

Institutional Data Recommendations for UC Berkeley:

A Roadmap for the Way Forward

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I. OVERVIEW of INSTITUTIONAL DATA RECOMMENDATIONS

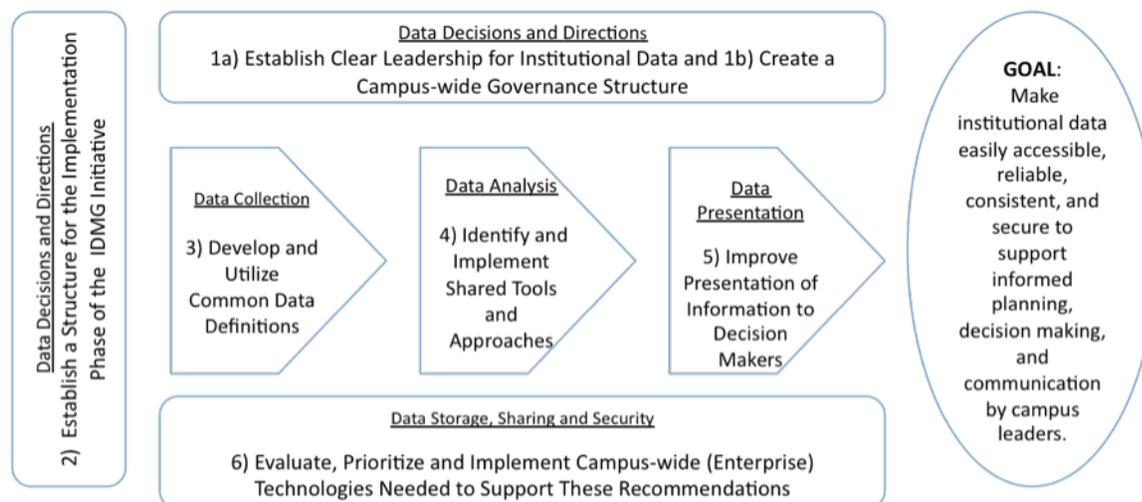
The University of California, Berkeley launched the Institutional Data Management and Governance (IDMG) Initiative in Fall 2007 as a step forward in **making institutional data**—including data related to applicants, students, faculty, staff, alumni, and donor prospects—**easily accessible, reliable, consistent, and secure, to support informed planning, decision making, and communications by campus leaders.**

The Assessment Phase of the IDMG Initiative, coordinated by external consultant Mary Beth Baker and completed on March 1, 2009¹, included:

- A review of previous campus studies on institutional data;
- Interviews with leaders of campus groups touching data management and governance;
- An online survey completed by 394 end-users, including members of the Chancellor’s Cabinet, deans, department chairs, institutional research analysts, and managers; and
- A review of best practices in higher education.

Based on the outcomes of the Assessment Phase and her experience with institutional data in higher education, Mary Beth Baker identified six inter-related areas that must be addressed for UC Berkeley to create an operating environment in which institutional data is more accessible, reliable, consistent, and secure. These areas and related recommendations are illustrated below.

Figure A: Interdependencies between Recommendations



These recommendations have been discussed with and endorsed by the IDMG Initiative’s Executive Sponsors, George Breslauer and Nathan Brostrom, and the IDMG Task Force.

¹ The preliminary assessment findings were described in a September 16, 2008, report to the IDMG Task Force and the quantitative results from the IDMG survey have been analyzed and published by Marc Goulden. Loris Davanzo in the Office of Planning and Analysis analyzed the qualitative survey responses. These findings are posted on the IDMG website.

II. DETAILED RECOMMENDATIONS

Recommendation 1a: Establish Clear Leadership for Institutional Data

LEADERS	PRIMARY ROLES
Executive Sponsors EVCP George Breslauer and VC Administration Nathan Brostrom	The role of the Executive Sponsors is to champion making institutional data more accessible, reliable, consistent, and secure, and to provide necessary resources to scope and launch the new governance structure and institutional data projects.
Campus Institutional Data (ID) Lead Associate Vice Chancellor for Budget & Resource Planning (AVC-BRP), Erin Gore	The role of the Campus Institutional Data (ID) lead is to provide overall leadership, direction, and priority setting for institutional data at UC Berkeley and to advance the implementation of the IDMG recommendations.
Campus Institutional Data Technology Partner Chief Information Officer (CIO), Shel Waggener	The role of the Campus Institutional Data Technology Partner is to work with the Campus ID Lead to provide campus-wide integrated technology solutions that meet user needs more effectively.

Recommendation 1b: Create a Campus-wide Governance Structure for Institutional Data

GROUP	PRIMARY ROLE
Institutional Data Council (IDC)	The role of the IDC is to advise the AVC-BRP about institutional data directions and priorities and the alignment of other data-related committees, and to support the resolution of specific issues and questions at a comprehensive, campus-wide level.

Recommendations 1a and 1b should be approved and implemented immediately. Immediate approval will build on the momentum generated during the IDMG Assessment Phase and ensure a smooth transition to a productive, open, and trustworthy environment where data and their sources are visible, transparent, and accessible to approved users, and institutional data decisions are understood and respected by the relevant groups. Clear leadership and a governance structure for institutional data will also serve to align the work of the IDC and campus-wide data-related committees, as well as involve data stewards from key functional areas (people, students, money, space, etc) and resource experts (technology, institutional research).

The speed and phasing of implementation for the remaining recommendations is, of course, contingent on available resources, particularly the time of institutional data stewards. By establishing clear leadership and a decision-making process for institutional data, however, several currently unresolved

institutional data issues can be discussed and decided on, and plans can be developed for redirecting resources and implementing the remaining recommendations.

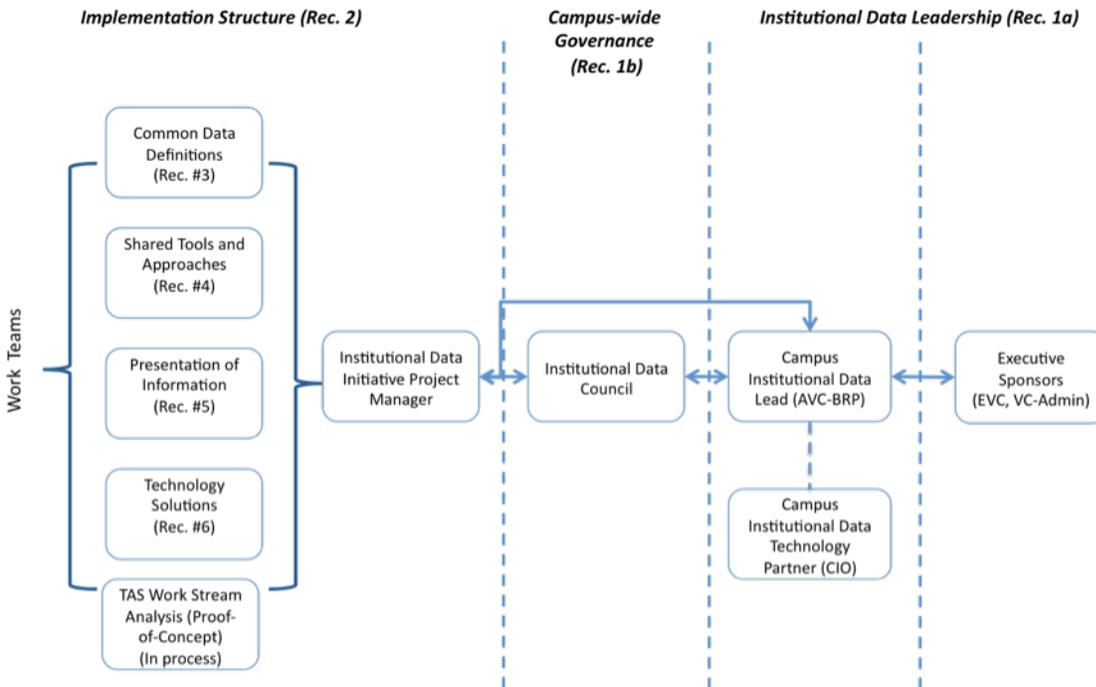
Recommendation 2: Establish a Structure for the Implementation Phase of the IDMG Initiative

INDIVIDUAL	PRIMARY ROLE
Institutional Data (ID) Initiative Project Manager , to be determined.	The primary role of the ID Initiative Project Manager is to plan, manage, and coordinate the implementation phase of the IDMG initiative on a dedicated basis under the direction of the AVC-BRP. The Project Manager will be responsible for helping work teams develop specific project objectives and phased implementation plans to achieve the recommendations outlined in this report, as well as managing the teams through implementation.

Figure B on page 5 illustrates the interrelationships between recommendations #1 and 2 that are necessary to effectively manage institutional data. Under the direction of a dedicated Project Manager, the work teams illustrated below in the Implementation Structure, represent the project sub-teams that will be formed to focus on implementation of the recommendations (#3 through 6) outlined in the remainder of this paper, as well as the integration of the work being completed for the IDMG Proof-of-Concept project on Temporary Academic Staff (TAS)². Refer to Appendix A for further elaboration on the roles of the leadership, governance, and implementation groups and to Appendix B for an elaboration of key action steps to consider in the scope of each recommendation.

² The June 2009 TAS Proof-of-concept study will provide additional information to consider for the implementation of the IDMG recommendations.

Figure B: Institutional Data Leadership, Governance and Implementation Integrated Model



Recommendation 3: Develop and Utilize Common Data Definitions

The purpose of creating and using common data definitions across campus systems—and where possible and feasible in alignment with UCOP, the AAU data exchange, and other reporting entities—is to ensure a shared meaning and understanding for all data elements and their uses, thereby increasing consistency, regardless of who conducts the analysis, and reducing redundant work. Once there is agreement to and use of common data definitions, the effectiveness and efficiency of data collection, analysis, and reporting can quickly improve on the Berkeley campus. This work stream builds on the work of the Data Stewardship Council (DSC), which should be re-chartered to support this recommendation to advance the overall Institutional Data Initiative.

Recommendation 4: Identify and Implement Shared Tools and Approaches for Analyzing Data

Berkeley can significantly strengthen its capacity to provide consistent decision support across the campus by *formalizing* a community of practice among the institutional research analysts across the campus, including those in both central and distributed units. This is not to suggest that the analysts/groups should be structurally organized in a centralized model; rather, the focus is on supporting collaboration and common practices/approaches among analysts and formalizing agreements about information sharing and reporting. One of the first critical tasks of this group will be to identify and adopt, where feasible, shared analytical tools and approaches, such as common business intelligence and reporting tools, data mining tools, and statistical packages.

Recommendation 5: Improve Presentation of Information to Decision Makers

Summary presentations of data, often in graphical format, are an effective tool to support campus leaders' strategic thinking and decision making. Academic department chairs, in particular, were identified in the IDMG survey results as needing improved access to data and information for decision making. Although more information is needed to understand the data and information needs of academic department chairs, there are several models to consider as a starting point. Some campuses, including UCSD (<http://blink.ucsd.edu/go/mydashboardinfo/>) and the University of Illinois (www.ds.uiillinois.edu/dashboards/), have successfully implemented dashboards with key data indicators such as sponsored research funding, budgeted and filled faculty FTE, and applications for admission by student type, etc. Depending on the solution, in addition to common data definitions (Recommendation #3), successful implementation of such data summaries may also require:

- A comprehensive data warehouse;
- A sophisticated ad hoc query system;
- Security infrastructure;
- Technical expertise for building dashboard components; and
- Knowledgeable and experienced business users who are ready to experiment with new tools.

Recommendation 6: Evaluate, Prioritize and Implement Campus-wide (Enterprise) Technologies Needed to Support These Recommendations

In addition to a common set of data definitions, tools, and reporting mechanisms, Berkeley also needs a common set of enabling technologies to ensure that the campus develops and maintains a campus-wide data environment that is reliable, consistent, accessible, and secure over the long term. To move in this direction, technology decisions must be made in alignment with the campus-wide goals for institutional data. In addition to the technology tools required to support analysts more effectively (Recommendation #4), technology solutions must be evaluated, at a minimum, in the areas of: 1) System architecture; 2) Data storage (including a comprehensive data warehouse; and 3) Data security.

Appendix B provides more detail on the types of activities required to implement Recommendations 3 through 6.

III. KEY SUCCESS FACTORS

Effectively integrating the work of the IDMG Initiative into daily operations at UC Berkeley will require a change in culture. It can no longer be acceptable to consider only the data needs of a local unit or a specific population; instead the impact on and integration with the greater UC Berkeley community must be considered. Achieving a widely used set of common data definitions and adopting shared approaches to research and analysis, with common enabling technology, will require discipline, compromise, and a demonstrated willingness to collaborate across units over an extended period of time.

The six recommendations in this Roadmap will not have the same impact if they are implemented as individual suggestions rather than a portfolio of recommendations. To be successful and to have lasting impact on the way in which Berkeley conducts business, implementing this portfolio of recommendations will require:

- Clear sponsorship;
- Clearly defined, understood, and communicated roles and responsibilities for all members of the ID initiative;
- Dedicated project management;
- Campus-wide leadership and support;
- Collaboration and engagement of individuals across academic, administrative, and functional units;
- Analytical rigor;
- Disciplined implementation;
- Strong and committed analytical support;
- Identified points of integration and collaboration;
- Reprioritized current work and assignments;
- A phased approach to implementation; and
- A reallocation of funding.

APPENDIX A: Further Definition of Roles for the Leadership, Governance, and Implementation Structure

Recommendation Area	Function/Individual/Group	Primary Roles
<p>Leadership for institutional data (1a).</p>	<p>Executive Sponsors EVCP George Breslauer and VC Administration Nathan Brostrom</p>	<p>The role of the Executive Sponsors is to:</p> <ul style="list-style-type: none"> • Champion making institutional data more accessible, reliable, consistent and secure at UC Berkeley; • Delegate operational authority to Campus Institutional Data Lead (AVC-BRP) and Technology Partner (CIO); • Provide sufficient funding to scope and launch new governance structure; • Be accountable for results; and • Serve as ex-officio members on the Institutional Data Council.
<p>Clear <u>leadership</u> for institutional data (1a) and <u>campus-wide governance</u> (1b).</p>	<p>Campus Institutional Data (ID) Lead Associate Vice Chancellor for Budget & Resource Planning (AVC-BRP), Erin Gore.</p>	<p>The role of the Campus ID lead (AVC-BRP) is to</p> <ul style="list-style-type: none"> • Provide overall leadership, direction, and priority-setting for institutional data at UC Berkeley and the implementation of the IDMG recommendations; • Resolve conflicts about institutional data priorities, roles, etc.; • Chair the Institutional Data Council; • Provide and/or secure necessary resources; and • Appoint ID Initiative Project Manager, Work Team leaders, and establish data-related groups to support the overall initiative. <p>In consultation with the Technology Partner (CIO):</p> <ul style="list-style-type: none"> • Provide campus-wide integrated solutions to better meet user data needs including enterprise technologies, system architecture, data storage, data security; • Propose a funding model to support the implementation of these recommendations to advance the IDMG goal; • Re-charter existing data-related groups on campus, such as the Data Stewardship Council and Information Technology Architecture Committee, to support the efforts of the campus-wide institutional data governance group; • Review scope of responsibility with campus groups such as Quali Student Systems 2012 and the Enterprise Systems Steering Committee; and • Clarify the relationship of data committees with the Campus Technology Council (CTC).

Recommendation Area	Function/Individual/Group	Primary Roles
<p>Clear <u>leadership</u> for institutional data (1a) and campus-wide <u>governance</u> (1b).</p>	<p>Campus Institutional Data Technology Partner Chief Information Officer (CIO), Shel Waggener</p>	<p>The role of the Technology Partner (CIO) is to work with the AVC-BRP on the above and also to:</p> <ul style="list-style-type: none"> • Resolve conflicts about technology solutions related to institutional data, priorities, and roles; and • Recommend resources for work stream teams.
<p>Campus-wide <u>governance</u> for institutional data (1b).</p>	<p>Institutional Data Council (IDC) <i>Revise the charge of the existing IDMG Task Force and include members who have final decision-making authority/stewardship for data in key functional areas (e.g., money, people, students, space, etc) and key resource partners (e.g., Chief Information Officer, Assistant Vice Chancellor for Office of Planning & Analysis).</i></p>	<p>The role of the IDC is to:</p> <ul style="list-style-type: none"> • Advise the AVC-BRP about institutional data directions and priorities, including the alignment of other data-related efforts; • Develop principles to guide the development, selection, and prioritization of solutions; • Support the resolution of specific issues and questions related to the implementation of the IDMG recommendations at a comprehensive, campus-wide level; and • Provide campus perspective on institutional data needs.
<p>Supporting <u>implementation</u> structure (2).</p>	<p>Institutional Data (ID) Initiative Project Manager, to be determined. <i>This position reports to the AVC-BRP. Depending on the scope of the implementation this <u>may</u> be a full-time role.</i></p>	<p>The role of the ID Initiative Project Manager is to:</p> <ul style="list-style-type: none"> • Manage overall implementation of IDMG recommendations and initiative activities; • Identify resource needs and negotiate with Institutional Data Lead; • Provide leadership and coordination for specific work streams; • Identify potential implementation issues and work with others to develop solutions or course corrections; • Ensure progress on projects; • Manage initiative communications; and • Support the AVC-BRP in productively engaging the ID Council.

APPENDIX B: Key Action Steps to Consider for Implementation

Recommendation	Key Action Steps
<p>3) Develop and utilize common data definitions</p>	<p>Review the role of the Data Stewardship Council (DSC) and consider how it could be re-chartered as a vehicle for developing data definitions for the campus.</p> <p>To initiate the work, create “domains” of functional areas, possibly using the domains defined in the IDMG survey.</p> <p>Assign work teams comprised of end-users, technical systems support, and central functional stewards to each domain. Specific action items that the teams will need to undertake include:</p> <ul style="list-style-type: none"> • Identify key decision areas and data elements; • Determine where breadth (common definitions across the campus) and depth (common definitions within one category) would be most useful; • Identify best practice approaches for defining data; • Assess data storage, archival and security issues; • Identify IT systems modifications, as appropriate; and • Communicate, educate, and publish data definitions and their intended uses.
<p>4) Identify and implement shared tools and approaches for managing data.</p>	<p>Scope of effort for the community of practice should include:</p> <ul style="list-style-type: none"> • Identify, agree on, and use, where feasible, common set of tools for institutional research; • Identify, agree on, and use, where feasible, common approaches to analysis; • Identify, agree on, and use, where feasible, common survey design and analysis techniques; and • Share/learn common tools, approaches, survey design, among and beyond community of practice members.
<p>5) Improve information presentation to decision makers.</p>	<p>Possible action steps include:</p> <ul style="list-style-type: none"> • Identify specific data and information needs with academic department chairs, deans, and campus administrators; • Inventory current campus (and OP) methods for presentation and communication of data, e.g., CalProfiles, CalStats, Accountability Framework, etc. • Research other models such as dashboards in place at UCSD and University of Illinois, as well as prior Berkeley efforts such as the Performance Metrics initiative. • Conduct demonstrations and validate the need with academic deans, chairs, and administrators; • If appropriate, create prototype of dashboard with cross-representation of end-users; • Evaluate and confirm technology requirements; and • Assess feasibility of developing a pilot dashboard for academics and other campus users.

Recommendation	Key Action Steps
<p>6) Evaluate, prioritize, and implement campus-wide enterprise technology needed to support these recommendations.</p>	<p>Possible action steps include:</p> <ul style="list-style-type: none"> • Inventory existing and planned data-related technology initiatives at the local department level, campus-wide and system-wide; • Analyze which initiatives will/can support more accessible, reliable, consistent, and secure data; • Establish criteria and set priorities aligned with institutional data needs and other technology directions for the campus; • Identify technology requirements necessary to implement above recommendations; • Conduct gap analysis of technology projects versus requirements; and • Develop technology roadmap to support institutional data.