OneIT
Business Intelligence
Needs Assessment Summary
March 2016

OneIT BI Project Team
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Executive Summary

The promise of Business Intelligence (BI) is in the delivery of accurate and timely information to make informed decisions and achieve institutional business objectives. BI has become increasingly more important as campus explores ways to become more efficient, effective, and competitive. BI can deliver greater insight into institutional performance, enable faster and better informed decisions, and provide information for quicker response to opportunities and threats.

As part of the OneIT BI Needs Assessment Project, thirty executive-level university leaders, crossing all aspects of the university mission (Appendix A), were interviewed by three OneIT BI Project Team members to determine what information they required for strategic, tactical, and operational decision-making. The assessment consisted of an hour-long interview focused on critical financial, human resources, academic, and research administration information needs.

Key Themes
Once the interviews were completed, the OneIT BI Project Team reviewed and analyzed over ninety pages of interview summaries from the thirty interviewees. The goal was to look for comments that were repeated across interviewees or any remarkable comments from which to distill common themes. The team identified sixteen themes, which were further grouped into three main categories depending on whether they related to overall campus data needs and BI environment; institutional data environment, BI solutions, and reporting needs; or specific institutional data domains. The themes are summarized below. A more detailed description of the BI Needs Assessment Themes and Potential Strategies appears in Table 1.

- Campus Environment

    - Data Driven Decision-making   o   Increasing Demand for Data

- Institutional Data and Reporting

    - Data Complexity   o   External Data
    - "Gold Standard" Reports   o   Data Aggregation
    - Simple Visualizations   o   Benchmarking

- Data Domain Specific

    - Comprehensive Faculty Data   o   Student Outcomes
    - Student Success   o   Learning Space Utilization
    - Enrollment Analytics   o   Space Allocation
    - Financial Aid   o   Research Administrative Data

Key Strategies
The OneIT BI Project Team members identified more than fifty strategies (Table 1), which they recognized as a sizeable number. Many of the strategies support multiple themes.

The positive impact of some strategies will be immediate, while the benefits of others will be realized longer term. Many strategies are currently being implemented or align with existing projects and services such as the Data Digest, Campus Data Portal, Persistence, Tuition Revenue, Institutional Data Users Group (IDUG), and the BI Shared Service Center (BISSC).   Others are waiting for resources and prioritization.

Many of the strategies rely on collaboration and partnerships to deliver solutions. Developing and implementing BI best practices is integral to many of the potential strategies. Formal data governance

plays a central role in institutional data management and in identifying business intelligence solutions that align with campus priorities. Data governance is a collaborative effort that engages campus leadership, functional data owners, and technical experts. Engagement of all stakeholders is critical as the campus becomes more data-driven. Together they will be responsible for completing common data definitions, developing "Gold Standard" reports, and publishing to the Campus Data Portal.

Recommendations

The OneIT BI Project Team developed the following recommendations to help the university become more data-driven and to realize the benefits of BI solutions:

- Complete the BI projects that are currently being implemented (Appendix D).

- For the remaining BI strategies, develop an FY17 BI strategic roadmap with the involvement of key stakeholders.

- Create an Institutional Data Governance team to provide oversight and direction in implementing the BI strategies.

- Leverage the Institutional Data User Group (IDUG) to increase campus data literacy and fluency.

- Establish a formal BI Community, consisting of campus BI practitioners focused on supporting data-driven decision-making, to create an integrated approach to BI solutions.

- Capture and publish BI Best Practices for the benefit of campus.

- Develop a method to track BI industry trends, determine how those trends affect campus, and decide how best to respond.

With the newly formed BI Shared Service Center (BISSC), growing campus interest in BI solutions, and engaged campus stakeholders, the university is well positioned to become a more data-driven institution.

BI Needs Assessment Summary

Business Intelligence (BI) is an enabling technology on campus. It can deliver greater insight into institutional performance, enable faster and better informed decisions, and provide information for quicker response to opportunities and threats. BI is a strategy to increase the quality, accessibility, and timeliness of institutional data.

<u>Process</u>
Thirty executive-level university leaders including vice presidents, associate vice presidents, assistant vice presidents, directors, and deans were interviewed by three OneIT BI Project Team members. Appendix A lists all the executive-level university staff that were interviewed. Some leaders invited others to participate in their interview sessions. The interview team consisted of a facilitator, an interviewer, and a dedicated note taker. An introductory e-mail was drafted by the team and sent by Steve Fleagle, CIO, to all the BI Needs Assessment participants in mid-July prior to scheduling the interviews; the e-mail included the questions that were going to be covered in the interview (Appendix B).

Prior to the meeting, a reminder was sent to ensure that the participants had a chance to review the questions. Immediately after the interview, a thank you e-mail was sent reminding them that the interview summary notes would be shared with them in a week or so for their review. The OneIT BI Needs Assessment Interview Team and One IT BI Project team members reviewed the summaries. The interview summary was attached to an e-mail asking for interview participants to do a final review. Most interviewees did not have any significant changes. Samples of all e-mail communications are provided in Appendix C.

Interview summaries were reviewed and analyzed by the OneIT BI Project Team to identify key themes along with potential strategies. Key themes and potential strategies were vetted with a small cross-section of interview participants for feedback prior to incorporating them into the final report.

The OneIT BI Project Team members were selected because of their BI knowledge, expertise, and experience. Although the team's formal project responsibilities end with the completion of this report, it is expected the individual team members will have involvement in further developing the strategies and their implementation.

<u>Themes</u>
The OneIT BI Project Team reviewed and analyzed over ninety pages of interview summaries from the thirty interviewees. The goal was to look for comments that were repeated across interviewees, or any remarkable comments from which to distill common themes. Sixteen themes were identified from the thirty interviews. Those sixteen themes were further grouped into three main categories, as detailed below: –

- Campus Environment – themes as they relate to overall campus data needs and the BI environment. Themes in this category included:

  - Data Driven Decision-making
  - Increasing Demand for Data

- Institutional Data and Reporting – themes relating to the overall institutional data environment, BI solutions and reporting needs. Themes in this category included:

  - Data Complexity
  - "Gold Standard" Reports
  - Simple Visualizations
  - External Data
  - Data Aggregation
  - Benchmarking

- Data Domain Specific – themes related to a specific institution data domain (Faculty Human Resources, Research, Enrollment, Space, Students). Themes in this category included:

  - Comprehensive Faculty Data
  - Student Success
  - Enrollment Analytics
  - Financial Aid
  - Student Outcomes
  - Learning Space Utilization
  - Space Allocation
  - Research Administrative Data

Table 1 lists the themes, grouped by category, and provides a description and associated potential strategies for each.

Some non-BI related feedback and comments surfaced during the interviews. The BI Needs Assessment Interview Team has shared those comments with the campus entities (data owners, applications administrators, or businesses units) who could best address them.

Potential Strategies

While it was not part of the original BI Needs Assessment Project scope, the OneIT BI Project Team thought that identifying potential strategies associated with each of the themes would provide additional value and increase the utility of the BI Needs Assessment. These potential strategies can serve as a guide for campus and be the foundation of a more complete BI roadmap. The OneIT BI Project Team spent a considerable amount of time developing and refining the strategies. Nebulous concepts were avoided, in favor of strategies that were concrete and actionable. It was important that the strategies move the campus forward along the path to becoming more data-driven.

The team identified more than fifty strategies, which they recognized as a sizeable number. Eight of the strategies support multiple themes. Several of the strategies align with current projects and services. The Campus Data Portal (http://data.uiowa.edu) was identified in several strategies as a way to aggregate data, reports, and visualizations; a mechanism to secure information; and as a way to publish data dictionary definitions and usage best practices. The BI Shared Service Center (BISSC) will be integral in implementing BI strategies including solution delivery, establishing best practices, and creating and sustaining the campus BI community. The Institutional Data Users Group, BISSC, and the BI Community were in included in several strategies as ways to raise awareness of institutional data, showcase BI solutions, and share best practices.

From a project perspective, the Data Digest project (http://provost.uiowa.edu/data-digest), Enrollment Management Admissions Dashboards, Campus Data Portal, Budget Office Tuition Projection, Persistence Data Migration, u.achieve Data Warehouse Publishing, Space Allocation, Unizin (http://teach.its.uiowa.edu/initiatives/unizin), Elements of Success, and Educational Advisory Board Academic Performance Solution (EAB APS) were all identified as important active projects.

Approximately 20% of the strategies are being actively worked on. The remaining 80% are waiting for resources and prioritization. About 25% of the strategies will have immediate or near-term (0-3 months) impact and about 75% will have longer term (6-12 months) benefits.

Data governance surfaced as a critical success factor for establishing and driving the campus BI strategies. Data governance is a collaborative effort that engages campus leadership, functional data owners, and technical experts in institutional data management and to ensure business intelligence solutions align with campus priorities. BI services and strategies should be a cross-institutional endeavor with oversight and direction provided from the Institutional Data Governance Team. Engagement of all stakeholders is critical as the campus becomes more data-driven. Together they will be responsible for completing common data definitions, developing "Gold Standard" reports, and publishing to the Campus Data Portal.

Collaboration and partnership between business and IT will be critical to ensure that complex BI solutions are strategically relevant and easy to use. The Provost Office, Enrollment Management, Facilities Management, Human Resources, Grant Accounting, Division of Sponsored Programs, Budget Office, and ITS were all identified as key partners in developing and implementing the BI strategies.

Developing and implementing BI best practices, which help achieve successful results and avoid failures, will be integral to many of the potential strategies. Best practices should cover all aspects of the solution lifecycle, including how data is best captured, stored, processed, and visualized to maintain a high level of integrity, relevance, and accessibility.

Table 1: Detailed BI Needs Assessment Themes and Potential Solutions/Strategies

Category	Theme	Theme Description	Potential Strategies
Campus Environment	Data Driven Decision-Making	There is a willingness and desire to become more data-driven across all administrative and academic units. We have robust institutional data but our capacity to transform the data into information to use in our decision-making processes is not fully developed.	• Ensure that Institutional Data Users Group (IDUG) sessions continue to increase campus data literacy by raising awareness of Institutional Data, promoting collaboration, and creating networking opportunities. • Promote the BI Shared Services Center as a campus-wide resource for delivering collaborative BI solutions and sharing best practices. • Create a Campus BI Community to raise awareness of BI trends, technologies, and campus solutions. • Engage institutional data owners and key campus users in a BI planning and prioritization process.
Campus Environment	Increasing Demand for Data	The number and variety of data requests coming from the President's Office, Provost's Office, legislature, Board of Regents, media, accrediting agencies, certifying bodies, and many other sources seem to be ever increasing	• Utilize the Campus Data Portal project to consolidate and distribute commonly requested institutional data and reports. • Leverage the Campus Data Portal to publish the Institutional Data Catalog and Dictionary, so campus users can discover what institutional data is available, associated metadata, common usage patterns, and support information. • Promote the University Data Digest as the authoritative source of institutional reports to address common data requests. • Assist institutional data owners in creating "Gold Standard" Reports/Dashboards to address common data requests.
Institutional Data and Reporting	Data Complexity	Institutional Data is complex, can be difficult to understand, and may be easily misinterpreted. Users need to know where to go when they have questions and understand how to accurately combine data from multiple data sources.	• Leverage the Campus Data Portal to publish the Institutional Data Catalog and Dictionary, so campus users can discover what institutional data is available, associated metadata, common usage patterns, and support information. • Formalize the institutional data governance process; redefine data owners, stewards, and custodian roles; revise policies as needed; and ensure appropriate metadata exists for all institutional data. • Create an information ambassador program to assist campus users in understanding and using institutional data.

Category	Theme	Theme Description	Potential Strategies
			• Leverage the existing Institutional Data Users Group (IDUG) to create "Communities of Interest" around specific institutional data. • Develop methods to share common report templates and data extract strategies through the BI Shared Service Center and Campus BI Community. • Leverage the Campus Data Portal to centralize the institutional data access, authorization, and request processes providing simple and standardized processes for requesting data and/or access to data. • Create and document institutional data usage patterns that can assist data consumers in the combination of data, data cleansing issues, and connecting to local data stores.
Institutional Data and Reporting	"Gold Standard" Reports	A set of approved "gold standard" reports based on authoritative institutional data would be a valuable resource for internal and external audiences and could address a significant number of recurring data needs.	• Engage data owners in developing and verifying a core set of "Gold Standard" reports for publishing in the Campus Data Portal, building on the Data Digest and data governance efforts. • Ensure that critical campus-wide reports (e.g. EFR, ProView, Enrollment Management, APR, and MAUI) reports are accessible from the Campus Data Portal.
Institutional Data and Reporting	Simple Visualizations	Simple visualizations are a valuable tool to help share information with campus decision makers and to tell meaningful stories about the university based on our vast institutional data. These visualizations should allow for simple filtering, drill-down, and data exploration.	• Build more data visualization expertise on campus through the BI Community, vendors, and external training. • Continue to expand the BI Shared Service Center's support in the area of best practices, mentoring, and training/collaboration for visualization. • Engage institutional data owners and key campus users in developing a prioritized campus-wide BI Dashboard Roadmap.
Institutional Data and Reporting	External Data	Programs and units have a need to incorporate more data about "the outside world" (peer data from IPEDS, employment trends, state demographics, what majors would connect with needs in Des Moines, etc.) into their modeling.	• Collaborate with colleges to identify appropriate peer groups and associated external benchmarking metrics data sources. • Identify important external data sources (IPEDS, AAU, Education Advisory Board Academic Performance Solution (EAB APS)) and determine the best Campus Data Portal integration strategies.

Category	Theme	Theme Description	Potential Strategies
Institutional Data and Reporting	Data Aggregation	Academic and administrative units need access to a wide variety of data in order to answer complex questions and respond to requests. Data needs to be aggregated from multiple sources—some internal, some local, and some external. Understanding how to accurately combine data from multiple data sources can be challenging.	• Expose ProView business rules and data to assist campus units in aggregating these data sources for their unit-specific reporting. • Enhance the University Data Warehouse to include additional subject areas (pre-award, facilities) and summary and aggregation tables for existing subject areas that would simplify Business Intelligence and reporting solutions. • Create and document institutional data usage patterns that can assist data consumers in the combination of data, data cleansing issues, and connecting to local data stores. • Utilize input from the Institutional Data Users Group and BI Community to identify important data sources and create views that aggregate common data across schemas in order to simplify Business Intelligence and reporting solutions.
Institutional Data and Reporting	Benchmarking	Internal and external benchmark data for individual faculty, programs, departments, and colleges is critical for comparative analysis with peers and to understand current trends	• Participate in and support the Education Advisory Board (EAB) Academic Performance Solution (APS) analytics scorecarding engagement to develop allocation, capacity, outcomes, enrollment, and cost metrics for strategic decision making. • Identify appropriate collegiate peer groups and common sources of benchmarking information and establish an integration strategy with the Campus Data Portal. • Enhance Academic and Professional Record (APR) reporting capabilities for internal faculty, program, departmental, and collegiate benchmarking. • Explore Academic Analytics or SciVal pilot projects as solutions for external benchmarking across peer institutions.
Data Domain Specific	Comprehensive Faculty Data	Deans and DEOs require comprehensive and consistent faculty data, including information regarding compensation, performance, instruction, scholarly and research productivity, service, engagement, and space allocation/utilization.	• Leverage authoritative data sources to create a comprehensive faculty dashboard that aggregates as much institutional data as possible. • Facilitate solutions as they emerge from ongoing discussions between the Office of the Provost and colleges about faculty processes, authoritative source of faculty data, and opportunities to use that data effectively. • Participate in and support the Education Advisory Board (EAB)

Category	Theme	Theme Description	Potential Strategies
			Academic Performance Solution (APS) analytics scorecarding engagement to develop allocation, capacity, outcomes, enrollment, and cost metrics for strategic decision making. • Enhance and expand the Faculty Status Application to include more robust integration with authoritative institutional data. • Formalize the role of the Academic and Professional Record (APR); continue to develop direct integrations with authoritative institutional data sources and expand reporting capabilities. • Provide better integrations with pre- and post-award grant accounting and space data for faculty reporting.
Data Domain Specific	Student Success	Student success indicators are critical as we develop better interventions to improve course completion, retention and graduation rates. At the macro-level, progression and persistence information is needed. At the micro-level, indicators such as ICON course interactions and engagement information are critical for monitoring student success and developing better interventions where needed. Strengthening this area would also allow us to track more "assurance of learning" data for accreditation.	• Enhance the MAUI reporting environment by engaging data owners and users in developing new reports, revising existing reports, and standardizing the user interface; provide periodic end user training for the various MAUI reporting options. • Leverage the Unizin Consortium to develop a learning management data warehouse and reporting strategy that combines Unizin Academic Analytics projects with campus student success needs. • Leverage the Budget Office Tuition Projection Project's student progression modeling to develop reports, visualizations, and analytics to support student success initiatives. • Complete conversion of the student persistence modeling project and develop reports, visualizations, and analytics to support student success initiatives. • Provide data, reports, and analytics solutions that support student success programs including the MapWorks application replacement project. • Expand the "Elements of Success" program beyond Chemistry and Biology to other academic disciplines.
Data Domain Specific	Enrollment Analytics	There is a campus-wide need for enrollment and academic profile data for projecting trends, as well as advanced analytics to help predict who will apply, enroll, and graduate. This information will enable programs and units to make informed decisions earlier	• Publish degree audit (u.achieve) data in the University Data Warehouse to enable projections of student course and section demand

Category	Theme	Theme Description	Potential Strategies
		in their planning processes, and to improve processes such as course scheduling and capacity planning.	• Expand the current Enrollment Management predictive modeling project beyond first year students to additional populations and outcomes. • Create an Academic Success Business Intelligence solution that can be utilized by the various units (Student Success Team, Academic Advising, and Registrar's Office) to guide their student interactions and interventions. • Expand Admissions Dashboard capabilities to include a full suite of visualizations that can be used by the Office of the Provost, colleges, and departments in their enrollment management planning process. • Leverage the Budget Office Tuition Projection Project's student enrollment pipeline modeling to develop better forecasting and analytical processes based upon student progression paths. • Complete conversion of the student persistence-modeling project and develop reports, visualizations, and analytics to provide an authoritative source for official reporting, longitudinal studies, and retention/graduation analysis.
Data Domain Specific	Financial Aid	Strategic use of financial aid is integral to enrollment and retention management strategies and managing student debt. The ability to leverage financial aid to accomplish institutional recruitment, retention, and positioning goals is critical. More advanced reporting and analytics will be required to meet administrative and academic unit needs.	• Partner with Enrollment Management units to develop a Financial Aid Business Intelligence environment that includes reporting, dashboards, predictive modeling, analytics, and simulation capabilities to assist colleges, departments, and administrative units in their enrollment management and financial planning.
Data Domain Specific	Student Outcomes	Undergraduate, graduate and professional student initial placement and longer term outcomes data is consistently required by accrediting agencies, Board of Regents reporting and is also important for measuring the university's statewide impact. A more automated and integrated approach to capture all student outcome information would be beneficial for all the colleges, the Pomerantz Career Center, Alumni Association, and UI Foundation.	• Partner with the Pomerantz Career Center, Alumni Association, UI Foundation, Graduate College and Registrar's Office on data integration strategies so that everyone has access to accurate and timely information. • Investigate a post-graduation engagement strategy to help students understand the broad value of keeping contact and career information current. • Develop a post-graduation social media strategy that captures LinkedIn or other account information as part of the graduation

Category	Theme	Theme Description	Potential Strategies
			• application process to augment current collegiate employment and education data mining processes. • Contact peer institutions to learn about potential solutions and share best practices.
Data Domain Specific	Learning Space Utilization	Given current enrollment trends, we need a more integrated approach to course and classroom scheduling that incorporates course demand, student preferences, capacity planning, and curricular requirements.	• Publish degree audit (u.achieve) data in the University Data Warehouse to enable projections of student course and section demand. • Leverage Learning Spaces Governance and Board of Regents Ad Astra report recommendations to develop a learning spaces data warehousing solution that simplifies the analysis of classroom scheduling and faculty allocation data. • Collaborate with Facilities Management to consolidate all learning spaces information with building and room information. • Share enrollment predictions with all learning space stakeholders so they can project the impact on their units.
Data Domain Specific	Space Allocation	Deans and DEOs need better information about allocation of space for research, including which spaces are associated with which specific awards.	• Complete the current space utilization BI project and include reporting and dashboards for use in collegiate and departmental analysis. • Develop processes and policies to keep space information updated. • Partner with Grant Accounting to ensure that appropriate Principal Investigator information is included in Space Survey data and reports.
Data Domain Specific	Research Administrative Data	A comprehensive research administrative information reporting system is critical to reducing administrative burden and responding to funding pressures. The system needs to address all aspects of the research enterprise including proposals, post-award, human subject and animal protocols, and compliance. A more integrated and robust system would help shape the research portfolio and allow better tracking of interdisciplinary research collaborations, graduate student contributions, and outcomes	• Leverage the Electronic Research Administrative (eRA) project and authoritative data sources to create a comprehensive research administration dashboard that aggregates as much institutional data as possible.

Recommendations
Business Intelligence is a complex and dynamic process that can provide campus with information and insights to make faster and better decisions. The OneIT BI Project Team developed the following recommendations to help the university become more data-driven and to realize the benefits of BI solutions:

- **Complete the BI projects that are currently being implemented** (Appendix D), as those will provide a foundation and critical mass of solutions to build on.

- For the remaining BI strategies, **develop an FY17 BI strategic roadmap** with the involvement of key stakeholders. BI strategies should be prioritized based on value to campus, data owner engagement, and measureable impact (e.g. accelerate a process, reduce costs, and/or improve productivity or efficiency and effectiveness).

- Data governance is a critical success factor to create a data-driven culture and to implement the BI strategies. Data governance focuses on improving data quality, protecting access to data, defining business rules, establishing data definitions, maintaining metadata, and documenting data policies. The university should **create an Institutional Data Governance team to provide oversight and direction in implementing the BI strategies**.

- Monthly IDUG meetings have demonstrated campus interest in learning more about institutional data, and have proven to be effective mechanisms for knowledge transfer. IDUG meetings can be extended beyond raising awareness of institutional data to include sharing best practices and usage patterns. The university should **leverage the Institutional Data User Group (IDUG) to increase campus data literacy and fluency.**

- The success of many of the BI strategies will depend on collaboration and partnerships across multiple functional and technical units. ITS should take the lead to **establish a formal BI Community**, consisting of campus BI practitioners to create an integrated approach to BI solutions. The BI Community will assist with developing best practices, encourage peer networking, and provide training opportunities.

- Best practices help achieve successful results and avoid failures. Developing and implementing BI best practices is integral to many of the potential strategies. Best practices should cover all aspects of the BI solution lifecycle, including how data is best captured, stored, processed, and visualized to maintain a high level of integrity, relevance and accessibility. ITS and BI practitioners across campus should **capture and publish BI Best Practices** for the benefit of campus.

- The BI landscape is dynamic and constantly changing. Innovations are expected in cloud, mobile, big data, visualization, analytics, and self-service BI space in just this next year. On the UI campus, it is expected that the volume, variety, and complexity of data will to continue to increase. The university will need to **develop a method to track BI industry trends, determine how those trends affect campus, and decide how best to respond**.

With the newly formed BI Shared Service Center (BISSC), growing campus interest in BI solutions, and engaged campus stakeholders, the university is well positioned to become a more data-driven institution.

Timeline
Interviews started in mid-July 2015 and continued through mid-November 2015. Review of interview transcripts and distilling out the key themes began in December 2015, and was substantially complete in

mid-January 2016. Identifying potential strategies overlapped with the theme analysis in January 2016 and continued through February 2016. Vetting and feedback were complete in early March 2016. The final report was completed in March 2016.

Completing the project and associated thorough analysis took considerable time and effort, and most of this work was above and beyond the OneIT BI Project Team's primary job responsibilities.

Appendix A – High-Level BI Needs Assessment Interviewees

Rod Lehnertz - Interim Senior Vice President
Kevin Ward - Interim Vice President, Human Resources
Don Guckert - Associate Vice President and Director, Facilities Management
Debby Zumbach - Interim Assistant Vice President and Director, Business Services
Susan Klatt - Director, Financial Management and Budget and University Secretary
Terry Johnson - Interim- University Chief Financial Officer and Treasurer
Cheryl Reardon - Senior Assistant Vice President, Research Administration
Jennifer Lassner - Assistant Vice President for Research/Director Sponsored Programs
Georgina Dodge - Chief Diversity Officer and Associate Vice President
Lon Moeller - Associate Provost for Undergraduate Education and Dean of the University College
John Keller - Associate Provost for Graduate Education and Dean of the Graduate College
Kevin Kregel - Associate Provost for Faculty
Linda Snetselaar - Associate Provost for Outreach and Engagement
Downing Thomas - Associate Provost and Dean of International Programs
Chet Rzonca - Associate Provost and Dean of Continuing Education
Brent Gage - Associate Vice President for Enrollment Management
Don Szeszycki - Associate Vice President and Director of Administration and Planning
Steve Fleagle - CIO and Director, ITS
Sarah Gardial - Dean, Tippie College of Business
David Johnsen - Dean, College of Dentistry
Nicholas Colangelo - Dean College of Education
Alec Scranton - Dean College of Engineering
Gail Agrawal - Dean College of Law
Chaden Djalali - Dean College of Liberal Arts and Sciences
Debra Schwinn - Dean Carver College of Medicine
Rita Frantz - Dean College of Nursing
Donald Letendre - Dean College of Pharmacy
Susan Curry - Dean College of Public Health
Ann Goff – President's Office, Director, Project Manager
Tom Rocklin – Vice-president Student Life

Appendix B – BI Needs Assessment Interview Questions

1. From a strategic perspective, what information is most critical to your planning processes? a. In what form do you get that information? (spreadsheet, report, application, dashboard)

2. From a tactical/operational perspective, what information is most critical to your daily operations? a. In what form do you get information? (spreadsheet, report, application, dashboard)

3. In your role as _____(fill in the blank), what are the key questions that you ask? a. What information do you request internally from those that report to you?
b. What information do you request from external units?

4. In your role as _____(fill in the blank), what are the key questions that you are asked? a. What information do you provide to your administration/management?
b. What information do you provide to external units?

5. From a student/academic/faculty perspective, what information is most important? a. How frequently would you like student/academic information (live, day old, weekly, monthly, semester, fiscal year)?

6. From a financial perspective, what information is most important? a. How frequently would you like financial information (live, day old, weekly, monthly, semester, fiscal year)?

7. From a human resources perspective, what information is most important? a. How frequently would you like human resources information (live, day old, weekly, monthly, semester, fiscal year)?

8. From a research administration perspective, what information is most important? a. How frequently would you like research administration information (live, day old, weekly, monthly, semester, fiscal year)?

9. Is there any information that is difficult to obtain or simply not available?

10. What type of reports, dashboards, and visualizations would you like, that you don't currently have?

11. A lot of information is provided centrally but each college/unit usually captures additional supplemental data locally. Does your college/unit integrate any locally managed data with existing institutional data to meet your information needs?

Wrap up of Interview Questions

12. From your interactions with your peers at meetings or conferences, do you have any examples of business intelligence solutions that you think we should be aware of?

13. Is there anything else with regard to institutional data, business intelligence and analysis that you want to share with us?

Appendix C – e-Mail Communications

<u>Initial E-mail Notification</u>
This communication was sent to all the executive-level staff that were interviewed a week or so prior to the interviews being scheduled.

Colleagues,

Over the past couple years, in pursuit of better ways to provide campus information, we have been investigating various data and reporting needs. We have established that the university is a "data rich" environment. In order to make that institutional data more valuable to the university, we must be able to convert our raw data into useful information that then can be used to make more informed and faster decisions. I'd like to update you on our Business Intelligence (BI) activities and invite you to participate in a BI needs assessment.

Our challenges to becoming data-driven have to do with complexity of institutional data, the variety of data sources, and special skill sets needed to analyze data and create reports. We have made some progress in education and awareness by establishing a new Institutional Data User Group (IDUG) in May 2014. We also received funding to create a BI Shared Service Center, centrally organizing core business intelligence functions into a service-oriented unit that will deliver solutions and provide knowledge, resources, and best practices to all of campus. We are in the recruiting process and are excited to form a team of dedicated BI professionals.

As part of the OneIT Business Intelligence (BI) project, a small team will perform a high-level needs assessment to determine what information key campus stakeholders, like you, need for strategic, tactical, and operational decision-making. The assessment will consist of an hour-long interview with OneIT BI team members. It will focus on your critical Financial, HR, Academic, and Research Administration information needs. To help you prepare for the discussion, we attached the interview questions to this message.

Based on the interview responses, the OneIT BI team will identify themes common across the university, capture "mission critical" information needs, and determine any information gaps to be resolved. These themes will be used in our planning and prioritization process.

With your assistance, we believe we can succeed in our efforts to create a roadmap for BI solutions to support a data-driven university. The BI team will be in touch to schedule your interview, and I would greatly appreciate your time and critical input into this process.

Sincerely,

Steve Fleagle

<u>Interview Follow-up E-mail</u>
This communication was e-mailed out after the needs assessment interview.

Interviewee:

Thank you very much for taking the time to meet with us the other day. Your input is extremely valuable to our project, which we hope in turn will have a significant positive impact on campus

as we work toward building a more powerful business intelligence environment to support a data-driven university.

As we finish up our meetings with key stakeholders across campus, we expect to identify existing information gaps and to distinguish some common themes. Based on this information we hope to develop a number of potential campus BI solutions that will support strategic, tactical, and operational decision making. We will communicate with you about those outcomes.

We will shortly share with you our notes from the meeting, for your reference and review. When you receive those, please let us know if any corrections are needed. Please also feel free to contact any of us at any time with additional thoughts about the project.   Contact information for each of the team members is below (* denotes a member of your interview team), or you can reach all team members at OneIT-BI-PT@uiowa.edu.

Sincerely,

The OneIT@Iowa Business Intelligence Project Team

Interview Team Notes Summary E-mail

This communication was e-mailed out after summary notes were completed, typically 3 days or so. If there were action items or additional documents or examples volunteered, the second paragraph was revised to reflect that.

Interviewee,

Thank you again for meeting with the OneIT@Iowa Business Intelligence Project team. As promised, attached are summary notes from the meeting. We would be grateful if you would look these over and let us know if you have any corrections.

We look forward to reviewing the material you put together separately in response to our interview questions.

We would also welcome any additional thoughts you may have had related to our interview questions, or to business intelligence at the UI in general. Please feel free to contact any of the team members, or you can reach the entire team at OneIT-BI-PT@uiowa.edu.

Thank you!

The OneIT@Iowa Business Intelligence Project Team

OneIT BI Needs Assessment Theme and Potential Strategy Feedback E-mail

This communication was e-mailed out to a subset of key stakeholders after the team had a substantially complete draft of the Themes and Potential Strategies.

Interviewee,

The OneIT@Iowa Business Intelligence Project Team has distilled over 90 pages of interview notes into 16 themes, grouped into 4 categories, with over 50 potential strategies for addressing the issues raised. As we incorporate these themes and potential strategies into our final Needs Assessment Summary document, we thought it would be good to first vet the themes and strategies with some of the key campus stakeholders we interviewed, to get your feedback.

The latest version of the BI needs assessment "themes and potential strategies" document is attached, for your review. If possible, we would appreciate your feedback by February 23.

If you would prefer to have a quick meeting or phone call to share your comments rather than putting them into an e-mail, we would be happy to schedule something.

Thanks again for your critical input and assistance.

Sincerely,

The OneIT@Iowa Business Intelligence Project Team

Appendix D - BI Strategies actively being implemented

BI Strategies that are actively being implemented – listed by Theme category, Theme, Strategy

- Campus Environment Category
  - o Data Driven Decision-Making Theme
    - Ensure that Institutional Data Users Group (IDUG) sessions continue to increase campus data literacy by raising awareness of Institutional Data, promoting collaboration, and creating networking opportunities.
    - Promote the BI Shared Services Center (BISSC) as a campus-wide resource for delivering collaborative BI solutions and sharing best practices.
  - o Increasing Demand for Data Theme
    - Utilize the Campus Data Portal project (http://data.uiowa.edu) to consolidate and distribute commonly requested institutional data and reports.
    - Promote the University Data Digest (http://provost.uiowa.edu/data-digest) as the authoritative source of institutional reports to address common data requests.
- Institutional Data and Reporting Category
  - o Data Complexity Theme
    - Leverage the Campus Data Portal to centralize the institutional data access, authorization, and request processes providing simple and standardized processes for requesting data and/or access to data.
  - o "Gold Standard" Reports Theme
    - Ensure that critical campus-wide reports (e.g. EFR, ProView, Enrollment Management, APR, and MAUI) reports are accessible from the Campus Data Portal.
  - o Simple Visualizations Theme
    - Continue to expand the BI Shared Service Center's support in the area of best practices, mentoring, and training/collaboration for visualization.
  - o Benchmarking Theme
    - Participate in and support the Education Advisory Board (EAB) Academic Performance Solution (APS) analytics scorecarding engagement to develop allocation, capacity, outcomes, enrollment, and cost metrics for strategic decision making.
- Data Domain Specific Category
  - o Comprehensive Faculty Data Theme
    - Participate in and support the Education Advisory Board (EAB) Academic Performance Solution (APS) analytics scorecarding engagement to develop allocation, capacity, outcomes, enrollment, and cost metrics for strategic decision making.
    - Formalize the role of the Academic and Professional Record (APR); continue to develop direct integrations with authoritative institutional data sources and expand reporting capabilities.
  - o Student Success Theme
    - Enhance the MAUI reporting environment by engaging data owners and users in developing new reports, revising existing reports, and standardizing the user interface; provide periodic end user training for the various MAUI reporting options.
    - Complete conversion of the student persistence modeling project and develop reports, visualizations, and analytics to support student success initiatives.
    - Expand the "Elements of Success" program beyond Chemistry and Biology to other academic disciplines.
  - o Enrollment Analytics Theme
    - Publish degree audit (u.achieve) data in the University Data Warehouse to enable projections of student course and section demand

- Expand the current Enrollment Management predictive modeling project beyond first year students to additional populations and outcomes.
- Expand Admissions Dashboard capabilities to include a full suite of visualizations that can be used by the Office of the Provost, colleges, and departments in their enrollment management planning process.
- Complete conversion of the student persistence-modeling project and develop reports, visualizations, and analytics to provide an authoritative source for official reporting, longitudinal studies, and retention/graduation analysis.
  - o Learning Space Utilization Theme
    - Publish degree audit (u.achieve) data in the University Data Warehouse to enable projections of student course and section demand.
  - o Space Allocation Theme
    - Complete the current space utilization BI project and include reporting and dashboards for use in collegiate and departmental analysis.