From Data to Action: IR’s Role in Transformational Change in Higher Education

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Key topics......

1. Transformational change—what is it?
2. Challenges facing higher education—why do we need transformational change?
3. Institutional research—how does it support transformational change?
Everything is changing; the world is even flat.

“Friedman is right that there have been dramatic changes in the global economy, in the global landscape; in some directions, the world is much flatter than it has ever been, with those in various parts of the world being more connected than they have ever been, but the world is not flat ... Not only is the world not flat: in many ways, it has been getting less flat.”

--Nobel Prize-winning economist Joseph Stiglitz
Change management vs. transformational change

1. **Developmental change**: *improve what we are currently doing*, e.g., changing admissions policy, increasing enrollment, motivating student participation, improving faculty diversity, etc.

2. **Transitional change**: *replace “what is” with something new*, e.g., restructuring administrative units, merging programs, creating new programs, developing new service initiatives and activities.

3. **Transformational change**: need to do everything together on a portfolio of initiatives which are interdependent or intersecting, e.g., how changing admissions policy would affect enrollment, student engagement, faculty diversity, restructuring of administrative units, program merge, new service initiatives, etc.
Transformation: approach, philosophy, methodology

-- By Robert Gass

1. **Be holistic**: deriving its power by attending equally to heart & minds
2. **Involve breakthroughs**: in paradigms, beliefs, and behavior
3. **Be about “Being the Change”**: a strong focus on what’s happening right now, and must “be the change” right now by initiating an inclusive process of change
4. **Emphasize the positive**: grounded in the power of a positive vision and focusing on what we want to create
5. **Balance control with letting go**: less an attempt to dominate life, and much more a dance of dynamic interaction with life around us
6. **Rely on collaboration**: a high level of commitment and skill in collaboration because of its systemic and interdisciplinary nature
7. **Happen at all levels**: work with individuals, organizations, coalitions, networks, social change movements, and society
Why do we need transformational change?

"For 300-plus years, we evaluated the quality by the square footage of the library or what exclusivity it has. The quality of the consumer experience has not been part of the equation."

Carol D'Amico, Executive VP of National Engagement and Philanthropy, USA Funds
Challenges facing higher education (a shortened list)

1. **Access**: providing universal post secondary access to all students

2. **Financial constraints**: a major concern to administrators of higher education in the United States and many other countries

3. **Costs and affordability**: increased shifting of costs to students, and the growth in merit-based aid, not in need-based aid

4. **Diversity**: diversity of students, faculty, administration and staff in higher education is far behind that of the population in terms of race/ethnicity, gender, geographic location, socioeconomic status, etc.

5. **Greater expectations from students and employers**: students and employers expect skills for life and work much beyond knowledge students learn from a cluster of courses, or a major.

6. **Liberal education**: losing the sight of the traditional mission educating effective citizens and preparing students for life

7. **Accountability**: educating students well and offering higher “value-added” opportunities, increasing the value of degree
What should higher education do to address these challenges?

- Innovation
- Creativity
- Modification
- Ideas
- Strategies
- Development
- Improvement
- Rebuilding
- Evolution
- Refinement
- Renewal
- Advancement
- Transformation
Deliberate innovation, lifetime education at Georgia Tech

Responses indicate that Georgia Tech will become more diverse, more imaginative in the use of technology, and learning is not tied to classrooms, traditional majors, but studying the challenges facing the world.
Design a future—Stanford’s 2025 project

An exploration of undergraduate experiences in the future

**Open Loop University**

*From To*

Students received four years of college education, front-loaded at the beginning of adulthood.

**Paced Education**

Students received a lifetime of learning opportunities.

**Axis Flip**

Knowledge within a particular discipline was the criteria for graduation; skill development was secondary.

**Purpose Learning**

Stanford flipped the axes so that skill development became the foundation.

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Students declared Majors and focused their studies around set requirements.

Students declared Missions and coupled their disciplinary pursuit with the purpose that fueled it.

Structured, 4-year courses of study advanced students by seat hours on a quarterly rhythm.

Three phases of varied lengths provided personalized, adaptive, calibrated learning.
Berkeley offers doctoral students the opportunity to create an interdisciplinary major of their own design.

Interdisciplinary Doctoral Programs

Berkeley offers doctoral students the opportunity to create an interdisciplinary major of their own design.

You must have successfully completed at least two semesters of graduate study in a doctoral program at Berkeley. You will need five faculty from multiple departments to support your proposal, and will need to show that the project you propose cannot be completed in any existing doctoral program. Completing a doctorate in an existing departmental, school, or group program is to your advantage because access to space, financial support, and continuing supervision are much more difficult for interdisciplinary students. The proposal you write will be judged against existing programs where you might complete the research you outline.

Contact Assistant Dean for Academic Affairs Linda Song (lsong@berkeley.edu) if you have any questions.
What can we learn from successful transformational change?

Top five greatest factors in success of IBM’s transformational change

- Assigning the right employees to implement the project: 88%
- The need to appropriate adequate resources from the start: 85%
- Gathering data for metrics during the process: 82%
- Accurate timely feedback from employees executing the program: 80%
- Forming the right executive team to oversee the project: 78%
From data to action (wisdom): a perspective of the role of institutional research

If you know yourself and the enemy, you will win battles all the time.

---- The Art of War
Build an integrated data system

Data Integration is the combination of technical and business processes used to combine data from disparate sources into meaningful and valuable information

—BM Analytics
Institutional data type in higher education

- Operational data
- External data
- Survey data
- Learning analytics/adaptive learning
- Data from social media
Integrated data system and reporting platform

Data sources

- Finance
- HR
- Student
- Research
- Others...

Data warehouse

- Course data
- Budget

Reporting interface

Analysis/Mining

Integrated data system and reporting platform

data sources → data warehouse → reporting and analysis
## Data for pipeline analysis on student success

### Pre-college
- High school courses
- Educational opportunities
- Participation in extracurricular activities
- College entrance exam scores
- Family background
- School background
- Student characteristics
- Application
- ...

### college
- Admissions
- Enrollment destination
- Course registration
- Learning behavior
- Satisfaction
- Adaptive learning
- Financial aid
- Engagement
- Grade Point Average
- Degree completion
- ...

### post-graduation
- Post enrollment
- Graduate school enrollment
- Employment
- Job performance
- Salary
- Contributions to the society
- ...

Along with other data: budget, finance, faculty, research, facilities, campus climate...
Analysis and assessment in a holistic manner

Understand how students are learning and optimise the learning process

Business Intelligence applied to education at an institutional, regional and national level

Learning Analytics

Academic Analytics

Educational Data Mining

Predictive modelling
Extract value from big data sets

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From data to action: a perspective of understanding data relations and the principles

INFORMATION IS NOT KNOWLEDGE
From data to action: a perspective of understanding data relations and the principles

Our ability to learn what we need for tomorrow is more important than what we know today.

George Siemens
The founding president of the Society for Learning Analytics Research (SoLAR)
From data to action: a perspective of understanding data relations and principles
Enhance organizational intelligences of IR

Knowledge of major issues or decision areas that face institutions and the people who manage them, e.g., enrollment goal setting, faculty workload analysis, resource allocation, planning, program evaluation, etc.

Factual knowledge or information, and analytical and methodological skills and competencies, e.g., calculating the number of FTE students, students’ GAPs, etc.

Understanding the culture both of higher education in general and of the particular campus, such as faculty and organizational culture, political structure, decision making process, etc.

Reference: Patrick Terenzini. On the nature of institutional research and the knowledge and skills it requires
From data to action: a model based on data transparency, question-oriented research and proactive research to support transformational change

Institutional Research

- Question-oriented research
  - Data transparency
  - Proactive research

- Environmental scanning

- Decision makers

- Collect/analyze data

- Review/discuss results with policy makers

- Participate in decision making and actionable planning process

- Collect action-related data and evaluate performance

IR Resources at the University of California Office of the President

- The University of California Information Center: [https://www.universityofcalifornia.edu/infocenter](https://www.universityofcalifornia.edu/infocenter)
- The University of California Accountability Report [https://accountability.universityofcalifornia.edu/2019/](https://accountability.universityofcalifornia.edu/2019/)
- Reports and research articles [https://www.ucop.edu/institutional-research-academic-planning//index.html](https://www.ucop.edu/institutional-research-academic-planning//index.html)
A brief summary

1. Higher education needs change, and needs transformational change.
2. Institutional research should and can play an important role in making transformational change in higher education.
3. By design, institutional research can provide analytical support to help better understand ourselves and the situation where we are, and also predict the future state, to some degree.
4. Institutional research should start with developing integrated data infrastructure and reporting platform (or by working with IT), conducting analysis in a holistic manner and getting involved in decision making and actionable strategic planning process to turn data into action.
5. IR is still a service unit, but should provide services based on holistic analysis in a proactive manner.
Thanks! Questions?

Explore the UC story through data at UC Information Center!
http://www.universityofcalifornia.edu/infocenter