Chapter 3.2

Exploring Forms of Knowledge and Professionalism in RMA in a Global Context

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Abstract

The chapter aims to provide an overview of organisational structures in Research Management and Administration (RMA); in doing so, the chapter moves from explaining main sources of knowledge – broadly on HE Management (HEM) and specifically on RMA – to assessing institutionalisation and maturity level of the profession.

Understanding these forms of knowledge will help readers design research support services and develop a competency/career development plan.

Additionally, the chapter aims to call for individuals and institutions to engage with the varied forms of knowledge associated with different phases of a research project life cycle (RPLC). The goal is to raise individual awareness while helping countries improve their RMA maturity.

Keywords: Research support; project management; knowledge; research project life cycle; maturity; institutionalisation

Introduction

One of the first studies discussing different models of research support dates back to the 2006 'Issues in Research Management and Administration series' of ARMA UK (Kent, 2006) which presented three case studies of research support services in a UK context. The cases spanned from a fully centralised model to a highly devolved and principally devolved model of support.

In 2014, Starbuck conducted a survey at the ARMA conference (Starbuck, 2014) to investigate what effective research support should look like. Not surprisingly, she found it difficult to find an agreement about a common, consistent definition of these services mainly because institutional research management and administration (RMA) processes are transdisciplinary, based on several forms of knowledge, and could be organised in several ways according to size core structure, central and local culture, and also established practices within institutions.

Furthermore, the author suggested a need to consider individual roles, primarily composed of traditional (specialised) and non-traditional (generalist) roles, along with their domains of specialisation to set the agenda of any research support office. Starbuck concluded that some small research institutions are more likely to rely on the expertise and capabilities of their research support staff and not as much on a given organisational structure. Chapter 3.3 presents in more depth some of the most common types of organisational structures to provide RMA services along with case studies.

The points above highlight the importance not only of good planning but also of the breadth of knowledge surrounding Higher Education (HE) and research support. Alternatively, institutions could set an agenda of roles needed in that unit and design the sought-after services afterwards.

However, in these research support structures, individual research managers and administrators (RMAs) perform project-based and less conventional tasks and hold both specialised and generalist roles. In performing these roles, RMAs are likely to move within or even occupy blurred domains of professional, 'non-academic' spaces (Whitchurch, 2006, 2009). This sharing of spaces may therefore exacerbate the confusion between what hard and soft skills are techincally required in research support, from what is effectively being accomplished through bespoke, thoroughly organisational structures. These RMAs primarily work for universities and a wide set of research institutions.

This chapter, therefore, aims to bring insights into forms and sources of knowledge sought in these structures by engaging a wide array of professionals in the domain. Acquiring this comprehensive knowledge should increase professionalism and efficiency among RMAs.

The Breadth of Knowledge of the RMA Domain

The points above give some idea what the breadth of knowledge required of the RMA domain that goes through academic and non-academic spaces inside universities and other types of research institutions, which demands generalist and specialised roles. The boundaries should be set not only for the profession-to-be but also for the related field of study or discipline as already debated by Tight for HE studies (2020).

The width and complexity of the knowledge about RMA blur our understanding of activities and processes related to this domain. Furthermore, this lack of distinctiveness affects RMAs' self-perception inside their institutions and communities.

HE Management (HEM) is one of the purveyors of knowledge about RMA, and university context offers one of the sources of RMA theory and practice. The knowledge of HE studies and HEM is expected to inform studies from a wide range of professionals and practitioners. As suggested by Harland (2012, p. 1), 'the study of HE is an open-access discipline with the prime purpose of providing a service for higher education itself. Such an argument acknowledges the diversity of people who contribute to this research and how the discipline is developed.'

Sources of Explicit Knowledge in RMA and Throughout the Research Project Life Cycle (RPLC) – HE Studies, HEM and RMA, and Tacit Knowledge

Sources of Explicit and Tacit Knowledge

Explicit Knowledge

Regarding the sources of explicit knowledge, building further on the investigation of methodologies adopted in project management (PM) and the analysis of certifications and post-graduation courses and standards in RMA, we follow Oliveira (2020) and her identification of four main sources of explicit knowledge commonly used to manage research projects: (1) HEM, (2) PM, (3) Science, Technology, and Innovation, and (4) RMA Specifics. These forms of knowledge are not exhaustive, and more forms can be found and used in relation to RMA.

The categorisation above results from an extensive document analysis and literature review (Oliveira, 2020). This further highlights the interdisciplinarity of the research field surrounding RMAs. We are aware that this categorisation uses just one lens to understand organisational structures in research support, and therefore might be limited in terms of its applicability.

We regard HEM as the overarching literature and one of the primary sources of knowledge for all types of individuals providing research support services not only in HE but also in any research-related domain. In addition to HEM, we consider the more specialised PM literature as the compulsory and relevant source of knowledge for professionals directly involved throughout the RPLC process. By referring to this source of knowledge, the language used applies to any individuals working in universities as well as public and private research institutions. In this domain of knowledge, the Project Management Body of Knowledge (PMBoK) is certainly the most popular guide; and the professional body's control and monitoring of the whole set of practices is regarded as the asset to have more efficiency through the post-award phase of the research life cycle. However, although the adoption of PM best practices is essential, it doesn't cover many of the Science, Technology, and Innovation (STI) specificities. To consider additional sources of knowledge, we are also expected to consider STI National Systems and RMA specifics from RMA certification bodies, and a number of professional associations that are increasingly engaged in the capacity-building of their community.

However, even within this framework, several authors have pointed to the persistence and usefulness of so-called tacit knowledge (Hockey & Allen-Collinson, 2009; Schützenmeister, 2010; Shelley, 2010), which is what we cover in the following section.

Is Tacit Knowledge Still the Main Source of Knowledge for Today's RMAs?

To understand the role that tacit knowledge may still have in today's RMA, we begin by clarifying what we mean when referring to the term. Conceptually, tacit knowledge

stands not only as the counterpart of explicit knowledge but also as 'the tacit dimension referred to the personal knowledge of a researcher while the explicit knowledge was seen as a common good' (Schützenmeister, 2010, p. 15). Tacit knowledge is, therefore, a form of knowledge of their field of study or practice; it is also a source of understanding about what are emerging from uncodified knowledge translated into the field of practice. This uncodified knowledge can refer to the workplace or its peculiar features, and it can also arise from the institutional and national context where these individuals find themselves so it is context dependent. Thus, this basic, personal knowledge is meant to be the expertise that new professionals in HEM or in RMA can really on. The new HE professionals may quote Gornall (1999) or the new research managers may cite Schützenmeister (2010); whatever the knowledge that is, it can become a common good when made available purposively to the whole community being shared through formal or informal networks or through professional qualifications.

Main Sources of Explicit Knowledge in RMA

Following the excursus above on explicit and tacit knowledge, we shall provide readers with further overviews of the explored sources of knowledge as previously categorised.

First Source of Explicit Knowledge: HEM

Seeking to gain understanding of explicit knowledge in reference to HEM, we quote one of the first handbooks setting the stage of the discipline. In short,

> HEM provides comprehensive coverage of the key functions of these 'administrators' … although the editors believe that it will be also of considerable value to academic managers, who should become more aware of the way in which their institutions are run outside of their relatively narrow domains. (Warner & Palfreyman, 1996, p. 1)

Thus, HEM refers to the overarching management of today's HEIs and so to the varied range of individuals working in its functions. HE managers or professionals (or simply professional staff or RMAs) are expected to be prepared to bring the required management professionalism inside research projects. Additionally, or complementary to them, they are HE professionals and more likely to be employed in universities. As pointed out earlier, we refer to HEM in this chapter to gain an understanding of the wide set of available forms of knowledge in HE so those may be applied conceptually to RMA; however, those forms of knowledge may help the reader become more aware of the role they play in today's profession, despite the different types of research institutions.

The points above make the case that RMA professionals are expected to know how to navigate the issues and challenges in HEM and so to lead or handle the processes in more general terms so as to meet/fulfil projects demands, for example, those regarding scholarships, contracts, budgeting, institutional rules, intellectual property, among others.

Second Source of Explicit Knowledge: PM

Regarding the second source of explicit knowledge, PM, there are many different references adopted by organisations to manage several types of projects, not specific to research projects. But when dealing specifically with research projects, we need to bear in mind that other variables, uncertainties, and complexities must be considered that require mastery of the field and its body of knowledge. One of the most known is

the PMBoK,[1] now in its 7th edition. This guide is periodically updated with the market best practices and is composed of 47 processes organised in 10 knowledge areas[2]: (1) Integration management, (2) Project Scope, (3) Time management, (4) Cost management, (5) Quality management, (6) Human Resource Management, (7) Communications Management, (8) Risk Management, (9) Procurement Management, and (10) Stakeholder Management. The Project Management Institute (PMI) is the author of the PMBoK and a certification body with more than half a million members in 185 countries (PMI, 2013).

Third Source of Explicit Knowledge: Science, Technology, and Innovation (STI) National System

The skills needed to apply the third source of explicit knowledge encompass articulation, establishment and management of partnerships and collaborative networks, and reinforce the importance of management activities throughout the research project's life cycle.

This source arises from the STI National System, which is composed of several actors from the political arena (public policies, ministries, regulations, and laws), funding arena (public and private funding agencies), STI performers arena (research institutions, universities, technology parks), and the social arena (professional associations, associations of product chain companies, trade union) (MCTIC, 2016; Oliveira, 2020; Pontikakis et al., 2005). This source of knowledge specifically clarifies how the full range of RMA activities – from contracts and partnerships management to purchasing, intellectual properties and assets management – all rely on knowledge of STI National System as the context-specific domain where all these activities demand specific skills to be carried out. These activities demand solid knowledge about the STI national system of the country where the research institution or university operates, potentially including knowledge of the countries with which they intend to collaborate. Furthermore, successful research projects funded by governmental agencies or public or private funding agencies – from the proposal submission and probably even in prior stages to monitoring, reporting, accountability phases, and so on – are likely to be directly impacted by the national STI legal framework, which represents the body of explicit knowledge that RMAs are expected to know and take into account at all times. This STI legal framework is therefore a level of contextual knowledge that should be sought and required to execute all RMA processes and manage research projects.

Fourth Source of Explicit Knowledge: RMA Specifics

Regarding the last source of explicit knowledge, we term RMA specifics the materials created by RMA certification bodies, associations and post-graduation courses

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[1] https://www.pmi.org/
[2] Further project management methodologies include the following: Individual Competence Baseline (ICB) – International Project Management Association (IPMA) (IPMA, 2022), Australian Institute of Project Management (AIPM) Professional Competency Standards for Project Management (AIPM, 2022), Association for Project Management (APM) Body of Knowledge (APM) (APM, 2022), Projects In Controlled Environments (PRINCE2) (AXELOS, 2022), and PM2 Project Management Methodology (PM2, 2022). The PM2 is an open project management methodology that should be highlighted because it was created by European Commission and it is recommended for projects funded by the largest European program for financing Research, Development, and Innovation (RD&I) projects, Horizon Europe.

considering several particularities of the area and blend the sources of knowledge cited earlier, which were identified through analysis of the references found and described in the following paragraphs.

One of these sources refers to the RMA certification bodies that select the most relevant contents of the field in order to inform their certification exams and publish related materials. The Research Administration as a Profession (RAAAP) Survey executed in 2016 identified that 38% of respondents from the USA have some certification, followed by Oceania with 20.6%, Europe with 16.4%, the UK with 9.5%, Canada with 9.1%, and the Rest of the World (RoW) with 27.6% of respondents certified (Kerridge & Scott, 2018a). While the more recent RAAAP-3 data (see Chapter 2.2, Oliveira et al.) shows Canada 25.4% of 177, Europe 16.7% of 1,007, Oceania 32.6% of 380, RoW 28.7% of 400, UK 12.4% of 476, and USA 41.4% of 1,092.

One example of these certification bodies is the Research Administrators Certification Council (RACC), which is an American, private, independent and non-profit board composed of volunteers from various HEIs and research institutions with the objective of certifying and upholding expected standards for advancing the profession (RACC, n.d.). RACC was a pioneer as the organiser of the Certified Research Administration Body of Knowledge (CRABoK) and a provider of RMA certification programmes. Currently, RACC has certified more than 3,000 people in 3 categories of certification: Certified Research Administrator (CRA), Certified Pre-award Research Administrator (CPRA), and Certified Financial Research Administrator (CFRA) (see Chapter 2.7, Ritchie et al., in this book).

Other sources of this particular form of knowledge refer to Professional Development Frameworks (PDF) provided by some associations, such as the Australasian Research Management Society (ARMS), which mapped a PDF that is the knowledge base for the accreditation programme and Continuing Professional Development (CPD) programme (ARMS, 2022). Other examples are the UK ARMA's PDF created with the aim of assisting individual and organisational career planning and training (ARMA, 2011) and SARIMA's Professional Competency Framework (PCF) (Williamson et al., 2020) (see Chapter 4.1, Dyason & Pillay).

Many American, Canadian, and European universities also offer master's and specialisation courses in RMA. An example is the Master of Research Administration (MRA) programme of the University of Central Florida (UCF),[3] created in 2011 which comprises several subjects such as Legal Framework and Regulatory, Leadership and Organisational Models, Human Resources Management, Intellectual Property, Transfer of Technology and Commercialisation, and others (Smith & Torres, 2011). In Europe, the foRMAtion (Innovative and smart module for potential Research Managers and Administrators in HE) project[4] has developed several innovative educational and training methods and courses in partnership with Universidade NOVA de Lisboa (NOVA), The Sapientia Hungarian University of Transylvania, Corvinus University of Budapest, and other institutions. Other examples are the Johns Hopkins Master of Science in Research Administration,[5] the Research Administration Training

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[3] Master of Research Administration (MRA) program website: https://ccie.ucf.edu/public-administration/research-administration/master-research-administration/.

[4] FoRMAtion project website: https://www.formation-rma.eu/.

[5] Johns Hopkins MS in Research Administration website: https://advanced.jhu.edu/academics/graduate/ms-research-administration/.

programme of Princeton University,[6] and the Mohawk College course of Research Administration in partnership with the Canadian association.[7]

Level of Effort Throughout RPLC

After considering the four sources in the overview above, we apply these sources to the phases of the RPLC to understand the requirements of knowledge for each phase. Fig. 3.2.1 is, therefore, a hump chart of the compared estimated level of effort spent over time in each source of knowledge during each phase of the project. This effort is directly in connection with the skills and profile of the RMAs required at that moment. The RPLC illustrated in Fig. 3.2.1 is a macro-level illustration (Andersen, 2018).

The figure shows that the pre-award phases require more effort in activities related to STI National System, HEM and RMA knowledge areas. At the beginning of the RPLC, when considering a challenging and impacting funded project with a multi-institutional team, it is required to search the applicable funding (RMA), to match the research idea with the national laws and regulations to create a consortium (STI), and also to be compliant with the research institution/university strategy and norms (HEM and RMA) to prioritise opportunities, formalise contracts, receive financial resources, manage budget and purchasing, and hire human resources. The project proposal development and submission is a step where RMA-specific knowledge is very impactful and so to be sought.

While in the post-award phase, when the project is approved and resources start to arrive, it requires more efforts related to PM, such as purchasing management, human resources management, and time and cost management. During the project execution, HEM knowledge is required to follow institutional norms and scholarship regulations. While at the end of the RPLC, what is strictly required is to formally end the project (to be done through a PM type of knowledge), but also to comply with any
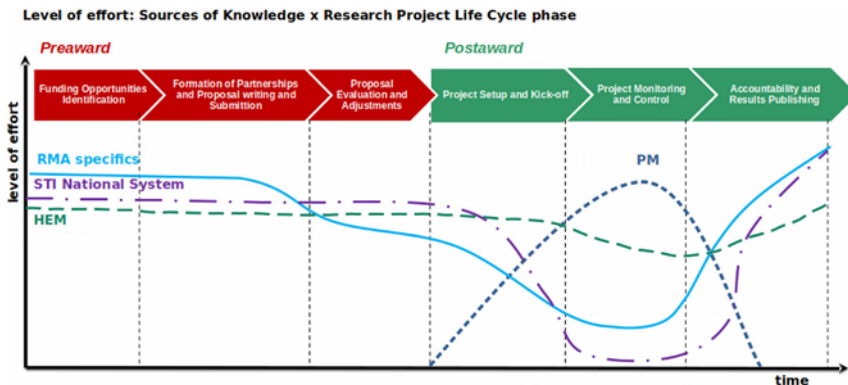

Fig. 3.2.1.   Level of Effort of Sources of Explicit Knowledge × Phase of the Research Project Life Cycle. *Source*: Author adapted from Oliveira (2020).

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[6] Research Administration Training Program of Princeton University website: https://orpa.princeton.edu/training/research-administration-training-program.

[7] Mohawk College Certificate in Research Administration website: https://cereg.mohawkcollege.ca/certificate?certificateCode=CP0988.

accountability requirements primarily at the institutional level (through HEM) and at the level of partnerships and sponsors (STI and RMA). Finally, the translation of project results into publications (HEM, RMA) and/or technology transfer opportunities (STI) completes the project.

First Model of Country Institutionalisation to Assess the Level of Maturity in the Profession

This varied knowledge is much needed from individuals working in HEIs not only to understand themselves and their positioning within their institutions but also to support researchers more thoroughly; this extensive, varied knowledge is available not only to those working in HEIs but also to the entire community of RMAs. These are some of the reasons why this body of knowledge should be taken into account and purposefully disseminated both by individuals and institutions.

Moving from that extensive, varied range of knowledge, we set the stage for tentatively assessing the maturity level of any country in relation to its RMA activities. In doing so, we envisage a number of parameters as shown in the grayscale boxes of Fig. 3.2.2; these parameters span from certifications programmes to associations, from professional development frameworks to generic training, and from dedicated RMA offices to postgraduate programmes, among others. Next, we assume that this level of maturity is directly related to these parameters, for example to the number of associations and/or organisations that act as knowledge providers in the field of RMA. At the top of the scale, this level of maturity may also include the recognition of the profession and the existence of dedicated professionals and departments for RMA in universities and research institutions.

Thus, Fig. 3.2.2 suggests an exemplification of some of the points set above to show how some institutional elements related to RMA in a country can be directly regarded as indicators of the maturity of the profession in that area.
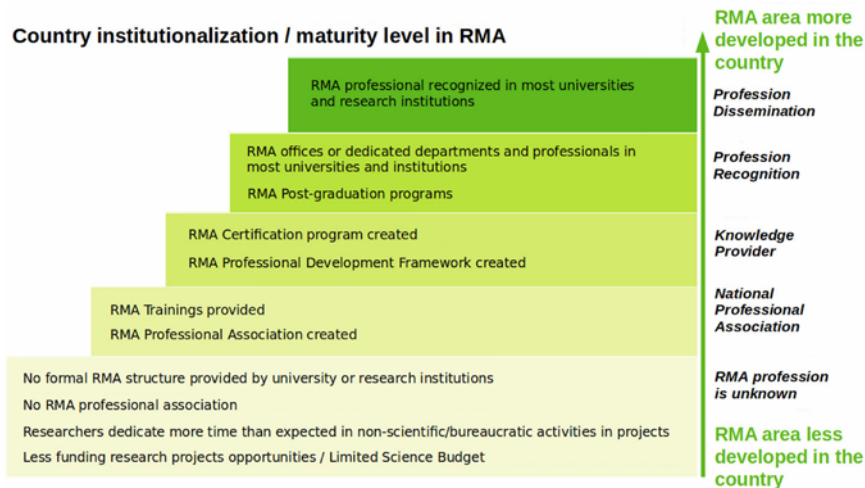

Fig. 3.2.2.   Country Institutionalisation and Professional Maturity Level in RMA. *Source:* Elaborated by authors based on the professionalisation model of Curnow and McGonigle (2006) adapted by Williamson et al. (2020).

According to the table above, the US, Canada, and the UK are more likely to be found at the top level of the scale, whilst most African countries and some countries in South America are placed at the bottom of the scale. Specifically, in regards to countries covered in Chapter 3.3, Italy is more likely to fall between the first and the second stage of maturity since a formal RMAs association has not been established yet but there are actions in place and some training is provided to those in the profession (see Chapter 4.4). Whilst Brazil is, without doubt, likely to fall into the second stage, which refers to the National Professional Association stage; this means that there is still room for development regarding actions to increase the science budget and to attain the recognition of the RMA profession.

For institutions and single countries, the model identifies what they should progressively/activate to move altogether upward on this ladder of maturity in the profession. Especially for countries still on the first steps of the maturity in RMA, STI public policies could be a path to enable the creation of professional associations, enable the establishment of training programmes based on the sources of knowledge presented, raise awareness and encourage institutions to implement practices and structures of RMA. The gains for institutions that are continuously improving their RMA process involve increasing project proposal approvals and fundraising and optimising the usage of resources, which means doing more research with more efficiency at a lower cost. The cost of research is one of the main bottlenecks to many countries. More research brings more development for the country and stimulates the continuity of this positive cycle.

Conclusion

This chapter discussed different forms of knowledge related to RMA, in connection with different phases of RPLC, which are applicable to anyone working in research institutions.

The collection of knowledge source presented in this chapter serves as a framework which is useful in capacity-building of institutions and professional communities. This knowledge framework can be a source in defining a competency/career development plan for professionals or designing an RMA office.

The last part of the chapter envisaged a first attempt to assess different levels of institutional maturity in RMA in a country, which is directly related to the level of professionalisation of research administrators in that region. This model showed achievements required of a profession at different stages of maturity and is thereby meant to raise staff engagement and commitment in modern RMA. The formation of a professional community in a country is key to achieving the recognition of the profession.

References

AIPM. (2022). *Australian Institute of Project Management website*. Retrieved March 20, 2022, from https://www.aipm.com.au/home

Andersen, J. (2018). Preaward—Project preparation. In J. Andersen, K. Toom, S. Poli, & P. Miller (Eds.), *Research management: Europe and beyond* (pp. 147–171). Elsevier.

APM. (2022). *Association for Project Management website*. Retrieved March 20, 2022, from https://www.apm.org.uk/body-of-knowledge/

ARMA. (2011). *A professional development framework for research managers and administrators*. Association of Research Managers and Administrators. Retrieved November 26, 2022, from https://arma.ac.uk/wp-content/uploads/2018/11/PDF-Final.docx

ARMS. (2022). *Australasian Research Management Society website*. Retrieved April 4, 2022, from https://researchmanagement.org.au/

AXELOS. (2022). *What is Prince2 webpage?* Retrieved March 20, 2022, from https://www.axelos.com/best-practice-solutions/prince2/what-is-prince2

Curnow, C. K., & McGonigle, T. P. (2006). The effects of government initiatives on the professionalization of occupations. *Human Resource Management Review*, *16*(3), 284–293. https://doi.org/10.1016/j.hrmr.2006.06.001

Gornall, L. (1999). 'New professionals': Change and occupational roles in higher education. *Perspectives: Policy & Practice in Higher Education*, *3*(2), 44–49.

Harland, T. (2012). Higher education as an open-access discipline. *Higher Education Research & Development*, *31*(5), 703–710.

Hockey, J., & Allen-Collinson, J. (2009). Occupational knowledge and practice amongst UK university research administrators. *Higher Education Quarterly*, *63*(2), 141–159.

IPMA. (2022). *IPMA standards website*. Retrieved March 20, 2022, from https://www.ipma.world/individuals/standard/

Kent, R. (2006). Joined-up thinking? The research office in the twenty-first century. *Issues in Research Management and Administration (IRMA-UK)*.

Kerridge, S., & Scott, S. (2018a). Research administration around the world. *Research Management Review*, *23*(1), 1–34.

MCTIC. (2016). *Estratégia Nacional de Ciência, Tecnologia e Inovação 2016|2022*. MCTIC.

Oliveira, F. S. (2020). *Administração e gestão de projetos de pesquisa e sua contribuição às atividades de pesquisa, desenvolvimento e inovação: estudo de caso da Embrapa*. Embrapa Agroindústria Tropical-Tese/dissertação (ALICE).

PM2. (2022). *The OpenPM2 initiative webpage*. Retrieved March 20, 2022, from https://www.pm2alliance.eu/history-of-pm2/

PMI. (2013). *Um Guia do Conhecimento em Gerenciamento de Projetos (Guia PMBoK) - Quinta Edição* (5a. Edição ed.). Editora Saraiva.

Pontikakis, D., Mcdonnell, T., & Geoghegan, W. (2005). *Conceptualising a national innovation system: Actor roles and incentives*.

RACC Website. (n.d.). Retrieved April 3, 2022, from http://www.cra-cert.org/

Schützenmeister, F. (2010). University research management: An exploratory literature review.

Shelley, L. (2010). Research managers uncovered: Changing roles and 'shifting arenas' in the academy. *Higher Education Quarterly*, *64*(1), 41–64.

Smith, J. A., & Torres, L. (2011). The process of establishing a new master of research administration program. *Research Management Review*, *18*(1), 1–19.

Starbuck, S. (2014). Yes, I am a research manager, but I don't cost bids. In *The ARMA 2014 conference proceedings: Learning from the past; Preparing for the Future 2014*. ARMA.

Tight, M. (2020). Higher education: Discipline or field of study? *Tertiary Education and Management*, *26*(4), 415–428.

Warner, D., & Palfreyman, D. (1996). *Higher education management: The key elements*. McGraw-Hill Education (UK).

Whitchurch, C. (2006). Who do they think they are? The changing identities of professional administrators and managers in UK higher education. *Journal of Higher Education Policy and Management*, *28*(2), 159–171.

Whitchurch, C. (2009). The rise of the blended professional in higher education: A comparison between the United Kingdom, Australia and the United States. *Higher Education*, *58*(3), 407–418.

Williamson, C., Dyason, K., & Jackson, J. (2020). Scaling up professionalization of research management in Southern Africa. *Journal of Research Administration*, *51*(1), 46–72.