# A competency framework for internal quality assurance in higher education

Raphael Muzondiwa Jingura* and
Reckson Kamusoko

Directorate of Quality Assurance,
Chinhoyi University of Technology,
Chinhoyi, Zimbabwe
Email: rjingura@gmail.com
Email: rkamsoko.kamusoko@gmail.com
*Corresponding author

**Abstract:** Quality assurance systems in higher education play a key role in supporting and improving the quality of educational services provided by Higher Education Institutions (HEIs). The role of Internal Quality Assurance (IQA) in higher education is now well-established. This paper considers the professional competencies of IQA practitioners in HEIs. The focus is on building a body of knowledge for IQA. The objective is to contribute a theoretical framework that supports professional development of IQA practitioners in HEIs. The competency framework is synthesised from information available in literature. The framework is made up of two parts. The first part provides a map of the key functions of IQA. There are nine domains of the functions. The scope of IQA work includes, amongst others, setting the regulatory framework, evaluation, auditing, reviewing and facilitating improvement. The map of functions serves as the reference point of the competency framework. The competency framework is based on the triad model of knowledge, skills and attitude. The framework has nine domains which include; knowledge, communication, managerial, analytical, digital, research, interpersonal, personal skills and attitude. This forms the body of knowledge for IQA. IQA practitioners need this competency repertoire in order to perform their functions effectively and efficiently.

**Keywords:** IQA; internal quality assurance; higher education; competency framework; professionalisation; quality assurance practitioners; management; administration; digitalisation; EQA; external quality assurance; quality cycle.

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**Biographical notes:** Raphael Muzondiwa Jingura is a Research Scholar and Director in the Directorate of Quality Assurance, Chinhoyi University of Technology, Chinhoyi, Zimbabwe. He is an Academic Leader with more than 18 years' experience of teaching, research and management in higher education. He has attended several national, regional and international conferences, and published many papers in different proceedings and refereed journals, and several book chapters. His research focuses on agricultural sciences and quality assurance in higher education.

Reckson Kamusoko is a Research Assistant in the Directorate of Quality Assurance, Chinhoyi University of Technology, Chinhoyi, Zimbabwe. He is a Research Scholar with 10 years' experience of teaching, research and service in higher education. He has published more than 15 papers in refereed journals and three book chapters. He is also a reviewer of several reputable international journals. His research focuses on microbiology, biotechnology and quality assurance in higher education.

## 1 Introduction

Quality Assurance (QA) has burgeoned in the higher education sector worldwide since the 1990s (Cheung, 2015; Hou et al., 2015). One of the notable developments in QA in higher education was the establishment of the International Network of Quality Assurance Agencies in Higher Education (INQAAHE), whose membership increased from eight in 1991 to 177 in 2017 (INQAAHE, 2017a). INQAAHE is a global network of External Quality Assurance (EQA) bodies in higher education. A major impact of the of EQA bodies has been the introduction of Internal Quality Assurance (IQA) at institutional level (Lange and Kriel, 2017). IQA refers to policies and practices used by Higher Education Institutions (HEIs) to monitor and improve the quality of their education services, while EQA refers to supra-institutional policies and practices whereby the quality of HEIs and programs are assured (Dill, 2007). Both EQA and IQA form an ecosystem of QA mechanisms in higher education.

The emergence of IQA and EQA in higher education has created a new profession related to quality assurance known as the quality assurance profession in general (INQAAHE, 2017b). INQAAHE (2017b) argues that this new profession requires a structured academic discipline and programs to educate QA professionals, stimulate research, and promote innovation. This is invigorated by the fact that various positions are now found in HEIs filled by people dedicated to IQA functions. The concept and practice of professionalisation of QA is now commonplace in higher education (Winchester, 2011; Egetenmeyer and Käpplinger, 2011; Cheung, 2015). INQAAHE and other HEIs, e.g., the University of Melbourne in Australia, are now offering education and training in QA.

One fundamental aspect of the QA discourse in higher education is the definition of QA as a profession. Descriptors of the concept and characteristics of what constitutes a profession are available in literature. Professions Australia (2016) defines a profession as 'a disciplined group of individuals who adhere to ethical standards and who hold themselves out as, and are accepted by the public as possessing special knowledge and skills in a widely recognised body of learning derived from research, education and training at a high level, and who are prepared to apply this knowledge and exercise these skills in the interest of others'. Given the corpus of literature on its theory and practice, QA qualifies as a profession. As with all other professions, QA has a Body of Knowledge (BOK). The BOK for QA is the sum of all information relating to or concerning quality, and includes practical and academic content and data on defining, achieving, measuring, controlling, and improving quality (American Society for Quality; ASQ, 2009).

To be designated as QA professionals, IQA practitioners need this BOK.

It has been pointed out that in order to perform their work adequately; QA practitioners need the requisite knowledge, skills and attitude (Nguyen, 2016a). To this end, taxonomies of competencies for QA practitioners have been and continue to be developed. For example, Cheung (2015) and the European Association of Quality Assurance Agencies (ENQA) (2016) have described QA professional competencies frameworks. In addition, INQAAHE has a training programme designed to inculcate the requisite competencies in QA practitioners (INQAAHE, 2017b). Generally, the focus of the competency frameworks has been on EQA practitioners. As much as there is a nexus between IQA and EQA, there is need to build a robust knowledge, skills and attitude base for IQA. This is the focus of this paper.

It is worth pointing out that the IQA profession in higher education is still nascent and needs to continue being developed. As has been pointed by INQAAHE (2017b), there is very little education and training for the QA profession and its professionals. The objective of this paper is to contribute a theoretical framework that supports professional development of IQA practitioners in HEIs.

## 2 Professional development framework for IQA

### *2.1 Concept of professional development framework*

It is important to clarify the utility of professional development frameworks. With reference to health professionals, Health Education England (2017, p. 5) stated that 'It is now essential for education providers and institutions to demonstrate that those involved in the education and supervision of learners within their organisation have the necessary knowledge, skills and approaches to help develop and support all learner groups, across the healthcare professions'. This analogy from the health profession can inform IQA. The same logic applies to the QA profession.QA practitioners need to have the knowledge, skills and attitudes that are required for effective quality management in higher education. Using the logic provided by Health Education England (2017), the importance of a professional development framework can be understood as follows:

- Outlines the key principles that guide a profession;
- Provides the domains which guide professionals in their development; and
- Basis for planning professional development activities.

It is important to note that the discourse of professional development in QA has not been spared the debate on use of the terms *competence* and *competency* (Cheung, 2015). Without belabouring the debate, the term *competency* is used to refer to knowledge, skills and attitudes associated with a profession (Armstrong, 2003; Teodorescu, 2006). This is the term commonly used in professional development discourse. In this context, professional competency is the required behavioural characteristic for QA practitioners to efficiently perform their work, as well as the capability to maintain a competitive advantage (Cheng et al., 2012). By and large, professional development for IQA practitioners encompasses the following:

- IQA is a practice with a BOK. Professional development identifies the knowledge domains and builds the knowledge base of IQA practitioners;

- Specific skills set are required for IQA work. Professional development identifies and develops requisite skills set for IQA practitioners; and
- IQA requires specific professional behaviour governed by attitudes and values which are identified and inculcated in IQA practitioners.

## *2.2 IQA concept*

Understanding IQA, particularly its purpose, tools and processes is central to the development of a competency framework for IQA practitioners. One of the most notable developments in higher education has been institutionalisation of QA. Various different driving forces have made IQA a global reform trend in higher education (Martin, 2018). As stated earlier, IQA refers to institutional arrangements for quality management (Dill, 2007). The main function of IQA in higher education is to manage the quality cycle as it relates to the trifocal functions of a university (teaching, research, service) and the attendant support infrastructure. The quality cycle comprises planning, acting, evaluating and improving the performance of a HEI.

A recent study by Martin (2018) involving 311 institutions from 94 countries around the world provides useful insights into the purpose of IQA. According to Martin's study (2018) the most significant purposes of IQA include improvement of academic activities, compliance with external standards and accountability to governments and society, amongst others. Table 1 summarises the responses provided by HEIs on the motivation underlying IQA. Thus, a professional development framework for IQA practitioners must develop the competencies that enable realisation of the purposes of IQA. Each of the main purposes of IQA (Table 1) requires specific competencies which must be addressed by the professional development framework. The quality cycle presents an operational framework for implementing the IQA functions. Thus, the competency framework must build capacity to manage the quality cycle.

In order to achieve the purposes of IQA, HEIs use various Quality Management Systems (QMS). Some of the quality management models used in higher education include Total Quality Management (TQM), ISO 9000 series, European Foundation for Quality Management Excellence Model (EFQM), Balanced Scorecard (BSC), Malcolm Baldridge award, and SERVQUAL amongst others (Becket and Brookes, 2008; Niedermeier, 2017). It is the responsibility of IQA units to superintend implementation of the QMS.

The purposes of IQA determine the scope of IQA work. Various tools and processes are involved in IQA work. The discharge of IQA work involves processes such as evaluation, review, audit, benchmarking and improvement. Each process has bespoke tools which are used for implementation. Thus, a competency framework for IQA practitioners must be informed by the processes and tools used in IQA.

## *2.3 Lessons from other professions*

The concept of competency or professional competency has been applied extensively in sectors such as medicine, business, and tourism (Nguyen, 2016b). The QA profession can learn from other professions. Consensus in other professions such as tourism (Albanese et al., 2008), teaching (Brown et al., 2010) and medicine (Albanese et al., 2008) has been that the core competencies are knowledge, skills and attitudes. Buoyed by this, Nguyen (2016b) stated that the competency framework for EQA practitioners should be based on

building the requisite knowledge, skills and attitudes. There are a number of competency frameworks that have been developed for QA practitioners (Table 2).

**Table 1** Purpose of IQA in higher education institutions

| *Purpose* | *Proportion (%) of institutions ranking as 'very important'* |
|---|---|
| Improvement of academic activities | 94 |
| Institutional performance assessment | 92 |
| Compliance with external standards | 90 |
| Accountability to government and society | 89 |
| Improvement of management | 88 |
| Institutional learning | 87 |
| Equitable resource allocation | 75 |

*Source*: Martin (2018)

**Table 2** Exemplars of competency frameworks for QA practitioners

| *ENQA (2016)* | *Cheung (2015)* |
|---|---|
| *Knowledge*<br>– Higher education sector knowledge; national quality assurance; international dimension of quality assurance and enhancement<br>*Systematic/technical competencies*<br>– Project management (organisational and planning skills); IT and data skills; problem solving/Analytical skills and continuous learning skills<br>*Interpersonal competencies*<br>– Diplomacy and political sensitivity; communication (oral and written); professional attitude; teamwork and flexibility; personal resilience (stress and pressure resistance); autonomy and proactivity | – Professional practice (consisting of 7 competencies)<br>– Systematic inquiry (consisting of 16 competencies)<br>– Situational analysis (consisting of 12 competencies)<br>– Project management (consisting of 12 competencies)<br>– Reflective practice (consisting of 5 competencies)<br>– Interpersonal competence (consisting of 7 competencies) |
| *Nguyen (2016b)* | *INQAAHE (2017b)* |
| *Knowledge*<br>– Higher education (policy, management and administration); quality assurance and quality enhancement (terms, concepts, theories, assumptions); quality assurance models (assessment, accreditation, audit); external quality assurance (roles and responsibilities, structure, management and operation of an external quality assurance agency, networks of external quality assurance agencies; internal quality assurance (the quality cycle, maintaining quality within a higher education institution). | *Modules*<br>– Higher education in a global world: the context of quality assurance;<br>– External quality assurance: what is quality and how has it been implemented in different countries;<br>– Operating an external quality agency: practical training in the structure and management of quality assurance agencies around the world;<br>– Maintaining quality within the institution: assessing learning, conducting a self-study, and using data. |

**Table 2** Exemplars of competency frameworks for QA practitioners (continued)

| *Nguyen (2016b)* | *INQAAHE (2017b)* |
|---|---|
| *Skills* | |
| – Organisational and planning skills (project management); IT and data skills; problem solving skills; continuous learning skills (lifelong learning skills); communication skills (written, verbal, listening); report writing skills; conflict resolution skills; document review skills; leadership skills; management skills; negotiation skills; and teamwork skills | |
| *Attitude* | |
| – Responsibility, honesty, autonomy, accountability, transparency, and commitment | |

Teaching is one component of higher education with extensive studies on professional development frameworks. The QA profession can draw lessons from it. As a good exemplar, the UK Professional Standards Framework (UK PSF) for teaching has three dimensions, which are: areas of activity; core knowledge; and professional values (Higher Education Academy, 2011). The UK PSF has been adopted by several institutions as a benchmark for professional development for teaching in higher education (Brown et al., 2010). In Ireland, the professional development framework by the National Forum for Teaching and Learning in Higher Education (2016) has five domains given as personal development; professional identity, values and development; professional communication and dialogue; professional knowledge and skills; and professional and personal digital capacity.

It is evident in literature that professional development frameworks on teaching in higher education are underpinned by generic domains that describe accomplished teaching (Brown et al., 2010). The areas of confluence of the frameworks are around three domains: professional knowledge, professional attributes and professional practice (Brown et al., 2010). It can thus be concluded that knowledge, skills to use the knowledge and ability to apply the skills in context have been the core of professional development frameworks for teaching in higher education. As such, a competency framework for IQA must describe accomplished IQA practice.

## 3 Examples of competency frameworks for QA in higher education

It is important to point out that some work has been done in pursuit of competency frameworks for QA in higher education. Notable examples include Cheung (2015), ENQA (2016), Nguyen (2016b) and INQAAHE (2017b). The frameworks are shown in Table 2. All these frameworks focus on EQA. However, IQA can benefit from the work that has been done for EQA. There is an overlap between EQA and IQA in many aspects of QA.

It can be seen in Table 2 that the frameworks resonate with the generic competency triad of knowledge, skills and attitude. What is worth noting is that the competencies (Table 2) are applicable to both EQA and IQA. It is also notable that the frameworks make reference to information technology and data skills.

Tongsamsi and Trichandhara (2014) conducted a study on competency domains of QA practitioners in higher education with the objective of comparing findings in literature. Their study was based on the concepts of Schneckenberg and Wildt (2006) and Ehlers (2007) on the competencies of academic staff. They adopted four competence domains as shown in Table 3.

**Table 3** Competency domains for quality assurance in higher education

| *Domain* | *Descriptors* | *Competencies* |
|---|---|---|
| Quality knowledge | • Understanding possibilities of current quality development and up-to-date quality strategies in higher education | • Four competencies |
| Quality experience | • Ability to use quality strategies with a particular intention<br>• Based on experiences with quality development and application of quality strategies to educational scenarios | • Twenty-two competencies |
| Quality innovation | • Ability to create and develop quality strategies and/or instruments | • None |
| Quality analysis | • Ability to critically analyse the processes of quality development in light of one's situation and to reflect one's objectives and circumstances. | • One competency |

*Source*: Adapted from Tongsamsi and Trichandhara (2014)

The competency domains in Table 3 can be explained by using the logic of professional development. Schneckenberg and Wildt (2006) explained that the process starts with acquisition of information, meaning is attached to the information (knowledge), the knowledge is applied in context (ability) and ability is combined with attitude to cause performance. Thus, the quality knowledge domain (Table 3) represents the first step in professional development of IQA staff. The other domains are based on ability and attitude. This is evidence that the model, *knowledge*, *skills* and *attitude* is the backbone of most competency frameworks.

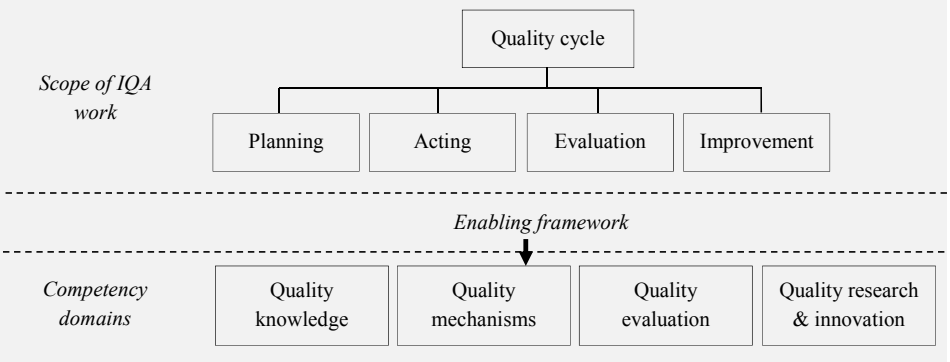
The work of Tongsamsi and Trichandhara (2014) demonstrates the existence of various competencies within each of the four domains in Table 3. An analysis shows the convergence of IQA competencies with the competency frameworks for EQA presented in Table 2. The majority of the competencies (22) for IQA fall within the quality experience domain. This can be ascribed to the fact that the bulk of IQA work is centred on introduction of QA systems and processes (Tongsamsi and Trichandhara, 2014).

What is also conspicuous in both Tables 2 and 3 is the lack of focus on research and innovation in QA matters. IQA exists in a dynamic and rapidly changing higher education context. Modes of delivery and credentialing are changing and presenting new challenges to IQA. For example, need for bespoke IQA approaches to online learning. In addition, if the profession is to grow, QA practitioners must engage in both research and innovation. After all research is one of the concepts embedded in the definition of the term 'profession' by Professions Australia (2016) and emphasised by INQAAHE (2017b).

## 4 Proposed competency framework for IQA practitioners

The proposed model has two parts. First is a map of the scope of IQA work and the second part comprises the competency framework. This is depicted in Figure 1. The functions of IQA (Table 4) are based on the quality cycle as the operational framework. Figure 1 shows the components of the quality cycle and each of the domains in Table 4 can be placed under a specific component of the quality cycle. Four domains of the competency framework are shown in Figure 1. These are adapted from the framework in Table 3. The domains are further unpacked into specific competencies shown in Table 5.

**Figure 1** Competency framework for IQA in higher education




### *4.1 Scope of IQA work*

A typology of the typical functions of IQA is needed in order to provide a map of the required competencies for IQA practitioners. A framework of the functions (Table 4) is a useful tool that can guide the competency framework. The functions are by no means exhaustive and they are presented in the form of nine categories. The utility of the quality cycle lies on its use as the operational framework for the IQA functions. Taken severally, each function (Table 4) constitutes a domain.

**Table 4** Functions of IQA in higher education

| *Domain* | *Activities* |
|---|---|
| IQA policies, processes and tools | – Formulating quality assurance policies<br>– Setting quality objectives<br>– Superintending implementation of quality management system<br>– Setting standards<br>– Developing and documenting quality assurance processes, procedures and guidelines |
| Planning | – Developing quality assurance plans<br>– Monitoring implementation of the plans<br>– Reviewing performance<br>– Developing and implementing quality improvement plans |

**Table 4** Functions of IQA in higher education (continued)

| *Domain* | *Activities* |
|---|---|
| Quality assurance processes | – Conducting internal reviews, audits, evaluation and benchmarking<br>– Risk analysis<br>– Facilitating accreditation processes |
| Data and information management | – Collection, analysis, indication and interpretation of data<br>– Report writing |
| EQA relationships | – Working with public and private EQAs<br>– Working with professional bodies<br>– Promoting and monitoring implementation of EQA requirements<br>– Facilitating accreditation and external review and audit processes |
| Advisory and promotional work | – Advising all stakeholders on quality assurance matters<br>– Building quality assurance literacy<br>– Conducting capacity building activities |
| Research and innovation | – Designing and conducting research on quality assurance matters<br>– Developing new approaches to quality assurance<br>– Publishing quality assurance scholarly work |
| Management and leadership | – Performance measurement<br>– Setting and monitoring performance metrics<br>– Communication with stakeholders<br>– Leading staff on QA work |
| Networking | – Networking with local and international organisations<br>– Participating in international conferences, workshops and meetings related to quality assurance |

## *4.2 Competency framework*

The framework is based on contemporary imperatives in higher education. It is a truism that higher education institutions operate in a volatile, uncertain, complex and ambiguous environments. The scope and importance of higher education continues to change (Santiago et al., 2008). Higher education policy, management and QA systems are now important national issues for many governments (Santiago et al., 2008). The theory and practice of QA in higher education has also grown over the years. In addition, IQA practitioners work with disparate internal and external stakeholders. Internal stakeholders include staff, academics, students and council/board members. External stakeholders include EQAs, governments, professional bodies, donor organisations, industry and community. The scope of IQA work requires a well-developed gamut of knowledge, skills and attitude. The competency repertoire of IQA practitioners is thus extensive.

As noted by Nguyen (2016b) with reference to EQA, the competency framework for IQA practitioners should also be based on professional competencies which include knowledge, skills and attitude. A sound QA knowledge base, coupled with the requisite

skills set and appropriate attitude are the cornerstones of IQA competencies. A nine-domain competency framework (Table 5) is proposed. This framework contributes and expands information provided by other frameworks.

**Table 5** Competency framework for IQA in higher education

| *Domain** | *Competency* | *Components* |
|---|---|---|
| Quality knowledge | Quality assurance knowledge | – Higher education policy and management; theories, concepts and background of QA; processes and tools for QA; quality cycle; EQA; networks of QA bodies |
| Quality mechanisms | Communication skills | – Oral and written; presentation; report writing; documentation |
| | Managerial and leadership skills | – Quality management systems, leadership; management; administration, performance measurement; performance metrics |
| | Digital skills | – Information technology; communication technology; digital QMS; digital educational technologies |
| | Interpersonal skills | – Teamwork; conflict resolution; emotional intelligence; diplomacy; negotiation; diversity tolerance |
| | Personal skills | – Enthusiasm; perseverance; integrity; self-reflection; change-driven; lifelong learning |
| | Attitude | – Accountability; responsibility; commitment; time management; flexibility |
| Quality evaluation | Analytical skills | – Measurement, monitoring, problem solving; critical thinking; data collection, analysis, indication, interpretation; diagnostic, descriptive, predictive and prescriptive analytics |
| Quality research and innovation | Research skills | – Research methodology; research design; QA scholarship; innovation; thought leadership |

*Source*: *Adapted from concepts of Schneckenberg and Wildt (2006) and Ehlers (2007)

It must be pointed out that the utility of the competency framework lies in supporting institutionalisation of QA in HEIs. Institutionalisation of QA is a process through which quality management becomes structured, desirable, appropriate, comprehensible, commonplace and routinised (Colyvas and Powell, 2006; Scott, 2008). In other words, IQA practitioners must be able to build a quality culture within HEIs. In order to achieve this, IQA practitioners need the knowledge base and skills set as given in Table 3. This at the minimum supports training and development of IQA practitioners. Ability to apply the knowledge, skills and attitude in context and produce desired results is central to IQA. Understanding the diversity of higher education providers, national higher education policies, different modes of delivery (face-to-face, online, and blended), dynamics of cross-border higher education and digital educational technologies are components of the BOK. The bottom line is that IQA practitioners must be well-informed about the different contexts of higher education and the implications for QA.

Analytical skills in the framework (Table 5) need special mention. IQA practices generate large amounts of data and information. IQA can benefit from data analytics, an emerging trend in business management nowadays. As such, development of analytical tools emboldens IQA practices and can lead to innovation. This must be coupled by strong digital competencies. Digitisation of QA systems enhances operational efficiency and effectiveness. Parallels can be drawn from the effects of digital transformation in the business world (Swaminathan and Meffert, 2017).

IQA practitioners engage in communication with various stakeholders. The communication on QA matters flows in all directions and must be effective. The communication may relate to QA processes such audits, reviews, accreditation and standard requirements. Choudhary and Rathore (2013) stated that effective communication is logical, rational and persuasive. There is strong relationship between effective communication and successful quality implementation (Choudhary and Rathore, 2013). Most QMS emphasise people involvement in quality management buttressed by effective communication. Systematic and structured communication is also known to support and enhance quality improvement initiatives (Singh et al., 2013). IQA practitioners also produce QA manuals, handbooks, and write numerous reports. Thus, writing skills are fundamental in IQA work.

Diplomacy and political sensitivity were highlighted as important in QA work by ENQA (2016). These attributes relate to both personal and interpersonal skills sets. IQA work can stir controversies, raise emotions and conjure resistance. Some school of thought, e.g., Skolnik (2010) believes that QA is not just a technical process but can also be viewed as a political process. Because of its characteristics such as competing conceptions of quality amongst stakeholders and the tendency to give greater voice to some stakeholders than others in the design and implementation of QA, the political nature of QA cannot be denied (Skolnik, 2010). Thus, diplomacy is an important attribute for IQA practitioners.

Reference has been made earlier to the centrality of research in any profession (Professions Australia, 2016). QA is a discipline that must be advanced by a strong research culture among IQA practitioners. Scholarship of QA must be supported to advance the profession. As such, IQA practitioners need robust research skills to create new knowledge, design new practices and enhance the profession to meet the changing higher education environment. It is important to point out the bourgeoning ecosystem of journals and other publications on QA matters as evidence of a growing QA BOK. Finally, professional attitude is a key element of all QA competency frameworks. Attitude refers to the professionalism of IQA practitioners. IQA in itself is about accountability to stakeholders of higher education.

### *4.3 Implementation of the framework*

Given the burgeoning institutionalisation of QA in higher education, implementation of the competency framework is recommended. Implementation, which in essence alludes to the implications of the framework to the IQA fraternity, can be viewed from two perspectives. The first one is the implications for IQA practitioners. In this sense IQA practitioners are taken to be those whose professional identity lies in quality management. It is envisaged that the framework forms a basis upon which a training curriculum in IQA staff be developed. Training can be in multiple modes, but the basis of the training curriculum can be informed by this framework. As such, the framework can

be used to build capacity of IQA staff. The nine competency domains (Table 5) can be easily converted to learning outcomes of any training programme. By using the logic of learning outcomes as it is used in teaching and learning, the framework is practitioner-centred. Similarly, the 'component' part in Table 5 specifies the BOK required to attain the learning outcomes. Thus, the end result of implementation process will be enhanced capacity of IQA staff.

The second perspective is to view the framework in terms of its implications for research. As noted earlier, research is the cornerstone of a profession (Professions Australia, 2016). As such, research pointers can be deciphered from the framework. Research can continuously build the quality knowledge in an evolving landscape in higher education. There is diversity in IQA knowledge across the globe which can emboldened by research. The domain on quality mechanisms is the most diverse in the framework. It forms the technical and managerial aspects of IQA. This domain can benefit from research into development and validation of IQA processes and tools suitable for teaching, learning, research and service.

## 5 Conclusions

The gamut of competencies required for IQA in higher education is quite extensive as shown in this paper. It is quite clear that IQA encompasses both administrative and academic domains, requiring IQA staff to be blended professionals with deep knowledge of both domains. The work presented in this paper can guide the professional development of IQA staff working in HEIs. There are a number of initiatives and programmes that have been developed in order to build the capacity of IQA staff. A number of EQAs have such programmes. In addition, academic programmes in IQA also exist. Such programmes can benefit from the framework presented in this paper. The framework can inform curriculum development for such programmes. The possible end-result will be a more effective IQA workforce in HEIs.

It should also be pointed out that the work presented in this paper is not exhaustive. IQA is an evolving profession which must be supported by on-going research. Further, validation of the competency framework must be based on empirical evidence derived from research. This is work that must be done to support and strengthen the proposed framework. Each of the nine domains is open to further research under different contexts. Thus, the framework provides a basis for setting a research agenda in professional development of the IQA workforce. Worth mentioning is buttressing importance of the emergent field of big data and data analytics which falls under the quality mechanisms domain. As well as research on risk based QA.

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