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The *future of research administration:*
Adapting to thrive

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Introduction

Penicillin was mass-produced after years in a lab. Google grew out of a senior thesis. Research universities helped produce email, transistors, blood plasma derivatives, the foundations of nuclear power, and a garden of talent to help NASA put a man on the moon. Scientific research seeds major advances in human civilization. Research universities will be vitally important in a future defined by ever more complex challenges, from mitigating climate change to the sheer logistics of keeping eight billion people fed in a global economy. Change, however, won't just come from research. Change is coming to research, whether from better data sharing, advanced analytics, or simply using machine learning to sift through grant opportunities.

Research universities emerged in the United States after the Civil War and grew exponentially during and after World War II with increased federal funding and support. From 1950 through the mid-1970s, research universities were recognized as the engine of America's science and technology systems.¹ Beginning in the mid-1970s, the federal government worked to foster research cooperation between universities and industry.

As the landscape of research in the United States has changed, so too has the role of the administrator supporting it. Research administrators have grown to manage increasingly complex compliance requirements (e.g., conflicts of interest, institutional animal care and use committees, institutional review boards, etc.), policy changes brought on by Uniform Guidance, the costly demands of patenting intellectual property, and technology that influences each stage of the research lifecycle. While research universities have been historically slow to change, research itself adapts to—and creates—change.

An inflection point

Research administration is on the brink of large-scale disruption. Technology has altered the nature of work itself. Headwinds affecting the workforce, workplace, and work itself have already begun to take shape since the COVID-19 pandemic.

Fundamental shifts in innovation tend to occur in seven-year cycles. Right now, research administration is developing through an innovative technical shift and while it's possible to foresee what could happen over the next cycle, looking ahead to 2040 (roughly three cycles from now), will likely reveal a completely different reality than what we can comprehend today.

Eight key areas—technology, the future of work, data, globalization of research, faculty of the future, agile organizations, pursuit of R1 status, and research commercialization—are shifting, changing the nature of research administration, and the future of American innovation.

Research administration is undergoing a dramatic transformation driven by new business models, emerging technologies, and nextgen talent. The industry has the opportunity to optimize operating models, to provide faculty with expert guidance, reporting, and management of day-to-day portfolios. Leading research universities are increasingly looking at automation tools to serve as “virtual workers”, thereby allowing research administrators to focus on higher value, mission-critical responsibilities. Artificial intelligence, technology with unbound potential, will sift through grant opportunities to more seamlessly map funding opportunities to investigator's preferred area of inquiry, and automate key elements of the award lifecycle, from award set up to award closeout. Armed with an understanding of technology, research administrators can provide the industry with a shift from task-driven to proactive, strategic work.

The pandemic's impact on the future of work

The traditional “day at the office” looks different. Administrators rose to the occasion of COVID-19 by shifting to a remote workplace, first out of necessity and now to accommodate preference. A Deloitte study revealed that 81% of workers say they would be more loyal if their employer had flexible work options.² Employees who report use of virtual coworking, open office hours, and virtual water cooler chats report higher satisfaction than those who do not. Remote work has resulted in individuals developing new ways of collaborating, but has led to an increase in meetings, 13% more per day on average.³ Workers have also seen a 48.5-minute increase in their average workday.⁴

The future of research administration

In the exponential acceleration of modern economies, change is unavoidable. Research organizations will need agile and adaptive approaches. Imagine a world where aspects of sponsored projects administration are automated—awards are set up with minimal, if any, intervention, invoices and financial reports are automatically sent to sponsors with controls in place, and budgets are reconciled and forecasted with the push of a button. Faculty, and even administrators, will redistribute valuable time and effort from menial tasks to advancing science.

Historically, research administrators have been reactive—reviewing and approving proposals, rather than developing them. Administrators may look back to this period—2020 to current day—as the moment when research institutions reached an inflection point—when driving forces remaking our world changed the way these institutions service research faculty. The pandemic accelerated—in many cases, by years or even decades—technological adaptations in the research world. From telework, to changing operating models, to rapid digitization of paperwork—rarely in modern history have we seen so many large-scale experiments in university administration rolled out so quickly.

Teams are responding to the loss of staff at critical front and backoffice roles at universities, rising expectations for timely use of data, the exponential pace of technological advancement, and practical applications of artificial intelligence.

The status quo is simply unsustainable. Universities—institutions that historically resist rapid change—may now face a combination of forces that seem to demand they fundamentally reshape how they operate. This report examines the forces driving research administration's transformation, the tools of that transformation, and future scenarios that may emerge.

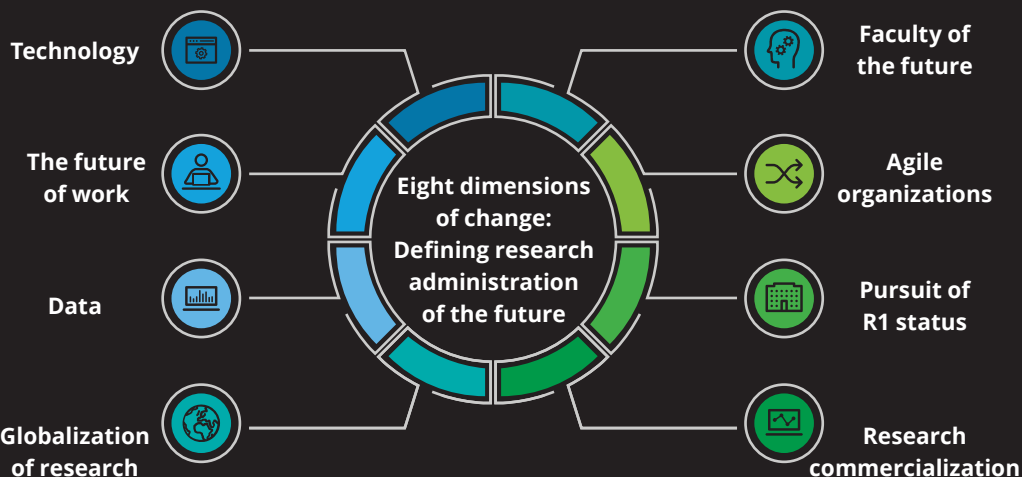
Defining research administration of the future: Eight dimensions of change



Dimension 1: Technology

Technology is evolving at a rapid pace, taking research institutions with it. In recent decades, the research administration industry has seen a shift from paper-based grant submissions to electronic (system-to-system) submissions, as well as broad-based process improvements. Electronic systems enable efficiencies at every stage of the research lifecycle. It has been proven time and again that simple, process-based changes can only take research universities so far—no longer can institutions realize true transformation without utilizing technology as a catalyst. Research institutions are continuing to adopt integrated grant management systems, or even exploring the day-to-day benefits of artificial intelligence (AI). No longer is duplicate data entry, exacerbated by integration limitations, tolerated. Robotic process automation (RPA), intelligent optical character recognition (IOCR), and other automation tools allow administrators to automate a surprising number of processes. IOCR can quickly decipher sections of Notice of Awards, while RPA serves as the new “data analyst” capable of completing previously mundane data entry tasks, like those commonly involved in the award set up process. This automation leaves the administrator to validate information, rather than enter it.

Freeing up research administrators from non-value add and repetitive clerical tasks will certainly drive change in the field, including allowing a focus on more meaningful work. In a volatile economy following the Great Resignation, employees’ sense of purpose is a key to retaining talent. When a research administrator has a clear understanding of the purpose and goals of the research they support, they are more likely to feel fulfilled in their work and remain committed to the research mission.



Blockchain in research administration

Blockchain technology can help enable secure and transparent data sharing between researchers and institutions. Information sharing inevitably opens information security vulnerabilities, but blockchain can store a nearly immutable record of research data, limiting the odds that malicious actors tamper with or delete it.



Dimension 2: The future of work

COVID-19 changed America’s relationship with remote work. A survey of CFOs in 2020 reported that 74% of organizations surveyed expected to move at least 5% of their workers to permanently remote positions following the pandemic, and a quarter of organizations surveyed were planning to move at least 20% of workers remote.⁵ We now know those predictions were a massive underestimate.

Hybrid or remote work is the predominant working model across higher education. Kansas State University estimated 60 to 70 percent of its employees work hybrid or remote. At the University of Utah, 55 percent of the university’s workforce currently have a hybrid work status, and 15 percent are fully

remote.⁶ Nearly 10 percent of Virginia Tech’s workforce is fully remote.⁷ The trend is clear.

A shift in process is also a shift in mindset. Research administration will need to be recognized as a distinct career. Research institutions need to build relationships across the entire industry, since talent can come from everywhere—and leave for anywhere.⁸ They’ll also need accessible hiring pathways. Four interviews and a skills test, or uploading a PDF resume and then being told to retype the same information manually, is too much friction for candidates in the most competitive labor market since the 1960s.

In the years following the Great Recession, when it was a buyer’s market for talent, organizations got in the habit of demanding ever more qualifications from the unemployed job seekers sending in resumes. “Credential creep” selected for degrees and job titles. Hiring committees hired for the tasks they needed done, not the long-term trajectory of an employee. There was always another resume in the pile.

Now, employers are seeking candidates who have the skills for a job, even if they don’t have a paper declaring it or a direct background performing it. Organizations want talent to stick around and are willing to invest in upskilling to keep employees in-house. Research administration has been slow to catch up to the private sector on this front.

General Electric (GE) was one of the earliest adopters to invest in developing employee skills for the company's critical functions. Their program provided two-year rotations across the business, as well as technical training, mentorship, and coaching. As a result, over 25% of today's top leaders at GE started with the company's Development Program. Research universities have every opportunity to create similar skills-based systems.⁹



Dimension 3: Data

In today's digital age, research institutions handle massive amounts of data, including sensitive and confidential information. These require proper safeguards. The United States has seen a surge in ransomware attacks. Hackers have not only targeted education institutions but hospitals, private companies, and local governments.¹⁰ Education institutions offer a tempting target because they hold valuable data and often lack in-depth security infrastructure. The value of data is increasing, but so is data's value to malicious actors.

Unauthorized access to research data can lead to serious consequences, such as the damage of institutional reputation, financial loss, or legal liability. As a result, regulators focus extra scrutiny on organizations that conduct research. In light of research institutions' growing reliance on system-level controls to secure data, regulators will continue to become more prescriptive, especially in cases with Controlled Unclassified Information (CUI). The National Institute of Standards and Technology (NIST) has a template for research security around handling CUI.

Research institutions are moving to the cloud. Personally identifiable information (PII), sensitive, and classified data that may have historically been stored on-premises in a secure server are now more interoperable, accessible—and vulnerable. As data-security rises in priority, institutions may start to rely on the controls of their system vendors to safeguard sensitive data. Since multiple systems may handle and exchange data, integrating security systems will be a complicated, but vital, process.

Spotlight on NSPM-33¹²

NSPM-33 (National Security Presidential Memorandum-33) is a policy directive issued by the United States government in 1998 that governs access to scientific and technical information that could have national security implications. It has led to increased restrictions on the sharing and dissemination of research findings, particularly in fields related to national security.

Under NSPM-33, research universities that receive federal funding are required to establish procedures to identify and protect sensitive research results. This can include restricting access to certain data, requiring security clearances for researchers, and limiting publication of results. In addition, the policy requires that research universities report any security breaches or unauthorized disclosures of sensitive research.

The impact of NSPM-33 has been a topic of debate within the academic community. It faces criticisms of chilling scientific research, while supporters see it as necessary for national security.

More pressure will likely fall on external data security organizations—and on those who manage them. Federal regulations will likely continue to tighten. Institutions may never be able to rest in the race to maintain compliance and adapt to an evolving threat landscape.

Researchers and research administrators will need to understand topics such as safe use of mobile devices, and standard operating procedures for data breaches. This will likely be a matter of training. Universities will need to grow in their compliance focus to develop and/or expand current standard operating procedures (SOPs) for data breaches. Not only is developing the SOPs crucial but the marketing of and training on them will be crucial to prevent major disaster both at a university level and potentially at a larger scale involving federal agencies. Training staff, no matter where they sit in the organization, will need to continue to expand on what they train on and how they do it focusing on making impact at the larger university wide level.



Dimension 4: Globalization of research

The globalization of research improves the quality of discovery. Research institutions are able to collaborate like never before, both informally, like when experts communicate online, and formally, like partnerships between institutions to allow data-sharing, collaborative experiments, and standardized methods. Researchers can access new perspectives, exchange ideas, share expertise, or watch with curiosity as colleagues test innovations. When advice is an email away, researchers are less likely to reinvent the wheel. The exchange of knowledge promotes collaboration, often resulting in significant breakthroughs, which spur economic growth. Whole industries can emerge from seemingly unimportant discoveries. Globalized research could help those industries emerge in developing nations.

The globalization of research also presents challenges. When researchers collaborate using shared data, it poses compliance complexities, often triggering conflicting regulations in different countries. Concerns around foreign influence will continue to grow. Security demands will complicate collaboration and vice versa. The cost may take the form of full-time equivalent (FTE) resources, external security organizations, or system improvements, but the need for resources for compliance will likely increase as globalization evolves.



Dimension 5: The faculty of the future

As digital natives, Gen Z has grown up with technology, and as Gen Z enters the workforce, their opinions, skills, and assumptions will continue to impact the working culture of older generations. To employ this emerging generation, it is important to understand that they were born in the 1990s and raised in the 2000s—during the most profound technological changes in the century.¹¹ Research faculty will need to communicate across generations to take advantage of complementary generational skillsets.¹²

Gen Z will likely continue to push for more user-friendly and accessible research administration technologies. This could include mobile-friendly platforms or tools that integrate well with other popular digital platforms. Gen Z faculty are already leading an increased emphasis on using technology in research administration to increase efficiency. As research administration technologies continue to play a critical role in the future of research, Gen Z faculty will drive their implementation.



Dimension 6: Agile organizations

The agile research organization is becoming the dominant organizational paradigm. Rather than an organization as a machine, the agile organization operates like a learning organism. When pressure is applied, the agile organization learns. Challenges actually improve these organizations. Their emphasis on flexibility can prove highly effective in research administration, where the complex needs of researchers, sponsor agencies, and institutional partners may evolve rapidly.

Agile organizations can foster a culture of innovation within universities. By prioritizing collaboration and continuous improvement, an agile approach can help to dissolve silos between disciplines, and to encourage faculty and students to work together. An agile research administration organization responds quickly to emerging operational trends. This requires a highly collaborative approach, with research administrators, faculty, and institutional partners working together in cross-functional teams.

Preliminary research of these organizations has revealed five major “tenets” of agility.

While each tenet has intrinsic value, true agility comes only when all five are in place and working together. They represent fundamental shifts in the mindsets of the people in these organizations.

To implement an agile research administration organization, it is important to establish clear goals and metrics, particularly those that may advance a research administrator’s own worklife-balance, and to ensure that research administration staff are aligned around these goals. It is also important to provide the necessary training and resources to support agile methodologies, including project management tools, collaborative workspaces, and communication technologies. That’s the effort needed to foster a culture of experimentation and continuous improvement, where research administration staff are encouraged to take risks in a supportive environment.

1 Strategy Have one North Star embodied across the research organization

2 Structure Network of empowered, high-functioning teams and research administrators working in tandem

3 Processes Rapid decision and learning cycles for staff

4 People Dynamic people model that ignites passion and ingenuity

5 Technology Next-gen enabling technology



Dimension 7: The pursuit of R1 status

The Carnegie Classification, established in 1970 by the Carnegie Commission on Higher Education and currently managed by Indiana University's Center for Postsecondary Research, categorizes colleges into over 30 groups based on teaching and research. Originally designed to classify institutions by knowledge production, the classification introduced the R1 and R2 categories, later revised for more comprehensive assessment. Despite the apparent simplicity in its initial criteria, the evaluation involved a complex 10-metric formula, creating an opaque and challenging process, further compounded by limitations on institutions that can be categorized as having “very high research activity.” Recently, the Carnegie Foundation and the American Council on Education (ACE) announced a partnership to reshape how institutions are categorized. The 2025 Carnegie Classifications will make significant changes to how research is recognized, including to the methodology that determines whether an institution is classified as R1. As opposed to today's sliding scale that creates unwarranted competition between institutions, the new threshold establishes a clear and transparent target for institutions whose mission supports prioritizing research. As a result of this work, the classification of an R1 institution will come down to two factors: how much money an institution spends on research, and how many doctorates it awards in a year.

The methodology in place today tends to favor institutions with comprehensive research profiles, often overlooking several types of institutions, including Historically Black Colleges and Universities (HBCUs), partly due to historical funding disparities and the complex methodology itself. The system also disadvantages public universities constrained by state legislatures, hindering the recognition of research activity compared to private and flagship state universities.

Despite the simplification of the formula to achieve R1 status, many of the same challenges will remain for R2 and R3 institutions. Historical funding disparities, dating back to the Morrill Acts, have created significant hurdles for many institutions. The pursuit of R1 status intensifies existing disparities, as well-funded universities tend to receive more resources, maintaining their research dominance. This imbalance poses a challenge for R2 institutions, compelling them to make significant financial commitments to compete.

The intense race for R1 status raises concerns among experts, reflecting a broader issue of “prestige disease” in higher education. While striving for R1 status may be fitting for some institutions, it remains a considerable challenge for public historically black colleges that have long suffered from systemic financial neglect, impacting their research capabilities.

Amidst this, many R2 institutions are striving to ascend, albeit facing significant challenges, primarily due to the lack of essential research administration support. Recent promotions to R1 status have necessitated innovative strategies to directly support research faculty and streamline the process of managing sponsored projects, highlighting the need for well-defined support structures throughout the research lifecycle. While this effort is now viewed as table stakes in the race to R1 status, universities on the ascent should also think critically about how they can further support research faculty in diversifying their research portfolio, aligned to their own research mission and federal agency objectives, expand and enhance graduate programs, especially doctoral programs, to attract top-tier students, engage in collaborative research projects and joint initiatives that have the potential for high-impact outcomes and innovations, and undertake research projects that address pressing societal challenges and contribute to the economic and social development of the region and beyond. Achieving R1 status often translates into increased prestige, improved rankings, access to top-tier faculty and students, and heightened institutional competitiveness in the academic landscape. The push to R1 status may very likely define how many universities approach their research endeavors in the years and decades to come.



Dimension 8: Research commercialization

In the ever-evolving landscape of academia, the imperative to bridge the gap between groundbreaking research and real-world applications has become increasingly apparent. The paradigm shift towards research commercialization, fueled in part by the federal government's longstanding commitment since the enactment of the Bayh-Dole Act, signifies a strategic move to translate academic ingenuity into tangible societal impact. Universities, as the crucibles of innovation, play a pivotal role in this transformative journey.

Despite the commendable strides made in fostering technology transfer, a nuanced examination reveals a landscape riddled with challenges. As universities strive to commercialize their research, barriers emerge, presenting formidable hurdles that demand insightful navigation. Cultural dynamics, faculty incentives, competing priorities, and perhaps most notably, the varying quality of research, contribute to the multifaceted nature of these challenges.

It is crucial to acknowledge that the impediments to research commercialization are not uniform across institutions. While some universities boast robust infrastructures and innovative ecosystems that facilitate seamless technology transfer, others grapple with limitations in resources and capabilities. The dichotomy extends further, with instances where the quality of research itself becomes a critical factor influencing the commercialization trajectory. This divergence in institutional landscapes underscores the necessity of a comprehensive understanding of the diverse factors at play.

A compelling example is evident in institutions like the Massachusetts Institute of Technology (MIT), where a confluence of factors has propelled it to the forefront of commercialization endeavors. MIT's commitment to high-quality research, particularly in applied disciplines, serves as a beacon for institutions seeking to emulate successful commercialization strategies. Furthermore, MIT's investment in robust infrastructure designed to support the entire commercialization lifecycle sets a benchmark for other universities.

Geographical nuances further complicate the narrative, with proximity to venture capital emerging as a potential catalyst for heightened commercialization activity. Understanding the intricate relationship between geography and the availability of financial resources is essential in crafting strategies that can be tailored to the unique challenges and opportunities faced by each institution. Stanford University is renowned for its exceptional research commercialization efforts. The university has played a pivotal role in the development and success of numerous technology companies, making it a prime example of effective research-to-market strategies. Stanford's location places it in close proximity to one of the world's most significant technology and innovation hubs, Silicon Valley. This geographic advantage facilitates collaboration and networking between researchers and industry leaders. This network provides crucial funding for startups founded by Stanford faculty and alumni. The university actively facilitates connections between researchers and venture capitalists, enabling the translation of research into viable commercial products.

In unraveling the complexities of research commercialization within universities, it becomes evident that a one-size-fits-all approach often falls short. Instead, a nuanced exploration of the interplay between cultural, structural, and geographical factors is imperative. Considerations surrounding research commercialization will continue to become a focal point for leading research institutions in the years to come. The future of research commercialization in universities is marked by collaboration across disciplines, rapid integration of emerging technologies, and a global outlook. Universities will prioritize sustainable and socially responsible innovation, strengthening entrepreneurial ecosystems and exploring diverse funding sources. Data-driven decision-making will guide strategic choices, and adaptability to external factors is crucial. In navigating these changes, universities should foster dynamic, adaptive research environments for continued relevance and impact.

Looking ahead

Research administration is evolving. Digital transformation, increased interdisciplinary collaboration, and a focus on outcomes and impact are reshaping the landscape of research administration. Future research administrators must be adaptable, innovative, and equipped with the skills necessary to navigate change. To be effective in their roles, research administrators must also think critically about their responsibilities to the research community and society. As the future of research administration unfolds, it is up to all stakeholders to work together to ensure that research is conducted ethically, efficiently, and with the highest standards of integrity. Ultimately, the future of research administration will depend on the ability of administrators and universities to adapt to new challenges within their institutions.

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Endnotes

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