

 CASES FROM THE FIELD

# Beyond Collaboration: A Registrar and Institutional Research Journey

By Gina Crabtree and David Wright

Wichita State University (WSU) began the SEM process in 2015 with a steering committee co-chaired by the university registrar and the chief data officer (CDO). Work leading up to and undertaken throughout that process and the implementation of the SEM plan it produced helped to form an extraordinary partnership between these two professionals. Registrar (RO) and institutional research (IR) offices at colleges and universities often work together, but the level and type of collaboration achieved at WSU between the RO and the office of planning and analysis (OPA, which incorporates IR) has yielded many benefits. This article provides a look into the development of that relationship and its impact on these professionals and the SEM team. This article will review the shared vision and values underpinning the partnership, as well as the impact on SEM efforts in data collection, data quality, predictive modeling, and assessment.

In 2020, Smith, Hyde, Falkner and Kerlin noted the need for more strategic enrollment management (SEM) research related to change management at both the micro and macro levels (Smith, *et al.* 2020). This article documents, at the micro-level, the qualitative change management necessary to affect organizational change around data governance and its impact on SEM. Data governance—which encompasses ongoing data quality efforts, elimination of data silos, shared business practices, defined data and reporting standards, and a culture of data as an information asset rather than a

transaction—is paramount to using data-derived information for decision-making. This is the case for those contemplating SEM deployment or those already engaged in SEM. Such a state of data awareness is critical for day-to-day operational processing and data-driven decision-making. The fact that the registrar and chief data officer (CDO), as expressed in this article, needed these data practices in place to do their job is no different from the need in SEM for these practices to exist prior to SEM development and deployment. Implementing SEM practices prior to data governance can result in

debates and struggles to clarify data structure, slowing down SEM implementation and diminishing its impact.

Although the importance of data is often noted in discussing SEM, there is little written about the relational processes that make for successful data governance or the time (years) it takes to prepare data for SEM. Data governance is only effective when all parties benefit from it—not because it is mandated, but because all the players see the benefits in their area of operations. As a result, data governance is best approached as a bottom-up process where interlocking relationships across operational offices materialize for mutual benefit, and staff across offices see themselves as a team (Remsburg and Clawson 2019; Gray and Purdy 2018). This article attempts to demonstrate this approach by following the journey of two key offices, the struggles they encountered, their successes, and the significance that effort has had in a successful SEM implementation and its impact on all (SEM and non-SEM related) operational processing. Whether an institution is looking to implement SEM, or merely wants to use data information more effectively, this article provides some key guidance.

As with all things in life, SEM is defined by a series of journeys: those that occur prior to, within, and after the SEM implementation. The work of the WSU registrar and CDO began as separate journeys that brought them together and expanded to include others, resulting in a culture change within the system that significantly impacted WSU's SEM success. These journeys are defined by four separate phases.

## Phase I: Silos

The registrar and CDO each came to WSU in the mid-1990s and held roles that did not connect them in daily work. Likewise, the key offices normally involved with SEM efforts were not strategically linked, and they performed their jobs within a traditional silo environment.

The CDO's journey began as a professor at WSU in 1993. In the late 1990s, he became associate dean of the graduate school where he created a data system to evaluate programs and student success. His work caught the attention of the provost, who wanted someone to perform advanced statistical analysis on revenue, cost, and

enrollment forecasting. When the current CDO joined the provost's office as an assistant vice president for academic systems (AVP), it became apparent that the real need was for in-time data to inform decisions. Data and information—including standardized data-based reports, specialized extracts, and what-if inquiries—were needed in the moment. As a data scientist, the AVP/CDO immediately needed to develop an agile data system, one that would be current and historical in content, comprehensive in scope, and optimized for quick delivery and statistical analysis. For this to happen, WSU needed a unified student/course system that had both horizontal and vertical integration. Horizontal would track activity at the record level from admissions to degree completion, and vertical would track supplemental data from sources as such financial aid, accounts receivables, housing, payroll, and student affairs—all of which was necessary to get a comprehensive picture of the student and system environment.

Although this sounds great in theory, there were many issues to address and resolve. First, the AVP/CDO lacked current comprehensive business practice knowledge of functional units, which needed to be part of the agile data system. Although he did have a good picture of admissions from his time in building the graduate school reporting database, he had to rely on legacy data and warehouses for the student/course and degree outcomes. Second, when he approached information technology services (ITS) and IR, he quickly realized that they only had bits and pieces of business knowledge, and most of what they had was obsolete. Third, since this “project” was not yet institutionalized, he had to deal with ongoing questions about his authority. And, finally, he knew from previous experience that WSU had many data quality issues that needed to be resolved. In the end, the ability to use data for effective decision-making requires quality data and comprehensive current business knowledge. He needed to get on the front lines of a key functional unit to start expanding his knowledge of what, and why, things happen.

The AVP/CDO knew that admissions was having problems with reporting. They were using system-delivered reports that assumed a single admissions office,

but WSU had three. The reports didn't match production. He approached the admissions director with a request for help, promising in return to increase their application yield, lower their cost, and provide real-time reporting that matched real-time production. The director agreed and assigned an associate director to assist the AVP/CDO. They spent three months cleaning more than 40,000 data entry errors that spanned an eight-year period. This was a huge commitment and achievement since admissions offices rarely look backward. But in doing so, they now had enough quality data to start mining and modeling it for recruitment. It is important to note that data quality and partnerships of mutual benefit go together. Data officers will not be successful in having clean data if they become the data police. Instead, it is important to acknowledge that data errors will happen and establish trusted processes that demonstrate the value offices gain by having quality data. Once that is achieved, departments will police themselves, and all will benefit from ongoing data quality. This work, and the work that followed at WSU, created the Business Intelligence and Predictive Modeling system (BIPM).

BIPM pulls data daily from current production, production freezes, and legacy and vendor systems to compile a comprehensive agile data warehouse system for enterprise reporting and analyst use. From simple reporting to complex daily artificial intelligence modeling and scoring, BIPM provides the ability to perform in-the-moment data analysis and to report, model, score, and forecast based on current and past business knowledge. Staff were able to score admissions applications daily in terms of ROI by geographic area down to the zip code and transfer institution as well as determine which students should be targeted for certain types of communication. Most importantly, BIPM centralized current business knowledge. Admissions was incentivized to immediately share when business practices changed, keeping the systems and models current. For the first time, there was a shift in thinking about data as transactions to data as information.

From his experience with admissions, the AVP/CDO saw what made successful relationships—both parties

must benefit from the relationship, and they must do so as equal partners, not service units. Despite the rise of BIPM, he still had issues with silos and lack of communication with other key areas; BIPM was still an incomplete system with limited knowledge of the other relevant offices and processes. BIPM exposed inaccuracies in reporting, which helped give it momentum, and other offices now wanted in, but it needed to be institutionalized to have legitimacy. The AVP/CDO knew it was time to involve other areas of WSU's system lifecycle.

Before the AVP/CDO began working with admissions, the registrar had been director of admissions (undergraduate domestic). During her time as director, admissions had a good working relationship with ITS but rarely talked with IR. WSU had contracted with Noel-Levitz for a predictive model to assign a score for each student's likelihood to enroll, and these scores were used as a guide in recruitment publication mailings and college fair attendance. There was some basic SEM knowledge, and she had been part of an effort to start SEM activities on campus, but it did not gain buy-in. During that time, she approached the then-registrar about her interest in learning more about that profession. He mentored her for more than a year; during that time, she took a position in the office of the vice president for student affairs. Not long after, the associate registrar became ill, and a request was made to buy out part of the author's time to work in the registrar's office. This began what she called an "internship," working with the registrar for 20 hours per week. A few months later, she became the associate registrar.

In those years and before, reporting was done out of both the registrar and IR offices. The registrar's office generated a report of 20th day enrollment independent of IR, but there were no data analytics nor strategic use of data in the registrar's office. Any needs for lists or numbers went to ITS, not IR. When the AVP/CDO approached her about assisting with the development of the student data side of BIPM, she saw it as a great opportunity to learn more about the data and table structure. While admissions tried to be strategic and use data in their decision-making when she was in admissions (and after), a recruitment strategy is not

strategic enrollment management. SEM requires the kind of data that the AVP/CDO was building, involvement across the campus community, buy-in from all areas, and clear leadership. She came to see the value that a true data focus, and understanding of data by the registrar, would bring to the RO and the university. She also better understood the need for a strong commitment to data quality and integrity (including consistent and documented data standards and error correction). Finally, she saw the potential of the IR/RO partnership as she began working with him, and they discussed plans for BIPM.

## Phase II: Partners

Phase II was marked by promotions and reporting adjustments. The current CDO was promoted to associate vice president (AVP) reporting to the provost and the associate registrar was promoted to registrar reporting to the AVP, a formal change that tied them together. While they had discussions about their working relationship prior to this change, they now had the authority to collectively take action. The AVP/CDO vividly recalls their first meeting after their title changes in which he told the registrar, “I am not your boss/supervisor; I am your peer, your colleague; we are equals, a team.” They agreed to have complete transparency, no secrets, and they would share information, even in areas where their daily jobs did not overlap. The AVP/CDO knew about developments within the provost office that the registrar might not, and the registrar was privy to happenings in academic departments that he might not be. They both needed a 360-degree view to get the most out of their relationship and meet their goals. They began with actions as simple as copying each other on most emails, looping the other in when they had not been included. This gave them eyes on what was happening as well as the opportunity to provide input on changes. They knew that each of them had the other’s back; they were partners.

The AVP/CDO and the registrar identified their shared needs and goals—to complete and formalize the work they had begun related to data quality and creating a culture where data was critical to key decisions and where student success was the central goal. Their

new roles and structure would help to establish the authority and legitimacy they needed to see these goals accomplished. At this point, SEM was not on their horizon, but the actions they were taking would be critical in having a successful SEM implementation.

The first step was to formalize and institutionalize BIPM so it wasn’t just “one person’s project.” This led to the creation of the office of planning & analysis (OPA), whose task was to manage and deploy BIPM for data-driven, data-informed decision-making. A short time later, the director of IR retired, enabling the consolidation of IR staff into OPA. There was now a single office that could address BIPM, university assessment, and external reporting; this reduced confusion on campus and increased consistency and accuracy in reporting.

Several projects undertaken in this phase continued to reveal the benefits of the registrar and the AVP/CDO partnership. The first was data cleanup on the student side of the student information system (SIS). As with the work admissions did, this involved looking back over dozens of years and fixing errors, eliminating incomplete items, and ensuring consistency with data standards. They then “hijacked” unused data fields on Banner validation tables and used “magic” numbers in those fields to identify codes (major, subject, degree, department, campus, etc.) as active vs. inactive and on-line vs. on-ground. IT developers use these numbers to determine which codes should be available in reporting parameters, the major change web app, and the TB test requirement scripts, to name a few.

The AVP/CDO and the registrar then developed classroom utilization data and special reports such as audits to ensure any data issues were resolved prior to start of term and census freeze. Another project that has brought significant success and recognition from the Board of Regents was the reverse transfer process. An automated process was developed that identifies WSU students eligible for reverse transfer with a Kansas community college, sends them an invite to opt in, directs them to a web app to consent to the transcript release, and codes students to facilitate the creation of PDF transcripts in batch for each school. Phase II saw a shift in the interaction of the RO and IT services. Data

requests now went to OPA, while ITS continued to be an integral partner in various technology projects and SIS activities. Each area was a strong partner making significant contributions to every project.

Some key organizational changes were also seen during this time. The chief information officer (CIO) left for another institution, and his offices began reporting to the AVP, including ITS and International Admissions. As well, the CDO role being added to the AVP provided the authority to institutionalize changes to the business practices of additional functional units regarding data and information. Another step forward came with the establishment of formal, university-wide data governance (*see* Figure 1, on page 42). This was key to setting standards and authority and included all stakeholders at the university. The newly created Data Management Committee (DMC) set standards and became a means to define data ownership, accountability, and access to resources. Data entry standards, reporting standards, shared business knowledge, data quality and accountability, and integration of business practices ensured that the practices of one office did not negatively impact others.

A specific achievement during this phase was the development of a process and form to manage information requests, from individuals both within and outside the university. What had previously been an inconsistent process, with requests going to (and sometimes being fulfilled by) multiple offices, became a centralized and consistent one, reducing duplication and ensuring security and compliance. Any individual requesting personally-identifiable information (PII) is required to complete a form detailing what information is needed, for what purpose, who will have access, and how it is stored/destroyed. This form is reviewed by the relevant data owner (as established by the DMC) for approval. The request forms for PII, as well as for aggregate data, now start and end with OPA. This has increased data integrity because OPA can help narrow down what the requestor really wants (*e.g.*, how are you defining freshman?), and the data given to every requestor is consistent.

In 2014, WSU's registrar was asked by WSU's new president to take a special assignment to project manage

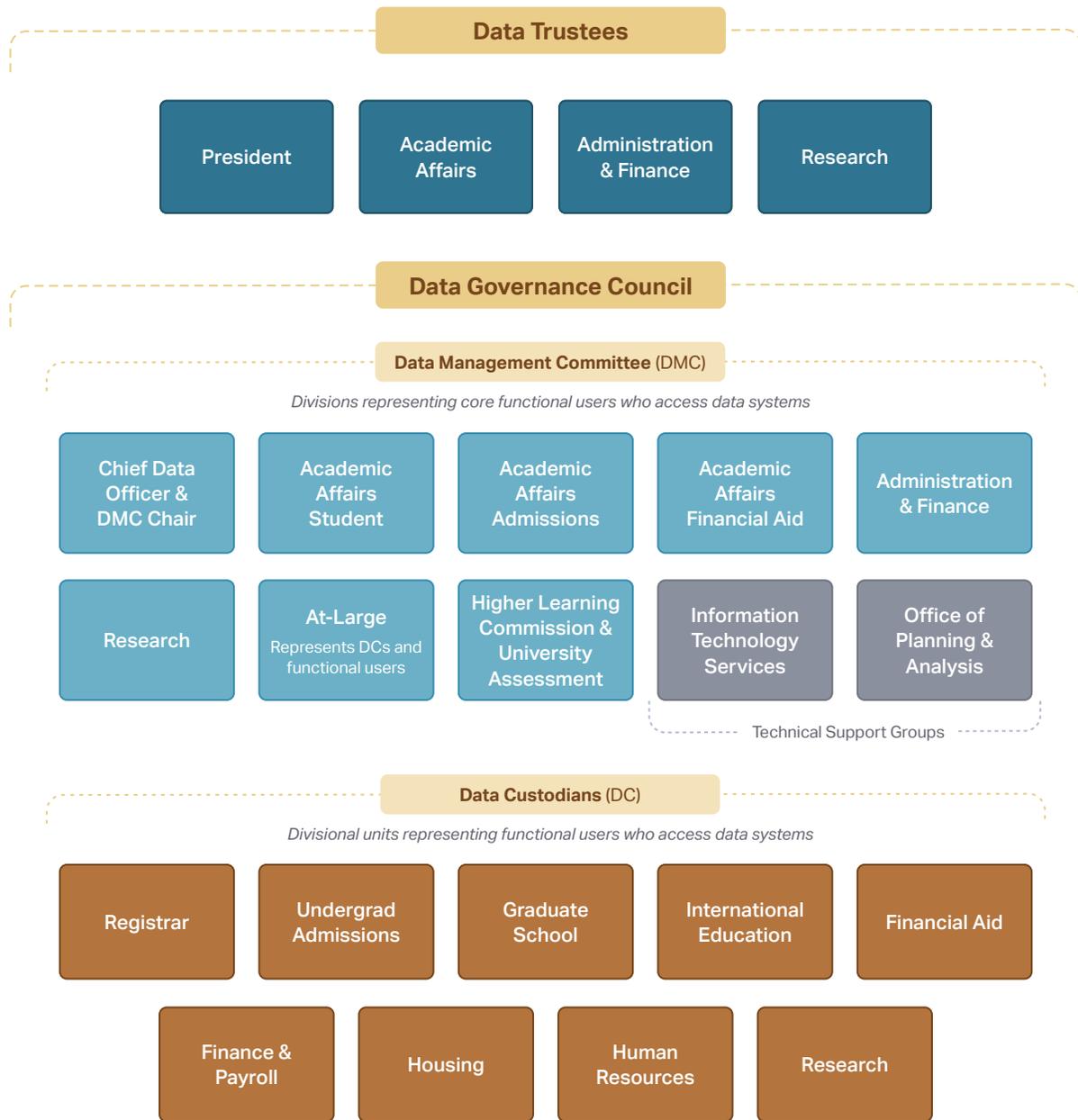
work related to a consultant review of the admissions and financial aid offices, as well as the implementation of a new partner for marketing and applications. At the time, those two offices reported to the student affairs division. The registrar was asked to provide this leadership because of her experience with admissions but also as a result of some very successful implementations the AVP/CDO and the registrar had recently completed. They had led an implementation of EAB's Student Success Collaborative platform and used the knowledge and partnerships developed on that project to move this one forward. This work brought admissions and financial aid staff into new, greater collaboration with RO and OPA, which paid off immensely later on.

Ultimately, the work between the RO, OPA and ITS hit a new stride in light of the new reporting lines in Phase II. The payoffs of that collaboration became evident in many ways as WSU's data improved, the ability to automate functions was enhanced, and the implementations were successful. The registrar learning to be more technical and the AVP/CDO to be more functional also benefited the work. The power of the partnership was reinforced by the request from the president—it was really something they were asked to take on as a team because of what they had achieved to that point. And the various implementations completed helped to establish protocols for managing projects. All of these items were key later on when WSU began SEM.

### Phase III: Team

In Phase III, the undergraduate admissions and financial aid offices were moved to academic affairs and began reporting to the AVP/CDO. For the first time, all core operational units (admissions, financial aid, registrar, IT, and IR) were in one reporting structure, creating an opportunity to put in practice the partner-based team approach from Phase II.

The AVP/CDO and the registrar began to apply this approach to the entire team now part of their formal reporting structure. This took time, especially regarding all members openly sharing information, but everyone eventually got on board. A new unit within the team was formed: enrollment services (ES). It included the



**FIGURE 1** ► Data Governance for Wichita State University Data Systems and Data/Reporting Standards

#### Organizational Chart Notes

##### Data Trustees

- Represents divisions with functional users who access data systems
- Establishes charge(s) to meet university strategic planning and reporting needs
- Dispute resolution from Data Management Committee (DMC)

##### Data Management Committee (DMC)

- Represents divisions with functional users, data assets and university assessment
- Serves as an executive committee

- with voting rights and may serve as Data Custodians (DC)
- Shares business knowledge and new or in-development business practices
- Identifies strategic planning data needs
- Establishes governance policies and procedures
- Sets data and reporting standards
- Manages metadata documentation and data quality assurance
- Assigns security/access to data systems and reports

- Performs annual evaluation of system components and use
- Can assign sub-committees/task forces

##### Data Custodians (DC)

- Represents functional areas used within data systems
- Serves as an advisory body (non-voting) to the DMC
- Data accountability—responsible for correcting data entry errors
- Identification of new business practices to the DMC prior to implementation

directors of domestic and international admissions, the director of financial aid, the registrar, and AVP/CDO. ES met regularly and utilized shared governance in many decisions and activities. The registrar was named registrar and director of enrollment services, further tying the core admissions, financial aid, and registrar operations together with the AVP/CDO role to formalize data/information processing. Now, all these offices worked collaboratively on integrating their business practices and strategically defining goals.

This phase proved that the partnership model could be extended. While silos were eliminated initially due to reporting lines, once the team approach was accepted by all parties it was the value-added benefits of true collaboration that then held the group together. With data quality covered, current business practices defined, silos eliminated, and a culture of data as information within operational units established, the team was ready for SEM.

Two major achievements came during this time. First was the development of at-risk models that resulted in reports for use by academic advisors. These reports list students who are at-risk based on incoming factors, such as ACT, as well as current factors, such as downward trending GPA and enrollment in high D/F/W courses. Second was the complete overhaul of the freshmen merit scholarship process, evaluating data to determine scoring bands for each scholarship level and automating the award process.

## Phase IV

In Phase IV, the AVP/CDO and the registrar began to see the benefits of their team-based model replicated across the institution to provide change at the cultural level and to provide the means to have a successful SEM launch and implementation. The work done in Phases I, II and III made it possible to avoid problems that many institutions face when trying to implement SEM.

The work of the ES unit involved meetings with the president regarding his enrollment vision. The registrar recommended that WSU engage AACRAO Consulting for a SEM readiness audit, with the ultimate hope that WSU would pursue true SEM and designate a chief en-

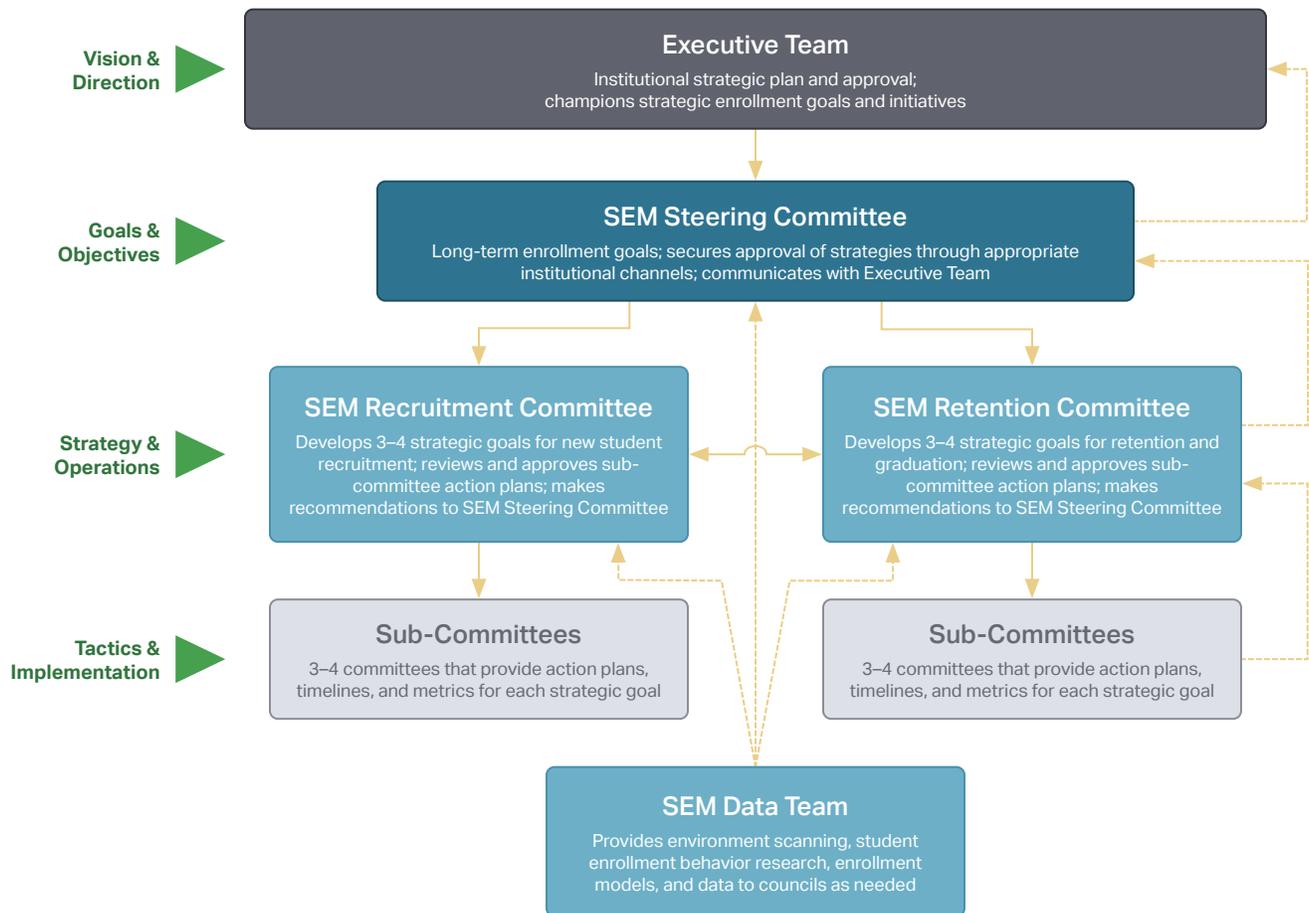
rollment management officer. The audit was conducted by Stan Henderson, who had been director of admissions at WSU in the 1970s. His report recommended that WSU begin the establishment of a formal SEM plan and that the AVP/CDO and registrar co-chair the process.

Fortunately, WSU had already resolved the issues of data quality, silos, and a data system allowing for nimble and agile inquiries and analysis. A culture of data as information, which was critical to accomplishing goals, had been established. This was all completed independent of SEM but having done so allowed WSU to go directly into SEM planning having established the legitimacy needed to move ahead in the process.

WSU utilized, with some small edits, the SEM planning framework recommended by AACRAO Consulting. A steering committee co-chaired by the registrar and the AVP/CDO was established, as well as recruitment and retention committees and subcommittees (*see* Figure 2, on page 44). A SEM data team was also created but only required one meeting due to what had already been accomplished. The process took about nine months, with the rollout of the SEM plan in fall 2016.

Shortly after the rollout, a restructuring established a single AVP to oversee SEM—the chief enrollment management officer the authors had envisioned. This freed the CDO up to focus on data governance and other pressing data issues. The registrar's office and other core operational units were shifted to report directly to the new SEM AVP, but the ES group was retained and continued to be coordinated by the registrar. Despite this restructuring in reporting lines, the partnership/team approach continued among the functional units. It had proven its value independent of reporting authority because all members benefited from it.

The CDO and the registrar may have been worried about the effect of such a “break-up” but found that it had little, if any, impact. In fact, their collaboration on the SEM process established them as necessary contacts in most initiatives. When a special summer enrollment push was requested by the provost, his first step was to ask the CDO and the registrar to meet with the SEM AVP and review the data. They are consulted about any third-party system being considered and even about things



**FIGURE 2** ► SEM Organizational Framework

Source: Adapted from Bontrager and Green (2015).

outside their general sphere, such as faculty onboarding. As well, the ES group is often asked by the SEM committee to review issues and bring forward recommendations.

WSU is now five years into the active use of SEM and the new structure it brought. The ongoing impact of the culture change that started with the authors' partnership is still quite evident. One example is their work to improve accuracy of reporting data to the Kansas Board of Regents. It was discovered that reporting queries written by OPA staff did not always accurately reflect the operational practice, and thus the resulting data could be incomplete. Closer collaboration led to improved data regarding credit for prior learning, reverse transfer, and tuition reciprocity programs. They generated a "closed-class report" that provides academic

departments with historical data on their courses (enrollment, capacity utilization, course schedule timing, probabilities of course closings, class student compositions) and future outcomes (predictions on needed class sections, students who want the class but are turned away by closed classes, students who must take the course to graduate). RO, OPA, and ITS spent nearly two years transitioning all enterprise reporting to a new platform and improved, enhanced, or eliminated every student data report along the way.

As previously mentioned, the CDO and the registrar are known on campus as the people to contact about a great many things. They attend department chair meetings to discuss reports and data and encourage greater usage. And as before, they work together to share infor-

mation and maintain a 360-degree view of developments that require and impact data information and processing.

Another benefit of their partnership is the ability to provide immediate response to many needs. When entry errors on test score records were determined to be related to a problem with the registration and pre-requisite system, they were able to respond promptly. The CDO wrote a query to identify test score issues and the registrar tasked “offending” offices to fix any problem scores. While this may seem rather ordinary, the speed with which it was addressed, and the ongoing table query that resulted, were not. Table 1 provides a list of many projects the WSU team was able to undertake as a result of the culture of collaboration.

While the focus of this article has been on the collaboration between the registrar and CDO, other collaborations have emerged out of this team-based culture. One such example is the collaboration of the registrar and undergraduate admissions to develop a web-based portal for prospective transfer students. Targeted marketing directs students to the portal where they can see in real-time how courses may transfer and apply to a WSU degree. Working as an alpha partner with a vendor to develop the platform, the offices defined and implemented the needed data and marketing aspects and established processes to maintain them. Active communication across the two offices is required to maintain and enhance the platform, blurring the boundaries between the offices and allowing for the sharing of business practice knowledge from which both offices benefit. Similarly, the financial aid office works with the CDO to perform modeling to assess cost/benefit analysis of initiatives targeting at-risk populations. Of course, the best example of multi-office collaboration is the ES group mentioned earlier, which combines the forces of the registrar, CDO, admissions, financial aid, IT, and IR.

All of the offices work in tandem to assist each other. This team does not think in terms of silos or ownership; instead, everyone works together to solve problems.

## Conclusion

While there are unique historical events and personalities at any institution, it is possible to build an environment that diminishes silos and sees data/information as a joint activity among multiple offices rather than the domain or responsibility of a single office. The key is forming relationships where all parties’ needs are met—where each party has a vested interest and benefits and

**TABLE 1** ▶ Selected Accomplishments

▶ AI (neural networks) recruitment modeling for student-institution-geographic optimization & scoring	▶ Cost-Allocation-Modeling (CAM)
▶ Scorecard based dashboards showing year-to-date yearly performance on admission and enrollment	▶ EAB SSC college reports
▶ Forecast modeling for applications, enrollment, revenue/cost	▶ Class section near capacity report
▶ AI (neural networks) modeling for risk (academic, retention/persistence, degree)	▶ Faculty tenure/rank authentication
▶ Forecasting course demand and real-time pre-registration class section adjustments	▶ Financial aid optimization
▶ Classroom space utilization studies	▶ Master-Data-Management (MOM)
▶ Student-Early-Alert-System (SEAS)	▶ Major-Code-Group (MCG) & Course-Code-Group (CCG) system
▶ Semester based reports	▶ Program major trends
▶ At-risk student report	▶ Daily data audits
	▶ At-risk course report
	▶ Exit survey
	▶ Degree works auditing and forecasting
	▶ Closed course report
	▶ Admission MFR analysis
	▶ Data governance
	▶ IBM Cognos reporting

where they see themselves as peers sharing knowledge, responsibilities, and ideas. The authors offer the following suggestions for initiating collaboration on campus:

- ▶ Identify offices with which you want a better relationship or enhanced partnership and list ways you can bring value to such a partnership. Perhaps you have a means to help an office be more efficient or can provide staff data to address operational processes.
- ▶ Make the first move; look for a potential partner where you see mutual benefit and ask them to work with you. If you had a previous relationship that has ended or gone stale, admit mistakes and start

talking about how working together would benefit both of you.

- Understand it takes time. Good relationships are built on trust, and that trust must be earned. Be willing to put in the time it takes.
- Do what you say you will. You must be reliable and trustworthy for the partnership to develop successfully.
- Don't be limited by reporting structures. This is not to say ignore them; you may need to strategize how best to get around silos and fears among higher-level authority structures.
- Don't be a burden. Remember that you both have work to do, some that is separate and some that overlaps. You don't have to be best friends to form a strong partnership.
- Put in the hard work. When the other party asks for help, make it a priority; in a good relationship, they will do the same for you. Make sure to deliver the benefit you promised.

For WSU, the data quality, limited silos, sharing of business practice knowledge across units, culture of

data as information, and support from administration for data-driven decision-making that contributed to successful SEM planning grew as much from the professionals involved as from the operational imperative. Two individuals began efforts toward data governance to meet the day-to-day data needs of a small group, which ultimately proved to be critical in the success of the SEM implementation on their campus. Shared business practices, data reporting and standards, and data-driven decision-making are not unique to SEM but are part of any effort to maximize effective use of information. Whether such activities are pushed by leadership as a prerequisite to SEM, or led by those in the trenches who need it for daily operations, someone must take the first steps and make data a priority. Good data comes before SEM, not because of it. Once in place, it must be maintained, nurtured, and modified. But structure is merely a façade if there are not individuals putting in the effort to create and maintain it; those relationships are the glue that binds structure to achieve greatest impact. For WSU, that started with two colleagues stepping forward to form a unique partnership.

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