will recognise academic work with no industry exposure.” The EPA states that a person (not excluding academics/lecturers) who demonstrates his or her competence, against standards determined by ECSA at an entry level to the engineering profession within one of the basic disciplines of engineering is eligible to be registered. Section 18(1) of EPA refers to the categories of registration in which a person may register in the engineering profession as:

- (a) Professional, which is divided into –
 - (i) Professional Engineer;
 - (ii) Professional Engineering Technologist;
 - (iii) Professional Certificated Engineer; or
 - (iv) Professional Engineering Technician; or
- (b) Candidate, which is divided into –
 - (i) Candidate Engineer;
 - (ii) Candidate Engineering Technologist;

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(iii) Candidate Certificated Engineer; or

(iv) Candidate Engineering Technician; or

Categories of registration

(c) Specified categories prescribed by the council.

ECSA does not register persons based on the titles of the work they do, but rather focuses on persons (including academics/lecturers) who meet requirements of either candidate or professional registration as stated in the key ECSA registration policy document, R-01-P (ECSA, 2020e).

11.15 Practice by other Councils within the Built Environment

Question 1: How is your candidacy phase work programme structured?

The candidacy phase is structured with:

- Programmes that set the requirements to complete the candidacy period.
- Compulsory candidate preparatory workshops and practical schoolwork.
- Board/Professional/supplementary examinations.

Question 2: How is the candidacy phase work programme monitored to ensure to ensure professional registration readiness?

Candidates have to:

- do practical learning/training under the supervision/mentorship of a registered professional in good standing with the Council
- submit monthly training records for approval by the employer/mentor before submitting to the Council
- maintain a logbook that is signed off by the mentor and submitted annually
- compile a valuation report which is signed by the mentor and submitted annually
- submit a portfolio of evidence
- submit two reports that are signed off by the mentor.

Question 3: What is your candidate retention strategy (ie how do you ensure that candidates stay motivated and remain registered on the system until professional registration)?

These Councils utilise the following strategies:

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- Candidates are reminded to submit progress reports through a notice.
- Employers/mentors are morally obliged to assist candidates.
- Candidates who have been registered for less than 5 years are offered a lesser annual fee.
- Candidates who remain in the same category for more than 5 years are penalised with a higher annual fee.
- Have a youth desk (social podium/helpdesk) to monitor and administer candidates' challenges.
- Make provision for external mentoring and secondment of candidate to private companies.
- Apply for the CETA discretionary grant that pays for the registration fees, CPD events, mentor fees and supplementary exams.
- Partner with the SETAs to administer the internship process by allocating candidates to various workplaces to enable them to gain practical learning.
- Registration with the SACPVP is compulsory to practise as a valuer in South Africa.

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12. CONCLUSION

This section presents a summary of the research study findings. The research study was undertaken to determine the mechanisms of retaining candidates and encouraging graduates to register as candidates. The research study identified reasons for non-registration of graduates and cancellation/deregistering by candidates to attract graduates to register as candidates, provide a proposal of a framework and firm recommendations for the retention of candidates, and provide a strategy to motivate, encourage and incentivise graduates to register as candidates. The research study was by no means an exhaustive exercise to deal with the issues related to professional registration.

The research process included an explanation of the process for training engineering candidates towards professional registration, a presentation of the trends that preclude engineering candidates from obtaining relevant candidacy training towards professional registration, an analysis of the data gathered from the candidates interviewed via the online survey, the data received via email from the ECSA Registration Business Unit and the data received from the five Councils within the Built Environment. The research study achieved its objective through the research process by gathering the necessary information to assist in determining mechanisms to retain candidates and encourage graduates to register as candidates.

The research study outcomes led to diverse conclusions. The research study showed that the main reasons for candidates cancelling their registrations are interlinked and integrated. This was anticipated, as the process of candidacy is not formalised hence not all employers have signed a C&U with ECSA. Though the process of candidacy is not formalised, ECSA has documents and information on the website to guide candidates, but the process is left entirely to the candidates to achieve, with superficial guidance from mentors. As a result, candidates end up taking more time than the minimum stipulated time of 3 years after graduation. This demotivating situation, among others, forces candidates to cancel their registration.

The issue of the annual fees was flagged as the other concern in that other employers do not recognise ECSA as the statutory body and as a result refuse to pay for their employees who are ECSA candidates. Due to the unaffordability of the annual fees, the overall claim is that the annual fees are “too high”. This challenge is made worse by registration being not compulsory, as ECSA does not have regulatory power over unregistered persons or employer organisations who employ them.

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The thorny issue of mentorship was also covered. Academies will assist in addressing the challenge to have more mentors participate in the career progression of the candidates and a more formalised system than the C&U. ECSA has developed a number of policies to give effect to the concept of Academies for the training of the candidates. Implementation of the Academies concept will improve retention of registered candidates. Academies will provide structured training aligned to ECSA outcomes as opposed to the C&U concept with its structured training being more aligned to the employer. In the C&U, the employer commits to training candidates to the standard required for registration in an identified professional category – which can only be tested when the candidate applies for professional registration. With the introduction of Academies, many candidates would be properly trained and able to register as professionals within the shortest possible time. ECSA needs to be relevant to the needs of the profession and the industry in relation to professional registration.

Mechanisms to retain candidates and encourage graduates to register as candidates are in the proper mentorship guidance that should be provided by both ECSA and the employer. Implementation of the Academies concept supplementing the C&U will retain candidates and encourage graduates to register as candidates. Professional development programmes and initiatives within employer organisations will lead to efficient supervision, mentoring and coaching of candidates. The type and quality of work given to candidates should be suitable for the professional registration process. Appropriate work should be extended over long periods, with more intervention from the mentors to monitor or rectify situations when they arise. Candidates should be valued and not be sacrificed for the employer's economic benefit and financial success agenda.

Individuals should also drive their own development, that is, it is a self-development process as well, by taking charge of their career paths in relation to the professional registration processes and not relying on the system to direct their personal and professional development. It remains the individual's responsibility to ensure that they receive adequate development from their employers. The value and benefits of registration with ECSA should be made clear. Furthermore, there appears to be a distinct difference in perception and desirability of professional registration in the public sector and the private sector. Interviewees from the public sector indicated that their employers do not value professional registration, which has consequently developed their sense of apathy towards registration.

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The rest of the strategies will be medium- to long-term implementation plans if ECSA deems them doable. The major strategy highlighted by candidates is for ECSA to setup a database of registered mentors that candidates can access anytime to get active support on challenges they face. The proposal was for ECSA to pay these mentors using the candidates' fees and offer the mentors free CPD points for mentoring them. However, it is crucial for ECSA to investigate and adopt whichever strategies would benefit candidates in South Africa given the prevailing economic conditions. Different strategies require different durations to implement; as such, ECSA should prioritise the support and retention strategies according to the implementation duration. The easy and quick to implement strategies should be prioritised.

13. RECOMMENDATIONS

This section presents the recommendations flowing from the research study conclusions. The research study was undertaken to determine mechanisms to retain candidates and encourage graduates to register as candidates. Some of the following interventions are already in place but need to be expanded:

- Upon registration as candidate, ECSA should direct candidates to the following documents:
 - The legislative Act of the profession, the Engineering Professions Act, 46 of 2000
 - R-01-POL-PC: Policy on Registration in Professional Categories
 - Relevant registration competency standard for the different categories of registration (ie engineering technicians, engineering technologists, engineers etc.)
 - Relevant discipline specific guidelines for the different categories of registration (ie civil, electrical, industrial, mechanical etc.)
 - Mentors guideline, R-04-P: Training and Mentoring Guide for Professional Categories.
- The Academies model should be finalised and implemented as soon as possible and promoted nationwide.
- The Road-to-Registration presentations should be presented online as often as possible and shared on all ECSA online platforms.
- ECSA should organise other presentations/workshops/webinars, similar to Road-to-Registration, and cover topics to resolve challenges candidates face. Recordings should be saved on a YouTube channel. This implies that ECSA needs to open a YouTube channel

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where all presentations/workshops/webinars are loaded so candidates can access it whenever they need refresher on various topics that have been tackled.

- Availability of the mobile office should be communicated across the industry; not many candidates and companies are aware of this support mechanism that ECSA offers.
- Since funding from the SETAs can be accessed, internship programmes for candidates should be encouraged.
- Candidates from the client organisations can be placed with organisations that have projects with the client as part of contractual arrangements, to obtain the necessary skills for registration.
- Mentorship programmes need to be deliberate and purposeful – not incidental. Employers need to allow for time in their professional billable hours to be used for mentoring. Supervisors need special training on how to formally mentor candidates.

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Draft B	9 April 2021	Customization to ECSA format and preparation for approval by RPSC	EL Nxumalo
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Rev. 0	10 June 2021	Consideration and approval	Council

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Business Unit Manager

2021/10/07

Date



Executive: RPS

2021/10/11

Date

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