

# President's Emerging Leader Program

## Academic Analytics Project

August 2009

Academic Analytics is a set of tools, techniques, and processes that support data-informed decision making for both operational and strategic goals.

“If you're not using data and information to make decisions, you might as well consult a fortune cookie.”



## Executive Summary

The University of Minnesota faces a defining moment. The University must advance and maintain its quality and competitiveness through prudent investment in its education, research and public mission. However, the institution faces significant economic challenges and “for the second time in the past six years, the university is making tough, strategic decisions to reduce costs; to protect quality, and to improve management, productivity and transparency. The goal is not simply to survive, but to thrive... Leading the changes needed to ensure a strong future for the university requires diverse perspectives, new ideas—**and a single set of accurate facts.**”<sup>1</sup> (*Emphasis added*)

Academic Analytics connect strategic management, metrics and measurement, business processes, quality improvement, and decision support using business intelligence methodologies and tools for collection, integration and analysis of information. “With increased concern for accountability, Academic Analytics has the potential to improve teaching, learning, and student success.”<sup>2</sup> The President's Emerging Leaders - Academic Analytics (PEL-AA) team was tasked with examining the organizational readiness and potential roadblocks to an evidence based decision making strategy at the University of Minnesota. Furthermore, the PEL-AA team was charged to develop an Academic Analytics implementation plan to support the University's goal of becoming a top three research institution.

## President's Emerging Leaders – Academic Analytics Team

### *Project Sponsors*

Steve Cawley, Vice President and Chief  
Information Officer – Office of Information  
Technology  
Robert Kvavik, Associate Vice President –  
Office of Planning

### *Project Leaders*

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### *PEL Program Adviser*

Dave Dorman, Coordinator – Human Resources

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Dean Carlson, Capital Planner – Capital  
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JP Hagerty, Assistant to the Vice President –  
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Nickolas Kemske, Business Development  
Manager – Continuing Professional Education –  
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Shane Stennes, Human Resources Consultant –  
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## Related Studies

From the inception of *Strategic Positioning* through the current *Transforming the U* activities, more than a dozen institutional reports have investigated and reported on the need for validated data, tools and dashboards, metrics and measurements, and increased analytic capacity. The PEL-AA team discovered that these previous reports had consistent findings, recommendations and themes:

- The need for a set of consistently defined data and analytic tools is real and well documented.
- The University culture is ready for a new approach.

## Project Methodology

During the course of the project, the PEL-AA team used several methods to research the awareness, use, and desirability of Academic Analytics at the University of Minnesota. An extensive literature review was conducted and a project portal used as a depository for data collection and pertinent literature findings. The research effort centered on extensive one-hour interviews held with 36 University leaders including Vice Presidents and Assistant Vice Presidents, Chancellors, and Academic Deans. Interview topics focused on how Academic Analytics were used in strategic decision making, who was using Academic Analytics, and the overall acceptance of Academic Analytics throughout the Institution.

## Emerging Themes

Upon completion of University leadership interviews, the PEL-AA team completed an analysis of the interview findings. After reviewing the interview notes and organizing the results based on their commonalities, the interviews revealed five key themes:

- **Data Validation and Oversight** - Senior leaders indicated concerns on two primary dimensions: validity of measures and data integrity.
- **The Office of Institutional Research** - Senior leaders, particularly in collegiate units, expressed reservations about OIR's priorities and the relevance of data provided by this system-wide office.
- **Tools and Dashboards** - There was a strong consensus surrounding the need for better analytical tools that could augment the reporting and analysis functions for senior leaders.
- **Analytical Skills** - Several leaders indicated that it was important to have significant analytic capabilities among the human resources within the University.
- **Unique Needs** – Coordinate campuses and colleges expressed unique needs that should be taken into consideration.

## Challenges

The PEL-AA team identified a number of challenges that will make it difficult to fully and successfully implement an Academic Analytics strategy at the University of Minnesota, including:

- **Institutional Leadership Transition** – The anticipated departure of the President will bring changes in leadership across the University.
- **Unclear Ownership** – No office or position has full oversight over data issues at the institution.
- **Financial Resources** – In tight economic times, resources for new initiatives will be limited.
- **Time Resources** – Other current and emerging priorities will compete for the finite effort of employees.
- **Underutilized /Underdeveloped Analytical Capacity** – Analytical skill sets are unevenly distributed across the University and may be deficient.

## Recommendations

The PEL-AA team developed the following recommendations toward implementing an Academic Analytics strategy for the University of Minnesota.

- **Engage Leadership Support** – An Academic Analytics strategy will never be incorporated into the University culture unless the President, Senior Vice Presidents, Chancellors, Deans and administrative unit heads embrace the use of evidence based decision making, particularly in critical strategic decisions. Cohesive communications from leadership is essential.
- **Foster Agreement and Use of Metrics and Analytic Tools** – The new Office of Planning and Analysis must pursue the development and agreement on a set of metrics and accompanying analytical tools, with an emphasis on dashboards and other dynamic instruments.
- **Develop a Quality Assurance/Accountability Function for Each Enterprise System** – Develop a quality assurance function, true data custodianship, or a data management unit to better ensure the integrity of the data in University systems.
- **Enhance Analytical Skill and Resources** – Conduct a detailed assessment of the current analytical capacity of the organization's human resources. Build the capacity as needed by creating training for analysts and acquire skilled staff as needed. Determine if assessments are needed to ensure a measureable, demonstrated level of analytic capacity. Embed metrics in decision-making processes and infuse day-to-day activities with use of analytical resources. Establish analytical staff and resources through a coalition of analysts in distributed clusters throughout the institution.

## Conclusion

As indicated above, significant agreement was evident among the PEL-AA findings, themes and recommendations with those of previous institutional reports. Interviews with University leaders reveal a definite readiness and cultural recognition of the need for an Academic Analytic strategy for their individual units and for the University. The PEL-AA team strongly recommends that the time for study on the topic of Academic Analytics is done. Now is the time for action in implementing an Academic Analytics strategy at the University of Minnesota.

To quote President Bruininks in his presentation to the Board of Regents, March 2007: “Imagine a U that is proactive, nimble, and responsive to fresh ideas, new challenges and evolving opportunities. Imagine a day when our stakeholders across the state and around the world tell our story as well or better than we do.”<sup>3</sup> Investment in Academic Analytics can make these visions a reality.

<sup>1</sup> “U’s administrative spending is in line.” Judith A. Martin, Star Tribune, April 11, 2009.

<sup>2</sup> “Academic Analytics: A New Tool for a New Era.” Campbell, DeBlois, Oblinger. EducauseReview. Jul/Aug., 2007.

<sup>3</sup> “Built to Last: Embracing the future at the University of Minnesota” President Robert H. Bruininks, Presentation to the Board of Regents, March 2007.

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## INTRODUCTION

### Purpose

Academic Analytics is a set of tools, techniques, and process that supports data-informed decision making for both operational and strategic ends. It is a set of activities, technologies, and processes that help a university better understand itself, its environment, its history, and its future.

Presented with the Academic Analytics Strategy Proposal, the President's Emerging Leaders Academic Analytics (PEL-AA) team drafted and obtained approval on a charter to conduct relevant research and develop recommendations to implement a methodology for evidence based decision-making at the University of Minnesota. The project aligns recommendations for Academic Analytics with the goal of strategic decision making and continuous improvement at the University of Minnesota. The Strategy Proposal and Academic Analytics Charter may be found in Appendices A & B.

### Background

Within the past five years there have been numerous institutional and unit level projects conducted that examined and reviewed evidence based decision making from an academic and administrative standpoint. During this time the University has invested many resources investigating how the University is using data to make strategic decisions. Many of these projects and studies have developed similar and complimentary recommendations in support of an institution-wide Academic Analytics strategy. A summary of these previous projects may be found in Appendix C.

The PEL Academic Analytics project was undertaken to look at organizational readiness and potential roadblocks to an evidence based decision-making strategy at the University of Minnesota. The PEL-AA team was also charged to develop an Academic Analytics implementation plan in support of the University's goal to become a top three research institution.

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Shane Stennes, Human Resources Consultant – University Services

## Project Scope

- Research and determine methodologies for evidence based decision making in the context of planning and decision support of the University of Minnesota.
- Identify the primary technical, financial and human resource issues that will challenge the implementation and broader use of evidence based decision making at the University.
- Develop a plan for implementation of an Academic Analytic evidence based decision making methodology at the University of Minnesota.
- Selecting actual tools, implementation of the methodology, metrics definition and requirements gathering were outside the scope of this project.

## METHODOLOGY

In September 2008, the PEL-AA team met with project sponsors Robert Kvavik and Steve Cawley, project leaders Rich Howard and Bernard Gulachek, and project advisers Peter Radcliffe and Steve Gillard to learn about the Academic Analytics project and its scope. Throughout the year the sponsors, leaders, and advisers provided guidance for this project and direction for further inquiry.

During the course of the project, the PEL-AA team used several methods to research the awareness, use, and desirability of Academic Analytics at the University of Minnesota. We conducted an extensive literature review and set up a project portal to serve as a depository for data collection and pertinent literature findings. A bibliography of our literature review can be found in Appendix D.

Our research effort centered on extensive one-hour interviews held with University Vice Presidents and Assistant Vice Presidents, Chancellors, and Academic Deans. In total 36 interviews were conducted. Interview topics centered on the question of how Academic Analytics were used in strategic decision making, who currently was using Academic Analytics, and the overall acceptance of Academic Analytics throughout the Institution. See Appendix E for a list of interviewees and Appendix F for a list of interview questions.

Upon completion of the interviews, the PEL-AA team completed an analysis of notes from the interviews. Interview notes were reviewed and key concepts identified and defined. Interviews were then scored to determine the frequency with which these key concepts emerged in the individual interviews and the scores were totaled for all interviews to identify the most prevalent themes.

From the themes that emerged, we uncovered valuable information that helped shape our recommendations for implementing a University-wide Academic Analytics strategy. The themes were cross referenced with previous studies to identify commonalities, compared with information gleaned from individual interviews, and a series of recommendations were developed that addressed the themes. Our team synthesized the data from research, interviews, and team analysis to sharpen our findings for this report.

The literature review included an in-depth review of noted researchers and professionals in the area of Academic Analytics, business intelligence, implementation, communication strategies, and the cultural behavior change required to ensure success. Those reports that were critical to this review can be found in Appendix D. In addition, web sites, books, and archived documents played a large role in providing background information on this topic. The higher education

policy group *EDUCAUSE* was especially helpful, as it has studied the issue of Academic Analytics for a number of years, producing a series of reports and research articles.

The University has also embarked on a number of strategic initiatives including *Strategic Positioning* and *Transforming the U*. The findings, recommendations, and implementation strategies of these strategic efforts were examined and used as direction for identifying institutional readiness for Academic Analytics as well as a source for background information, organizational context, and history. Furthermore, anecdotal evidence from committee reports, meeting minutes, and our interviews were used to develop strategies and to further develop areas in need of additional inquiry.

In addition to University of Minnesota efforts in strategic planning and Academic Analytics, other higher education institutions were examined for their utilization of Academic Analytics. Although no one institution has embarked on a full-fledged Academic Analytics strategy, a number of individual efforts were quite evident and informed the ultimate recommendations of this project. See Appendix G.

## SUMMARY OF RELATED WORKS

The PEL-AA team reviewed past institutional level reports with a focus on the Strategic Positioning efforts begun in 2005. As documented on the Transforming the U webpage:

- The goal of strategic positioning is to make the University of Minnesota one of the top three public research universities in the world within a decade.
- We [the University] must invest in core strengths of the University: Minnesota's economy and quality of life are directly linked to the quality of its only research university.
- The changes we make now and in the future will benefit the University's students, faculty, stakeholders and the entire state by strengthening the quality of its education, research and public service.
- In today's competitive world, standing still means falling behind. The University must:
  - **Keep the state's only research university strong** and of the highest quality as global competition for resources, high-ability students and top faculty grows.
  - **Respond to declining state funding.** The University must make wise, but sometimes difficult choices in the face of declining state support. Dollars saved through academic redesign and administrative reform can be reinvested in improved education, research and outreach.
  - **Respond to changing demographics** that will change the numbers, diversity, age and needs of the student population.

In addition to the content mentioned above, the following reports provided insight into previous related activities that align with Academic Analytics for the University.

1. *Administrative Service & Productivity Steering Committee, Progress & Implementation Priorities Report*, March 2006
  - This report consolidated the work through March 2006 into a blueprint for change—*transformational* change—in the ways we organize, support, and serve the University of Minnesota.
2. *Transforming the University: Final Report of the Metrics and Measurement Task Force*, May 2006.
  - Task Force Mission: To identify the right metrics and establish processes to best support and analyze the University's progress toward its goal to become one of the top three public research universities in the world within the next decade.

3. *Administrative Service & Productivity Task Forces and Steering Committee, Final Report to the University Community*, August 2006. The work encompassed seven task forces, five of which are referenced:
  - Single Enterprise Task Force was asked to “develop a practical and effective set of operating practices to promote and facilitate enterprise based decision making for the purpose of achieving economies and efficiencies available to the University because of its enterprise breadth.
  - The goal of the Culture Task Force was to define and communicate a university culture that supports its aspirations to become one of the best public research universities in the world.
  - The Administrative Structure Task Force recommended a model that must: clearly define roles and responsibilities to facilitate decision making – to support implementation of the University’s strategic positioning initiatives and to enhance on-going operational support of academic programs, maximize value and improve quality and efficiency; and respond more quickly to changing needs.
  - The Best Practices Management Tools Task Force was charged to create a sustainable framework to support the University of Minnesota’s operational and service units’ need to embrace and continually improve through the University-wide adoption of best practice management tools and techniques.
  - The Optimize Resources Task Force determined that strategic resource acquisition, management, and redeployment are essential if the University is to achieve its long-term goals and advance academic quality.
4. *Administrative Structure Implementation Support Team, Report to the University Administrative Team*, Sept 2007.
  - This team was charged to create a common approach and standards to allow central University units to most successfully partner with colleges and units as they implement transformations of their administrative operations.
5. *Faculty Consultative Committee Metrics and Measurements Subcommittee*, September 2008
  - The purpose of this subcommittee was to respond to the work of the University of Minnesota Metrics and Measurements Task Force and propose additional measures which address the quality of scholarly and creative activities of the faculty. Given that measures may have an impact in strategic positioning, the subcommittee’s goal was to identify representative and valued indicators of faculty scholarship and creative work.
6. *Toward Implementation of Administrative Metrics*, June 2008
  - This President’s Emerging Leaders (PEL) project was created to support President Bruininks' charge to the Administrative Service and Productivity Steering Committee and later the University Administrative Team, to identify key outcome-based measurements to assess administrative performance and benchmark their activities.
7. *Aligning and Delivering Research Metrics That Support the University’s Goal of Becoming a Top Three Public Research University*, June 2008
  - This PEL project was intended to further define the University’s metrics landscape in a way that accurately measured the breadth, depth, and richness of research that is

conducted. In accurately measuring research productivity, the University can clearly assess its progress in research and make pivotal decisions that will shape the course of reaching its goal of becoming one of the top three public research universities in the world.

8. *Development of Assets to Drive Informed Decision Making, 2009 Recommendations*
  - The intent of this FY 2006-07 Service and Process Improvement Fund (SPIF) project was to identify indicators or metrics related to teaching, research and engagement and make them easily available to colleges and departments for use in their decision making processes. The goal of the project is to target the information needs of college leadership to improve institutional data that can be used for decision making.
  
9. *Establishing a Council of Data Informed Decision Making, 2009 Recommendations*
  - The intent of this FY 2008-09 SPIF project was to discuss the use of data by decision makers in Colleges. Discussions led to the identification of gaps that exist with data at the University and recommendations of how the University could take steps to address these gaps. This group created a document that identified scenarios in which the use of data would be warranted and the problems that exist in the current environment to accessing that data.

The Institutional Matrix, located below and expanded in Appendix C, maps the themes and recommendations documented by the PEL-AA team to similar or the equivalent themes, findings and/or recommendations from these previous institutional endeavors.

		Administrative Service and Productivity Steering Committee, Progress and Implementation Report, March 2006	Transforming the University: Final Report of the Metrics and Measurement Task Force, May 2006	Administrative Services and Productivity Task Forces & Steering Committees, Final Report to the University Community, August 2006					Administrative Structure Implementation Support Team, Report to the University Administrative Team, Sept 2007	Toward Implementation of Administrative Metrics, June 2008	Aligning and Delivering Research Metrics That Support the University's Goal of Becoming a Top Three Public Research University, June 2008	Faculty Consultative Committee Metrics and Measurement Subcommittee, September 2008	Development of Assets to Drive Information Decision Making, 2006-07 SPIF Project, 2009 Recommendations	Establishing a Council of Data Informed Decision Making, SPIF project, 2009 Recommendations
				Single Enterprise Task Force	Culture Task Force	Administrative Structure Task Force	Best Practice Management Tools Task Force	Optimize Resources Task Force						
Academic Analytics Themes	Need for Data Validation and Oversight	X	X	X						X	X	X	X	X
	Perceptions of the Office of Institutional Research		X							X		X		X
	Need for Tools and Dashboards	X	X	X			X	X		X	X	X	X	X
	Need for Analytic Skills	X				X				X			X	
	Units have Unique needs		X	X	X	X			X	X	X	X		X
Academic Analytics Recommendations	Engage Leadership Support	X		X	X	X		X	X	X		X	X	X
	Foster Agreement and Use of Metrics and Analytic Tools	X	X	X	X	X	X			X	X		X	X
	Develop a Quality Assurance and Accountability Function for Each Enterprise System	X	X	X		X			X	X	X		X	X
	Create Clusters of Analytic Staff and Approaches	X		X		X		X	X	X			X	X

## ORGANIZATIONAL CONTEXT

An Academic Analytics strategy cannot be undertaken without an understanding of the organizational context of the institution. In order to be successful, Academic Analytics will have to address and take on the following issues.

### Sense of Urgency

During the course of our 2008-2009 PEL experience, economic conditions took a dramatic and unexpected turn for the worse. As the economy worsened, business and government alike turned inward and focused on areas of inefficiency and waste. Serendipitously, we conducted interviews with senior leaders during this very time. We were privy to a unique view of the university and the response from senior leadership was definitive: the University's current and future position as a highly rated research institution must be tempered by informed, deliberate, and justifiable decision making. The University must make better use of its information, data, and disciplined management principles.

Budgetary considerations have forced the immediate attention of the institution onto leaner and more sustainable business practices. These practices are not new, but they have been afterthoughts during more generous times. While the immediate pressures of a tight budgetary year are being resolved, there will be long term impacts to consider and for which the University must account.

### Accountability

As a public land grant institution, the University is accountable to a wide range of constituents. Students, parents, the state legislature, employees, and alumni are just a few of the stakeholders that the U deals with on a daily basis. As a guiding influence on the institution, actions and decisions must be transparent, rational, and justifiable. While the University is capable of fulfilling this role today, it must continue to do so in a more efficient and articulate way. The good news is that the institution is ready and able to respond to this compelling challenge.

## Cultural Readiness

Many of the sound management principles behind evidence based decision making have been used in building and in sustaining this organization. The University's workforce and culture has started to transform the way it approaches issues of accountability and use of data in decision making. University culture has reestablished the need to focus its attention on this issue and make a determined and purposeful move forward.

## Tools

A critical component to the adoption of systemic evidence based decision making will be in the tools the University uses. The University has made specific progress in the initial stages of Academic Analytics, but significant advancement requires the use of sophisticated and coordinated enterprise analytical tools. Business intelligence software, as it is commonly referred, has been identified by numerous units and is currently being integrated into the technology infrastructure throughout various departments of the institution.

## Budget-Related Decisions

The established budget principles that the University utilizes in forming strategies and making decisions related to short and long term budget planning include the following:

- Take substantial action to increase overall productivity by reducing costs and increasing revenues without sacrificing excellence, quality, and responsiveness.
- Use all available tools to address long-term and short-term budget and investment challenges.
- Continue to make prudent and needed investments in capital infrastructure to advance the University's quality and competitiveness.

If the University does not rely on evidence and information in its decision making processes, it runs the risk of weakening the institution. The institution needs to definitively know which areas of its enterprise are performing well and which are performing poorly. If the University is unable to appropriately assess and measure the health of the institution, then it risks becoming the surgeon who removes the wrong organ, misdiagnoses an illness, or prescribes the wrong medication.

## **UNDERSTANDING OF THEMES**

In meeting with University leadership, a script of interview questions (found in Appendix F) was used to guide the interview discussions. Upon completion of the University leadership interviews, the PEL-AA team completed an analysis of the interview findings. Utilizing standard data analysis practices, the resulting interview notes revealed five key themes.

### **Data Validation and Oversight**

Senior leaders indicated concerns on two primary dimensions: validity of measures and data integrity. Regarding validity of measures, several leaders indicated that they received data through various sources on campus but questioned the appropriateness of those measures for the decision being made or the activity being assessed. Data integrity is a function of validity of the data (i.e. does it measure what it purports to be measuring) and reliability of the data (i.e. is what we are measuring consistent from one point in time to the next). Several leaders highlighted these two components as an issue.

Various causes were proffered to explain these issues. University staff receive training specific to the role(s) they have within University systems. For some system access, staff must pass assessments to demonstrate post-training competence. Appropriate oversight or management for data entry and data resources, however, is non-existent or inadequate. Additionally, there is an apparent failure to articulate the questions being answered before seeking out information and the inability of “one-size fits all” information to capture the heterogeneity of the institution’s various components.

### **Role of the Office of Institutional Research**

A number of senior leaders expressed frustration or dissatisfaction regarding the Office of Institutional Research (OIR). It is clear from the interviews, however, that the source for these feelings may not be entirely attributable to OIR but rather the broader context in which they operate. Concerns encompassed: OIR’s focus - perceived to be primarily external, some interviewees felt it should be more or perhaps predominately internal; the applicability and integrity of the information provided by OIR (see Data Validation and Oversight section for further detail); and an absence of OIR resources directed toward certain areas of the institution. OIR and OIT are familiar with these concerns and have worked to address the issue of data consistency.

Conversely, the PEL-AA team heard praise from certain sections of senior leadership, particularly those leaders serving in system-wide functions. For this group of senior leaders, OIR was responsive in meeting their analytic needs - often in the context of a specific initiative or project.

## **Tools and Dashboards**

There was a strong consensus surrounding the need for better analytical tools that could augment the reporting and analysis functions for senior leaders. Several leaders lamented a perceived absence of useful analytic tools which provide real-time information for decision making at a strategic management and strategic planning level. This was particularly poignant among collegiate units, some of which had developed their own dashboard style tools in-house to fill the void. These tools were typically developed by in-house staff and external consultants.

## **Analytic Skills**

Several leaders indicated that it was important to have significant analytical capabilities among employees of the University. This priority often went beyond having someone capable of creating IT tools and accessing the data, extending to a belief in the importance of having staff that could understand what the data were capable of illustrating and how to create statistical models and other frameworks to provide information. Many units have the former capability, although it is often overtaxed with requests. Few units have the latter capability. Leaders variously called for a mix of dedicated analysts and shared resources.

## **Unique Needs**

Nearly all collegiate units and coordinate campuses indicated having unique needs in terms of the type of information that would be useful to them. Some collegiate units indicated potential alignment of needs with other like units. The coordinate campuses each expressed independence and individuality.

## COMPELLING CHALLENGES

There are a number of challenges that will make it difficult to fully and successfully implement an Academic Analytics strategy at the University of Minnesota. Any successful Academic Analytics strategy must address and overcome these challenges.

### Institutional Leadership Transition

Over the next five years the University of Minnesota will face substantial change in leadership. President Bruininks will be retiring in 2011 and it is anticipated that other senior-level administrators will also leave the institution at that time. The University faces a departure of institutional memory and the anticipated labor shortage as baby boomers retire will only complicate matters. The institution meets a difficult challenge in managing its succession plan and maintaining continuity while taking on the issue of Academic Analytics. New leadership, however, also produces new opportunities. The University may be able to bring a new emphasis regarding Academic Analytics with the anticipated new leadership team.

### Unclear Ownership

Through the course of our interviews, it became apparent that there is plenty of data available for decision making. While there may be ample data, it is highly decentralized and is prone to differences of interpretation. As the institution enhances its use of evidence based decision making, it will be necessary to better identify, define, and manage the University's data. While this may not require centralization and standardization of all data, it will certainly require oversight. Supporting those who take on this role will be at the forefront of Academic Analytics.

### Financial Resources

The economic recession has hit the funding of higher education hard. The University anticipates continued decreases in its funding from the State of Minnesota and possible decreases in federal government research funding. At the same time the resources needed to operate a world class University continue to increase. Scarce financial resources will make it difficult for senior leaders to invest in a full-fledged Academic Analytics program.

## **Time Resources**

In addition to financial constraints, the University is asking its workers to do more work with less staff. As University leaders and their staff struggle to adequately cover their existing responsibilities it will become increasingly difficult to undertake additional initiatives such as implementing an Academic Analytics strategy.

## **Underutilized /Underdeveloped Analytical Capacity**

The analytical capacity of the University is, typically, home grown and is heavily weighted toward individuals who focus primarily on financial analysis. University leadership interviews indicate the increasing need for analytical capacity that goes beyond finance and moves toward trend analysis and forecasting for strategic decision making across a broad portfolio of issues, functions, and subjects. Several leaders believe their analysts have the competence to serve in a greater capacity, though many are less certain.

## **RECOMMENDED SOLUTIONS**

The PEL-AA team developed the following recommendations toward implementing an Academic Analytics strategy for the University of Minnesota. These recommendations were based on the themes we gleaned from leader interviews and from a review of previous University studies and other efforts to initiate Academic Analytic elsewhere. Their intent is to move the University toward an Academic Analytic strategy, which addresses both the organization context and compelling challenges facing the University of Minnesota.

### **Engage Leadership Support**

An Academic Analytics strategy will never be incorporated into the University culture unless the President, Senior Vice Presidents, Chancellors, collegiate Deans and administrative unit heads embrace the use of evidence based decision making throughout the Institution. University leaders must use a collaborative process to develop an understanding of the common data needs of the institution as a whole as well as their units, and then incorporate a strategy to define, refine, and utilize appropriate data in the compact process, work plans, and program evaluations.

### **Foster Agreement and Use of Metrics and Analytic Tools**

In order to aid senior vice presidents, collegiate, coordinate campuses, and administrative units with their strategic management and strategic planning activities, the new Office of Planning and Analysis must pursue the development and institutionalization of a set of metrics and accompanying analytical tools, with an emphasis on dashboards and other dynamic instruments. Metrics should also be developed within the scope of a collaborative process in which leadership at the collegiate, administrative unit, and coordinate campus level have meaningful input. Prior efforts may inform, but not constrain, metrics formation (see SPIF projects, Administrative and Research Metrics PEL projects, and efforts of Faculty Senate Metrics and Measurement sub-committees). It is equally important that decision makers understand that data needed to respond to external accountability mandates and strategic planning are different than those needed to support day-to-day decision making and process monitoring. Agreed upon tools and metrics can be used to foster this understanding.

Metrics/analytics should be rigorously defined using accepted models which detail what elements compose the metric, how the metric can be appropriately interpreted, and the limitations of the metric.

## Develop a Quality Assurance and Accountability Function for Each Enterprise System

Develop a quality assurance function, true data custodianship, or a data management unit to better ensure the integrity of the data in University systems. The first two approaches can be leveraged within existing resources. The latter may require new resources. Create mechanisms for accountability of data entry staff that address the integrity of the data created as relates to reporting as well as the direct consequence of the transaction record. The current Office of Oversight, Analysis and Reporting may serve as one successful model of an existing quality assurance function within the University.

## Enhance Analytical Skills and Resources

Complete an initial assessment of the analytic capacity and competency of the organization's employees. Build the capacity as needed by creating a training program for analysts. Determine if assessments are needed to ensure a measureable, demonstrated level of analytic capacity. Training must also be made available and communicated to the broader University community. An analytical mindset must be infused with the day-to-day activities and the decision making processes at all levels of the University – not just analysts. The value and importance of using metrics must be embedded in our systems, culture, and processes.

In alignment with previous *Transforming the U* efforts, utilize the new administrative services model to create clusters of analytic human resources and approaches. We recommend a distributed cluster model; with clusters not institutionally centralized but also not decentralized to the individual department level. We recommend the cluster structure at the College, Administrative Unit or Coordinate Campus level, with organizational connections (dotted-lines) to the Office of Planning and Analysis. This distributed cluster community would become a critical resource for gaining agreement on metrics, assessing tools, and setting priorities. The analytic employees need to have or gain a deep knowledge of the local needs and establish relationships with those they serve locally yet also contribute and benefit from the collective wisdom of the larger analyst community. Where economies of scale or like educational and/or financial models exist, we recommend distributed clusters that serve multiple colleges or administrative units.

## CONCLUSION

During the past year, a rapid change in the fiscal environment has besieged the University. The worldwide economic downturn has pushed all organizations, including higher education institutions, to be more proactive in planning resource allocations and developing new efficiencies. Additionally, there is increasing pressure to publically report on how resources are used and how this contributes to the University's three pronged mission.

Academic Analytics is an established process for connecting metrics and measurement, business processes, quality improvement, and decision support using business intelligence methodologies and tools. The push for Academic Analytics has recently surfaced due, in part, to an increasing focus on accountability. The President's Emerging Leaders - Academic Analytics team examined the organizational readiness for Academic Analytics—or evidence based decision making strategy—at the University of Minnesota and the findings are very optimistic.

Significant agreement was evident among this PEL team's findings, themes and recommendations with those of *more than a dozen previous institutional reports*. The foundation was created over five years ago with the *Strategic Positioning* efforts. During the last half-decade, through these many reports, there has been extensive socialization around the need for assurances of valid data, agreement on metrics and measurements, post-training oversight of system data and techniques to increase analytical capacity.

PEL interviews with University leaders this past year revealed an unmistakable readiness for an Academic Analytic strategy. Previous projects and reports have helped to pave the way for cultural acceptance of this strategic change, as has the current fiscal dilemma and need to find efficiencies.

The PEL-Academic Analytics team believes that sufficient research and learning has been completed on the topic of Academic Analytics.

*The time for study is done.*

*The time for action is now.*

*The University of Minnesota must begin planning for implementing Academic Analytics.*

## **Academic Analytics Strategy**

### **President's Emerging Leaders Proposal 2008-2009**

#### ***Project Summary***

The University of Minnesota has committed itself to information based decision making, strategic planning, and continuous improvement. A key component of these efforts is getting the right information to the right people at the right time. The University contains pockets of excellence in measurement, analysis, and reporting, but does not currently have an institution-wide Academic Analytics strategy to achieve these goals. Implementing an Academic Analytics strategy holds the potential for improving the efficiency and effectiveness of programs and activities across campus. Such an undertaking, however, would not come without cost. Process reviews, increases in staffing, new training offerings, expanded communications, and software purchases to implement an Academic Analytics strategy will require resources. This project will explore the benefits, opportunities, risks, requirements and roadblocks a business intelligence installation offers the University of Minnesota.

#### ***Overview***

Associate Vice President Robert Kvavik has applied the term Academic Analytics to the application of data and analysis to decision making in higher education. Academic analytics, at its heart, is a set of tools, techniques, and processes that support data informed decision-making, for both operational and strategic ends. It involves taking data that was previously in the exclusive domain of technical experts and putting it into the hands of a broader set of people. In addition, such a system can provide those experts with the tools to do more sophisticated and impactful analysis leading to actionable insight. Academic analytics, therefore, can be viewed as an umbrella concept for a set of activities, technology and processes that help a university better understand itself, its environment, its history, and its future.

There are at least three faces to an implementation of an Academic Analytics system: a technological face, a procedural or political face, and a human face. The technological face is probably the most widely understood in higher education, with a myriad of companies, including the major database providers, offering software packages or suites, frequently under the rubric of business intelligence. Many companies market particular configurations of these tools as optimized for higher education institutions. These systems and suites consist of tools such as dashboards, scorecards, OLAP cubes, drill-down and drill-through reports, and the supporting data management technology to accumulate, organize, aggregate, and present the data.

The policy and process face of an Academic Analytics system may be less familiar, but is also critically important. In a supportive environment, a less-technologically sophisticated implementation can still reap significant benefits. To create such an environment, institutional

data must be defined clearly and created consistently to allow systems to present that data accurately. Decisions must also be made about what to measure, how to measure it, when to measure it, and how to get that information into an accessible location for inclusion in the Academic Analytics framework. For Academic Analytics to have an impact on institutional performance, strategic and operational priorities must also be expressed in measurable terms, and data must be explicitly and transparently used to inform decisions.

The human face of Academic Analytics is likewise underappreciated yet critical. Employees who access the data need an understanding of what data mean and how to use the tools to analyze and manipulate it. They must also understand what data is available and what is not. This, in turn, requires readily available documentation, training, and access to both technical and content experts. Likewise, decision-makers need to have experts on staff who can serve as advisers and interpreters of data and trends.

The University of Minnesota has elements of an Academic Analytics strategy in place through its enterprise resource planning environment (PeopleSoft), data warehouse, enterprise reporting system (Management Reporting), and compact process. In many of these areas, the university has an advantage over its peers. Other pieces of the puzzle, however, are missing, and an overall Academic Analytics strategy has not been fully articulated. A sound evaluation of the university's current status, that of its peer institutions, and the costs, benefits, and risks of pursuing an Academic Analytics strategy is clearly needed to inform progress in this area.

#### Alignment with Strategic Priorities

An Academic Analytics strategy has the potential to contribute to the strategic goal of building an exceptional organization. Through striving toward this goal, the University of Minnesota seeks to "Be responsible stewards of resources, focused on service, driven by performance, and known as best among our peers". This goal is supported by four strategic objectives:

- Adopt best practices and embrace enterprise standard business practices, processes, and technology to achieve efficient, effective, and productive operations.
- Promote nimble decision-making using data, information, research, and analysis.
- Align resources to support strategic priorities.
- Commit to service and results that are best among peers.

By leveraging technology, skills, and process improvements to bring data and analysis to bear on both strategic and operational decision-making, an Academic Analytics approach can empower decision-makers throughout the organization, make clear areas where resource allocations are at odds with priorities, and provide mechanisms to compare performance against professional standards or peer benchmarks.

In addition to alignment with strategic priorities, a successful Academic Analytics implementation can facilitate the integration of relevant information with several of the items

listed in the University's Criteria for Decision Making list found below. Academic analytics can be seen as a key enabler for moving the University forward as it directly impacts the decision making process at the highest levels of the University.

### ***Criteria for Decision Making***

1. Centrality to Mission
2. Quality, Productivity, and Impact
3. Uniqueness and Comparative Advantage
4. Enhancement of Academic Synergies
5. Demand and Resources
6. Efficiency and Effectiveness
7. Development and Leveraging of Resources

This position is further re-enforced by the six summary recommendations found in the "Final Report to the University Community" released on August 7, 2006 from the Administrative Service and Productivity Task Forces & Steering Committee. These recommendations clearly point to a robust management information system as a key assets in fully integrating these recommendations into the fabric of the University of Minnesota.

### **Alignment with Ongoing Activities**

Previous committees and research teams have built some of the groundwork for this project. Among the groups whose work might be relevant for this project are:

- SPIF Project on Collegiate Management Metrics (Gillard, et. al.)
- SPIF Project on Strategic Academic Decision-Making (Warren, et. al.)
- PEL Project on Administrative Metrics (2007-08 PEL project)
- PEL Project on Research Metrics (2007-08 PEL project)
- Metrics Steering Committee (Disbanded, new structure not yet in place)
- OIT Business Intelligence workplan item (undefined)

### ***Emerging Leaders Project***

The role of the Emerging Leaders team will be to research and evaluate the necessary antecedents for the pursuit of an Academic Analytics strategy at the University of Minnesota. The team will not be asked to assemble a Request for Information (RFI) or Request for Proposals (RFP) for software vendors, but rather to determine the organizational readiness, possible benefits, and potential roadblocks to an Academic Analytics strategy. Among the questions that could be answered are:

Specific strategic questions to be addressed include:

1. Define the potential use and benefits of Academic Analytics within in the context of planning and decision support in higher education generally, and the University of Minnesota specifically.
2. Identify the primary technical, financial, and human resource issues that will challenge the implementation and use of Academic Analytics at the University.
3. Recommend a process(s) to integrate Academic Analytics into planning and decision making at the University and a structure for its management and maintenance once implemented.

***Project Sponsors***

Steve Cawley, Vice President and Chief Information Officer, Office of Information Technology

Robert Kvavik, Associate Vice President, Office of Planning

***Project Leaders***

Bernard Gulachek, Senior Director for Strategy Management, Office of Information Technology

Richard Howard, Director, Office of Institutional Research

***Project Advisers***

Steve Gillard, Senior Analyst and Information Systems Architect, College of Food, Agricultural, and Natural Resources Sciences

Peter Radcliffe, Director of Planning and Analysis, Academic Health Center

**Academic Analytics DRAFT Project Charter – Final Draft 11/14****Opportunity Statement**

Academic analytics or evidence based decision making empowers decision-makers and provides mechanisms to compare performance against professional standards or peer benchmarks. In addition, it provides a means to identify areas where resource allocations are at odds with strategic priorities and encourages fiscal stewardship. This project seeks to determine the organizational readiness, benefits, and roadblocks to an Academic Analytics strategy and will recommend a methodology for implementation. It will be difficult for the University to become a top research institution without developing an evidence based decision making methodology.

**Project Benefits**

- More effective and definitive decision making
- Research and recommendation on methodology
- Cost benefits
- Accountability
- Culture of evidence
- Actionable intelligence
- Successful implementation will align with the University's criteria for decision making
- Facilitates more efficient use of limited financial resource

**Goal**

To conduct relevant research and develop recommendations to implement a methodology for evidence based decision making at the University of Minnesota by June 30, 2009.

**Issues within Scope**

- Research and determine methodologies for evidence based decision making in the context of planning and decision support of University of Minnesota specifically.
- Identify the primary technical, financial and human resource issues that will challenge the implementation and use of evidence based decision making at the University.
- Develop plan for implementation of an Academic Analytic evidence based decision making methodology at the University of Minnesota.

**Issues Outside Scope**

- RFPs and RFIs
- Project management of the implementation (actual implementation)
- Metrics formation

**Project Plan**

- 1) Examine previous projects to gain insight and discovery into the Why to implement evidence based decision making methodology at the University.
- 2) Examine methodologies used in Business and Higher Education for implementation of evidence based decision making. This examination will include practices currently being conducted at the University. Develop a number of methodologies that are appropriate for use at the University.
- 3) Examine obstacles to the implementation of evidence based decision making methodology at the University.
- 4) Interview key decision makers and recommended stakeholders to validate methodologies, indicators and measurements.
- 5) Review recommendations with key stakeholders which may include Senior VPs & VPs, Deans, the Faculty Consultative Committee, President, Regents.
- 6) Finalize recommendations for implementation of an academic analytic evidence based decision making methodology for use at the University of Minnesota.

**Team Selection*****Project Sponsors***

Steve Cawley, Vice President and Chief Information Officer, Office of Information Technology  
Robert Kvavik, Associate Vice President, Office of Planning

***Project Leaders***

Bernard Gulachek, Senior Director for Strategy Management, Office of Information Technology  
Richard Howard, Director, Office of Institutional Research

***Project Advisers***

Steve Gillard, Senior Analyst and Information Systems Architect, College of Food, Agricultural, and Natural Resources Sciences  
Peter Radcliffe, Director of Planning and Analysis, Academic Health Center

***PEL Adviser***

Dave Dorman

***PEL Team***

Jac Campbell, IT Manager – Office of Information Technology  
Dean Carlson, Capital Planner – Capital Planning and Project Management  
JP Hagerty, Competency Coordinator – Training Services/Organizational Effectiveness, OHR  
Nick Kemske, Business Development Manager – Continuing Professional Education, College of Continuing Education  
Shane Stennes, Human Resources Consultant – University Services

		Academic Analytic Themes					Academic Analytic Recommendations			
		Need for Data Validation and Oversight	Role of the Office of Institutional Research	Need for Tools and Dashboards	Need for Analytic Skills	Units have unique needs	Engage Senior Leadership Support:	Foster Agreement and Use of Metrics and Analytic Tools	Develop a Quality Assurance and Accountability Function for each Enterprise System	Create and Cluster of Analytic Staff and Approaches
Related Works	Administrative Service and Productivity Steering Committee, Progress and Implementation Report, March 2006	The current state of the University's ability to track service levels and continuous improvement is far from optimal. Although some units may measure performance, there is no clear alignment of those measures to institutional measures or strategies. Some units may be able to characterize their individual progress toward goals, but the University is not capable of aggregating this information or measuring progress at higher levels.		The creation of a robust institutional reporting environment that includes critical operational measures for service units must be a component of the transformation.	In addition, the functions of the offices that provide this data will be assessed to determine how these units might be best optimized to provide better information for planning and decisionmaking.		The President has challenged the University to move beyond the commendable continuous improvement work that brought us this far, and move into an era of transformational change. To do so, we must align and integrate our change efforts. We must work together as one organization with a shared goal and culture.	...crucial information related transformational projects have been identified... as key to moving the U from its existing state to [an] information-rich, aligned scenario.	In order to standardize definitions and promote accessibility, this project will review management and operational performance data needs of University decision-makers and implement necessary changes.	The goal is to deliver services as close to users as possible but to provide services using a shared, centralized model where there are significant economies of scale, where there is a critical mass of expertise required to provide effective services, or where emerging issues can be addressed effectively only by pooling resources. In effect, the Steering Committee believes that an integrated administrative services framework is necessary for the success of the University's transformation.
	Transforming the University: Final Report of the Metrics and Measurement Task Force, May 2006	Metric Clarity, Consistency and Definition: should review and modify metrics to reduce variability in reported results within the University system	Charge the OIR to work with appropriate University leaders to develop and monitor metrics designed to assess the progress and outcomes of specific unit and University-wide initiatives  Charge the OIR to evaluate the usefulness of the FY07 academic performance scorecard measures	...modify the performance scorecard to align with University-level metrics		Identifying ways to measure progress at the operational level, and in collegiate units, coordinate campuses, and administrative units, as well as University-wide performance measures		The University should identify and develop processes, definitions and optimal access to and storage of the institutional data that support University-wide accountability, planning and policy analysis.  Ideal measures should: be reliable and valid; be free of manipulation; be easily understandable and credible. OIR should develop and modify administrative and service units performance scorecard measures	For each metric, a University leader will be identified that will have responsibility for validating its continuing relevancy to the Steering Committee.	
	Administrative Services and Productivity Task Forces & Steering Committees, Final Report to the University Community, August 2006	Single Enterprise Task Force	Opportunities to create consistency in operating methods to enhance the quality of outcomes and/or provide significant cost savings	Improve outcomes measured by the effectiveness or efficiency in delivering primary activities (research, teaching, outreach) or those activities which support primary activities (administrative support facilities, services).	...single enterprise concept can be applicable at the system, campus or functional level and the proposed methodology and process must be scalable at all of these levels.		...key factor for success cited most frequently by those who have successfully advanced single enterprise projects is the engagement and sponsorship of senior leaders.	Single enterprise solutions will be implemented by units across the University system whenever possible, unless a unit can demonstrate that there would be undue harm or interference with its operation.	There is a need to establish uniform standards and systems across the University that will reduce duplicative and multiple processes that create high cost, unnecessarily consume institutional energy, and produce inconsistent results.  Quality assurance is very important to this process to ensure that the single enterprise solutions provide the expected benefits.	Assign knowledgeable single enterprise project leaders and vest them with authority to implement single enterprise proposals.
	Culture Task Force				The University of Minnesota today is an accumulation of many cultures. The question – and challenge – is whether the pieces add up to a larger whole that unites all aspects of this institution into one community with the drive and ability to become world-class		Major transformation should emerge from strong leadership direction, clear communications, major administrative actions	Focus on continuous improvement by linking units to tools, trainings, resources and partnership opportunities... explore improvement themes such as change management, service excellence, and metrics.		
	Administrative Structure Task Force			Provide more responsive, higher quality administrative support; reduce duplication; leverage resources; better coordinate central and collegiate services; free academic leaders to grow the academic programs.	The University is a large, complex organization with each academic unit having different needs, operating in different competitive environments, and responding to different external forces.		Senior academic officers should set the expectation [of shared services] for each of their respective colleges as the colleges redesign their administrative services.  University and collegiate heads should incorporate these initiatives (streamline and simplify administrative practices) into annual work plans and compacts...	We recommend that base line services be detailed in written service agreements between central units and colleges, with clear service standards and measures, regular reporting of results, and clear, simple mechanisms for feedback and accountability.	Working together, central administrative services and collegiate and other units must develop methods for measuring service performance, ensuring quality, and holding each other accountable for administrative services.  ...require central administrative units to examine their own internal structures to ensure that they are organized as efficiently and effectively as possible... definition of base line services; the creation of written service agreements and performance measures, the development of shared services, the delineation of skills, competencies and performance expectations...	Shared administrative services are to be used where there are significant economies of scale, where special expertise is required, or where emerging issues can only be addressed effectively by pooling resources across schools or units.  Identify services and staff that can be shared system-wide and to identify areas where respective administrative responsibilities and authorities need to be further clarified.
	Best Practice Management Tools Task Force			The creation of measures that are few in number and in alignment with the Metrics and Measurement Task Force – but that simply and accurately reflect the operational and service related activities, values, and priorities of the University.  Accurate timely information will result in prioritization capabilities that will lead to the most impact, and at the same time, maximize the use of the institution's existing resources and leveraged economies of scale.				Agree that the current measures under discussion are the right ones to focus on as the project moves to the next phase – which is analysis that will determine feasibility. Determine the ongoing ownership of administrative / operations and service unit performance measurement		
	Optimize Resources Task Force			Some key objectives of the [EFS] project include providing the University with enhanced data analysis capabilities to support the need for better management reporting and decision-making...			As a public institution, the University (and its leaders) must be a good steward of the land, buildings, equipment, tuition revenues, state and federal monies, private donations, and other resources entrusted to its management. Stewardship goes beyond due diligence, efficiency, and effectiveness in managing resources. It also includes strategic pruning, redeployment, and investment.			Substantial opportunities exist to align and optimize administrative systems and areas that manage University physical, financial, and technological resources to better serve the academic units they support.
	Administrative Structure Implementation Support Team, Report to the University Administrative Team, Sept 2007					Successful implementation requires that they are presented with choices about how the transformation could be approached. It is important that the colleges and units not feel "dictated to" and that there is obvious intent to work within the culture rather than impose one	University leadership has set a goal for the University's administrative operations to be the best among peers. Focused on service, and driven by performance. It is critically important that leaders invest in a unified communication plan (regarding Administrative Restructuring) with multiple delivery methods...  Engage senior vice presidents and vice presidents in readiness discussions to prioritize units that might be ready for restructuring.	The roles and responsibilities matrices define the services or functions within each management system that are or should be provided by central units. These are the items that should be built into a service level agreement.  the University [will be] able to make decisions about administrative services and costs in a much more data rich and informed way.  Central administrative units will initially measure their performance in the four key areas [including] service quality, productivity...	Administrative restructuring is intended to increase and/or standardize the quality of administrative services delivered to support the academic enterprise  Restructuring of administrative operations may also help achieve cost savings in the long term. Implementation of these changes will require a deliberate focus and may in some cases require additional resources to realize and sustain.	

	Academic Analytic Themes					Academic Analytic Recommendations			
	Need for Data Validation and Oversight	Role of the Office of Institutional Research	Need for Tools and Dashboards	Need for Analytic Skills	Units have unique needs	Engage Senior Leadership Support	Foster Agreement and Use of Metrics and Analytic Tools	Develop a Quality Assurance and Accountability Function for each Enterprise System	Create and Cluster of Analytic Staff and Approaches
Related Works	Toward Implementation of Administrative Metrics, June 2008	<p>Build Infrastructure (Development/Capacity Building) The Working Group, including OR, acts to develop the necessary infrastructure with oversight by the Process Owner (Office of Planning)</p> <p>Works at the direction of the Process Owner to implement administrative metrics. At the direction of the Process Owner coordinates and performs the work to develop the IT infrastructure, the data collection instruments, training and related resources; and define and develop core processes. Helps identify the financial resources needed; Ensures consistency in implementation of reporting and in resource use across the University. Identifies the key measures used consistently across the University to enable administrative metrics to roll up to the University level. Technical people and subject matter experts (OIT, HR, OMS, OSC) who understand metrics and know the functional requirements. Maintains data systems for all levels within the University. At the unit level, is responsible for data analysis of metrics and ensuring accuracy of the data</p>	<p>Integrate into a reporting tool for transparency and flexibility. Software should allow each unit to gather and report data that will align with the University-level visual tool.</p> <p>The balanced scorecard is one type of visual tool used to give a snapshot of a unit's performance in specific measures within a designated period of time.</p> <p>The reporting tool should be defined and standardized across the University. More importantly, the tool needs to be transparent so the performance indicators and targets are visible to the University community.</p>	<p>Developing a training plan to arm employees with the skills necessary to deliver accurate and meaningful metrics is a significant component of this implementation.</p> <p>Developing skills in data analysis and metrics management are vital to the foundation of this plan.</p> <p>Although the University-level responsibilities include developing the training for staff, unit leaders should be responsible for evaluating the skills of their staff to determine training needs in data analysis and evidence-based decision making.</p>	<p>[The Working Group] identifies the key measures used consistently across the University to enable administrative metrics to roll up to the University level.</p> <p>It is important that the [reporting] tool provide flexibility for units to modify a version of it for their own use.</p> <p>While central administrative units will be measuring performance at the University level, units will receive performance information about administrative service levels or performance in their unit.</p>	<p>Leadership and employees should clearly understand the concept of metrics and the value that it brings to their work. Several of our interviewees said that without a radical change to "business as usual", administrative operational metrics will be seen as another fad that will not be sustainable.</p> <p>A key element of success already in place is the active support of University leadership for the need to adopt a more evidence-based culture of decision making.</p>	<p>The [Administrative Metrics] system will require: Infrastructure development (hardware, software, databases, user interfaces, and other IT related items); Instrument development (surveys, visual tool such as a dashboard or balanced scorecard, etc.); Coordination and leadership—at a central level and from each major management function.</p>	<p>Administrative operational metrics should be specifically tied to an established process with accountability and decision making at all levels.</p> <p>Our implementation plan which will provide the University with a wealth of benefits, including a single enterprise view of the University's overall administrative operational effectiveness in key management functions...</p>	<p>Existing assets could be leveraged to meet many ongoing operational resource needs. The following units have capacity that could be leveraged for administrative operational metrics: Office of Institutional Research (OIR) [among others]</p> <p>In most cases, the needed talent already exists at the University, so the ability to move staff around to areas of high priority is critical for this approach to work</p>
	Aligning and Delivering Research Metrics That Support the University's Goal of Becoming a Top Three Public Research University, June 2008	<p>With no standard definition or formal method for tracking interdisciplinary research system-wide or even within the departments, there is uncertainty about how to consistently measure interdisciplinary research.</p>	<p>...the next step in having a more complete research productivity profile for the University is to understand the metrics and indicators that are important in gauging research success in individual collegiate units, centers, and institutes, as well as of the faculty body</p>			<p>Units tend to have their own unique process for coordinating information and no formal system exists to help faculty learn about other faculty who may be engaged in similar research across the campus. Respondents indicated that a critical part of enabling interdisciplinary research is bringing faculty and staff together to connect with each other to learn about other areas of expertise and to develop alliances that are necessary for conducting collaborative research.</p>	<p>Measurement of the impact of University research locally, nationally, and internationally is paramount in fully illustrating the University's stature. In addition, having easy access to solid research measurement information that addresses the full range of research conducted at the University of Minnesota will assist leadership in making strategic and data-driven decisions, thus informing next steps in achieving this goal.</p>	<p>Not part of report - OVPRA already has a Quality Assurance and Accountability Function for Sponsored Projects in the Office of Oversight, Analysis and Reporting.</p>	
	Faculty Consultative Committee Metrics and Measurement Subcommittee, September 2008	<p>Although appointment types are identified in PeopleSoft, some Academic Professional (P&amp;A) appointments may be used in somewhat different ways across the University, potentially obscuring whether the individual in the position has research and discovery responsibilities.</p> <p>There is a related tracking difficulty in that only Academic Professional positions with "Research" in the appointment file, such as Research Associate/Research Fellow, are countable as contributing to research and discovery.</p>	<p>Given the conventional status of Essential Science Indicators and recent international interest in Scopus, the Subcommittee recommends that the Office of Institutional Research (i) examine both database tools as possible ways to assess the quantity and impact of aggregated University publications and (ii) report on the findings to the Senate Research Committee.</p> <p>The Subcommittee also recommends that there be procedures to enhance effective communication and centralization of data and other resources among the Office of Institutional Research, Office of the Vice President for Research, Office of the Vice Provost for Faculty Affairs and Development, Office of the Senior Vice President for the Health Sciences, and the University Libraries</p> <p>The Subcommittee recommends that the Office of Institutional Research use PeopleSoft appointment categories to identify the number of regular and contact faculty for external measures.</p>	<p>The work of the faculty is the cornerstone of the caliber and reputation of any university, and the FCC wanted to ensure that appropriate and valid measures of faculty work are included in any performance indicators that the University might use to document progress toward the aspirational goal of being among the top three public research universities.</p> <p>The Subcommittee concurs with the Senate Joint Committee on Databases in recommending that the web-based system be developed with broad input from faculty so it has the capability for customization at the unit and college levels, as well as the capability for aggregation across different segments of the University.</p>	<p>Measures do not apply uniformly to all units. An issue that was raised consistently was that a "one size fits all" measurement system was not appropriate to address the breadth of fields at the University or differences in unit-specific missions and external audiences. Relying solely on campus-wide averages was seen as insufficient and problematic to address units' trajectory in scholarly and creative work over time.</p> <p>The Subcommittee recommends that the Office of Institutional Research report external measures of core scholarly and creative activities separately for each campus, including the Twin Cities campus so that distinctive campus profiles are not masked by University-wide aggregation</p>		<p>...it should be possible to identify a small set of adequate external measures of research and discovery on which the University wants to make progress relative to other institutions. It also should be possible to develop quantitative and/or qualitative measures of process and/or outcomes that show whether the University improves or declines over time relative to internal benchmarks.</p> <p>Implementing new external or internal measures needs to be done thoughtfully so as to limit additional staff and faculty workload, and not result in new or additional unfunded mandates. Many units carry out some form of measurement for internal purposes.</p> <p>There also are various annual data collection processes within units for internal and external purposes; related to reviews for merit, promotion and tenure, and accreditation, as well as other disciplinary/professional data gathering activities</p>		
	Development of Assets to Drive Information Decision Making, SP1F Project, Spring 2009	<p>Key Theme: Trust – concerns about accuracy of data provided by central. Trust refers to perceived credibility of the data available through existing central channels. While data is plentiful there is a gap in its usage and understanding as a significant percentage of the community do not trust the accuracy of the data.</p>	<p>...we believe that it is essential that a central office be appropriately resourced to address the issues identified by this group. As such, while the Office of Institutional Research may be the most logical connection with the group, resourcing the office appropriately to address the issues that arise from this group must be taken into consideration.</p>	<p>Create or identify mechanisms that track and communicate in a transparent way progress toward institutional, college and departmental goals much like the balanced scorecard.</p>	<p>Key Theme: Training – technical ability to obtain information and perform data manipulation</p> <p>Training is the awareness of and ability to locate, use and effectively leverage data and information for the operational and/or strategic benefit of a given unit</p> <p>[From Trust Theme]- are the deans confident that the individuals analyzing and interpreting the data have adequate technical skills and in-depth knowledge of the areas represented by the data?</p>		<p>Launch a council of planning and organization that focuses on the process of integrating data into management decision making within collegiate units throughout the University. It is recommended that this group consist of associate deans that meet on a regular basis</p>	<p>Develop the underlying resources or infrastructure needed to advance an agenda that includes both operational and strategic information management, reporting and analysis. This includes analytics and data mining tools and other BI tools that can be used by the University community.</p>	<p>Through the organizational structure from [cell to cell] drive a data quality agenda that has a major focus on database administration, governance and stewardship and in general improving the quality and availability of data for decision making</p>
Establishing a Council of Data Informed Decision Making, SP1F project, Spring 2009	<p>There are questions regarding the consistency of the data used at the University. This may be related to inaccurate data held in enterprise databases, unit databases, or the use of multiple data sources that have varying information and that have been created at different times for different reasons.</p>	<p>...we believe that it is essential that a central office be appropriately resourced to address the issues identified by this group. As such, while the Office of Institutional Research may be the most logical connection with the group, resourcing the office appropriately to address the issues that arise from this group must be taken into consideration.</p>	<p>There is a need for more enterprise solutions for problems faced across the University. Colleges expressed the desire to have greater influence in how information is captured in central databases, what raw data are available as well as what information is delivered via "canned reports," and the data architecture needed to establish consistency across the University.</p> <p>Additional toolsets are needed.</p>	<p>We believe that tools and reports have been created by colleges to meet their needs and these may be suitable for broader distribution to meet other needs. One such example is the Humphrey Institute's Point in Cycle Registration Data report that won first place at the Quality Fair.</p>		<p>Currently, data are provided to inform the compact discussions, but there is not a clear connection between the data provided and its influence on the discussion.</p>	<p>As a first step, it should be determined whether the tool created by the Humphrey Institute could be distributed University-wide. In addition, other tools may exist remotely and efforts should be made to review what currently exists and whether they could be more broadly implemented.</p>	<p>Efforts should be made to identify appropriate data sources, as well as addressing the accuracy of the data held.</p> <p>Data stewards should be identified and should work together to better connect the enterprise systems and to break down the silos that seem to currently exist</p>	<p>By establishing an open venue focused on data usage and integrity at the University, like-minded employees operating in colleges will be able to connect with colleagues from across the University, share knowledge and tools that exist within individual units, and serve as a clearing-house that is connected to a central office [OIR] capable of addressing data-related issues widely experienced across the University.</p>

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**Interview List**

<b>Interviewee</b>	<b>Title</b>
Brian Atwood	Dean, Hubert Humphrey
Kathy Brown	VP and COS, Ofc of the President
Arlene Carney	Professor, Ofc of VP and Provost
Carol Carrier	VP, Human Resources
Charles Casey	Chancellor, Crookston
Steve Cawley	VP and CIO Information Technology
Frank Cerra	Sr. VP, Academic Health Center
Steven Crouch	Dean, Institute of Technology
Alison Davis-Blake	Dean, Carlson School
Beverly Durgan	Dean and Director, MN Extension
Robert Elde	Dean, College of Biological Sciences
John Finnegan	Dean, School of Public Health
Tom Fisher	Dean, College of Design
Jacqueline Johnson	Chancellor, UM Morris
Robert Jones	Sr. VP, Systems Administration
Gail Klatt	Associate VP, Audits
Robert Kvavik	Assoc VP for Planning and Academic Affairs
Stephen Lehmkuhle	Chancellor, UM Rochester
Wendy Pradt Lougee	University Librarian
Kathryn Martin	Chancellor, UMD
Robert McMaster	Vice Provost and Dean of Undergraduate Education
Meredith McQuaid	Assoc VP and Dean, International Programs
Tim Mulcahy	VP, Research
Charles Muscoplat	VP, Statewide Strategic Resource Development
Mary Nichols	Dean, College of Continuing Education
Kathleen O'Brien	VP, University Services
James Parente	Dean, College of Liberal Arts
Deborah Powell	Dean, Medical School
Jerry Rinehart	Vice Provost for Student Affairs
Steven Rosenstone	VP, Scholarly and Cultural Affairs
E. Thomas Sullivan	Sr. VP for Academic Affairs and Provost
David Wippman	Dean, Law School
Peter Zetterberg	Senior Analyst, Provost Office
John Ziegenhagen	Director of Strategic Projects
<b>Additional Meeting Attendees</b>	<b>Title</b>
Hubert Warner	Assoc Dean, College of Biological Sciences
Andrea Backes	Finance, College of Biological Sciences
Elizabeth Wroblewski	CAO, College of Biological Sciences
Greg Lindsey	Associate Dean, Hubert Humphrey
Thomas R. Baldwin	Professor, Crookston
Amelious Whyte	Chief of Staff, Office of Student Affairs
Jennifer Reckner	Associate to, Libraries

## **Interview Questions**

### **Interview Talking Points**

- How do you make strategic decisions?
- From where do you get information (internal and externally)?
- How does strategic data flow from creators to users; how is it communicated and shared?
- Is anyone pushing your unit to use more data and information? What are the motivations?
- Who's doing a good job using evidence based decision making (internally and externally)?
- What are the barriers to more evidence based decision making?

**Other Higher Education Academic Analytics**

**Baylor University – *Using Enrollment Predictive Modeling***

**University of Alabama – *Predicting and Improving Student Retention***

**Sinclair Community College – *Developing a Student Success Plan and Early Alert System***

**Northern Arizona University – *Connecting Resource Utilization, Risk Level, and Outcomes***

**Purdue University – *Using Course Management System Data to Identify At-Risk Students***