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EVOLUTION OF THE RESEARCH MANAGER AND ADMINISTRATOR JOB AS A STAND-ALONE / SELF-CONTAINED OCCUPATION IN THE US UNIVERSITIES

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This study aimed to explore and analyse the evolution of research administration and management as a profession using exploratory and thematic analysis. The exploratory research methodology used some features of a narrative review to collect statistical data. The thematic analysis was used as a qualitative research method to identify and analyse patterns or themes in data. By reviewing primary and secondary sources dedicated to the occupation, the study found that research management and administration has evolved significantly over the past few decades in the USA universities as a self-contained occupation, requiring specialized knowledge and skills to perform the role effectively. The analysis found that during the growth, professionalization, and globalization phases of the job, the topic of research managers and administrators being seen as servant leaders was discussed in the literature, and the job was linked to the positions such as mediator/expediter, mediator/regulator, and project manager. Professional education and certification, as well as international professional development, were used to educate and train research managers and administrators during the phases. Research development and the introduction of technology-mediated tools into research administration were identified as contributors to occupation evolution. The analysis of the technical aspects of the RMA job revealed that the main theme for the publications was policy, procedures, and process compliance, with the focus on regulation interpretation and application, intellectual property legislation, technology transfer/patent rights legislation, accountability issues, institutional evaluation, contract legislation, etc. Further research is needed in exploring the impact of external factors, such as changes in funding and policy environments, on the role of research managers and administrators. Another issue for further investigation is how the job responsibilities of research managers and administrators is changing nowadays due to the increasing use of technology in research.

Keywords: research manager and administrator job, research administration roles, research management evolution, universities in the USA.

ЕВОЛЮЦІЯ ПРОФЕСІЇ АДМІНІСТРАТОРА НАУКОВИХ ДОСЛІДЖЕНЬ ЯК ОКРЕМОГО САМОДОСТАТНЬОГО ВИДУ ДІЯЛЬНОСТІ В УНІВЕРСИТЕТАХ США

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Мета статті – дослідити розвиток адміністрування та менеджменту наукових досліджень як окремої професійної діяльності в університетах США за допомогою пошукового

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та тематичного аналізу. Разом з методологією пошукового дослідження було використано елементи нарративного огляду для збору статистичних даних. Тематичний аналіз як якісний метод дослідження застосовано для виявлення характерних особливостей (паттернів) або тем у масиві даних. Огляд первинних та вторинних джерел довів, що за останні кілька десятиліть в університетах США управління науковими дослідженнями відокремилось у самостійну професію, що потребує спеціальних знань, навичок та вмінь. Дослідження виявило, що на етапах становлення, професіоналізації та глобалізації цієї професії в наукових розвідках обговорювалась роль адміністраторів як справжніх лідерів, лідерів-служителів команди науковців, чії посади зазвичай визначалися як посередник/експедитор, посередник/регулятор, або менеджер проектів. Підготовка адміністраторів наукових досліджень почала відбуватися в рамках професійної освіти, сертифікації діяльності та участі у міжнародних програмах професійного розвитку. Виявлено, що стрімкий розвиток наукових досліджень в університетах та впровадження технологічних інструментів в управління науковими дослідженнями посприяли становленню та оформленню професії адміністратора наукових досліджень. З'ясовано, що основними темами публікацій про роботу адміністраторів наукових досліджень були політичні кроки, процедури та відповідність діяльності встановленим вимогам з акцентом на інтерпретації та застосуванні законодавства про інтелектуальну власність, трансфер технологій, патентні права, питаннях підзвітності, оцінки спроможності інституції, контрактного законодавства тощо. Необхідні подальші дослідження щодо вивчення впливу зовнішніх факторів, наприклад, таких як зміни у фінансовій політиці або стрімкий розвиток технологій на виконання адміністраторами наукових досліджень професійних функцій та ролей.

Ключові слова: робота адміністратора наукових досліджень, функції та ролі адміністратора наукових досліджень, розвиток управління науковими дослідженнями, університети США.

Introduction of the issue. Research management and administration (RMA) is a critical function that supports research and innovation in various fields [6; 13; 17; 27]. Research managers and administrators are responsible for managing and supporting research activities, from the initial conception of a research project to its completion and dissemination. This involves managing budgets, coordinating research teams, preparing grant applications, ensuring compliance with regulatory and ethical standards, and promoting research excellence [23]. Over the last few decades, the research management and administration job has evolved as a self-contained occupation, with specialized skills and knowledge required to perform the role effectively [1].

The evolution of the research manager and administrator job has been driven by several factors, including the growing demand for research and innovation, the increased emphasis on accountability and governance, and the need for specialized expertise in managing research [16]. In the past, research management and administration were

often performed by researchers themselves, who had to juggle the demands of managing research projects with their research duties. However, as the volume and complexity of research activities grew, there was a need for specialized support staff who could provide dedicated management and administrative support. This led to the emergence of the research manager and administrator role as a stand-alone occupation [22]. The study of the evolution of the research manager and administrator job has been relatively underexplored in the academic literature. Specifically, there is a limited number of studies on how the professional stem and the technical body of knowledge stem of the RMA job transformed throughout the period of its evolution.

Current state of the issue. The study found that both the number of searches and data dedicated to research management and administration has grown dramatically over the recent 5 years (see Figure 1 below). This indicates the increasing global interest in research and the ways it can be managed.

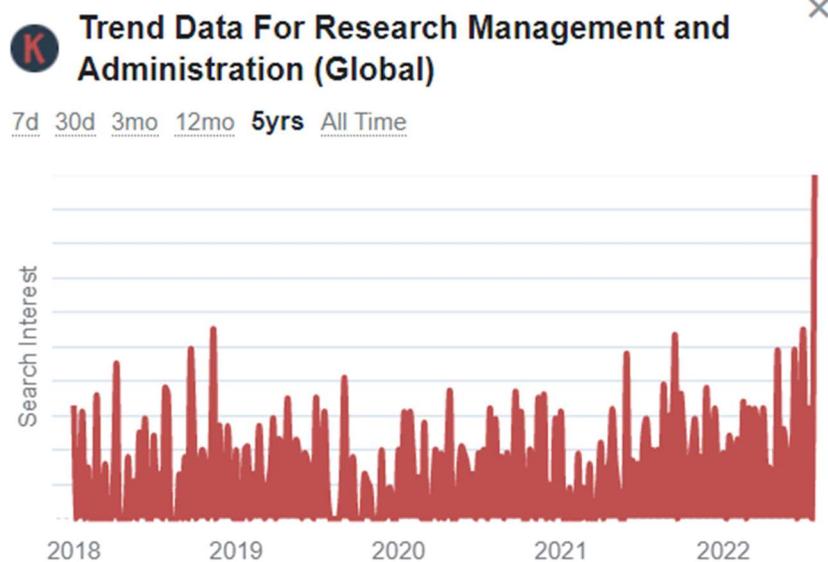


Fig. 1. The Internet Search Trend of Research Management and Administration (Based on "Research Management and Administration" Query to Keywords Everywhere Google Chrome Extension, available at: <https://keywordseverywhere.com/>)

This study also found that there was no single theory that laid the basics for the research management and administration job, as this field has developed in response to the changing needs and priorities of the research industry over time. However, several disciplines have contributed to the development of the area, including business management, organizational theory, public administration, and policy studies. These disciplines have provided insights into how research organizations can be managed effectively, how funding can be secured and managed, and how policies and regulations can be navigated. Additionally, the emergence of technology transfer and the commercialization of research has drawn on principles from intellectual property law and entrepreneurship. Ultimately, the field of research management and administration is interdisciplinary, supported by a range of theories and practices to maintain the successful management of research organizations and projects.

Interestingly, the literature on research management and administration is extremely diverse in topics, but it seems to be limited when compared to other professions. The

study found two Journals such as the Journal of Research Administration and Research Management Review that are dedicated to the occupation of research administration at the moment. The first mentioned is published by the Society of Research Administrators. These two journals, when combined, mainly formed the unified literature base and body of knowledge for the research administration profession.

The examination of the literature on the history of the research manager and administrator job as an occupation showed that this occupation has a relatively short history, with its emergence in the latter half of the 20th century. The role of RMAs has evolved over time, driven by changes in the funding landscape for research, the increasing complexity of research projects, and the growing demand for accountability and transparency in research.

One of the earliest studies on the RMA role was conducted by Kogan et al. [15] which was referred to by Kulakowski and Chronister [16], who surveyed RMAs in the United States and identified three main job functions: 1) providing administrative support for research proposals and projects, 2) managing

grant and contract activities, and 3) coordinating research activities across multiple departments or institutions. The study found that RMAs were highly educated and often had advanced degrees in science, engineering, or business [11].

In the 1990s, several studies highlighted the changing nature of the RMA role, as universities and research institutions faced increased competition for funding and greater scrutiny from funding agencies. A study by Levin and Stephan [19], White [28], and Hansen and Shisler [10] found that RMAs were taking on more strategic roles in research management, including identifying funding opportunities, developing partnerships with industry, and managing intellectual property. Another study by Gabriele [8] highlighted the growing importance of project management skills for RMAs, as research projects became more complex and interdisciplinary.

More recent studies have focused on the professionalization of the RMA role, with efforts to establish formal training and certification programs. A study by Langley and Ofosu [18], Langley [17], Campo [3], and Smith [25] found that the demand for trained RMAs was increasing, with many universities and research institutions offering professional development opportunities for their RMA staff. The authors argued that the professionalization of the RMA role was important for ensuring the quality and integrity of research, and for advancing the field of research management as a whole.

Overall, the scientific literature on the history of the RMA job as an occupation shows that the role has evolved significantly over the past few decades, driven by changes in the funding landscape and the increasing complexity of research projects. The RMA role has become more strategic and project-oriented, and there is growing recognition of the need for formal training and professional development opportunities.

Therefore, the **aim of research** of this study is to conduct the explorative and thematic examination of the evolution of research administration and management as a profession by reviewing the body of knowledge contained in the primary and secondary sources dedicated to the occupation.

This investigation attempted to identify the below:

1) How did the professional aspects of the RMA job in the US universities transform throughout the period under the study?

2) How did the technical aspects of the RMA job in the US universities transform throughout the period under the study?

Research methods. The study used a combination of the exploratory research methodology with thematic analysis. The exploratory research methodology used some features of a narrative review to collect statistical data that illustrates the development of the research manager and administrator job and the information on the number of training, Master's, and certification programmes to track the evolution of the research manager and administrator job in terms of training [9].

The thematic analysis was used as a qualitative research method [14; 21]. It is used to identify and analyze patterns or themes in data. This design involves the systematic categorization and interpretation of data to specify the themes or concepts that emerge from the data set. The study design comprised four phases such as *Phase I* – a keywords-based search of related information; *Phase II* – the creation of a thematic codebook; *Phase III* – a multi-phased review of the data based on keyword and title analysis to extract key elements and themes, and *Phase IV* – completion of a thematic matrix and representation of the distribution structure of themes. This phase-wise research design created a conceptual framework for the study, which was reported or referred to in a number of qualitative research sources [4; 5; 7; 20]. This design outcome was supposed to determine whether the topics have any

grouping overlap or categorical exclusivity, and ultimately validating the identified major themes.

Results and discussion. The study attempted to identify how the professional aspects of the RMA job transformed throughout the period under the study and how the technical body of the RMA job transformed throughout the same period drawing the focus on the USA Universities. The novelty of the study is that it provides valuable insights into the evolution of research management and administration as a profession, highlighting the need for specialized skills and knowledge, professional education and certification, and the integration of technology into research administration practices. When addressing the first research question, the study found that the evolution of research administration is inextricably linked to the evolution of formal research in America, particularly with the expansion of research in higher education [16; 26]. The job of a research manager was first mentioned in the literature in the early 1980s. In 1981, the Society of Research Administrators (SRA), now the National Organization of Research Development Professionals (NORDP), published a document titled "Professional Standards for Research Administrators" (see its updated version at the website of the Boise State University: <https://www.boisestate.edu/hrs-job-levels-job-standards/job-standard-for-research-administrator/>). As can be learned from the Standard, this document defined research administration as "the management of research activities, programs and projects" and identified the roles and responsibilities of research administrators. This phase of this job evolution is referred to as the emergence phase [1; 24]. The search for the statistical data of individuals working as research managers or administrators did not discover any formal data collection efforts to track the number of individuals working in the field. However, it is known that research institutions began to hire dedicated research managers and administrators during this period to help manage research activities [16]. The search for educational or post-educational

programmes in research management and administration found few formal training programs or certifications available. However, some universities and research institutions offered courses or workshops on topics such as grants management or research compliance [17].

The concept of research management and administration continued to gain traction throughout the 1980s and 1990s, as research institutions recognized the need for dedicated support staff to manage the increasing volume and complexity of research activities and importance of research in driving economic growth became apparent. Governments began to invest heavily in research, and research organizations began to develop strategies to manage their research programs more effectively. This led to the emergence of new roles, such as research managers and research coordinators, who were responsible for overseeing and coordinating research activities. This period of the evolution of research management and administration as a stand-alone occupation is referred to as a growth phase [16; 24]. During the growth phase, the number of individuals working in research management and administration began to increase, and professional associations such as the Society of Research Administrators (SRA) and the National Council of University Research Administrators (NCURA) were formed to support the development of the profession. According to a survey conducted by the NCURA in 2003, there were approximately 10,000 research administrators working in the United States at that time [12]. During the growth phase, the number of training and certification programs increased significantly. Professional associations began to offer more formal training programs including the SRA's "Certificate Program in Research Administration" and NCURA's "Fundamentals of Sponsored Project Administration" program. Some universities also began to offer Master's programs in research management and administration during this phase [2; 25].

In the 1990s and early 2000s, the role of RMA continued to evolve as universities and research organizations began to adopt more business-like practices. The focus shifted from simply managing research projects to maximizing the return on investment in research. This led to the emergence of new roles, such as research development managers, who were responsible for identifying funding opportunities and developing research proposals. The role of RMA also expanded to include the commercialisation of research, with the creation of technology transfer offices (TTOs) to manage intellectual property and licensing agreements. The literature sources classify the period of this job evolution as a professionalization phase [16; 24]. During this phase, the number of individuals working in research management and administration continued to increase, and professional development programs and certifications became more standardized. According to a survey conducted by NCURA in 2006, there were approximately 15,000 research administrators working in the United States at that time [2018]. Additionally, the number of individuals obtaining professional certifications such as the Certified Research Administrator (CRA) and the Certified Pre-Award Research Administrator (CPRA) continued to grow. The number of training and certification programmes continued to increase, and the quality and rigour of these programs improved. The SRA launched its "Certified Research Administrator" (CRA) program in 1993, and the Research Administrators Certification Council (RACC) was established in 1995 to oversee the certification process. Other organizations such as the Association of Clinical Research Professionals (ACRP) and the Project Management Institute (PMI) also developed certifications relevant to research management and administration. The number of Master's programmes in research management and administration also increased during this phase [12].

In the early 2000s, the role of RMA continued to evolve in response to the changing funding environment. Funding became more competitive, and research organizations began to adopt more strategic approaches to funding applications. This led to the emergence of new roles, such as research funding officers, who were responsible for identifying funding opportunities and supporting researchers in developing competitive funding applications. This period of the research manager and administrator job is referred to as the globalization phase which began in the mid-2000s as research became increasingly international and cross-disciplinary [25; 27]. During this phase, research managers and administrators began to collaborate more closely with their counterparts in other countries and develop new skills and competencies related to international research collaboration and funding opportunities. The globalization phase is ongoing, but it is clear that research management and administration is becoming increasingly important in the context of international research collaboration. According to a survey conducted by the European Association of Research Managers and Administrators (EARMA) in 2016, approximately 65% of respondents reported that they had worked on international projects in the previous year, and 52% reported that they expected their involvement in international research to increase in the future [13]. During the globalization phase, the number of training and certification programs continued to increase, and there was a growing focus on international collaboration and global competencies. The EARMA established its "Professional Development Programme" in 2007 to provide training and development opportunities for research managers and administrators in Europe. Other organizations such as the Asia-Pacific Research and Innovation Management Association (APRIA) and the African Research Universities Alliance (ARUA) also began to offer training and development programs relevant to

research management and administration. In addition to the above, the Research Administrators Certification Council (RACC) began offering the Certified Research Administrator (CRA) credential in 2000, and the NCURA began offering its Certified Pre-Award Research Administrator (CPRA) credential in 2006. In recent years, the role of RMA has continued to evolve as research organizations have become more focused on impact and engagement. There is now a greater emphasis on ensuring that research has a real-world impact and is accessible to a wider audience. This has led to the emergence of new roles, such as research impact officers and research engagement officers, who are responsible for ensuring that research is communicated effectively to stakeholders and has a positive impact on society. Today, research management and administration is recognized as a critical function that supports research and innovation in various fields, and the job of a research manager has become a well-established profession [1; 25]. These days, research managers and administrators are expected to be highly specialized professionals who possess a wide range of skills and knowledge. They are responsible for managing research projects, from planning and budgeting to monitoring and reporting on progress. They also provide administrative support, including managing grant applications, coordinating research teams, and ensuring compliance with regulatory and ethical standards. In addition, they play a critical role in promoting research excellence, facilitating collaboration between researchers and research institutions, and promoting the dissemination of research findings.

While the research manager and administrator role has evolved to become a self-contained occupation, it also faces several challenges [27]. One of the key challenges is the need to balance the demands of supporting research activities with the need to maintain

compliance with regulatory and ethical standards. This requires research managers and administrators to possess a deep understanding of the regulatory and ethical frameworks that govern research activities. Another challenge is the need to manage the competing demands of different stakeholders, including researchers, funders, and institutional leaders. Research managers and administrators must be skilled in managing relationships with these stakeholders and ensuring that the needs of all parties are met.

Despite these challenges, the research manager and administrator role also presented many opportunities. With the growth in demand for research and innovation, there is an increasing need for skilled research managers and administrators who can provide the specialized support required to manage complex research projects. In addition, research managers and administrators play a critical role in promoting research excellence and facilitating collaboration, which are essential for driving innovation and advancing knowledge.

The thematic analysis of the randomly selected articles published in the Journal of Research Administration (can be accessed at: <https://www.srainternational.org/resources/journal/journal-archives>), Research Management Review (can be accessed at: <https://www.ncura.edu/Publications/ResearchManagementReview/Archives.aspx>), and the National Council of University Research Administrators (available at: <https://www.ncura.edu/Publications.aspx>) for the years of 1998-2022 found eligible for the study, discovered the below key topics, roles, education and training aspects of the profession and their contribution to the development of the occupation in the different evolution phases (see Table 1). The analysis of the transformation of the professional stem of the RMA job found two key topics that were associated with different roles, education and training aspects of the profession and their contribution to the evolution of the occupation.

Table 1

Key Topics, Roles, Education and Training Aspects of the Profession and Contribution of Those Aspects to the Evolution of the Occupation in the Different Evolution Phases

Key Themes	Role	Education and training domain	Contributors to the occupation evolution	Job Evolution Phase			
				Emergence	Growth	Professionalisation	Globalisation
Research Manager and Administrator seen as a Servant Leader	Mediator/Expediter	Professional Education/Certification	Research Development				
	Mediator/Regulator						
	Project Manager	International Professional Development	Technology-mediated Research Administration				
Research Manager and Administrator Performed in the Settings of Conventional Education	Communicator	Professional Survival					
	Research Administrator vs. Gift Administration		Portfolio Management (a set of projects to be managed)				
	Research Administrator as a Catalyst		Promotion of the Institution to Achieve Recognition				
	Research Evaluator						

As can be seen in Table 1, the data drawn from the analysis mainly relied on the non-technical features of the job. The topic of managers and administrators seen as servant leaders (which seems to be a newer concept) was discussed in the literature during the growth, professionalization and globalization phases of the evolution of the job of the research manager and administrator. During this period, the job was associated with the roles such as a mediator/expediter, mediator/regulator, and project manager. The education and training of those managers relied on professional education and certification along with international professional development. The contributors to the occupation evolution were identified to be research development and the introduction of technology-mediated tools into research administration.

The topic of research management and administration which was performed in the settings of conventional education seemed to be the early concept of research management and administration as a job. It was associated with the job roles such as a communicator (communication is becoming an essential component in data pertaining to the overall operations of the research enterprise all the phases through; as the complexity of research has grown, a bridge between faculty, administration, and funding agencies has become necessary to facilitate research in a compliant and efficient manner), and research administrator vs. gift administrator (this role categorises data pertaining to the distinctions between research awards (money for specific work) and gift awards (i.e. money in support of)); research administrator as a catalyst, and research evaluator. The

educational and training domain relied on professional survival. The contributors to the occupation evolution were considered to be portfolio management and the promotion of the institution to achieve recognition which occurred in the emergence, growth and

professionalization phases of the evolution of the job.

The transformation of the technical body (regulatory, procedural, and technological) of the RMA job, which was drawn from the thematic analysis, is presented in Table 2.

Table 2

Key Topic, Technical Body Domains of RMA Job such as Regulation, Procedures, Technical and Resource Opportunities

Key Themes	Technical Body Domains of RMA Job			Job Evolution Phase			
	Regulation	Procedures	Technical and Resource Opportunities	Emergence	Growth	Professionalisation	Globalisation
Policy/ Procedures Following and Processes	Regulatory Compliance/ Navigation	Streamlining /Efficiencies	Technology Application				
	Intellectual Property	Processing/ Work Flow	Facilities/ Shared Resources				
	Technology Transfer/Patent Rights and Policies	Cost Sharing/ Cost Recovery	Industry Partnerships				
	Accountability/ Institutional Evaluation						
	Contracting						

As can be seen in Table 2, the data drawn from the analysis mainly relied on the technical aspects of the RMA job. The main theme for the publications was the policy, complying with procedures and processes. Specifically, the studies covered the ways of interpretation and application of regulation, intellectual property legislation, technology transfer/patent rights legislation, the issues related to accountability, institutional evaluation and contract legislation. The analyzed publications also interpreted and discussed application procedures such as streamlining, processing/workflow, cost sharing and cost recovery. With regard to technical and resource opportunities, the publications were dedicated to

technology applications, facilities and shared resources, and building industry partnerships. As can be also noticed in Table 2, some inner institutional issues related to legislation, processing and technology were the subjects of investigations throughout all the phases of the evolution of the job under study. However, cross-institutional issues became the subject of studies in the later phases of the evolution of research and administration jobs.

Conclusion and research perspectives. The study found that research management and administration has evolved significantly over the past few decades as a self-contained occupation, with specialized skills and knowledge required to perform

the role effectively. Research managers and administrators play a critical role in supporting research activities, promoting research excellence, and ensuring compliance with regulatory and ethical standards. While the role presents many challenges, it also offers many opportunities for those with the required skills and expertise. Overall, the development of the research manager and administrator job has been characterized by the growing recognition of the importance of research management and administration in enabling the research enterprise, as well as the increasing professionalization and globalization of the profession.

The thematic analysis of the publications that were dedicated to the research management and administration job discovered that the data derived from the analysis was primarily based on non-technical aspects of the job. During the growth, professionalization, and globalization phases of the evolution of the research manager and administrator's job, the topic of managers and administrators being seen as servant leaders was discussed in the literature. During this time, the job was linked to positions such as mediator/expediter, mediator/regulator, and project manager. Professional education and certification, as well as international professional development, were used to educate and train those managers. Research development and the introduction of technology-mediated tools into research administration were identified as contributors to occupation evolution. The early concept of research management and administration as a job seemed to be the topic of research management and administration performed in the settings of conventional education. It was linked to job roles like a communicator and research administrator vs. gift administration, research administrator as a catalyst, and research evaluator. Professional survival was essential in the educational and training domain. Portfolio management and the promotion of the institution to

achieve recognition were considered contributors to the evolution of the job during the emergence, growth, and professionalization phases. The data derived from the analysis of the technical body of knowledge stem of the RMA job revealed that the main theme for the publications was policy, procedures, and process compliance. The studies focused on regulation interpretation and application, intellectual property legislation, technology transfer/patent rights legislation, accountability issues, institutional evaluation, and contract legislation. Streamlining, processing/workflow, cost sharing, and cost recovery were all discussed and interpreted in the publications that were reviewed. In terms of technical opportunities, the publications focused on technology applications, facilities and shared resources, and the formation of industry partnerships.

Further study is needed in exploring the impact of external factors, such as changes in funding and policy environments, on the role of research managers and administrators. Understanding how external factors shape the role of research managers and administrators can help organizations and policymakers develop more effective strategies for supporting research management and administration. One more research gap in this area which needed further study was found to be the lack of attention given to the impact of technological advancements on the role of research managers and administrators. With the increasing use of technology in research, there is a need to understand how this is changing the job responsibilities of research managers and administrators, as well as their skill requirements and training needs. Another potential research gap to be addressed in future studies could be the limited understanding of the role of research managers and administrators in facilitating interdisciplinary research. As research becomes more complex and collaborative, there is a need to understand how research managers and administrators can support and enable

interdisciplinary research by managing communication and collaboration, and
diverse teams, facilitating ensuring the effective use of resources.

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