WHITE PAPER

MEASURING EFFECTIVENESS TO DRIVE PERFORMANCE IMPROVEMENT AND RECALIBRATE RESOURCES

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A SEM plan absent of an enrollment intelligence strategy is like a ship without a rudder. Although the ship can stay afloat, it does not have the ability to steer its course. Similarly, investing in SEM planning without commensurate investments in the development of enrollment intelligence will likely yield less than optimal results. Why? Without an understanding of the root cause(s) of enrollment challenges, the cause-effect relationship between enrollment issues and solution-based strategies, the impact in real-time of performance improvement measures, the return on investment (ROI) on strategies implemented, and opportunities to optimize the allocation of resources, your leadership team is sailing without a compass and never know where they may be cast.

The purpose of enrollment intelligence systems is to provide a holistic perspective of a college's performance progress relative to institutional goals. Most colleges and universities do not lack for data. The challenge for many institutions is in how to leverage organizational capacity (people, process, technology, data) to transform available research and data into 'strategic' and 'actionable' intelligence. This paper presents best practice considerations in how to leverage enrollment intelligence to inform performance improvement and recalibrate resources; as well as a practical guide for developing an actionable enrollment intelligence strategy linked to your SEM plan—what we refer to as a 'SEM Intelligence Blueprint'.

LEVERAGING ENROLLMENT INTELLIGENCE

In our experience, while most instiutions desire to grow enrollment, few have the ability to determine the 'optimal' enrollment size and mix in order to achieve net revenue targets, maximize program and course offerings relative to student demand, proactively identify students at risk, optimize the allocation and use of classroom space, among

other factors required in the effective management of enrollment performance and institutional resources. The effective use of enrollment intelligence (data, research, analytics) provides the strategic insights necessary to address complex problems and improve institutional performance. Results from a 2012 EDUCAUSE study on the current state of analytics (a form of business intelligence) in higher education indicated that although analytics is widely viewed as important, the level of sophistication in the use of data and reporting systems at most institutions is rudimentary in nature and focuses primarily on mandatory reporting to satisfy credentialing or accountability requirements. Among the major barriers to advancing the development of analytics that was identified in the study was 'affordability'. In the words of the author:

> Many institutions view analytics as an expensive endeavor rather than as an investment. Much of the concern around affordability centers on the perceived need for expensive tools or data collection methods. What is needed most, however, is investment in analytics professionals who can contribute to the entire process, from defining the key questions to developing data models to designing and delivering alerts, dashboards, recommendations, and reports (Bichsel, 2012, p. 3).

A primary observation drawn from the study was that said developments require neither perfect data nor the perfect data culture; but rather a **readiness** and **willingness** among senior leaders to make the **investment** and the **commitment.** Interestingly, among the top-ten IT issues facing higher education identified in the 2014 survey of EDUCAUSE member institutions, improving student outcomes through the strategic leveraging of technology and using analytics to help drive critical institutional outcomes were among the top five.

The primary components of a robust SEM intelligence system are depicted in *Figure 1* and include research and analyses to inform the following:

- ❖ Enrollment goal-setting
- ❖ Brand positioning and market competitiveness
- ❖ Capacity planning
- ❖ Identification of target enrollment opportunities of potential high impact
- ❖ Enrollment performance management
- ❖ Student persistence, progression and academic performance
- ❖ Student engagement and experience
- ❖ Learning and learner outcomes
- ❖ Return on investment of enrollment strategies
- ❖ Resource management decisions

Figure 1: Components of a SEM Intelligence System

1. ENROLLMENT GOALS
- Quantity
- Quality
- Diversity
- Mix
- Retention
- Graduation
- Net Revenues

2. MARKET RESEARCH
- Market Position/Reputation
- Enrollment Opportunity Analysis
- Price/Value Sensitivity Analysis
- Environmental Scan
- Admit/Decline Studies
- Early Leavers Study

3. CAPACITY ASSESSMENT
- Market Demand
- Industry Demand
- Institutional Capacity
- Competitive Opportunity
- Admit/Enroll Yield
- Predict Persistence/Attrition

4. TARGET OPPORTUNITES
- High Demand/Available Capacity Programs
- Niche Offerings
- Low Cost/High ROI
- "Cash Cows"

5. MANAGE ENROLLMENT
- Prospects
- Inquiries
- Applicants
- Admit/Declined
- New Enrolled
- Returning Students

6. CURRENT STUDENT FLOW
- Persistence Rates
- Progression Rates
- Academic Performance
- Success/At-Risk Profiles
- Course Supply & Demand
- The "Swirl" Factor
- Graduation/Affinity

7. STUDENT EXPERIENCE
- Expectations vs Reality
- Student Satisfaction
- Student Engagement
- Service Impact
- Attrition Causation

8. OUTCOMES/AFFINITY
- Learner Objectives Met
- Relevant Employment
- Further Education
- Institutional Loyalty

9. ROI
- Program Cost/Value
- Marketing Metrics
- Recruitment Metrics
- Retention Program
- Evaluation

10. RESOURCE MANAGEMENT
- Space Utilization
- Faculty/Staff Workload
- Service Capacity
- Technology Optimization
- Budget Allocations

From the experience of this author, few institutions have developed the full range of intelligence systems to support the enrollment management function. The starting point in building a SEM intelligence system is to develop an understanding of student demographics and enrollment behaviors from the initial point of contact with an institution throughout each stage of the student lifecycle—from the point of inquiry through to enrollment (prospective student stage), term-to-term persistence and progression to degree completion (current student stage), and education outcomes and institutional loyalty following completion (former student stage). In addition, many institutions leverage the student lifecycle fundamentals to create a profile of successful persisters by student population segment (e.g., freshmen direct from high school, adult learners, transfer students, veterans, in-state/out-of-state, 1st generation, etc.) with the view to identifying and attracting prospective students with a similar profile to leverage student recruitment/marketing efforts, as well as for purposes of predicting at-risk students early in their engagement for proactive

intervention to enhance student success. A sample prioritization scheme for determining which elements of the SEM intelligence system are most critical to an institution as a starting point on a continuum of developments is presented later in this paper (see *Figure 11*).

In this regard, efforts to build an intelligence system should begin by defining strategically important research questions, and then developing a plan to address those questions. The fundamental research questions and associated metrics that are core to understanding the student lifecycle are presented in *Figure 2*.

Figure 2: Student Lifecycle Fundamentals

Student Lifecycle Stage	Critical Research Questions	Metrics
Inquiry	How is inquiry generation tracking to previous years?	• Inquiry capture rates • % change
Inquiry ➲ Applicant	Are inquiry cultivation strategies effective?	• Inquiry to applicant conversion rate
Applicant	How is application completion tracking to previous years?	• Volume of incompletes • Ratio of incompletes to completes • % change
Applicant ➲ Admit	Is admission processing timely for domestic and international applicants? Is the pool of applicants desirable?	• Time to complete an admissions decision • Applicant to admit rate
Admit	How is the quantity, quality, and diversity of admits tracking to previous years?	• Volume of admits • % change • Mean grade point average • Ratio of males vs. females • Age distribution • Geographic distribution • Academic program distribution
Admit ➲ Enrolled	Are admit conversion strategies effective?	• Admit to enrolled rate
Enrolled	Are transition strategies yielding the optimal number of new students?	• Volume and % of students who pay a deposit but do not enroll • Volume and % of students who register but do not attend class
1st Year Enrollment	Are transition and retention strategies yielding the optimum number of returning students? Are student success strategies yielding desired learner outcomes? Is institutional course capacity optimal? Is the institution yielding the maximum number of student credits hours?	• 1st term attrition (start of classes, mid-term, end-of-term) • 1st to 2nd term persistence rates • 1st to 2nd year progression rates • Student satisfaction • Student engagement • Mean number of hours registered vs. earned per term • Mean earned GPA per term • Volume and % of students in good standing by term • Volume and % of students on probation by term • Volume and % of students suspended by term • Number of students on waitlists per course

Student Lifecycle Stage	Critical Research Questions	Metrics
		• Number of undersubscribed classes cancelled • Unused seat capacity per class • Number of students taking courses concurrently with another educational provider • Number of student credit hours lost to other educational providers • Number of transcript requests for other institutions
2nd-4th Year	Are retention strategies yielding the optimum number of returning students? Are student success strategies yielding desired learner outcomes? Is institutional course capacity optimal? Is the institution yielding the maximum number of student credits hours? Is student progression toward credential completion optimal?	• Term-to-term persistence rates • Year-to-year progression rates • Student satisfaction • Student engagement • Mean number of hours registered vs. earned per term • Mean earned GPA per term • Volume and % of students in good standing by term • Volume and % of students on probation by term • Volume and % of students suspended by term • Number of students on waitlists per course • Number of undersubscribed classes cancelled • Unused seat capacity per class • Number of students taking courses concurrently with another educational provider • Number of student credit hours lost to other educational providers • Number of transcript requests for other institutions • Number of major changes • Number of "stop outs" returning to the institution
Graduation	Are retention strategies yielding the optimum number of graduating students? Are student success strategies yielding desired learner outcomes? Are students graduating on time? Are students achieving advanced education and career goals?	• On-time graduation rates • Time to graduation from initial point of entry • % of graduates employed in a relevant career within 6 months of graduation • Acceptance rates to graduate and professional schools
Alumni	Are alumni loyal to the institution? Do alumni promote the institution to prospective students?	• % of alumni giving annually • Mean alumni giving amount annually • Total alumni giving amount annually • Alumni satisfaction • Alumni referrals

The attributes of target student population segments also must be identified for performance tracking and reporting. An illustration of common dimensions for reporting on student attributes is presented in *Figure 3* and includes 'academic preparedness', 'ethnic diversity',

'geo-demographics', 'educational goals' and 'market segments'. The dimensions you select should take into consideration the top 5-7 priority student segments for targeted strategies in your SEM plan. In clarifying the attributes and associated definitions, specific analyses and reports may be generated to meet the needs of those responsible for implementing the SEM plan. For example, student recruiters may benefit from reports by high school or assigned student populations (e.g., adult learners, veterans, dual enrollment) to inform the management of recruitment strategies; whereas academic advisors may benefit from reports on newly admitted student advisees according to their level of academic preparedness to inform course placement and early intervention student success strategies.

Figure 3: Potential Student Attribute Dimensions
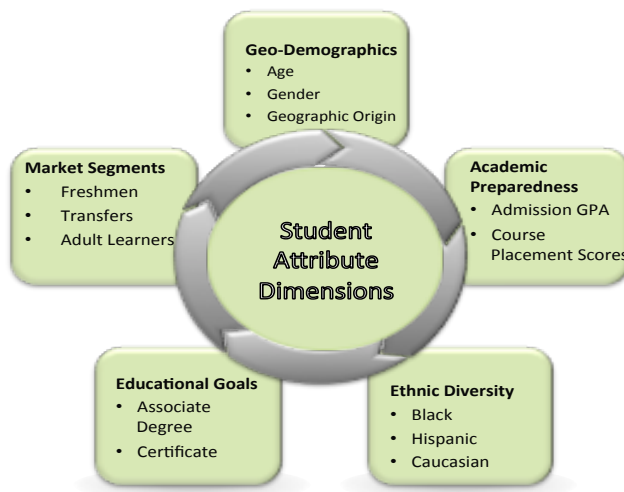
There is a rapidly growing array of software products that are designed to facilitate the generation of business intelligence (BI), performance analytics, and performance management reporting solutions (e.g., dashboards, scorecards). Many software products purport to facilitate the transformation of operational data from core financial, operational and academic systems into real-time, consistent, and easy-to-use strategic and actionable intelligence. A useful reference guide in identifying and assessing the many products available is Gartner's annual research report on *Business Intelligence and Analytics Platforms* (Available at: http://www.gartner.com/technology/home.jsp).

While these types of software products may assist institutions in advancing performance analytics and reporting solutions, it cannot be overstated that there is no quick and easy solution without a solid foundation of **quality data** (accurate, reliable, relevant, valid, timely), and the organizational capacity conditions for the effective management and use of

data as a strategic asset. Therefore, when embarking on the development or acquisition of a dashboard-type reporting system, **start small and build**—a topic that will be discussed in more depth later in this paper.

FOUNDATIONS FOR SUSTAINED SUCCESS

As previously alluded, the current culture at most institutions is best described as a "culture of data and reporting". For an institution to foster a "culture of evidence" with a view to developing a "culture of performance improvement", data must be managed and used as an institutional strategic asset. Unfortunately, this is not always the case. More often than not during our consulting visits we hear decision leaders express concerns about data quality and the lack of access to required information to inform decisions. Rarely are there common data definitions that are applied college-wide and data standards that are adhered to consistently. Analysis and reporting are generally relegated to a select few, and typically undertaken on an ad hoc basis or "off the side of the desk" when time permits.

A SEM intelligence strategy can be the starting point on a continuum of enterprise-wide business intelligence developments. In point of fact, SEM intelligence solutions integrate data from across disparate databases and information repositories. Therefore, as you embark on this journey, it is important to ensure that an **enabling governance structure** is in place that fosters collaborative leadership in the formulation of data management and reporting policies and practices for application campus-wide.

An example of a SEM intelligence governance structure is presented in *Figure 4*. Under this conceptual framework, the **Governance Steering Committee** is a standing policy-setting and decision-making body comprised of senior leaders from across divisional boundaries. The mandate of the committee is to provide strategic leadership in the development and deployment of a SEM intelligence strategy as well as enabling policies and practices. In smaller schools, this committee's mandate could be subsumed within the scope of an existing committee, such as a SEM steering committee or the president's cabinet. The scope of a **data management and reporting policy framework** should include at a minimum the following elements:

❖ Policies, procedures and standards guiding data as an institutional resource (e.g., access, quality assurance, security, ethics and privacy, retention and archiving, storage and back-up, responsible use, control, intellectual property rights)

❖ Appropriately defined roles/responsibilities for the governance, stewardship and use of data resources

❖ Metadata management strategy for creating, controlling, enhancing, attributing, defining and managing data resources

❖ An intelligence strategy for transforming raw data into meaningful and useful information to support the enrollment management function (and potentially broader institutional business needs)

❖ Enabling IT infrastructure such as database architecture, warehousing strategy, reporting strategy, and associated hardware, software and other facilities which underpin data-related activities

❖ Support resources: financial, staffing, training, etc. to ensure capacity conditions for success

Figure 4: SEM Intelligence Governance Structure

Governance Steering Committee

SEM Intelligence Team

| Enrollment Operations | Retention Programs | Resource Management Operations | IR, Assessment & Planning |

Data Management Sub-Team

Reporting Sub-Team

Governance Steering Committee

- Leadership in creating and deploying a SEM intelligence vision, strategy and multi-year critical path plan for implementation

- Facilitate an inclusive consultative process

- Formulate and administer an enterprise data management policy framework

- Formulate and administer an enterprise reporting strategy

- Establish priorities for data/reporting developments

- Resource allocation decisions

- Foster a culture of evidence to drive performance management

Reporting to the Governance Steering Committee is a **SEM Intelligence Team**. This is an **operations-focused talent team** responsible for developing and recommending a **SEM intelligence strategy** that is aligned with the institution's SEM plan and ongoing SEM planning. The SEM Intelligence Team may be chaired or co-chaired by the institution's designated enrollment champion (if the position exists), along with a respected leader at the level of a dean/director (or higher) ideally from an academic division. The application of a **co-leadership model** demonstrates the strategic importance of the SEM intelligence initiative.

The team should be comprised of data stewards who hold responsibility and accountability for data management from each major database operation as well as power users and others from across divisional boundaries who can make valuable contributions to the charge, including but not limited to:

❖ Enrollment management functions (e.g., Registrar, Admissions, Financial Aid)
❖ Retention programs and services (e.g., advising and first-year experience, academic support services)
❖ Resource management functions (e.g., budget planning, human resources, space management, IT data architecture and reporting systems)
❖ Academic planning and innovation support areas (e.g., instructional allocations, course planning and scheduling, program assessment)
❖ Institutional Research (e.g., strategic research, external accountability reporting)

The work of the SEM Intelligence Team centers on enabling the institution's SEM plan and planning efforts in enrollment goal-setting, strategy development, tracking and monitoring of KPIs, assessing ROI of strategies implemented, as well as in resource allocation decisions. Within this context, responsibilities of this team may include:

❖ Facilitate an inclusive, consultative process to establish strategic research questions
❖ Recommend standard institution-wide data definitions
❖ Identify options for addressing data/research analysis and reporting gaps
❖ Recommend a multi-year critical path plan for implementation and associated antecedents for success
❖ Oversee implementation of approved elements
❖ Facilitate campus-wide training, as well as assistance in the interpretation and use of generated analyses and reports

Depending on the size of your institution and organizational capacity conditions, the SEM Intelligence Team may formulate sub-teams to address needed improvements in **data management** and **reporting**. In this regard, the data management sub-team would be comprised of **data custodians**—frontline staff responsible for data collection, entry, and integrity; and the reporting sub-team would be comprised of **key reporting experts and/or power users** from across intelligence operations, IT and key user groups (administrative and academic).

The primary deliverable from the work of this team is a recommended SEM Intelligence Blueprint aligned with the SEM plan that includes a vision, strategy, multi-year action plan, and associated antecedents for success. In the section that follows, a practical 5-step capacity building method is presented that may serve as a useful guide in executing their charge.
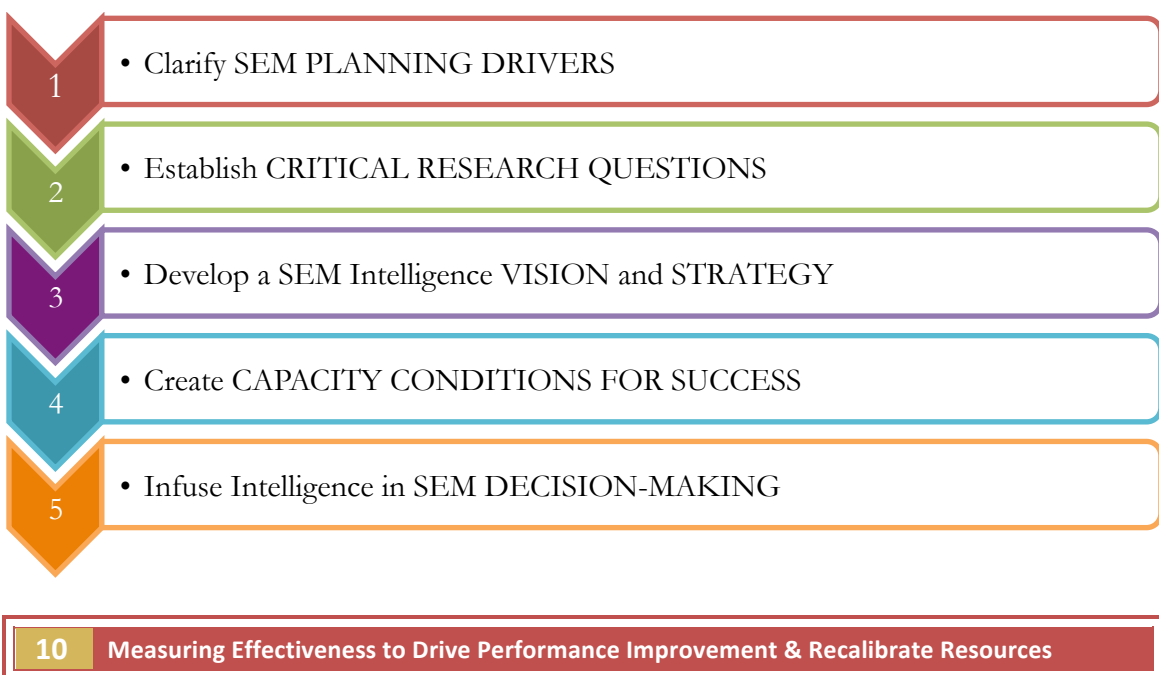
DESIGNING A BLUEPRINT FOR STRATEGIC PERFORMANCE MANAGEMENT

Effective performance management is contingent on the monitoring and tracking of metrics to manage performance progress relative to predefined and measurable outcomes. Therefore, it stands to reason that the process of designing a SEM Intelligence Blueprint for strategic performance management is grounded in the enrollment planning drivers that underpin the SEM plan—that is, the institution's enrollment vision, goals, associated key performance indicators (KPIs) and related strategies.

Based on these drivers, critical research questions are established relative to the information needs for performance management among decision leaders at both the tactical and strategic levels; following which a strategy and action plan is developed for addressing these needs. A practical **5-step capacity-building method** for developing a SEM Intelligence Blueprint is depicted in *Figure 5* and described below.

The method advanced here is grounded in theory and best-practice principles within the discipline. Application of the associated process steps is scalable to community colleges of all sizes and organizational capacity conditions. With that said, choose your talent team wisely. This is more than a technical exercise in developing a data/reporting plan. The effective application of this model presents an opportunity to break down information silos and shift the culture of your organization. Therefore, exercise care in who is selected to serve as chair/co-chair the SEM Intelligence Team and to be included as members on the team.

Figure 5: SEM Intelligence 5-Step Capacity Building Method

1	• Clarify SEM PLANNING DRIVERS
2	• Establish CRITICAL RESEARCH QUESTIONS
3	• Develop a SEM Intelligence VISION and STRATEGY
4	• Create CAPACITY CONDITIONS FOR SUCCESS
5	• Infuse Intelligence in SEM DECISION-MAKING

Step 1: Clarify SEM PLANNING DRIVERS

The first step in this process is to clarify the requisite information needs associated with each of the **strategic drivers** underlying the SEM Plan (enrollment vision, goals, KPIs, strategies). In doing so, **broad consultation** is required with decision-leaders at all levels who are responsible and accountable for the implementation of enrollment strategies, with a view to clarifying user-specific SEM intelligence needs.

Ideally, one or more members of the SEM Intelligence Team should be involved in the **enrollment goal-setting** process and contribute to the development of measurable enrollment goals and associated KPIs and metrics. In addition, there is considerable value in appointing a member of the SEM Intelligence Team to serve as a resource to the SEM Planning Committee and associated strategy and implementation teams. In this way, an understanding of the information needs of key constituents can be garnered to inform the work of the SEM Intelligence Team; and the designated member from the team can serve as a resource in assisting each strategy/implementation team in identifying KPIs and related effectiveness measures for assessing ROI of strategies implemented.

If this is not a feasible approach due to a lack of capacity (or other factors) in your circumstance, or if you desire to broaden the consultative process to other constituents in order to foster buy-in and understanding to the task at hand, then consider holding facilitated **workshop-style sessions** with key institutional constituents from across divisional boundaries with a view to clarifying their information needs and perspectives associated with the SEM planning drivers. If this approach is taken, **separate sessions** should be conducted for each primary **SEM strategy area** and involve cross-functional teams inclusive of faculty, staff, managers, and senior administrators. As part of this process, also consider conducting focus groups with each priority student population segment. These sessions may prove useful in assessing whether the KPIs defined in the enrollment goal-setting process are 'balanced' in perspective—the subject of another white paper by this author titled, *Establishing Realistic Enrollment Goals.*

Drawing from the experience of one client institution, a workshop-style session was facilitated to clarify the enrollment intelligence needs of the SEM Planning Committee in relation to an enrollment goal for increasing the number of confirmed prospective students who enroll in fall term (i.e., to reduce summer melt). Two performance metrics were identified to be of particular interest: (1) frequency of visits to the institution's web page, and (2) timeliness of responses to confirmed student inquiries. In the first instance, institutional marketing participants identified the need to track and monitor the impact and ROI of select marketing strategies in driving increased hits on the institution's web page—which they

believed was an indicator of prospective student interest in the institution and influenced first-term enrollment. In the second instance, student recruitment participants identified the need to track and monitor the timeliness of responses to inquiries (phone, web, in-person) from 'confirmed' students in order to determine whether speed of communication response was a factor in conversion rates to first term enrollment.

The desired deliverable from the consultative process is a prioritized list of KPIs and metrics—the basis upon which an intelligence strategy can be developed. Therefore, the SEM Intelligence Team can serve as a key resource in the enrollment goal-setting and strategy development processes, and provide a 'check-and-balance' in ensuring the right information will be collected to serve the purposes at hand, as depicted in *Figure 6*.

Figure 6: A 'Check-and-Balance' Approach to Clarifying Enrollment Drivers
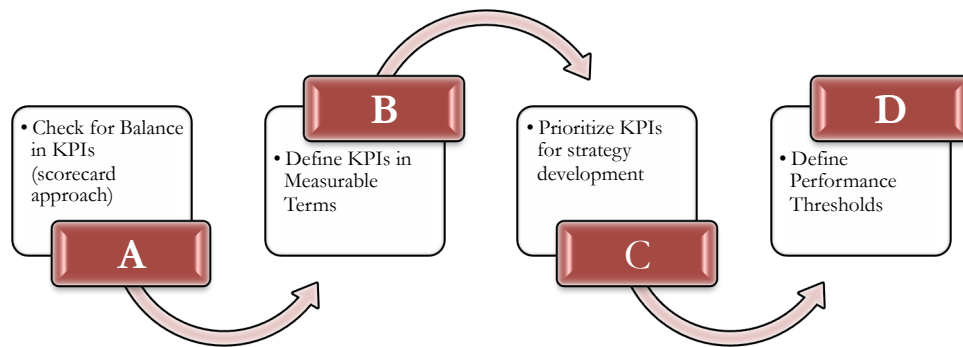
Facilitation of the strategy sessions is best provided by a SEM Intelligence Team member who is respected and knowledgeable and can bring an impartial perspective to the consultative process—such as a faculty/staff member with expertise in business management systems. An expert third party facilitator also may be considered if impartiality is critical, or capacity among team members is limited. A template for compiling the information stemming from the consultative process is presented in *Figure 7*. As you will observe, the template is keyed to each stage of the student lifecycle. Therefore, consider using the student lifecycle research questions presented earlier in this paper to guide the consultative process.

*Figure 7: Template for Documenting SEM Intelligence Needs*

Enrollment Goals	Student Lifecycle Stage	KPIs (lead, lag, diagnostic)	User-defined Research Question(s)	User-defined Performance Metric(s)	Priority Student Segments	Desired Student Segment Attributes	User Reporting Needs*	User-defined Priority (H, M, L)**
	Inquiry							
	Inquiry > Applicant							
	Applicant							
	Applicant > Admission							
	Admission							
	Admission > Enrollment							
	Enrollment							
	1st Year Enrollment							
	Upper Year Enrollment							
	Instructional & Courses Capacity							
	Retention							
	Graduation							

* Reporting needs should capture frequency (e.g., daily, weekly, monthly, ad hoc), level of granularity (e.g., college, campus school, program, course, student segment, individual student), and preferred reporting format (tabular, graphic, diagnostic alerts).

** A five-point Likert scale may be used where a "5" refers to KPIs rated as high importance (H) for monitoring performance progress and/or ROI, a "3" refers to those rated as moderately important (M), and "1" refers to those rated as low importance (L).

It is important to recognize that the data and reporting needs, as well as the levels of sophistication in the use of reporting systems vary among the campus community, as illustrated in *Figure 8*. Therefore, a multi-pronged enrollment intelligence strategy must be considered for providing the right information, in the right form, at the right time that is appropriate to the diverse needs of the SEM intelligence user community.

Figure 8: Cascading Intelligence Needs
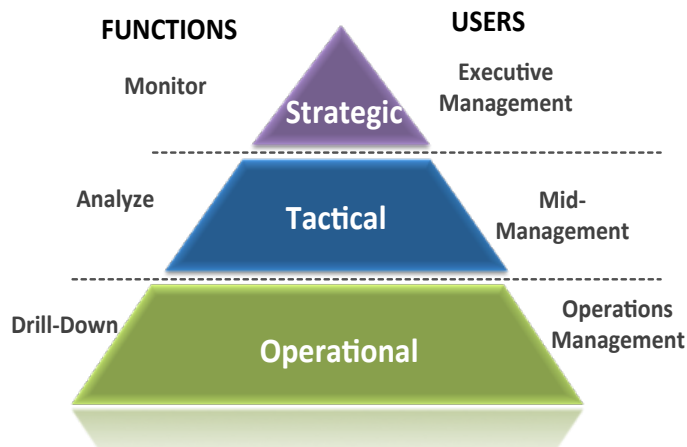
Step 2: Establish CRITICAL RESEARCH QUESTIONS

Based on the information gleaned from *Step One*, the second step of the process is to translate the user-defined information and reporting needs into clearly articulated and measurable research questions. In order to do so, the *right* research questions must be articulated that correspond to user-defined information needs and the purposes for which the information is to serve. This may require an iterative consultative process with key users. Following clarification of the research questions, a strategy map is developed to identify what data/reports are required, from where, when, and at what level of detail; as well as to assess data/reporting gaps and deficiencies.

The deliverable from this process is a completed **data/reporting strategy map** associated with each of the major enrollment goals, KPIs and strategy areas defined within the SEM plan. *Figure 9* presents a sample strategy map template and an example in its application.

Figure 9: Data/Reporting Strategy Map Template

| Enrollment Goal: Optimize 'new' student enrollment								
KPI: Increase the number of fall term confirmed students who register by 1% annually to 2017.								
Associated Research Question(s)	Associated Performance Metric(s)	Data Definitions	Data Source(s)	Key Users	Frequency of Reporting	Level of Reporting	KPI Owner	Data/ Reporting Gaps
1. Are marketing strategies driving increased hits on the college's home page relative to the prior week's level?	College home page website hits	A counter of the number of visits each visitor makes to the college's home page	Google analytics	Institutional marketing	Daily	Discrete visitors	Marketing Director	

Step 3. Develop a SEM Intelligence VISION and STRATEGY

At this juncture, it is important for the SEM Intelligence Team to assess the identified data/reporting gaps and deficiencies relative to existing capacity conditions at the institution. In addition, consultation is needed with the **SEM Intelligence Governance Committee** on the following: (a) a desired vision to guide the development of SEM intelligence strategy, (b) criteria for prioritizing development needs, and (c) planning parameters such as the levels of investment that should be contemplated in addressing the institution's SEM intelligence needs. A pragmatic and expedient approach is to engage in a half-day facilitated **SEM Intelligence visioning retreat**.

Participants in the visioning process should include the SEM Intelligence Team, SEM Intelligence Governance Committee, SEM Planning Committee, as well as others as appropriate—depending on the SEM leadership structures you have in place. If you decide on this approach, it may be prudent to secure an objective, third party expert to facilitate the visioning process. Some client schools that engage us in a consultancy leading to the development of a SEM plan incorporate a visioning exercise such as this into the strategy development process. Alternatively, a well-respected and knowledgeable faculty/staff member internal to the institution may facilitate the visioning exercise. The benefit of a visioning retreat approach is that it permits an open dialogue and sharing of perspectives, as well as a third-party impartial and expert perspective on planning options and opportunities.

Regardless of the approach taken, the deliverable from this stage in the process should be an articulated SEM intelligence vision and planning parameters as depicted in *Figure 10*.

Figure 10: Establishing a SEM Intelligence Vision and Planning Parameters
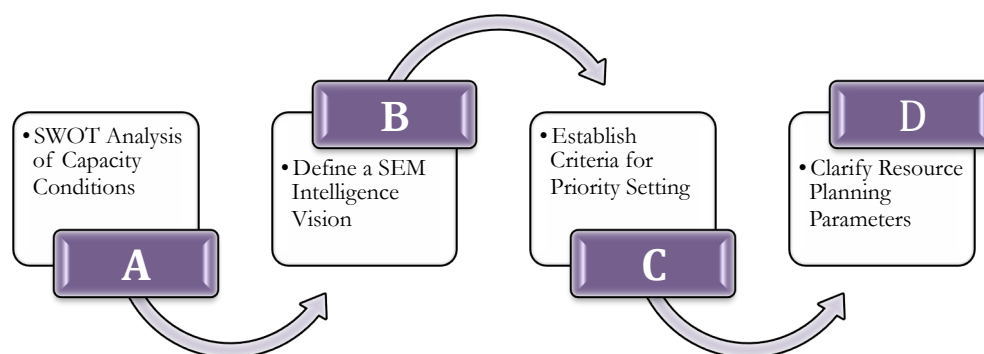
The breadth of data/reporting gaps and deficiencies to be addressed will most assuredly outstrip the institution's available capacity conditions. Therefore, priorities will need to be

established. In prioritizing intelligence developments, decision-criteria should be applied that reflect the strategic goals of the institution Sample criteria that may serve as a starting point are presented in *Figure 11*. Some client schools assign weights to each of the criteria and create a scoring rubric for evaluating each of the identified SEM intelligence development needs.

Figure 11: Sample Criteria for Priority Setting

Sample Criteria	Weight
Aligns with SEM goals and priorities	
Contributes to enrollment management imperatives	
Value adding to students, faculty, staff	
Efficiency potential	
Increases user access to critical information	
Impact of cost of not doing	
Leverages existing analysis and reporting capabilities	
Reduces redundancies in current reporting	
Sustainability (includes staff readiness as well as IT support)	
Ease of implementation	
	100%

Following from the visioning process, the SEM Intelligence Team has the required elements to develop a recommended SEM Intelligence Blueprint—a vision, strategy, multi-year action plan and associated antecedents for success. An illustration of a SEM Intelligence Blueprint resulting from this process is presented in *Figure 12*.

Figure 12: Illustration of a SEM Intelligence Blueprint

VISION: In three years, a fully operational 'Data Mart' will be in place that reports on key strategic research questions by student lifecycle stage (prospective, current and former) in alignment with the SEM Plan.

Year 1	Year 2	Year 3
❑ Establish SEM Data Mart Project as a collaborative initiative between IR and ITS, with a three year mission to develop the SEM Data Mart.	❑ Commence expansion of the SEM Data Mart to address secondary student lifecycle research questions, and/or other priority SEM intelligence needs identified in Year 1	❑ The Data Mart and SEM Dashboard reporting tool are fully developed.
❑ Establish a BI Governance Committee consisting of key functional stakeholders and power users (academic and administrative).	❑ Pilot test early warning data mining analysis and intervention strategies, using operational data streams from the College's selected/ developed early alert system	❑ Data mining capabilities are actively engaged .
❑ Fully develop a data dictionary and operationalize terms and methodology used, data sources and transformations	❑ Revisit/update Data Dictionary as needed	❑ Continue annual rating/review of reporting products and recommend SEM priority research for subsequent years.
❑ Establish a pilot Student Lifecycle Data Mart using an enterprise BI platform tool—leveraging existing analysis and reporting	❑ Conduct first annual rating/review of reporting products and recommend SEM priority research for coming year	❑ Develop a strategy and plan to expand and extend the SEM project scope to address the broader strategic BI needs of the institution.
❑ Identify BI needs for years 2 & 3 based on existing capacity and with desired capacity improvements.		

For each of the elements of the strategy blueprint illustrated above, a detailed **action plan** is developed that delineates the strategy owner, what is to be done, by whom, support areas that need to be involved, the desired deliverable, associated milestones, timelines and antecedents for success.

Step 4: Create CAPACITY CONDITIONS FOR SUCCESS

Earlier in this paper, the assertion was made that when embarking on the development or acquisition of a dashboard-type reporting system, **start small and build**. In this regard, remember that it is important to "walk before you run". Considerable improvements can be made in the generation of intelligence information without the use of sophisticated and expensive reporting tools. Indeed, few of the institutions with which we have worked have actually optimized the functionality and use of their existing technologies. Therefore, your first priority should be to leverage your existing data/research and reporting capabilities to automate and standardize required analyses and reports for KPI tracking, analysis and monitoring purposes.

With that said, there is value in identifying at least one initiative that will advance the level of sophistication in addressing your SEM intelligence needs beyond the level of rudimentary reporting. In this regard, consider initiating a **pilot project** that is centered on a **single strategic research question** encompassed in your SEM Intelligence Blueprint, and that is of importance to both academic and administrative leadership. By engaging the academic community in this process, you can foster campus-wide collaboration and buy-in to the value of investing in analytics and reporting solutions.

There are many best practice examples from the field that have taken this approach with success. For example, Rio Salado College undertook such an initiative in the development of "learning analytics" for application in teaching and learning. The College has since developed a model, named 'RioPACE'—an acronym for *Progress And Course Engagement*—that provides a continuous evaluation of student at-risk levels beyond the eighth day of instruction on a weekly basis. The 2012 EDUCAUSE publication, <u>Game Changers: Education and Information Technologies</u> (Diana Oblinger, Ed.) highlights numerous other best practice examples in the advancement of analytics and predictive modeling that may be of interest to you in your journey.

If you are considering a pilot project in the development of a dashboard reporting solution, define a project that is **narrow in focus and multi-dimensional in perspective**. Dashboard reporting solutions are often developed using the "balanced scorecard" approach. Ideally, the initiative would involve the generation of "cascading intelligence" (discussed earlier in this paper) to serve multiple user needs at varying levels of detail. For example, the dashboard solution would be designed to address the intelligence needs of **frontline operations personnel** in providing quick and easy access to 'real-time, actionable intelligence' that has drill-down functionality to an individual student level; **academic and administrative managers** in providing trend analyses and potentially predictive analytics to routinely manage performance progress and inform tactical planning; and **executive/senior leaders** in providing aggregate strategic intelligence in the form of graphical visualizations for monitoring performance progress relative to desired enrollment goals.

Once the pilot project is defined, a **small talent team** should be established and empowered to develop the solution based on clearly defined terms of reference for their charge. The talent team should consist of a relative few (no more than 8 individuals) with broad-based expertise as depicted in *Figure 13*, including operational data stewards who have functional expertise in the core data, an Institutional Research expert who has expertise in data analysis, Information Technology experts in the database architecture, applications systems and reporting technologies, as well as key influencers (academic and administrative) who will
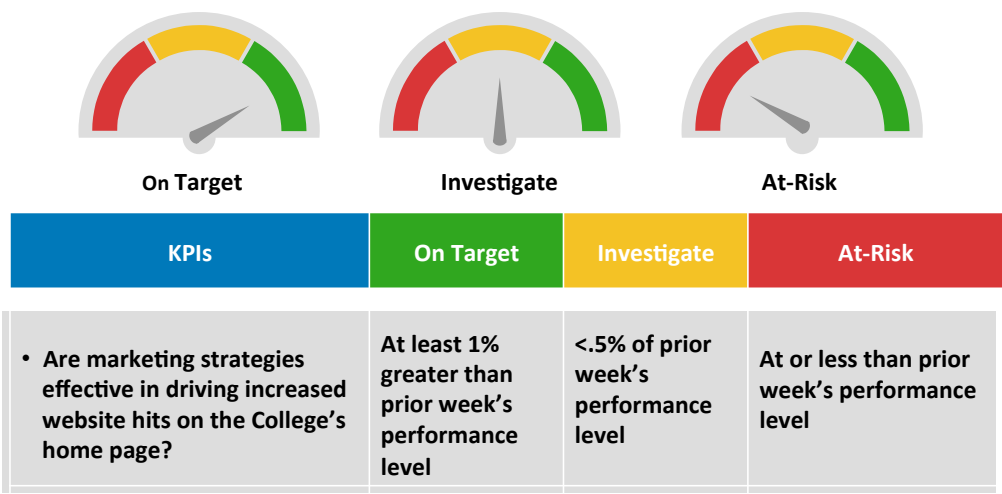
benefit from the use of the intelligence in decision-making and serve as potential advocates for the cause.

*Figure 13: Collaborative Talent Team*
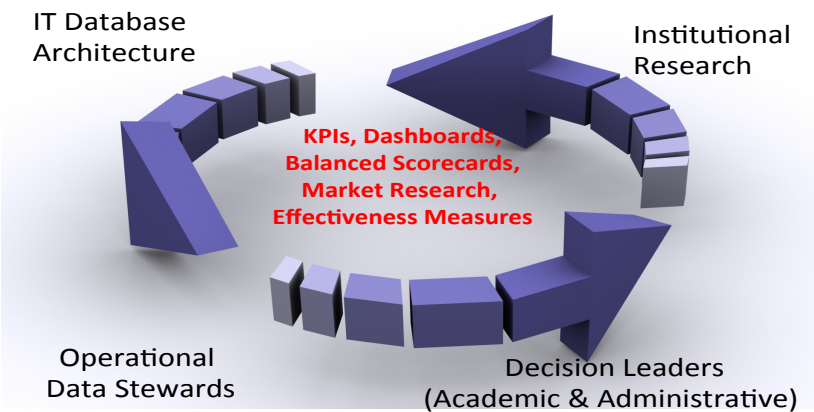
Since the SEM intelligence solution is intended to track and monitor performance relative to KPIs, an important consideration is to establish performance targets and associated thresholds that permit 'alerts' to be generated and incorporated into the reporting system and/or a communications program. Using a previous example, an illustration of how the thresholds may be applied in a dashboard reporting solution is presented in *Figure 14*.

Figure 14: Defining KPI Performance Thresholds

KPIs	On Target	Investigate	At-Risk
• Are marketing strategies effective in driving increased website hits on the College's home page?	At least 1% greater than prior week's performance level	<.5% of prior week's performance level	At or less than prior week's performance level

Following from this process, options for developing a performance management reporting solution can be explored that leverage the institution's existing technology and technical architecture and organizational capacity conditions as depicted in *Figure 15*.

Figure 15: Determining an Intelligence Reporting Solution
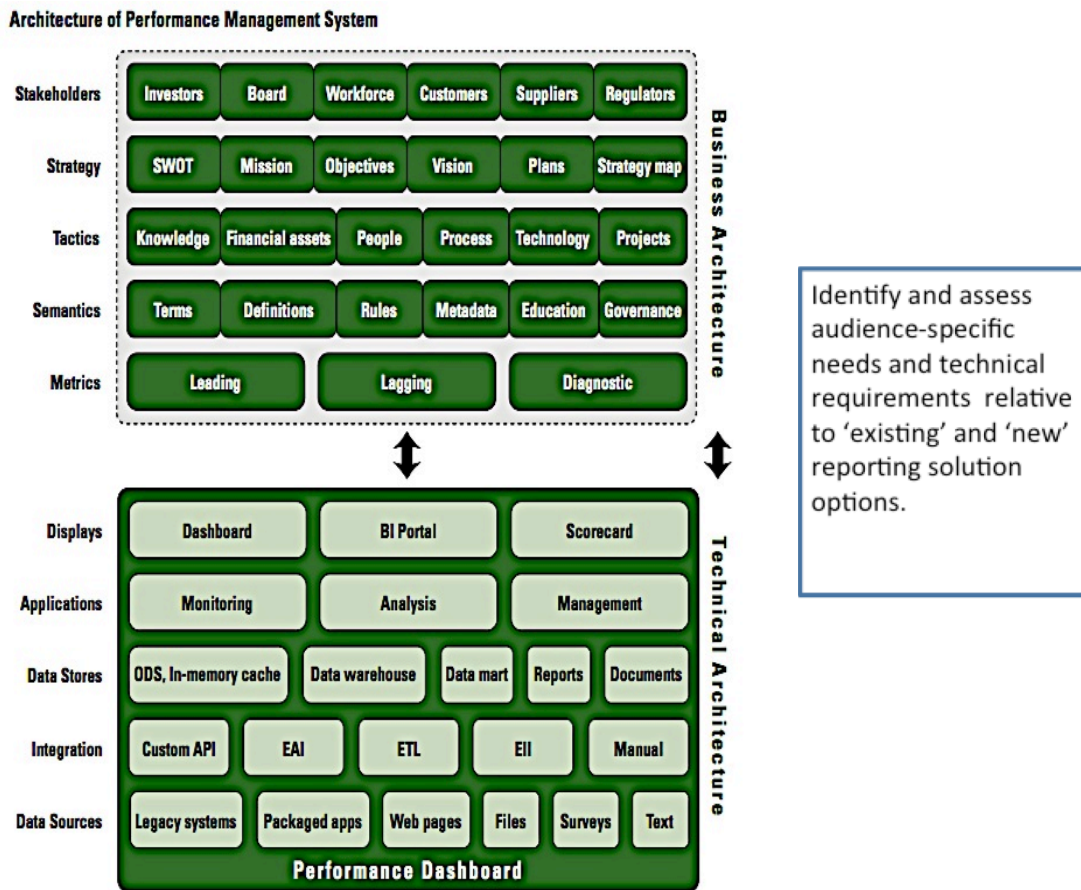
Source: Deploying Dashboards and Scorecards (Eckerson, 2006)

Whether purchasing a packaged software solution or developing a reporting system in-house, the following best practice features and applications should be considered:

❖ **Role-based views** for each academic and administrative unit, so that relevant individuals have access to the information needed for decision-making, planning, and strategy adjustments.

❖ **Critical enrollment performance indicators** at the top level of the dashboard report that convey progress on enrollment goals that the institution values most.

❖ **Drilldown capability** at the departmental, program and individual levels, as appropriate.

❖ **Real-time, just-in-time information** to ensure the most current data are available for individuals and units to access exactly what they need when they need it.

❖ **Menu-based data analysis resources** should be available within the dashboard or by contacting the data owner for explanation of related implications.

❖ **Usage guidelines and expectations** are imperative to ensure the dashboard is used pervasively and effectively—linking dashboard data to the budget process, annual reports, program reviews, strategy evaluation, and other existing institutional practices are recommended.

❖ **Linkage to strategies** represents the power of dashboards. The ability to adapt strategies "on the fly" will provide the institution with a distinct competitive advantage and increase the probability of achieving identified goals.

Depending on the effectiveness of the pilot initiative in delivering accurate, accessible and actionable content, a solid business case may be made for further investments in the development of SEM intelligence system solutions.

Step 5: Infuse Intelligence in SEM DECISION-MAKING

Once the pilot is complete, and assuming its success in realizing intended outcomes, a communications strategy and plan should be developed for the rollout of the solution more broadly. There is a symbiotic relationship between the development and application of intelligence systems and **culture change**. Simply generating intelligence information is insufficient to affect change. Fostering a culture of evidence requires strategic leadership in promoting (a) data quality and the value of data as an institutional resource, (b) the importance of 'one source of the truth' for management information and strategic decision-making; (c) the need for routine collection and dissemination of relevant information at all levels within the organization, (d) the systematic application of relevant information in decision-making processes at both the tactical and strategic levels, and (e) training and support in the use of available enrollment performance intelligence.

In relation to the latter point, it is important to build understanding that KPIs, analytics and dashboards are intended to serve as aids in performance improvement, not as mechanisms for penalizing performance. Indeed, interpreting results should be treated as a learning process. Therefore, the rollout plan should incorporate training and support programs for managers in how to interpret performance indicators and for frontline personnel in how to use the information for performance improvement. Concomitantly, clear expectations and accountability mechanisms must be in place for responsible use of SEM intelligence at all levels. Available SEM intelligence should be infused into regular staff meetings, personnel performance reviews, as well as in tactical and strategic planning and budgeting processes.

The challenges associated with the human dimensions of change should not be overlooked or underestimated. Conducting a **readiness assessment** may prove useful in identifying

potential landmines. A simple tool that may assist in this process is the 'ECAR Analytics Maturity Index for Higher Education' from EDUCAUSE, which measures an institution's analytics environment along six dimensions as shown in *Figure 16*. The Voorhees Group has developed another self-assessment tool that may be of interest. Their tool (available at http://www.voorheesgroup.org/tools/) is intended as an aid in determining readiness to develop "actionable data" on the journey toward data-driven decision making, and as a discussion model for the interplay between three key elements: people, processes, and data management.

Figure 16: ECAR Analytics Maturity Index

Source: http://www.educause.edu/ecar/research-publications/ecar-analytics-maturity-index-higher-education
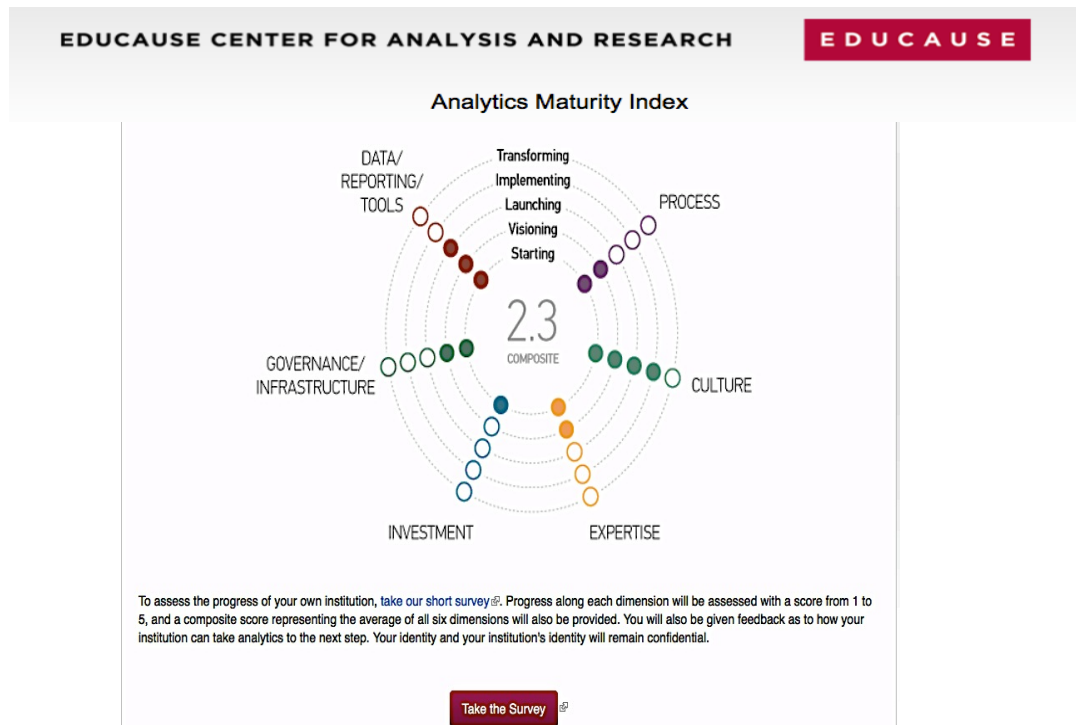
Indeed, you are well-advised to 'start with the end in mind' by anticipating the challenges ahead and proactively advancing strategies to mitigate risk. The following represent some of the strategies derived from research and the experience of this author that should be given particular consideration in creating the conditions for success:

Strategies for Managing Culture Value Differences
- ❖ Articulate and communicate a compelling vision and business case.
- ❖ Adopt a 'one-voice' message among executive leaders that conveys the mission-centric purpose and value of performance measurement.

- ❖ Define and articulate clear expectations for deliverables.
- ❖ Allocate adequate and dedicated resources (people, financial, space).
- ❖ Engage 'power brokers' (i.e., key influencers) in the process.
- ❖ Empower others to lead the charge.
- ❖ Build collaborative leadership capacity through change management training.

Strategies for Mitigating Process Management Risks

Executive Commitment
- ❖ Seek approval upfront from executive leaders of a vision, expectations, and deliverables for strategic intelligence.

Inclusive Planning Process
- ❖ Engage and build buy-in of faculty and staff early in the process.

Enabling Structures and Governance Model
- ❖ Strategically use committees of manageable size and broad representation (less than 12 individuals) in an advisory (rather than decision-making) capacity.
- ❖ Vest decision-authority with those empowered and accountable for results.
- ❖ Empower a core strategy/implementation team to advance the initiative.
- ❖ Ensure accountability and adherence to project management timelines in order to maintain momentum on the project.

Strategies to Mitigate People Risks
- ❖ Build 'strength on the bench' through cross-training of staff.
- ❖ Ensure staff possess fundamental skills, and are willing and able to learn in 'real time'.
- ❖ Utilize third party consultants to supplement staff skills and infuse best practice concepts.
- ❖ Develop a change management strategy to support effective management of the human dynamics of change.
- ❖ Build staff and user training into the rollout plan.

Strategies to Mitigate Financial Risks
- ❖ Commit resources upfront to support both implementation and sustainability of the SEI intelligence initiative.
- ❖ Create budgetary reserve funds to address unforeseen needs.
- ❖ Balance the process of building buy-in with taking action

ALIGNING RETURN ON INVESTMENT (ROI) METRICS WITH INSTITUTIONAL INVESTMENTS

There is ample evidence that substantiates the value-adding impact of intelligence solutions in optimizing the use of existing resources, improving process efficiencies, understanding cause-effect relationships in enrollment patterns, identifying potential high impact opportunities that may not otherwise be detected, proactively anticipating problems before they occur, to mention a few. As discussed at the beginning of this paper, the development of SEM intelligence solutions requires neither perfect data nor the perfect data culture; but rather a **readiness** and **willingness** among senior leaders to make the investment and the commitment. In fostering a culture of evidence in enrollment performance management, the focus should be on **continuous improvement**—which is informed largely by evaluating return on investment (ROI) on strategies implemented.

ROI is commonly viewed as a performance indicator for evaluating the financial value of an investment—calculated as the net financial return (gross revenues minus expenses) divided by the cost. However, for purposes of enrollment management, ROI should be evaluated holistically on the basis of a strategy's capacity to benefit students, the community and industries you serve, and the institution in both financial terms as well as non-financial terms (e.g., institutional reputation, academic quality, student diversity). By routinely evaluating ROI in a holistic manner and redeploying resources and effort accordingly, your institution will have the potential to sustain competitive advantage.

In our work with client schools, we typically ask enrollment leaders to identify which existing programs and services they employ that are high performing, moderately performing, needing improvement, or are underperforming. The reaction is often "deer-in-the-headlights" glares. While there may be perceptions of what is working and what is not, in most cases there is no clear criteria upon which to determine whether resources and related efforts that are expended on existing programs and services are yielding optimal results relative to their intended purposes. In fostering a culture of evidence, institutional leaders must seek justifications and supporting data on the performance of existing programs/services before approving new strategies or resources. As shown in *Figure 17*, results from the routine assessment of ROI of existing programs/services allows for determinations to be made on options to redeploy available resources in order to leverage existing high performing programs/services where capacity and enrollment opportunity exits as well as to fund new programs/services where performance gaps have been identified. By doing so, you will increase the likelihood that the right strategies are in the mix and available resources are being optimally deployed.

Figure 17: Aligning ROI with Investments

Consider for additional investments IF capacity and enrollment opportunity exists; otherwise, maintain current investment levels.

High Performance Programs

Moderate Performing Programs

Maintain current level of investment.

Consider morphing or revamping with existing resources or possibly diverting resources to other programs.

Programs Needing Improvement

Under-performing Programs

Consider elimination and redeploying resources to other programs.

FINAL THOUGHTS

In the current days' context, colleges and universities alike are under intense pressure to provide quality education that is broadly accessible at an affordable price in meeting increasingly diverse community needs. The issues have never been more complex. The effective use of enrollment intelligence (data, research, analytics) and reporting solutions provide the strategic insights necessary to address complex problems and improve institutional performance. Sage campus leaders are recognizing the importance of building capacity in intelligence systems in order to improve institutional performance, optimize the use of limited resources, and enhance institutional competitiveness.

A SEM intelligence strategy can be the starting point on a continuum of enterprise-wide business intelligence developments. The effective application of the 5-step capacity building model for developing a SEM Intelligence Blueprint linked to your SEM plan and planning efforts presents an opportunity to reinforce the need to manage and use data as an institutional strategic asset, break down information silos, and foster a "culture of evidence" with a view to developing a "culture of performance improvement".

Developing the capacity for SEM intelligence requires a reconceptualization by campus leaders regarding "affordability"—from that of an "expense" to an "investment", as well as a readiness and willingness to commit to adopting a culture of evidence in driving performance improvement.

At the beginning of this paper, the analogy was drawn that a SEM plan absent of an enrollment intelligence strategy is like a ship without a rudder. A sailor knows that no one can control the wind; and that staying on course as the winds change is only possible if the ship's structure is sound and the crew possesses the necessary sailing skills. The higher the skill level, the more agility can be exercised during stormy times that oft threaten survival. At the end of the day, it is not the changing circumstances that will determine our survival, but rather how skillfully we meet the winds of change.

ABOUT THE AUTHOR

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Dr. Lynda Wallace-Hulecki is the vice president of research services and senior consultant at SEM Works. Her higher education career and consulting experience spans more than thirty-five years within both the university and two-year college sectors in Canada and the United States. She has extensive leadership experience and an impressive record of accomplishments in bringing about campus-wide strategic enrollment success, an integrated approach to academic and enrollment planning, and transformative change in policies, systems and practices. For twenty-three years of her career, Wallace-Hulecki directed an institutional analysis and planning office—a position for which she was awarded a distinguished administrator award.

Dr. Wallace-Hulecki has served on both federal and provincial committees related to inter-provincial student mobility and higher education accountability in Canada. Wallace-Hulecki has been an active member of numerous professional organizations (e.g., AACRAO, ARUCC, NASPA, AIR, SCUP, EDUCAUSE) as a presenter and a presentation reviewer. She has written numerous white papers on the application of SEM theory in practice, and recently authored two chapters in *Strategic Enrollment Intelligence,* Canada's first book on enrollment management.

Lynda earned a B.Sc. in the mathematical sciences from the University of Manitoba, as well as a M.Ed. in higher education administration—student affairs, and an Ed.D. in leadership and higher education from the University of Nebraska-Lincoln. She has participated in

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