THE ANALYTICS REVOLUTION IN HIGHER EDUCATION

Big Data, Organizational Learning, and Student Success

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AIR Association for Institutional Research Data and Decisions for Higher Education

ACE American Council on Education

Published in association with AIR and ACE

Stylus

STERLING, VIRGINIA

Published by Stylus Publishing, LLC 22883 Quicksilver Drive
Sterling, Virginia 20166-2019

Library of Congress Cataloging-in-Publication Data
Names: Gagliardi, Jonathan S., editor. | Parnell, Amelia R., editor. | Carpenter-Hubin, Julia, editor.
Title: The analytics revolution in higher education : big data, organizational learning, and student success / edited by Jonathan S. Gagliardi, Amelia Parnell, and Julia Carpenter-Hubin ; foreword by Randy L. Swing.
Description: First edition. |
Sterling, Virginia : Stylus Publishing, LLC., 2018. |
Includes bibliographical references and index. |
Identifiers: LCCN 2017055080 (print) |
LCCN 2018008161 (ebook) |
ISBN 9781620365786 (uPDF) |
ISBN 9781620365793 (ePub, mobi) |
ISBN 9781620365762 (cloth : alk. paper) |
ISBN 9781620365779 (pbk. : alk. paper) |
ISBN 9781620365786 (library networkable e-edition) |
ISBN 9781620365793 (consumer e-edition)
Subjects: LCSH: Education, Higher--Research--United States--Data processing. |
Education, Higher--Research--United States--Statistical methods. |
Educational statistics--United States. |
Universities and colleges--United States--Administration--Data processing.
Classification: LCC LB2395.7 (ebook) |
LCC LB2395.7 .A63 2018 (print) |
DDC 378.007--dc23
LC record available at https://lccn.loc.gov/2017055080

13-digit ISBN: 978-1-62036-576-2 (cloth)
13-digit ISBN: 978-1-62036-577-9 (paperback)
13-digit ISBN: 978-1-62036-578-6 (library networkable e-edition)
13-digit ISBN: 978-1-62036-579-3 (consumer e-edition)

Printed in the United States of America

All first editions printed on acid-free paper
that meets the American National Standards Institute
Z39-48 Standard.

First Edition, 2018

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HIGHER EDUCATION DECISION SUPPORT

Building Capacity, Adding Value

Daniel R. Cohen-Vogel

Over the last five years, the University of North Carolina–General Administration (the UNC system office) has undertaken a series of transformations aimed at growing and reshaping the university system's data and analytics capacity. More than simply updating a set of outdated technologies and processes, the driving principle behind these efforts was, and still is, getting a diverse set of stakeholders the information they need when they need it. To be candid, UNC has tackled an ambitious agenda, and some of its efforts are still works in progress; however, UNC has also had some big successes. The process UNC went through to identify the problem and to plan and implement solutions is driven by the same factors that are driving change in the institutional research (IR) profession generally.

This chapter describes the UNC system's transformative data and analytics endeavors within a broader discussion of the evolving higher education decision support role. This chapter is framed around the components of a vision for the future of UNC system decision support. Of course, much of this vision and the context that shaped it are relevant for individual institutions, public or private. And it is obvious from some of the contributions to this volume that many other institutions and systems are responding to the same conditions.

As UNC began to plan and execute various changes—and note that *UNC* is used interchangeably in this chapter to refer to the system office (UNC–General Administration) and the multicampus University of North Carolina overall—UNC–General Administration conducted some casual research and used the findings to frame the problem as follows. The IR function at the system office and across UNC's constituent institutions developed largely as a compliance reporting and information summary function.

The bulk of time was spent producing state and federal required reports, static fact books, statistical abstracts, and submissions to various regional and national organizations, so that those organizations may produce similar kinds of products.

Figures 2.1a and 2.1b summarize information gathered through conversations with the UNC IR offices in 2012 as the system office was developing a business case for an overhaul of its roughly 20-year-old process for collecting and reporting data. Figure 2.1a describes the current state, an estimate based on historic data of effort spent on various activities. Figure 2.1b describes the preferred state, where the system's IR leaders thought their offices should be aiming. Two points come through in these charts. First, there was a general sense that too few value-added activities were occurring and that more such activities were needed. Second, there were a lot of balls that still had to be kept in the air and a lot of activities (surveys, accreditation activities, compliance reporting, etc.) that must be sustained, at least in the short run, regardless of any new directions to be pursued.

This self-assessment is consistent with what some have observed about the national development of the IR function. In a book about the first 50 years of the Association for Institutional Research, William Lasher (2011) writes about the emergence of IR functions, describing the "survey era" of the first few decades of the twentieth century, followed by significant growth in the number of IR administrative units at universities in the 1950s and 1960s. This period is notable for dissemination of the business case for IR and for specific IR practices and training. The period saw the creation of interstate higher education organizations (e.g., SREB, WICHE, SHEEO) and growing federal and private foundation interest in IR. The first half of the twentieth century is also a period that saw great growth in accreditation of higher education institutions. For example, most of the institutions that would later make up the UNC system were accredited by SACS from the 1920s through the 1950s. Early IR activities were largely focused on surveys and descriptive analyses of various aspects of the institutions (e.g., faculty, facilities, and finances) as well as support for accreditation processes (Lasher, 2011).

Lasher (2011) also cites work suggesting that "the spread of statewide coordination had a material effect on the birth and growth of institutional research" (p. 15), pointing to John Dale Russell's early "pioneer" efforts in New Mexico as one of the first examples of system-level activities. And although the policy issues and primary audiences of the system office differ somewhat from those of individual institutions, IR activities at the system level seem to have mirrored those of institutions, with most effort put toward

Figure 2.1a. Where we have been: Disproportionate effort on reporting and compliance.

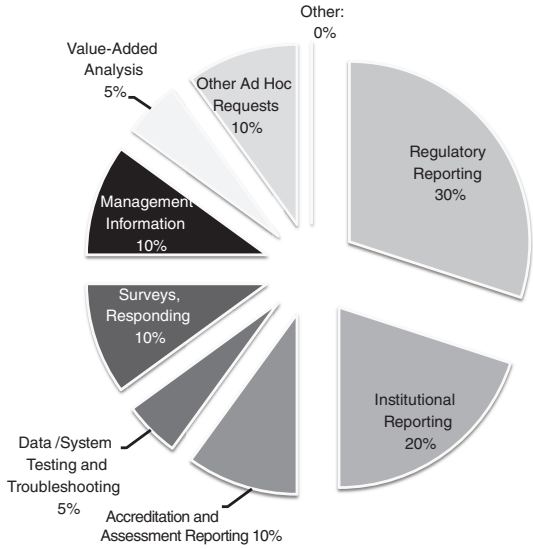
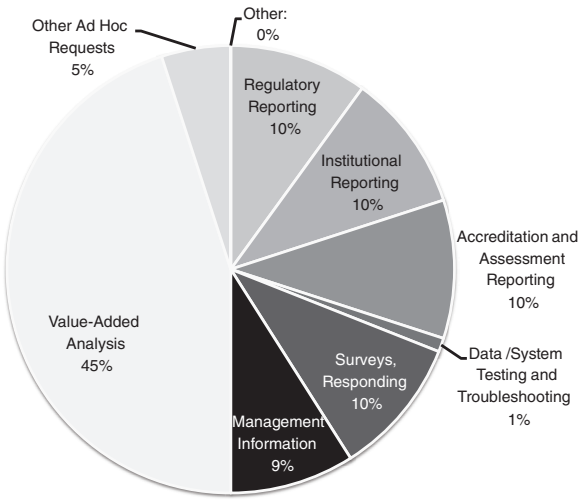


Figure 2.1b. Where we are headed: A shift toward value-added information.



Note: The percentages in Figure 2.1a and Figure 2.1b are based on observation and conversations with the UNC IR offices specifically regarding data-specific IR functions. Excluded from the categories are managerial or administrative time and time spent on campus workgroups or committees. Those activities consume significant time but were not expected to be affected by UNC data system advances and so are not included in the assessment of IR offices' time allocation.

developing fact books and other descriptive analyses of centrally collected data, conducting system-wide surveys, and supporting system-level compliance reporting.

UNC as a multicampus university—its beginning as a public higher education system—started with consolidation of a few institutions in 1931, and the creation of the 16-campus system occurred in 1971.[1] The proceedings of early North Carolina Association of Institutional Research (NCAIR) meetings—the organization was founded largely by UNC staff at an inaugural meeting at UNC-General Administration in 1973—suggest that focus on fact books, surveys, and self-studies continued to be the bread and butter of IR.[2] Moreover, as a historical account in *NCAIR—Its Story* notes, the 1971 creation of a statewide university governing board itself shaped the emphasis of IR offices, concentrating their efforts on data gathering and reporting (Ussery & Ballou, 1985).

For the UNC system office as well as higher education institutions nationally, the late-twentieth-century focus of IR offices on compliance reporting was most significantly affected by the rise of the U.S. Department of Education's higher education surveys, HEGIS (1971–1972 to 1986–1987) and then Integrated Postsecondary Education Data System (IPEDS) (1985–1986 to the present). The number and breadth of these surveys has increased over time, and the reporting standards contained in them as well as a statutory mandate (Higher Education Amendments of 1992; see 20 U.S.C. 1094(a)(17)) and financial penalties for noncompliance have elevated their importance and the role that federal reporting has played in determining data standards, workloads, and overall focus of campus and system IR units.

A challenge for UNC—one that has faced the profession generally for decades—has been to develop sufficient capacity to provide actionable management information to decision makers. In addition, often there has been a tension among institutional researchers, some of whom gravitate toward a reporting role in which the IR office provides data alone and some of whom see their role as providing interpretation, context, and analysis to support decisions. Lasher wrote about this when describing debates within the profession in the 1970s and 1980s (Lasher, 2011). Those debates express some of the same concerns that UNC leadership have expressed in recent years. They want better access to information that helps them understand problems and develop solutions. They want analytical capacity.

The UNC system office's historical focus on reporting and compliance-related activities rather than analytics might not in itself have engendered major changes and certainly would not necessarily have led to the disruptive

changes the office pursued. However, the broader context has bumped up against a traditional focus and limited capacity and provoked the university to change. The rest of this chapter will touch on some of those contextual factors and then discuss several ways in which the traditional IR function can, and arguably must, evolve to meet the demands of a changing higher education landscape, to become much more of a true decision support function.

Context: Pressure to Change

To some degree, there have always been pressures urging the profession toward more value-added, decision support activities. Lasher (2011) points to debates on that subject going back more than 60 years, and efforts to provide evaluative, actionable information certainly predate those debates. Whether at an institution or system level, there have always been multiple stakeholders with divergent interests, evolving demands of the labor market, and changing social and political streams. Yet, basic compliance monitoring and regulatory reporting has dominated. However, recent trends have presented a unique combination of pressures and opportunities to refocus and change the traditional business model.

Shrinking Public Budgets

A sluggish economy combined with a changing political landscape have driven real state appropriations per students down, and public institutions have substituted tuition dollars and made cuts to offset those declines. For example, the Center for Budget and Policy Priorities calculated an 18% (or nearly $1,600) decline in inflation-adjusted, per-student state support for higher education from 2008 to 2016 (Mitchell, Leachman, & Matterson, 2016). Fiscal pressures are incentives to become more efficient and effective in activities such as enrollment management and student success, and it is necessary to improve data and analytical contributions to support such efficiencies.

Changing Politics and Attitudes Toward Higher Education

Growth in the U.S. college-educated population has come on the heels of expanding higher education options and state and national pushes for increased educational attainment. Yet, the twenty-first century started with a decade of zero overall job growth and a housing bubble that drove up household debt (Irwin, 2010). It is no wonder that there has been growing public focus on tuition and other higher education cost increases and on student debt, as Americans (and their elected officials) question the higher education

value proposition generally. Discussions of disruptive changes and new business models in higher education have emerged against this economic and political backdrop.

Changing Technology

Computing power, networking and communications developments, and accompanying software improvements have put great tools at people's fingertips. The capacity to send, receive, and store data and to conduct analyses and create data visualizations has dramatically expanded. These innovations present opportunities as well as challenges, not the least of which are expectations put on higher education analytical units to keep up with leading-edge capabilities.

Twenty-First Century Expectations

"Better data faster" was a catch phrase UNC-General Administration first heard from colleagues at East Carolina University, and the system office borrowed the phrase often in describing the expectations of its leadership and other stakeholders. These audiences do not always know specifically what they want, but they generally express that what they have been getting is not approachable enough, flexible enough, "clean" enough, or timely enough. And technological advances heighten their sense of urgency not to fall behind. Decision makers have gotten used to Google, Amazon, and smart TVs, and they are looking for their information technology and IR units to catch up.

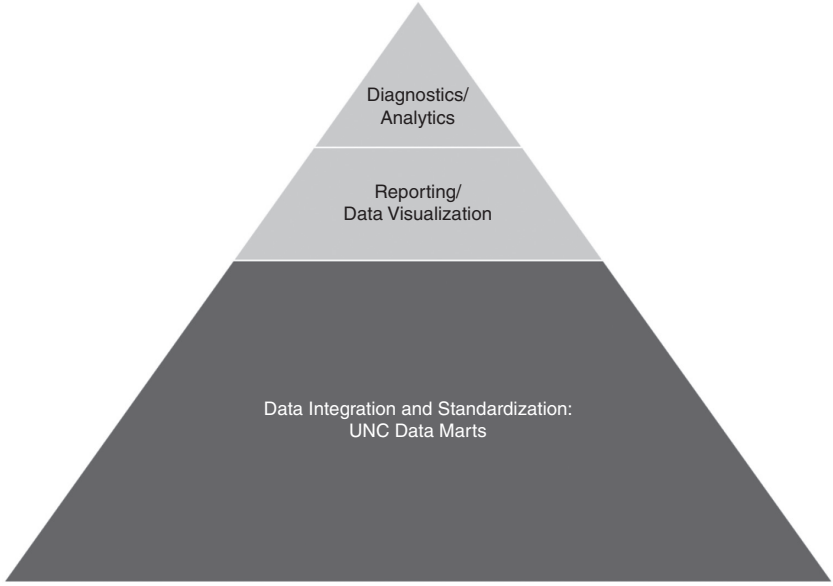
Within this context, UNC is looking for ways to meet a diverse set of stakeholders' current and future demands, when the bulk of IR offices' activities—and their data systems, organizational structures, and skill sets—were built primarily with historical demands in mind. As the world changes, so must investments in capacity, so that technological, organizational, and human infrastructures will support current and future needs. The imperative is to add value to the academic enterprise by informing decision-making at all levels to improve student outcomes and operational efficiency. And these endeavors occur against the backdrop of a world of increasing technological sophistication and real-time feedback. So, higher education analytical units are driven to provide many audiences with timely and sophisticated windows into the academic enterprise. The UNC story over the last five years was authored with this future in mind. UNC has reenvisioned and begun to transform its historical IR function to build system *decision support* capacity.

Developing a UNC Data System as an Analytics Foundation

Through various iterations and to various audiences, UNC has presented its efforts most often in terms of a pyramid on which value-added (decision support, analytics, etc.) activities are supported by a large foundation that is the data system (see Figure 2.2). The data system must provide the flexibility to conduct required reporting with relatively low effort, but it must not be built as a reporting tool. Its primary purpose is to support decision-making—to support student success and operational efficiency—and to do so at multiple levels.

The development of UNC's Student Data Mart—the UNC system data warehouse—began with an explicit understanding of these requirements. It would be the "better data faster" foundation to support analytics and data visualization, tie into state initiatives (e.g., reverse transfer program, statewide longitudinal data systems), maintain required state and federal reporting, and serve as a shared warehouse and single source of data truth for the system. It is flexible enough to respond to changing needs, and the data collected are captured at a scale and frequency that reflect underlying business practices. Moreover, the new data system includes more than the data elements that the system office needs, as was the case with the legacy system. Rather, the data model reflects campus-specific as well as standard system needs.

Figure 2.2. Data foundation: The big lift, necessary to support analytics.



This feat would have been impossible to accomplish without highly competent and high-performing staff, which is the system's greatest asset. (And they were also the biggest risk, as turnover in certain positions would have temporarily hobbled the project and delayed pursuit of the vision.) It is a reminder that an effective data system is not simply a set of hardware and code but is built on sound business practices and communication and requires skills to maintain and extract meaning from it.

Moreover, the UNC Student Data Mart project's success was due in part to the clarity of vision and scope articulated from the start and to extensive planning and communication throughout. It also benefitted from strong and sustained leadership support. An additional factor in the project's success as well as a spillover benefit of the new data system has been the changing nature of both system-campus relationships and, at the institution level, the changing roles of the business units and the intracampus interactions required for implementation and maintenance of the new reporting environment. Campus IR units no longer extract data from various sources to massage and compile into submissions to the system office. Instead, the data are pulled by the system office directly from the institutional enterprise resource planning (ERP) systems, and the campus research office's role on each campus is to be the arbiter of data quality and coordinator of data management by campus business units (registrar, admissions, financial aid), which are now directly responsible for fixing erroneous data in the ERP system and modifying business practices, where appropriate. A few universities performed this function well already, but for many it took a significant culture change to develop a shared responsibility for accurate data.

An Analytics Ecosystem

With the data foundation established, the challenge is how best to get the data and information into the hands of those who can use it to affect changes on the campus. Seeking to build a shared analytical platform for the system on top of the Data Mart foundation, when the UNC system office put out a request for proposals in 2016 for an analytics platform, the description of the platform that the system office envisioned included the following parameters: portable, flexible, modular, nonproprietary, sustainable, and scalable. The rationale was to invest in future analytics capacity with a mind-set that considers that capacity as deriving from a data and analytics ecosystem, largely indifferent to the tools and ERP systems that different units or campuses are using. Although such an open, flexible ecosystem is an appropriate aim in general, given the speed of technological change in the industry overall, this is especially important in the context of a university system with a system

office and 17 diverse constituent institutions managing 17 ERP systems and a wide range of data tools and skill sets.

More Effective, Shared Human Capacity

Human capital is the biggest challenge in building and maintaining analytical capacity and effective decision support. Successful investment in human capital requires answers to fundamental questions such as the following: What skills are needed? Which skills should be hired, and to what extent should existing staff be trained to achieve those skills? Which skills should be farmed out?

It is clear that the skills and orientation necessary for compliance reporting and fact books are different and less specialized than those needed for customer needs assessment, data visualization, diagnostic analysis, and predictive analytics. Many institutions and system offices have difficulty hiring and retaining employees with more advanced skills, and doing so is expensive, particularly in the context of tight budgets. This problem is more acute in lower resourced institutions and those away from urban centers, and there is certainly such a contrast in North Carolina between the Research Triangle and Charlotte job markets and employment opportunities in the eastern and western edges of the state.

Moreover, public institutions sometimes struggle against the constraints that state personnel rules and system human resources offices present. As part of the broader labor market context in which institutions and systems develop human capacity in a rapidly changing data and analytics field, human resource offices must also reenvision themselves as talent acquisition and retention functions in addition to, and ultimately more prominently than, their traditional roles as guardians of state rules and agents of risk avoidance.

Shared human resources

Just as recent UNC efforts have been to develop a shared data warehouse and analytics platform in addition to other central technology resources (e.g., banner hosting for a subset of UNC institutions), UNC is also investing in and exploring further shared human capacity opportunities. For years, the UNC system office has populated nearly all the IPEDS surveys for the 16 constituent universities, the only exceptions currently being the institutional characteristics surveys and academic libraries survey. Recently, as a by-product of the Student Data Mart implementation and the system office resources that came out of strong IR–IT collaboration on that project and others, UNC established an ERP support team. This group developed the baseline code that was customized to meet the needs of each institution during the

Student Data Mart implementation, and the group was also able to distribute banner modifications and guidance to help campuses respond to policy changes and data quality problems more efficiently and inexpensively than by hiring consultants or maintaining such skill sets at each institution. The continuity and strength of these support team members encourages campuses to trust that the system office has their interests in mind, shares their priorities, and is invested in their success. And it is worth emphasizing that for this shared function to be successful in supporting a collective pursuit of data integrity, trust is a necessary condition for institutional teams to speak openly and honestly about data "dirty laundry."

In part as a recognition of the value of the ERP support team and in part in response to the limited skill sets and lack of programmer depth among UNC constituent institutions, the UNC system office and some institutional counterparts also have begun discussing opportunities to develop shared programmer/analyst support in the system office as well as building into the system analytics platform contract some shared data science services to support system needs.

Distributed analytical capacity

Within the system office and at many constituent institutions, future efforts should include an exploration of new models of analytical support. This may mean developing a more distributed approach, one that discards the notion of a single IR unit and allows for the analytics function to be managed or coordinated from a central point but situated within different business units. A more effective approach may include a matrix organizational structure rather than a traditional organizational chart. And at the scale of a higher education system, such a distributed model may involve creative ways to leverage the strengths on campuses. For example, UNC has many strong universities and a collective wealth of bright and innovative employees. The system needs to look more to approaches that facilitate the sharing of expertise across universities in the areas of data visualizations, analytical studies, predictive models, and more.

Reducing the Burden of Compliance Reporting

System offices have an opportunity to free up analytical capacity significantly by reducing regulatory barriers imposed by state and federal reporting requirements.

State Reporting

UNC has begun to tackle state reporting requirements that were initiated administratively as well as those that have accumulated over the years from

legislative and governing board actions. Each reporting requirement should be considered in basic cost-benefit terms: Does it add sufficient value to justify the cost of maintaining the data and production process?

- *Uncluttering self-imposed reporting burdens*. Without too much reflection, it becomes apparent that many of the routine, annual reports that were historically compiled from institutional data submissions and published as (sometimes voluminous) documents each year are often not required by the governing board or legislature but rather are historical artifacts. They were created at a time when system needs and technological options were different. They are largely informational works that do not support any specific action and often get little or no immediate attention. Not all reports are outdated or unnecessary, and some reports can be useful as sources of consistent response to information requests throughout the year. However, interactive dashboards, downloadable data sets, and targeted information briefs often allow for more efficiency in meeting the needs of different stakeholders, including internal data queries. Furthermore, the process of assessing the value of age-old reports provides an opportunity to engage with stakeholders and demonstrate interest in their needs—that is, to provide system office leadership and governing board members with what they want to know rather than what analysts think they should want to know.
- *Engaging governing board and legislature to streamline system policies and state statutes*. Legislative bodies and governing boards often create reporting requirements to express the importance of an issue or to confirm that enacted policies have been implemented. And sometimes reporting requirements are a next-best measure when there is not sufficient political support to pass a statute or policy. Over the years, required reports multiply due to a "flypaper effect." Recently, the UNC Board of Governors charged system office staff with combing through the UNC policy manual to identify no-longer-necessary and nonactionable reporting requirements. With legislative requirements, a similar review is worthwhile as well, and the process also creates an opportunity to reach out to legislative stakeholders to check in about what kinds of information they need as opposed to sending current legislators reports that may represent past members' concerns or focus on outdated policies or programs.

Federal Reporting

The system's engagement with national organizations, federal relations, and bureaucratic processes should be used as avenues to reduce the significant

burden of the IPEDS, which has ballooned over the years and arguably imposes costs far in excess of its value. Significant attention has been given in recent years to the costs of regulation in higher education, including the cost of IPEDS. The Task Force on Federal Regulation in Higher Education—which included among its members the UNC System president and a chancellor of one of the system's constituent institutions—recognized generally the burden of IPEDS and also pointed to specific burdensome IPEDS reporting issues (e.g., HR survey and SOC codes not well suited to higher education, military/veterans benefits reporting that could come from other federal agencies) (Task Force on Federal Regulation of Higher Education, 2015). A subsequent Vanderbilt University study attempted to estimate the cost of federal regulatory compliance (Vanderbilt University, 2015). That report also touched on the cost of IPEDS compliance, and UNC system staff had the opportunity to provide input to the consultants commissioned to produce the study.

With a renewed push from some in Congress to develop a federal unit-record data system for higher education, an intensified focus on the burdensome and inefficient aspects of IPEDS surveys and related bureaucratic processes is even more pressing. Without addressing the deficiencies of the current system, attempting to navigate the complexities of data standardization and meaningful derivations of metrics from a unit-record data system that would span the huge and evolving array of higher education institutions nationally will almost certainly result in a proverbial "garbage in, garbage out" data system.

The system office can mitigate the impact of federal reporting in multiple ways. There are positive economies of scale that a higher education system can gain from centralizing IPEDS reporting, as has been the case within UNC. However, the frequency of changes to the IPEDS surveys, the often-insufficient lead time to respond to changes, and the occasional disconnection of the reporting requirements from the realities of the higher education enterprise are ongoing challenges. In addition to serving as an aggregator in sending data up to Washington, system offices may also serve their constituent institutions by leveraging their collective voices to mitigate the demands coming down.[3]

Communicating

Although communication skills have always been relevant, their value is growing in importance as part of the response to the changing contexts discussed earlier. Higher education, particularly public higher education, is increasingly having to make a case for itself. Politicians and the media are responding to and sometimes fueling the intensity of questions regarding the higher

education "value proposition." Why should families pay for this service? Why should policymakers allocate scarce resources to the enterprise? What is the return on their investments? Whether directly to governing boards, legislatures, or media outlets, or indirectly through institutional and system office leadership, effective decision support necessitates effective communication.

It is a significant challenge to reach these key stakeholders with priority messages that are the results and interpretations of analyses. Amidst the swirl of information and demands competing for the policymakers' attention, sometimes the challenge is to move an analytical finding from the edge of their consciousness to an impactful component of a particular policy or programmatic decision, a task further compounded by the audience's diversity of perspectives and experiences. Addressing this challenge effectively means addressing external perceptions of research and analytics offices, the tools used to convey information, and staff communications skill sets.

Rebranding

It may seem relatively insignificant, but in the UNC system office the recent name change—from "institutional research" to "data and analytics"—was an acknowledgement of where the unit is headed as well as a part of helping external audiences to understand what the unit does. *Institutional research* is not widely understood among noninstitutional stakeholders. *Data and analytics* and *decision support* are more widely familiar concepts. Making ourselves approachable is a part of navigating through the swirl.

Transparency and Accountability

These buzzwords express expectations placed on higher education institutions and systems. They are particularly relevant to the public higher education system, for which the legislature, governing board, and media are key audiences. The system office is also accountable to the institutions it regulates and for which it advocates. UNC's efforts to create user-friendly data tools—the UNC Data Dashboards, for example—are an important component of providing transparency and accountability. Paying some attention to areas that are not part of the traditional IR skill set—in particular, the aesthetics and user-friendliness of data tools—is part of a more outward focus. Although UNC had created some interactive data tools more than a decade earlier, they were largely geared toward an internal audience, such as other institutional researchers. Orienting the next generation of those products toward external audiences and a broader set of internal audiences can go a long way toward ameliorating misconceptions and mistrust that emerge in the current climate.

Communication Skill Sets

Often, the impact of analytical work is dependent on how effectively it is communicated in written and verbal presentation. Analysts, programmers, and researchers often tend to be introverts and are unlikely to have received training in how to write for and speak to policymakers, institutional leaders, the business community, and the media. Addressing those important audiences in a manner that effectively conveys key information is a skill set to be developed, just like writing SAS code.

Next Steps

A key premise of UNC's recent investments in building analytical capacity is that the traditional IR function must evolve to meet the demands of a changing higher education landscape, to become much more of a true decision support function. And the UNC system's investments have succeeded in providing the foundational technologies and business processes necessary to support that analytical capacity. This chapter also touches on other efforts to develop the human capital and greater orientation toward stakeholder needs that help to sustain UNC's investments and more fully realize its vision.

Yet, there are aspects of system analytical capacity that the chapter has not addressed that are also crucial building blocks to realizing the benefits from UNC's investments: governance and culture. And these are still works in progress.

Effective governance and a culture of data-informed decision-making to reap the fruits of data and analytics have long been understood as needs, and they are rightfully talked about as significant barriers. An EDUCAUSE Center for Applied Research study over a decade ago presented a framework for understanding the environment for higher education analytics in which organizational factors (decision-making style, governance, and accountability; culture of evidence; staff analytical skill) were presented as overarching factors in that environment (Goldstein & Katz, 2005).

The development of UNC's new Student Data Mart substantially moved the system forward with standardization of definitions and underlying business practices as well as communication around data quality. However, challenges remain in derivation of information from the data and interpretation thereof. UNC has yet to develop rules governing data sharing and the vetting and dissemination of information to various stakeholders. Some system policies affecting data definitions and reporting still require clarification and alignment.

Development of a data-informed culture at all levels in the system is vital. Aligning leadership expectations and practices with what is both feasible and valuable in the data and analytics space is a challenge at both the institutional

and system levels, perhaps made more challenging in systems with high degrees of politicization and leadership turnover. A data-informed culture requires a commitment shared by leadership and analytical support units to creating the time, space, products, and receptivity to drawing actionable meaning from the data. Moreover, in a resource-constrained environment—is there any other?—the propensity of decision makers to pursue new "shiny objects" can crowd out more immediately valuable investments. Often, basic diagnostic analyses are low-hanging fruit and can be more actionable and sustainable tools than sophisticated predictive models.

With a clear vision and the resources, organization, and cultural framework to sustain it, IR can and should become the decision support function that our systems and institutions need. UNC has taken some big steps toward its decision support vision. How the system further develops a broad analytical ecosystem, human resources, and the governance and culture described previously will determine how that vision continues to unfold.

Notes

1. The University of North Carolina became a 17-campus university in 2007 with the addition of the North Carolina School of Science and Math, a statewide public high school for juniors and seniors.

2. Perhaps more accurately stated, the ad hoc committee that initiated the NCAIR inaugural meeting at UNC-General Administration was composed almost entirely of UNC representatives, except for the inclusion of the president of the National Laboratory for Higher Education. However, the inaugural meeting included other higher education institutions, as did the first slate of association officers.

3. This is not to suggest that these demands are solely the result of Department of Education actions. Congress creates reporting requirements, of course. And so do other executive branch agencies. Recent indications that the Office of Management and Budget may require the breaking out of various subgroups of "Asian/Pacific Islander" and to create a subgroup of "White" that is for "Middle Eastern" people are examples of poor data practice (i.e., combining language, skin color, geographic origin, national or regional identity, and cultural identity into one "race" field) that creates added cost, reduces data quality, and adds potential conflict with FERPA vis-à-vis other reporting requirements, such as graduation rates reported by increasingly disaggregated racial subgroups.

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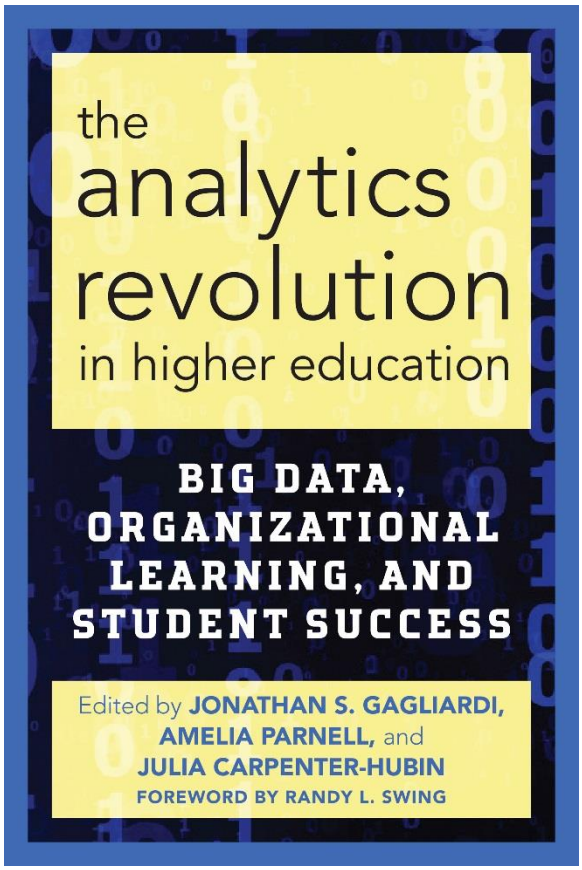

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