



## Chapter 3.4


# Research-related Information Management: Reflections from Southern African Practitioners

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### Abstract

This chapter discusses the growing importance of research-related information in the face of increased complexities and competitiveness within higher education environments globally. It provides some reflections on the importance of institutional research cultures to effectively address these challenges, focussing on the African context, and the role of effective research support through institutional structures such as a dedicated research office. The increasingly strategic role of research management has led to the need for a more active and visionary role in the positioning of institutions by supporting decision-making and contributing to the development and visibility of institutional research portfolios. The authors provide their insights into the scope of research-related information, the need for research offices to perform this strategic function,

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The Emerald Handbook of Research Management and Administration Around the World, 247–263

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how these information sets can be applied in reports, evidence-based decisions, institutional showcasing, and enhanced research support. The chapter includes aspects to consider when establishing a research-related information management function within institutions.

*Keywords:* Africa; higher education; research-related information; research management; research information systems; research office; decision-making; institutional research portfolio; institutional positioning; curatorship; research culture; reporting; showcasing

## Introduction

The higher education landscape is a dynamic environment to work in. However, it has also become an increasingly complex and competitive space which places enormous pressure on institutions to perform, distinguish themselves from the rest, showcase the impact, relevance and applicability of research activities and to develop a competitive edge. This cannot be done without effective support through institutional structures such as a dedicated research office or a collective structure that can play an active and visionary role in the positioning of their institutions by supporting decision-making and contributing to the development and visibility of the institutional research portfolio.

In their study of institutional positioning in higher education, [Fumasoli and Huisman \(2013\)](#) explain that the institutional positioning of universities reflects their strategic intent, or their capability to locate themselves in a favourable niche. This positioning includes the active way in which institutions need to create a competitive advantage through the creation and development of a research profile that distinguishes themselves from competitors, including the identification of unique core competencies, areas of expertise and their contribution to local and international development agendas.

[Loi \(2021\)](#) also alludes to the changing dynamics of research, which needs to adhere to new demands placed by changing funding requirements, competitive bids, complex requirements, due diligence, legislation and governance. This has led to a focus, for example, on multi-disciplinary, interdisciplinary, collaborative research, with an increased need to showcase impact and societal benefit. Furthermore, [Tijssen and Kraemer-Mbula \(2017\)](#) argue that science performance and knowledge production in Africa in particular are affected by economic conditions and the availability of human resources and there has been an increasing interest to pursue excellence – through the creation of an enabling environment to groom and attract high-quality researchers that can perform and produce and attract funding. Similarly, there has been an increasing demand on researchers to produce research that has positive socio-economic impacts and benefits.

Ultimately, these changing dynamics have also impacted on the way research is supported and managed. According to [Agostinho et al. \(2018, p. 1\)](#), ‘the importance that activities of management, valorisation and communication of science and innovation assume in the R&I ecosystem in general has been widely recognised’. However, as [Bossu and Brown \(2018\)](#) affirm, these new demands and pressures have led to changes in the way universities are managed, with a move to more corporate organisational principles. The role of research managers in Higher Education Institutions (HEIs) has shifted from primarily providing administrative support towards a more active, visionary and increasingly multi-dimensional role in the positioning and prestige of their universities ([Loi, 2021](#); [Shelley, 2010](#)).

[Agostino et al. \(2020\)](#) propose that although professionals working in what they call the ‘interface of science’ might perform a diverse set of activities, they are performing ‘differentiated responsibilities that goes far beyond general administrative roles’ (p. 2).

These responsibilities have led to more specialised functions within research offices, including the provision of decision-support, analysis of institutional knowledge production in especially research-intensive institutions and the creation and facilitation of directed initiatives that promote and give visibility to the institutional research portfolio.

These specialised functions create what Behari-Leak and Le Roux (2018, p. 30) call an ‘in-between space between mainstream academic support work, leadership and advocacy and other roles at the periphery’. They also refer to Whitchurch’s (2007a) concept of a ‘third space’ in which research management practitioners need to find their place and set up ‘new structures of authority, practice and discourses’ (Behari-Leak & Le Roux, 2018, p. 30).

One such space where involvement from research management professionals is increasingly needed, is in activities which require effective research and research-related information in current research management practices. Activities include being co-responsible with executive management to set research strategy, to develop research-related policies and to decide on research themes at institutional, faculty and individual levels; research environment scanning, trends analysis and the gathering, analysis and dissemination of intelligence; benchmarking and the calculation and analysis of research metrics; development of partnerships; use and promotion and showcasing of research outputs, including formal and informal reports; and monitor compliance and risk areas and to develop and maintain corporate systems and administrative mechanisms for the support and automation of processes, and the capture and provision of information which underpins all of the other areas (Carter & Langley, 2009; Langley & Oforu, 2007; Schützenmeiser, 2010, as highlighted in Botha & Hunter-Hüsselmann, 2016).

This chapter will provide a reflection on the important role that the research office plays in the development and enhancement of institutional and individual research portfolios through the provision and application of research and research-related information. It will be based on a study of a selection of research-intensive HEIs in South Africa done by Botha and Hunter-Hüsselmann (2016), and on the experiences gained through the authors’ engagement in an EU-funded project: *Strengthening of Collaboration, Leadership and Professionalisation in Research Management in the SADC and EU Higher Education Institutions* (StoRM)<sup>1</sup> which was completed in 2021. The authors’ own insights and reflections will also be shared – from working in the field of research information management within a research-intensive HEI in South Africa and in Botswana respectively, and through their active interactions and collaborations with other higher-education institutions in Southern Africa over many years. This will equip readers with some insight into the importance of effective use and management of research-related information and highlight aspects to consider when establishing such a function within their own institutions.

## **Institutional Research Cultures in Africa – Some Thoughts**

The need for effective management, analysis and application of research-related information that is collected through the various functions within the research office has become an essential function within the research management profession – especially within institutions with a strong, established research portfolio. Although many of these activities are expected and to a great extent already prevalent in research-intensive institutions in South Africa, it is not necessarily the case for the rest of Africa. In some

<sup>1</sup><https://sites.google.com/view/projectstorm/home>

institutions where there is a slow emergence of institutional investment in professional support structures, research administrators and managers are still grappling with the establishment of the basic research support function in their institutions (Botha & Hunter-Hüsselmann, 2016).

Tijssen and Kraemer-Mbula (2017) argue that the difficulties might stem from the fact that in Africa, universities vary according to their size, their abilities to produce impactful scientific research outputs and the country's economic and political conditions. Scientific research has become a powerful characteristic in the mission and vision statement of most, if not all, African universities. The so-called teaching universities are now aspiring to become research-intensive universities (Benmoussa et al., 2018; The Association of Commonwealth Universities, 2015), and are working collaboratively with other universities, since mutual benefit is becoming yet another priority for African universities.

Such observations suggest that some universities have either no evolving institutional research culture, a weak research culture or no research culture at all. Yet, expectations from HEI regulatory bodies and society are that universities must attain research excellence and contribute to the national transformation of their countries through the creation, application and transfer of knowledge. These expectations have had a direct impact on how university research is funded by government and other funding bodies and ultimately shape the size and scope of research management in universities. According to Naureen and Adeeb (2014), an institution with a research culture 'is the type of environment which leads academics to research productivity in higher education institutions' (p. 3010). Similarly, Evans (2012, as cited in Olvido, 2021), defines it as 'shared values, assumptions, beliefs, rituals and other forms of behaviour geared towards the acknowledgement of the value and significance of research practice and its outputs' (p. 6). Furthermore, Casci and Adams (2020) allude that a research culture is defined by 'the way we evaluate, support and reward quality in research, how we recognise varied contributions to a research activity, and the way we support different career paths' (p. 1), which should include mentoring and capacity building (Mirasol & Inovejas, 2017). These indicators define the variations that we see in African universities in terms of their research management structures, research intensity and their research development, performance and excellence and institutional research strategies.

These indicators also include the presence of an institutional research policy and agenda, departmental research programmes, and strategies designed to develop and encourage research productivity, research management structure, a research committee or research monitoring body, a clear budget for research, sufficient institutional infrastructure for research, collaboration with and access to research professionals in other institutions, incentive schemes to encourage research productivity, and the presence of sustained research publications and other research-related outputs (Salazar-Clemeña & Almonte-Acosta, 2007, p. 4).

An institution with a strong research culture is ultimately one where both research and researchers are valued. The question is: how do we ensure research excellence and effective knowledge production in African HEIs in the face of numerous demands and contextual influences? This, from our perspective, is only attainable if there is a strong institutional research culture, influenced by an external environment (such as the national government) that is supportive and individual researchers that are well-equipped. These are the building blocks to attaining research excellence through knowledge production. There is a need to have government structures that put policies

in place that foster the right behaviour. Targets and standards need to be set that are relevant but also achievable. Funding for research and research-related activities are essential and funding agencies need to prioritise and direct their investment in areas where the need is the greatest. Partnerships with industry and other national and international agencies have also become extremely important.

A supportive and enabling institutional environment is also key to building a research culture. The institutional vision, mission and strategies related to research need to reflect the development of research and innovation. Institutional leadership needs to understand the importance of research-focused endeavours to build reputation and credibility. There must be investment in the quality of researchers, the provision of necessary infrastructure and resources for researchers to do their work, incentive schemes for performance, and continuous research capacity development through directed efforts. On an individual researcher level, there is a need for a prepared researcher to contribute to the institutional research culture. They have to be qualified, motivated, committed and focussed, with a will to learn and to achieve excellence through their work.

### **The Need for Research-related Information on Various Levels**

If you work in a research office in any HEI in the world, you would probably have seen that the need for research-related information for statutory or more formal purposes has increased exponentially, not only within the institution but also through national government structures.

National policies on the governance of research and administration play a pivotal role in how research-related information support structures and the information itself is organised. For instance, in some HEIs, there are research excellence frameworks (REFs) that are meant to be policy-relevant concepts that define research funding and assessment ([The Association of Commonwealth Universities, 2015](#)). There has been a growing trend to pursue these REFs in order to create an enabling environment to grow and attract high-quality researchers and produce impactful research outputs in high-impact research dissemination outlets. One way in which these high-quality and productive researchers are attracted is through their applications for research grant funding calls. The process then enables funding organisations and public sector agencies to strategically award funds to deserving researchers.

Another significant development in the Southern African research landscape is that limited research resources has driven governments to selectively allocate resources, employing a transparent decision-making process based on evidence that speaks to the performance of universities. This therefore means that there are defined requirements from university regulators and funding agencies charting research excellence and university involvement in research. The importance of research-related information can therefore be seen at different levels:

**Nationally**, research-related information is important for benchmarking, for landscape analyses and to prioritise funding opportunities according to national strengths and weaknesses, also in terms of developmental needs and priority areas – you need to know who is contributing, where your strengths as a nation lie and where you need to invest more.

**Institutionally**, it is important to have information available in terms of institutional indicators of successes and weaknesses, strategic research priority areas, to benchmark the institution according to set criteria of excellence – how does it fair in terms of rankings, successes in terms of obtaining funding, its collaboration with

national and international research institutions, or its standing standing in terms of research? Faculties and departments need research-related information to measure performance, for institutional management reports, etc. You need to know your own business landscape – where your researchers are active, who publishes where, where your core competencies lie, etc.

**On a researcher level**, it is important to measure individual research performance based on specific indicators of success. Individual records related to outputs, grants, awards/prizes, supervision record, postgraduate success rate, collaborators/networks, success in obtaining funding, contract research, etc. are needed in order to profile yourself as a researcher. This information is often needed in performance management, when funding applications, looking for collaborations, attracting postgraduate students, and showcasing your standing in your research field.

The need for effective management, analysis, and application of research-related information that is collected through the various functions within the research office has therefore become an essential function within the research management profession and can have huge value – nationally, institutionally, and on an individual researcher level.

## **The Scope of Research-related Information**

[Botha and Hunter-Hüsselmann \(2016\)](#) argue that research-related information should be understood to include information sets related to the research activities within an institution and the functions typically found in the research office (also see [Carter & Langley, 2009](#); [Langley & Oforu, 2007](#); [Schützenmeiser, 2010](#)). It not only includes information on research outputs such as publications, grants, etc. but also other research-related information that is available from the broad range of responsibilities and functions that research managers undertake. These information sets can fulfil a more strategic function when applied effectively in decision-making processes. ‘It can also include knowledge on where the institutions’ core competencies lie or their weaknesses, for that matter, and it informs the research performance of individual researchers’ ([Botha & Hunter-Hüsselmann, 2016](#), p. 303).

The authors have identified different categories of research-related information, linked to the typical functions of research administrators and managers. These include information related to the researchers themselves (Human Resources type data), publication outputs (journal articles, conference proceedings, books, chapters in books), masters and doctoral students (enrolments, graduations), grants and funding (internal institutional, national, international), postdoctoral research fellows, research contracts, facilities and equipment, ethics, intellectual property and technology transfer, etc. On a more strategic level, it also includes information around researcher and institutional partnerships and collaborations, strategic management indicators related to research, benchmarking information such as niche research focus areas, centres of excellence, research chairs and their focus areas, information related to rankings, and information and stories used for science communication purposes, such as popular articles, news clippings, etc., that raise the visibility of the research portfolio and its relevance and impact to a broader audience.

We would also argue that research-related information includes not only data related to the spectrum of functions and responsibilities of research managers and other research-related support divisions, as highlighted above, but also the underlying information about institutional processes, strategies and policies, even basic

information such as who to contact, for example, if you need to know how to apply for funding, how to apply for a research contract, how to complete an ethics clearance form, to name a few. Moreover, we also view information that can be used to raise the visibility of the institutional and individual research portfolios would typically be applied to communicate science to a broader audience in our description of research-related information. What is important to note is that although the information related to these categories mainly resides within research offices, other custodians of data such as the HR office, the Library and Information Services, the Postgraduate office and Intellectual Property (IP) and Technology Transfer office (if these are all separate entities within the institution), the Institutional Research and Governance office (or similar entity), the Information, Communications and Technology (ICT) division also keep records of data that needs to feed into the research-related information, depending on the type of required reporting and/or the use and application of the information. [Wenger and Snyder \(2000\)](#) also allude to the importance of cooperation with a range of role players within the institution, who need to form a community of practice and work together to create a holistic approach to address matters that require the effective application of research-related information.

Furthermore, the various players within institutions also often use different ways of capturing information. To illustrate the complexity of managing research-related information, we have included a selection of categories of information that exist within different data sources, curated by different divisions within six South African institutions in [Table 3.4.1](#). Note also that there is often a difference between the curator of information (responsible for definitions, processes to capture and update information, data quality and reporting) and the curator of the information system/database in use (responsible to develop and maintain the database and technical system, software, information architecture, interoperability and integration). What can be deduced from [Table 3.4.1](#) is that the various research-related information sets reside in different divisions and that the research office is by no means the only stakeholder involved. The responsibility to curate the different categories of information therefore is also varied within the institution, so is the management of the specific system(s) or tool(s) for capturing and recordkeeping. Coordination of these different elements (specific categories of information, where it resides, who is responsible and the type of recordkeeping in place) can become quite complex and standard operating procedures (SOPs) should be put in place to ensure effective management of the information.

## **Research-related Information Management**

In South Africa, HEIs are required to report regularly on a number of research and research-related activities. In some cases, there is a direct link between reporting these activities and funding allocated by the government ([Styger et al., 2015](#); [Woodiwiss, 2012](#)). Subsidy allocation to South African HEIs, for example, is directly influenced by the number of publications as determined by the South African Department of Higher Education and Training (DHET) Research Output Policy (2015) as well as postgraduate student output. This information has to be audited and reported on annually to the government.

HEIs therefore need to comply with good practices in order to ensure that research information is correctly recorded, managed and protected.

Table 3.4.1. A Selection of Categories and Custodianship of Research-Related Information in Six South African Universities.

Type of RRI	Curator of Information	Curator of Information System	Name of system
Information on researchers (HR information)	HR department supported by ICT department, some collaboration with Research Office	ICT department in partnership with HR	Mostly enterprise systems, e.g. <i>Oracle-HR</i> , <i>SAP-HR</i> , also homegrown systems (e.g. <i>Protea</i> )
Publication outputs (journal articles, book chapters, conference proceedings)	Research Office	ICT department or Research Support Office in partnership with an external service provider	Research Administrator, IRMA Publications, Thomson Rogers <i>Converis</i> , <i>Protea</i> , <i>Info-Ed</i>
Masters and doctoral student information (enrolments, graduations)	Registrar's Office (in cooperation with Faculty/College Offices)	ICT department in partnership with Registrar's Office	<i>Oracle-Peoplesoft Campus Solutions</i> or <i>Protea</i> or IRMA or a homegrown system
Post-doctoral fellows	Research Office or Faculty/College Offices & Registrar's Office, or HR department	ICT department in partnership with RSO or Registrar's Office	Excel spreadsheets, <i>Oracle-Peoplesoft Campus Solutions</i>
Funding and grants: Internal university grants	Research Office or Faculty/College Offices	ICT department in partnership with Research Support Office and the Finance Department	<i>Oracle-Peoplesoft Campus Solutions</i> or a homegrown finance system (migrating to <i>Kuali Finance System</i> ), <i>InfoEd</i>
Research Contracts (number, source of funding, partners, duration, agreement details, conditions, outputs, legal clearance)	Research Office	ICT department (in terms of the enterprise system) or Research Contracts & Intellectual Property Services (RCIPS) Department or Legal Services	IRMA Contracts & Grants (migrating to Thomson Reuters <i>Converis</i> ) or <i>ImageNow</i> , or homegrown contract management system based on <i>Excel</i> spreadsheets
Ethics approvals / Information related to research integrity	Research Support Office	ICT dept (in some cases in partnership with NRF RIMS team)	<i>Info-Ed</i> or RIMS or various systems including <i>MS Access</i> IRMA or Excel spreadsheets
Partnerships, research collaborators	Various custodians, including Research Office and International Academic Programmes Office (IAPO)	ICT department in cooperation with various different offices, including the Research Support Office	Various, including Research Office and International Academic Programmes Office (IAPO) or <i>ImageNow</i>

Source: Extract from Botha and Hunter-Hüsselmann (2016).



This is important on various levels, namely:

- There is a **legal** obligation to comply with standard practices, both nationally for POPIA (Protection of Personal Information Act)<sup>2</sup> and internationally.
- HEIs have an **ethical** responsibility to protect research subjects and ensure that information has validity and integrity.
- There are **contractual** requirements in terms of external funder requirements, as well as requirements for, for example, intellectual property rights and data retention.
- There are **institutional requirements** to comply with as dictated by policies and regulations.

It is therefore clear that the risks involved if research-related information is not managed properly can be dire and can influence the institution on multiple levels. It can have direct financial implications since failure to report information can lead to loss of income, whether its subsidy income or any form of income from grants, contracts, etc. There is also the issue of reputational damage to the institution if information is reported incorrectly, incomplete or not complying with the requirements specified.

In order to manage research-related information effectively, technology and information systems are essential in accomplishing this. As indicated elsewhere in this chapter, an institution might have various databases that contain research-related information and a significant number of them contain information that typically resides in the research office. Examples of such databases include information systems for capturing and reporting on research publication outputs, ethical clearance & compliance, managing research contracts, showcasing research expertise, managing research grants, postdoctoral fellowship as well as postgraduate students & funding. The format of these databases varies quite significantly and can range from Excel spreadsheets to homegrown systems as well as software systems bought and customised according to specific functional requirements. Some of the information contained in these databases will overlap with other institutional systems, such as Finance, Human Resources (HR), Student Information and Institutional Research. Integration of these systems provides the possibility of high-level reporting across the research landscape of the institution. Based on our experience with implementing electronic research information management systems, the cost involved in the integration of various systems and the level of sophistication of integration possibilities can become quite extensive and this should be kept in mind when investigating possible service providers to serve the particular institutional needs for an electronic research management or related systems.

Integration of systems on a national level in South Africa was already addressed in 2004 with the Institutional Research Information Systems (IRIS) project. Discussions between stakeholders that formed part of the project including SARIMA/DSI/NRF/USAID) highlighted the value of developing and standardising electronic research management information systems at HEIs. The following advantages of such system(s) were discussed and presented in an internal report (Mulder, 2004, p. 163):

- it provides a valuable planning tool for research development and support at institutional and national levels;
- it enables the facilitation of internal monitoring of research output and impact;
- it enables the rapid response to national government and statutory bodies' information requirements;
- it provides reliable and comparable data for national surveys as well as routine information required by different bodies;

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<sup>2</sup><https://popia.co.za/>

- it enables comparative studies and inter-institutional and international benchmarking;
- it leads to improved impact studies and measurements;
- it facilitates the generation of knowledge on the research process at a systemic level;
- it ensures good practices in terms of management of data and information; and
- it assists in collecting information with less effort and greater accuracy.

Although considerable investment was made at the beginning of 2006 in a project to customise and implement a national electronic research information management system, the attempt did not provide the envisioned outcomes and only a few HEIs still use some of the modules available in the system (Kerridge et al., 2012). The challenges posed by a project of this nature were experienced both on national and institutional levels. In the former, the level of configuration at multi-institutional level as well relative lack of flexibility of the preferred system proved to be more of a challenge than initially envisioned. At an institutional level, factors that contributed to the challenge were inadequate personnel allocated to the project, lack of buy-in from end-users as well as the project being perceived as technology-driven rather than needs-driven.

Similarly, Botswana also commenced the implementation phase of a project on the establishment of the National Research Management System in June 2021 (Letsholathebe, 2022). Subsequently, efforts were being made to roll out the system to universities and to encourage them to upload their research outputs, activities, funded projects and research equipment. The driving force for the establishment of this national system is to be able to measure the magnitude of inputs to R&D (personnel and expenditures) and the value it brings to national socio-economic development. Most importantly, it is meant to assist the government to make informed decisions about research and development and to understand the national research landscape.

We have already alluded to the fact that there is an increased need for reporting, and more specifically, integrated, holistic reporting. An important lesson that we have learned through the IRIS project in South Africa, is that integrated reporting can be achieved without having a fully comprehensive electronic research information management system that covers almost all aspects of research management functions typically present in a research office. It is more viable to rather optimise existing systems to such an extent that data can be integrated and viewed on a platform such as a business warehouse. Some considerations for optimisation are:

- Include **unique identifiers** such as personnel or student numbers in your data (for integration with HR and student systems).
- Make sure that the **organisational structure of your information system** is in line with the official organisational structure of your institution.
- Make provision for the **identification of researchers and the entities that they are linked to**, to a cost centre in order to enhance financial reporting (integration with the financial system).
- Keep in touch with colleagues in other divisions that also deal with research-related information in order to ensure that you **stay in touch and up to date with requirements** that may eventually influence your function.

However, if you are in a position to acquire a new electronic information management system, there are some basic steps that you can follow in order to ensure the best

possible solution. These steps are based on the authors' own experience during many years of custodianship of electronic research information management systems:

- **Re-evaluate the current systems** that are in place.
- Decide where the **shortfalls** are in terms of systems that do not meet the basic **criteria for reporting and managing information**.
- Determine if there is an **overlap in terms of functionalities and requirements** of research data/information with other environments. Costs can be shared and it's easier to motivate for funding if a system can be optimally utilised by more than one environment.
- Find out about **institutional repositories** and if/how that can be linked to information in the research office.
- Spend some time setting out in detail your **functional requirements** in order to ensure that potential vendors are fully informed of your needs.
- After completion of this thorough process, **go out on tender** & select (a) solution(s) that can be integrated where possible with other existing information systems in order to optimise reporting.

## Current Applications of Research-Related Information

The study done by [Botha and Hunter-Hüsselmann \(2016\)](#) on the management and use of research-related information by a selection of research-intensive universities in South Africa identified the importance of research-related information to do *innovative reporting* on research performance, to support *evidence-based decision-making*, to raise the *visibility and showcasing* of research impact and relevance, and to enhance directed research support.

### *Innovative Reporting*

We have already highlighted the dynamics of the HE landscape in Africa and the pressures institutions have to distinguish themselves and to show impact. There is increased recognition for the value of research-related information through its use and application in innovative ways to report on research performance. Different audiences or stakeholders require different types of reporting. A formal report to the government, for example, would look different from a report to individual departments and faculties or a report for internal use by the office. There is a move away from reports with only tables, graphs and figures, to reports with a strong interpretative element, including recommendations with regards to the implementation of future interventions and strategies to ensure research development. The use of data visualisations and information graphics has become an important element of holistic interpretations of research-related information.

One example of a data visualisation tool is Microsoft's Power Business Intelligence (BI).<sup>3</sup> Power BI contains various default data visualisation components that include simple bar charts to pie charts to maps, and also complex models such as waterfalls, funnels, gauges and many other components.

For illustration: [Fig. 3.4.1](#) (a ribbon chart extracted from Stellenbosch University's Power BI application) shows master's degrees awarded by faculty and gender. Female students are represented by the darker ribbon and male students by the lighter ribbon.

<sup>3</sup><https://powerbi.microsoft.com/en-us/data-visualization/>

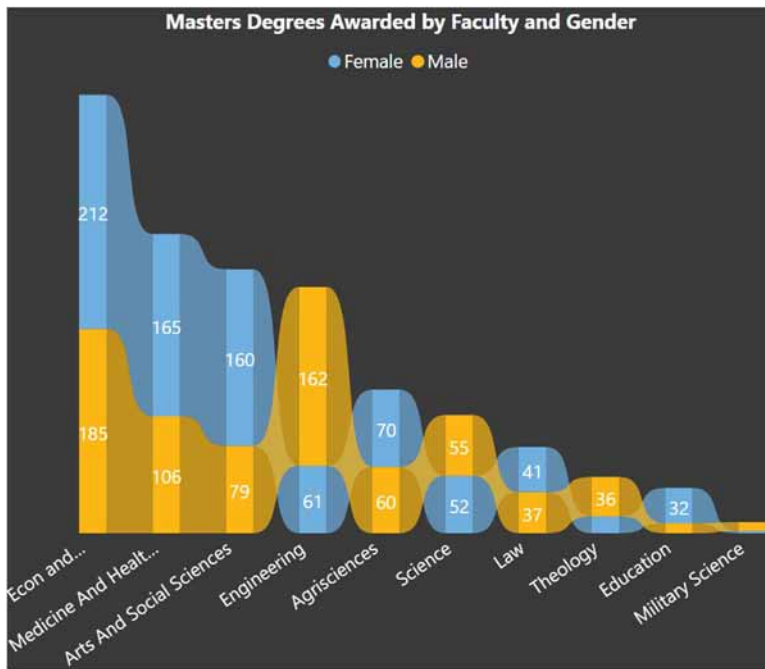


Fig. 3.4.1. Example of a Ribbon Chart Extracted from Microsoft BI – Master’s Degrees Awarded by Faculty and Gender at Stellenbosch University (2021 Data). Source: Stellenbosch University Division for Institutional Information.

To illustrate an infographic, we include Fig. 3.4.2 on Stellenbosch University’s research performance in a few key areas. These types of infographics are useful in institutional reports, but also in presentations and on platforms such as institutional websites.

### *Evidence-based Decision-making*

Institutional strategies and policies related to research such as the institutional research policy and strategy, policies on research integrity, intellectual property, and full costing or strategies around specific initiatives such as research focus areas, targets set for monitoring, and evaluation purposes, as well as institutional processes around, for example, research funding, outputs, postgraduate student development, etc. should all be informed by institutional research-related information. If you know where your emerging competencies lie, for example, you can channel your resources into strategically important areas.

### *Visibility and Showcasing*

Research for impact and the visibility of the institutional and individual research portfolios have become extremely important, as previously mentioned. Research-related information can be applied to showcase the impact of specific research activities in the media. It creates the ability to differentiate the institution from others and make it visible through science communication initiatives.

Research for impact, in numbers

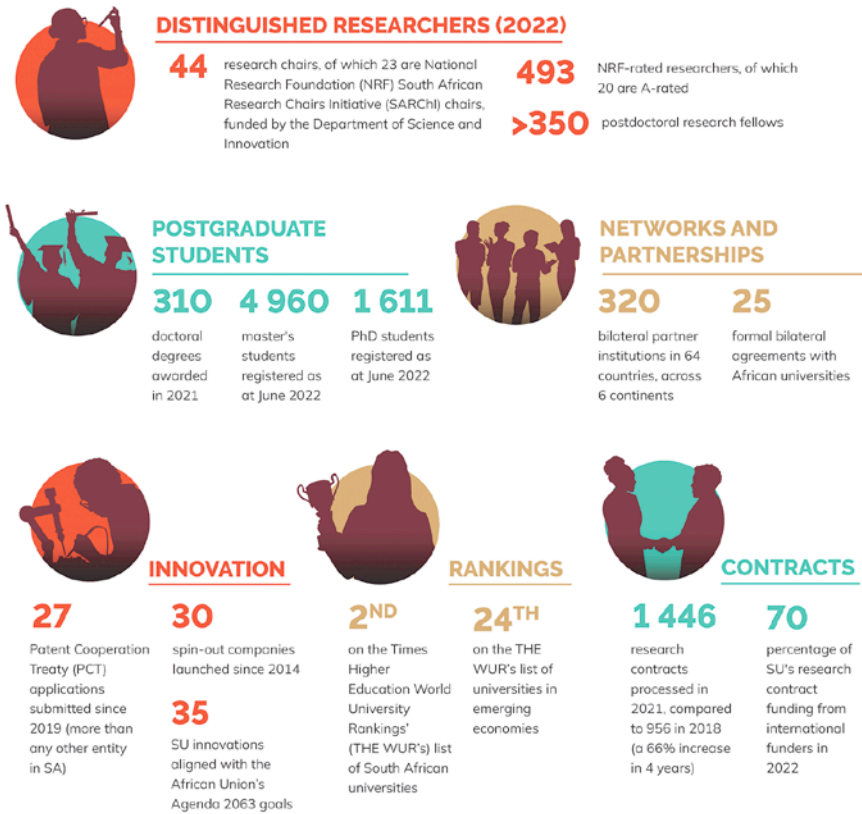


Fig. 3.4.2. Example of an Infographic for Internal Reporting/Showcasing – Research Successes at Stellenbosch University (2022 Data).

Source: Stellenbosch University Division for Research Development (DRD).

**Enhancing Research Support**

Research offices are responsible to provide information on the research-related support activities provided by the office to researchers. Information on funding opportunities, for example, information on specific interventions to promote the institutional research portfolio and to build the capacity of the researchers in the institution should be available and visible. Focussed interventions on a specific area for development can also be backed up by a particular set of data and information. An example could be a focus on providing specific support to early career researchers that can be formulated and directed by using information related to this cohort.

The study also identified enabling factors for the generation of value-added research-related information. These included *institutional collaboration* (referring to the collaboration between institutional entities that record research-related information), *inter-institutional collaboration* (referring to the importance of research offices across institutions to work together, benchmark against each other, and share best practices) and the *development of relevant skills and competencies* of research managers (referring to the increasing importance of analytical skills, skills in bibliometrics, report writing, data visualisation, science communication, to name a few).

## Tips of the Trade

We have reflected on a few aspects to consider if you are in the process of establishing a research culture or if you want to create more visibility for your institutional research profile:

- Is this where you want to go as an institution? Is research part of your strategic focus?
- Do an institutional review of your current landscape: Do you have structures in place, i.e. policies/strategies related to research; committee structures to identify, support initiatives, support of top management?
- Know your current research strengths and weaknesses.
- Know your researchers – build relationships.
- Know your research-related sister support divisions.
- Start small – don't be over-ambitious – look for opportunities where quick wins can be reached in order to gain trust and show value.
- Try to establish a dedicated research management function at your institution.
- Surround yourself with people who know more than you and create learning opportunities for those that don't.
- Create visibility – for what you do and for your institution (website, information sessions, sessions to facilitate networks and institutional collaborations).
- Communication is key!
- Build relationships with journalists/the media/government.
- Build the capacity of your researchers and raise awareness about the importance of communication.
- Get involved in capacity-building opportunities provided by your institution or by professional research and innovation management associations.

In the following section, we highlight some guidelines on custodianship when capturing and reporting on research-related information:

*When you are responsible for a specific dataset:*

- Know and understand your data. This is key when it comes to reporting on data since you also need to know the limitations of your data.
- Correctness is key in order to ensure the integrity of the data.
- What information is required? Spend some time on the research fields that you want to include beforehand, because it is always difficult to go back and add additional fields once you have started capturing data.
- Know the reporting dates and requirements.
- Ensure sufficient institutional storage space.
- Make back-ups!
- Stewardship of data is important since you need to ensure that your data is trusted and, in the case of sensitive data, also protected.
- Standardisation in the way you capture data is non-negotiable, not only for integrity of the data but also to ensure effective reporting.

*When you are the custodian of a range of datasets and responsible for various integrated institutional reporting:*

- Know your institutional research environment.
- Know the types of data that you have to report on and where to find it.

- Set clear deadlines, depending on the timelines for the different reports and information requirements.
- Know your data sensitivity classification/POPIA (Protection of Personal Information Act).
- Draw your data from your institutional source systems.
- Use a secure platform.
- Systems custodianship is important! (It is quite challenging when it comes to older systems since historic data can date back many years and the standardisation of data is difficult, if not impossible from a practical perspective, to accomplish retrospectively).
- Set up a SOP document which outlines the requirements for recording and reporting to different stakeholders.

## Conclusion

This chapter highlights the significance of research-related information within research management, emphasising its role in the strategic development of research enterprises and the positioning of HEIs in Southern Africa and beyond. Specifically, it highlighted the strategic need for research-related information in integrated reporting to inform decision-support, create visibility and showcase the institutional research portfolio, and enhance directed research support. Furthermore, it provided insight into the factors that institutions should consider when managing research-related information effectively. The insights from this chapter should enhance the efficiency of institutional research portfolios, and support capacity-building for research management professionals in addressing more strategic roles and responsibilities. Although the chapter focused on reflections from Southern Africa, its relevance extends to the global higher education landscape.

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