

Variations in the Impact of Institutional Research Offices in Data-Driven Management: Buffering, Enabling and Assessing the Technical Core

**Lawrence J. Redlinger and Sharon Etheredge
The University of Texas at Dallas
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Our purpose is to discuss the structural conditions and processes by which IR can enable a “data-driven” perspective given its location within a college or university.

While data accuracy is paramount to credibility, examination of which data streams have elevated importance tell IR researchers much about their organizations.

Moreover, every data system and the reports that emanate from them have hidden and unquestioned assumptions and policy emphasis built into their design.

What we measure has major effects on how we sense the environment. Which data streams an institution elevates in importance for making choices over time is a neglected but an extremely important area for researchers interested in organizational decision-making and institutional research.

Data Driven Management is:

- Participation in the framing of the question;
- Defining relevant methodologies;
- Preparation of analyses and scenarios;
- Active participation in the decision-making process;
- Formative and summative evaluations of implementation and impact.

An Example of what Data Driven Management is not:

IR data is used a “decision support.” I.e. the decision has already been made; IR is to provide the legitimizing data, to delimit the data to fit the decision as opposed to influence the process by which the decision is made.

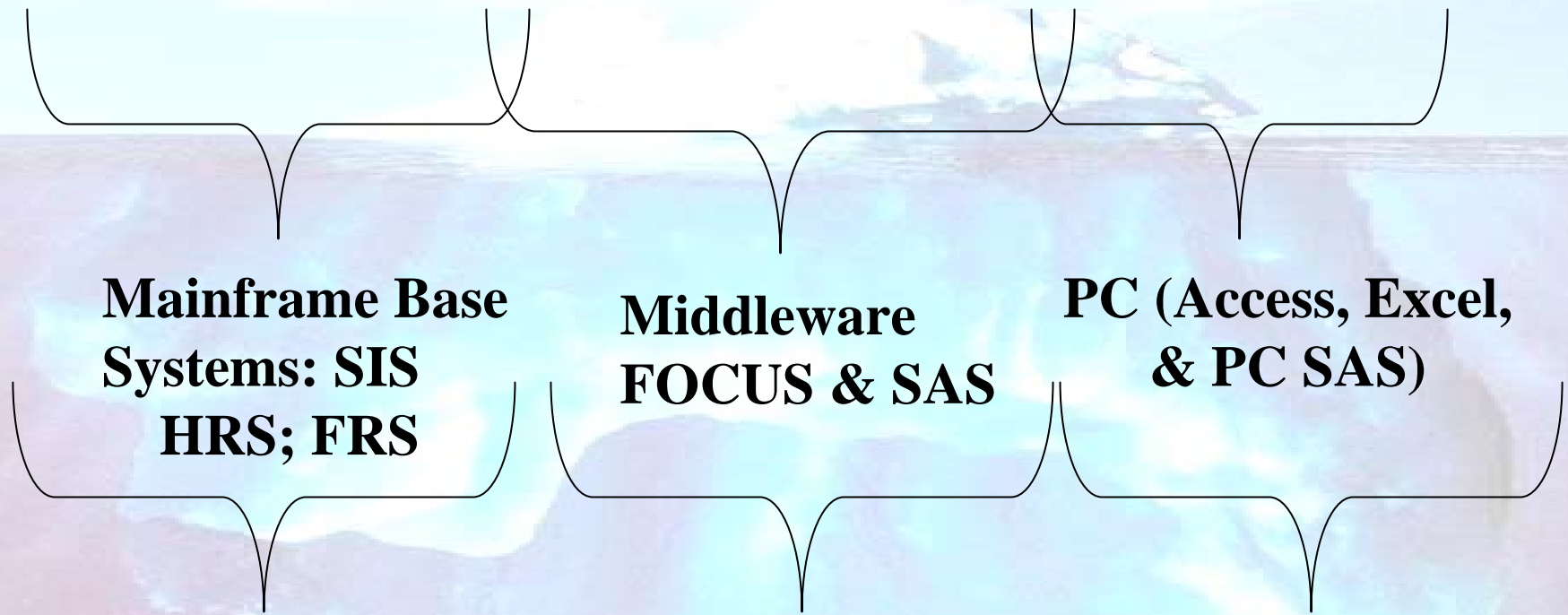
Caveat!

Every data system and the reports that emanate from them have hidden and unquestioned assumptions and policy emphasis built into their design.

- 1. Transactional data systems. Designed to impose structure on a well-defined process -- such as registration, or graduation. Even though these applications are source specific and detailed-oriented, they have within them programming decisions (embedded policy) that impact data storage, calculations and output.**
- 2. Input-Output “snapshot” reporting systems which generate descriptive statistics. (E.g., THECB reports) Attempts to institute Operational Data Stores, etc... are efforts to reduce the “age” of the data.**
- 3. University Intelligence Systems—adaptive to what decision-makers WILL need, mission critical.**

TRADITIONAL CONCEPTION AND DAY-TO-DAY ROUTINES

Data Capture → **Data Cleansing** → **Information Creation** → **Finished Output**

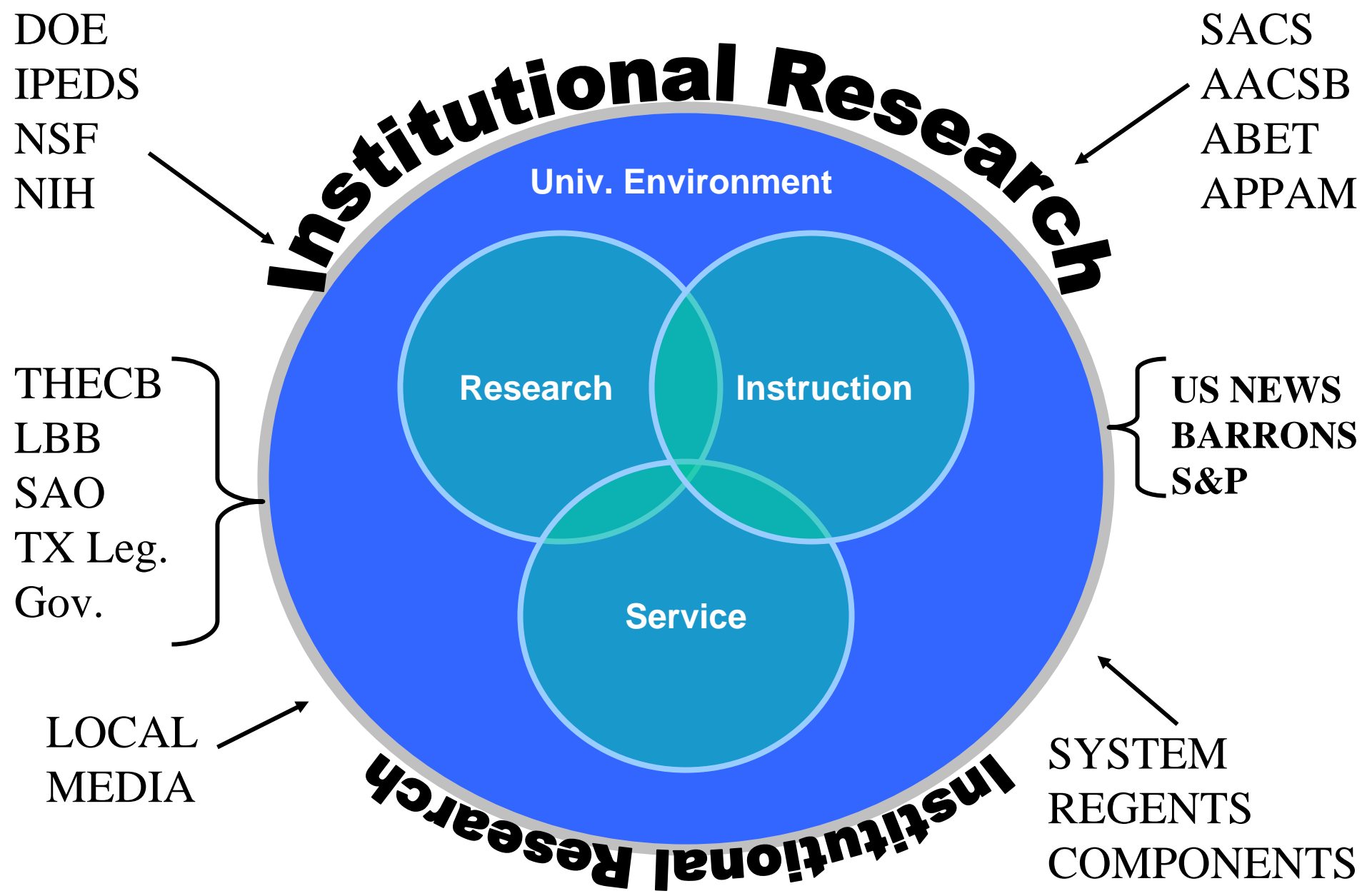


Architecture Issues
System Navigation Issues
Data Representation Issues
Security & Access Issues

Cleansing
Filtering
System Knowledge
Initial Output & Packaging

Final Packaging
Presentation
Easy, widely used format

Buffering the Technical Core



Assessing the Technical Core

Institutional Research

Facilities analyses
Space utilization
Renovation tracking
Master plan

Univ. Environment

Research

Instruction

Service

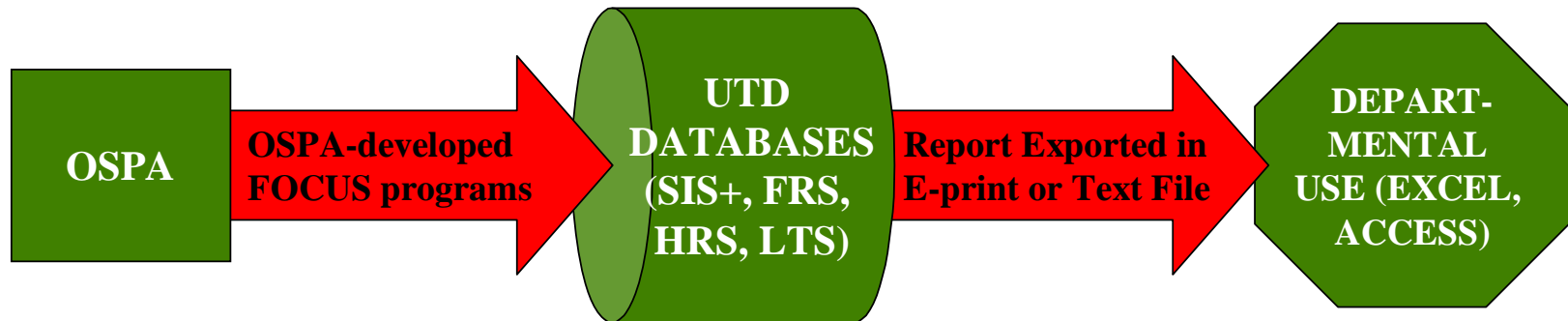
Faculty:
R&D
Achievements
Funding Trends
Publications
Workload

Student satisfaction
Retention Analyses
Teaching Assessment
Completions Analyses
Course Scheduling &
Course Sequencing
Demand Analyses

Institutional Research

Enabling The Technical Core: Example 1

WORK-PROCESS IMPROVEMENT AND PROGRAM SERVICES OSPA PROVIDES TO OTHER DEPARTMENTS



Departments currently served by OSPA developed programs:

Admissions Office (Admissions Data)

Provost Office (Distance Education Courses)

Enrollment Services (Admissions Data)

International Student Services (Student Data)

Registrar's Office (Student, Course, Distance Education and Facility Data)

Library (Enrollment per Course)

Financial Aid (Student Financial Aid)

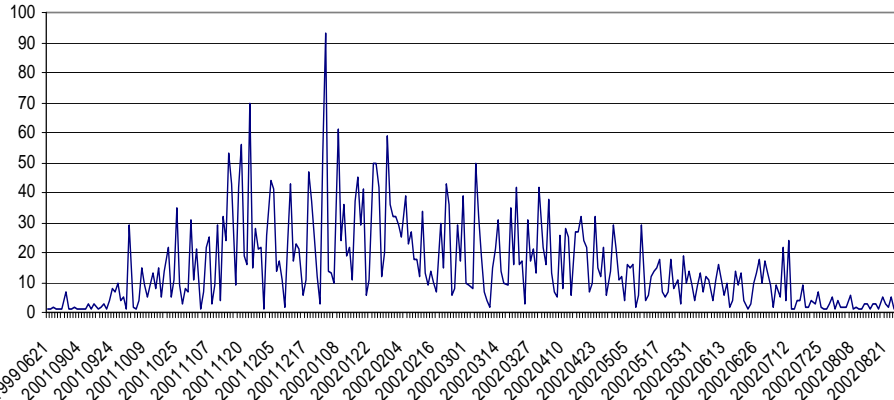
BBS (Student Psychology Exam Credits)

ECS (Enrollment Data for ECS Advisors)

Enabling The Technical Core: Example 2

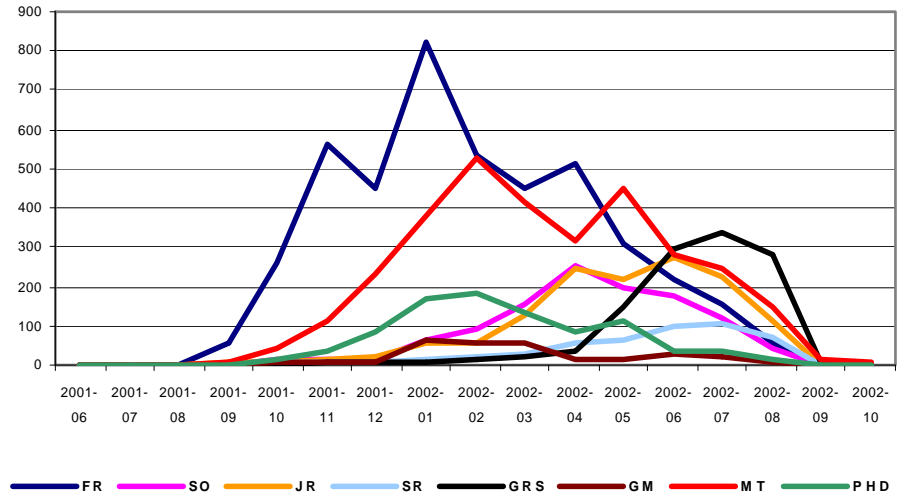
Adaptive intelligence and targeting.

Count of Freshman Applications Fall

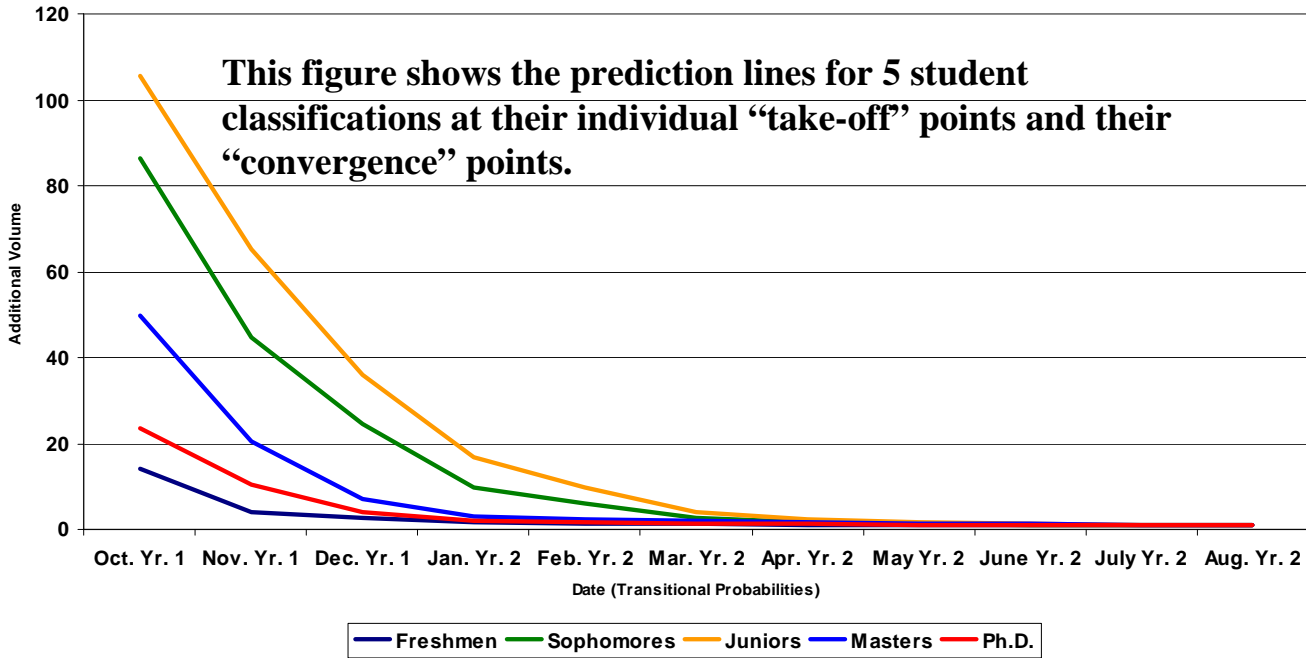


Noisy Data to
Smoothed Trend lines

Applications by Student Classification

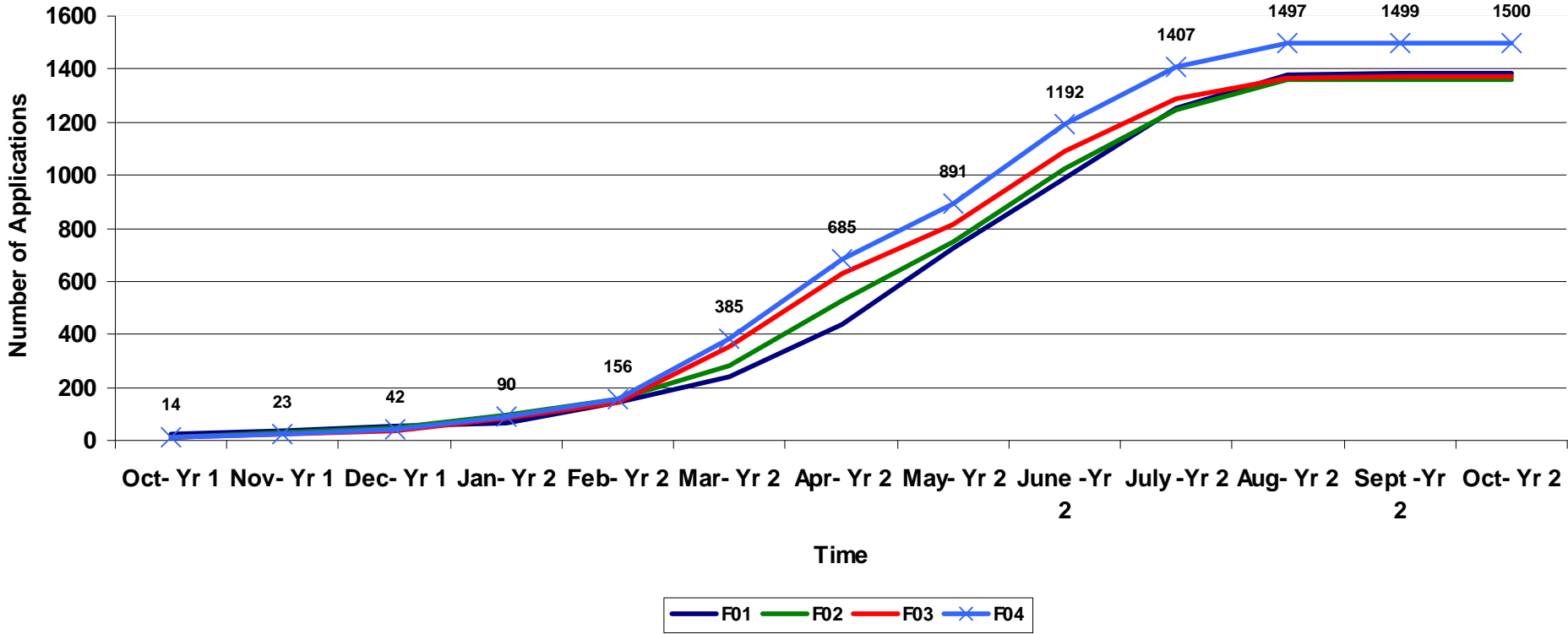


Prediction Lines for Selected Applications by Student Classifications, Fall Semester 2003

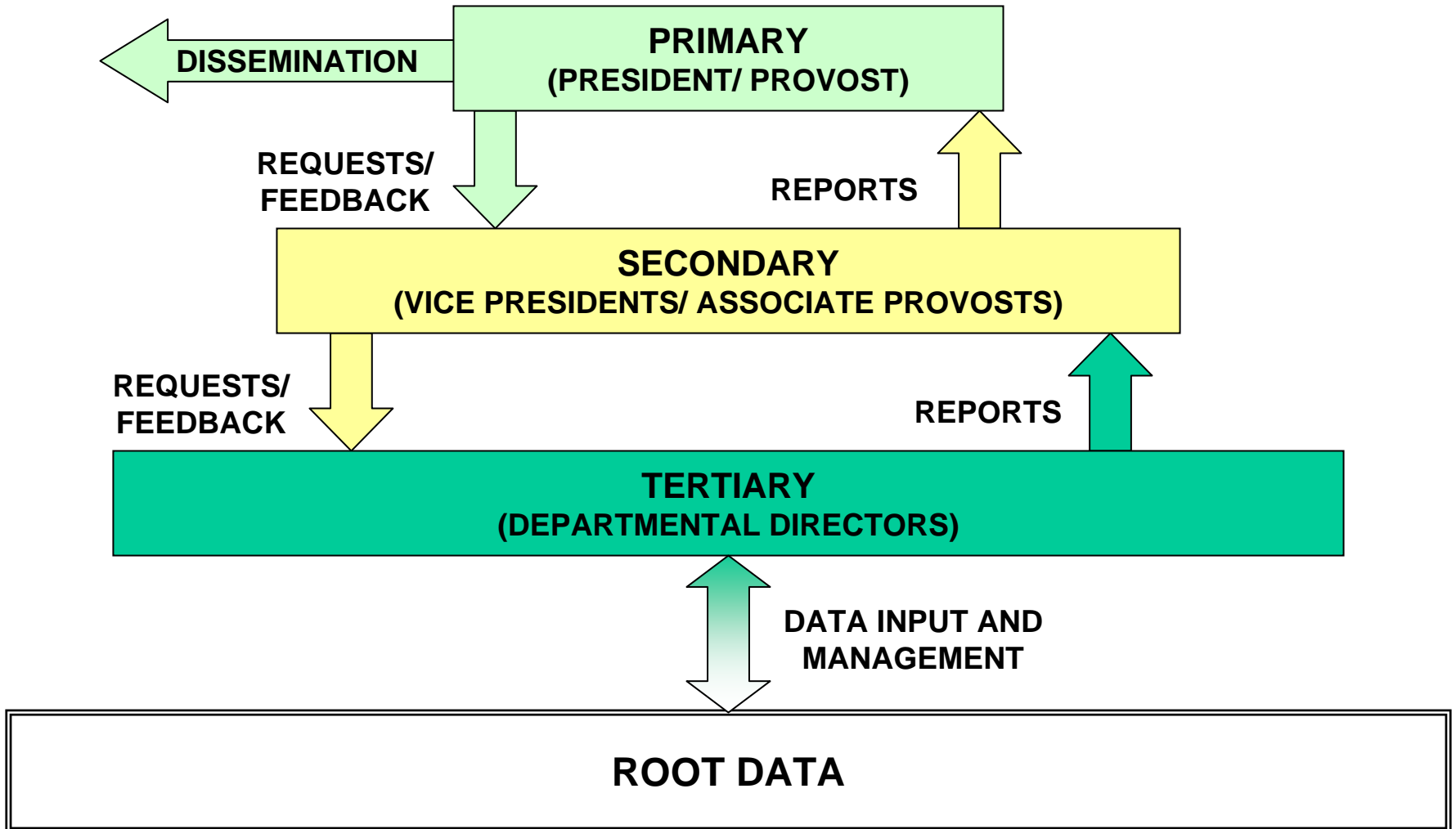


The data drives and organizes work activities to achieve Enrollment targets

Cumulative Junior Applications For Fall Semesters 2001,2002, 2003 and F04 Target

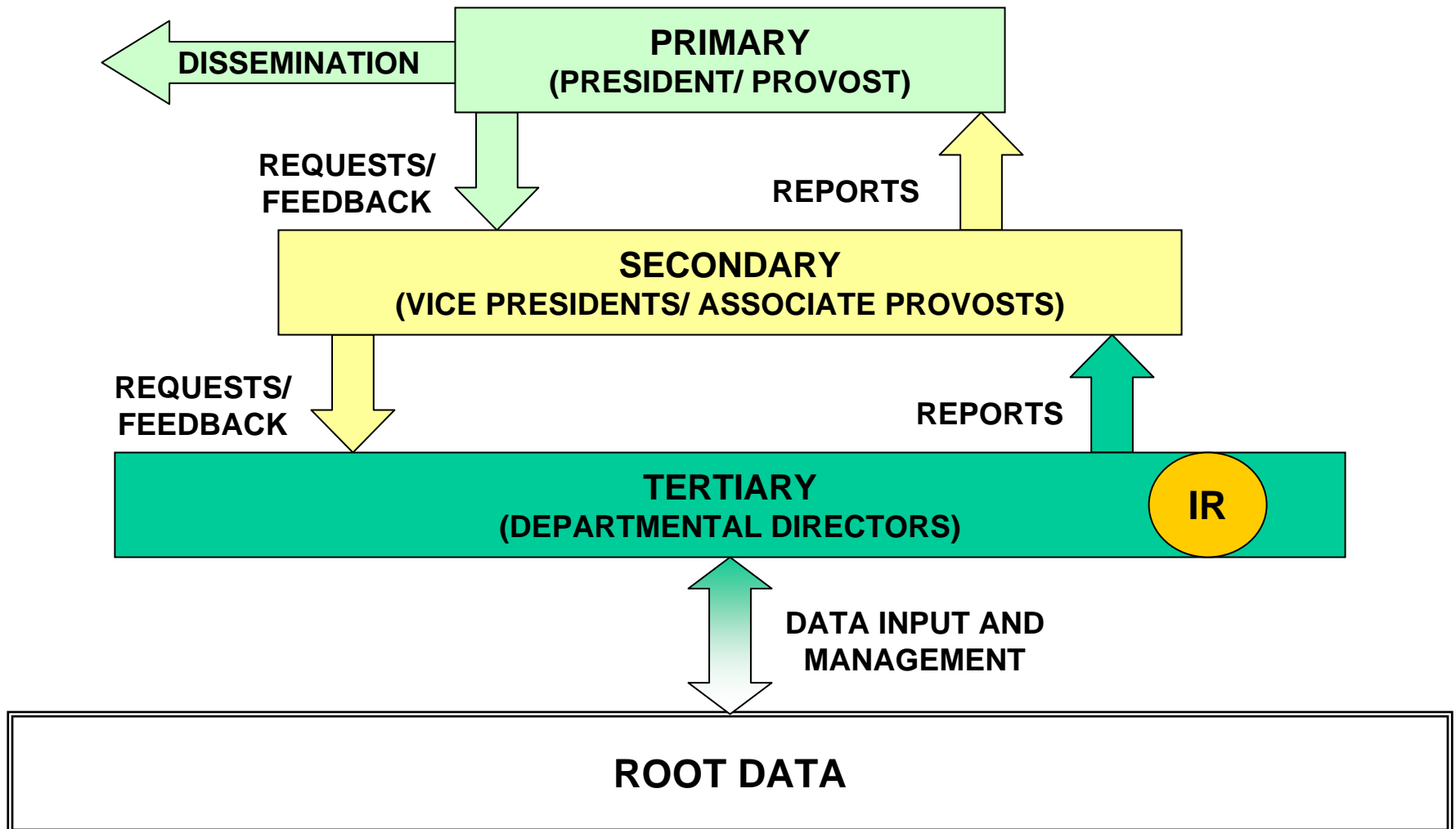


DATA FLOW AT TYPICAL UNIVERSITY



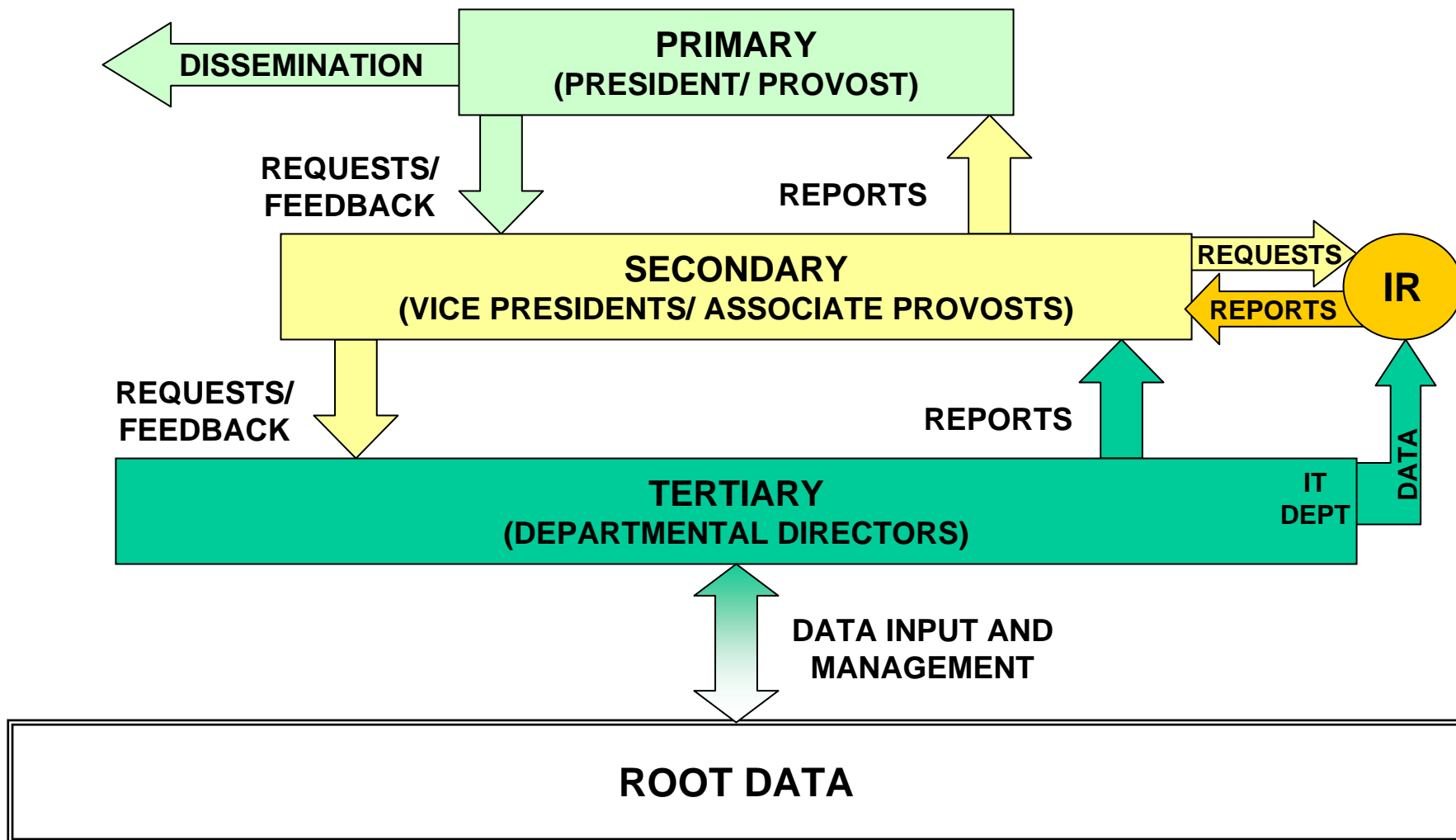
INSTITUTIONAL RESEARCH OFFICE – PASSIVE/ SUPPORTIVE MODEL

Responds Primarily to Needs of Immediate Supervisor



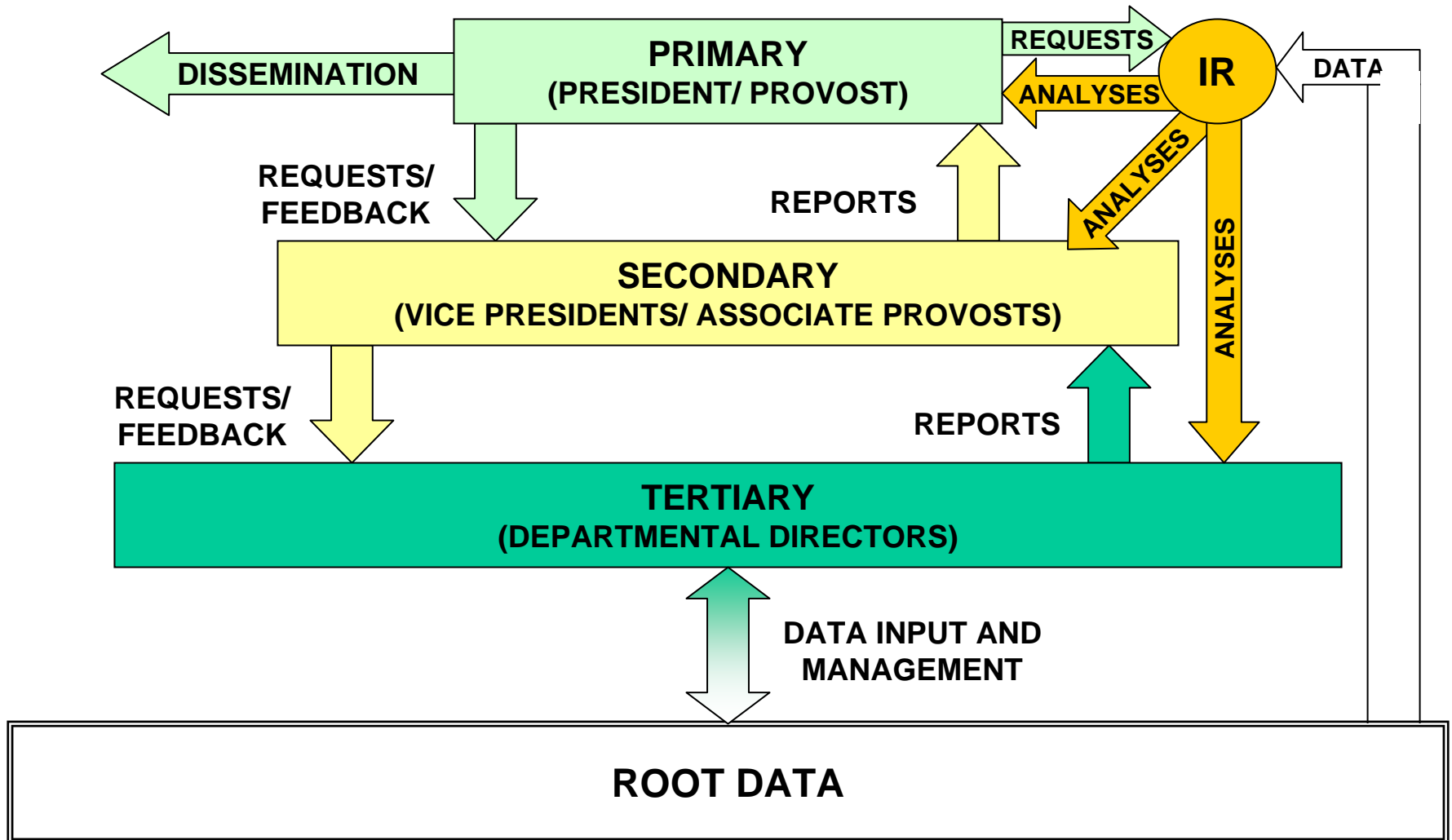
INSTITUTIONAL RESEARCH OFFICE – INTERACTIVE MODEL

Most Common Model: “Statistics Factory” for University



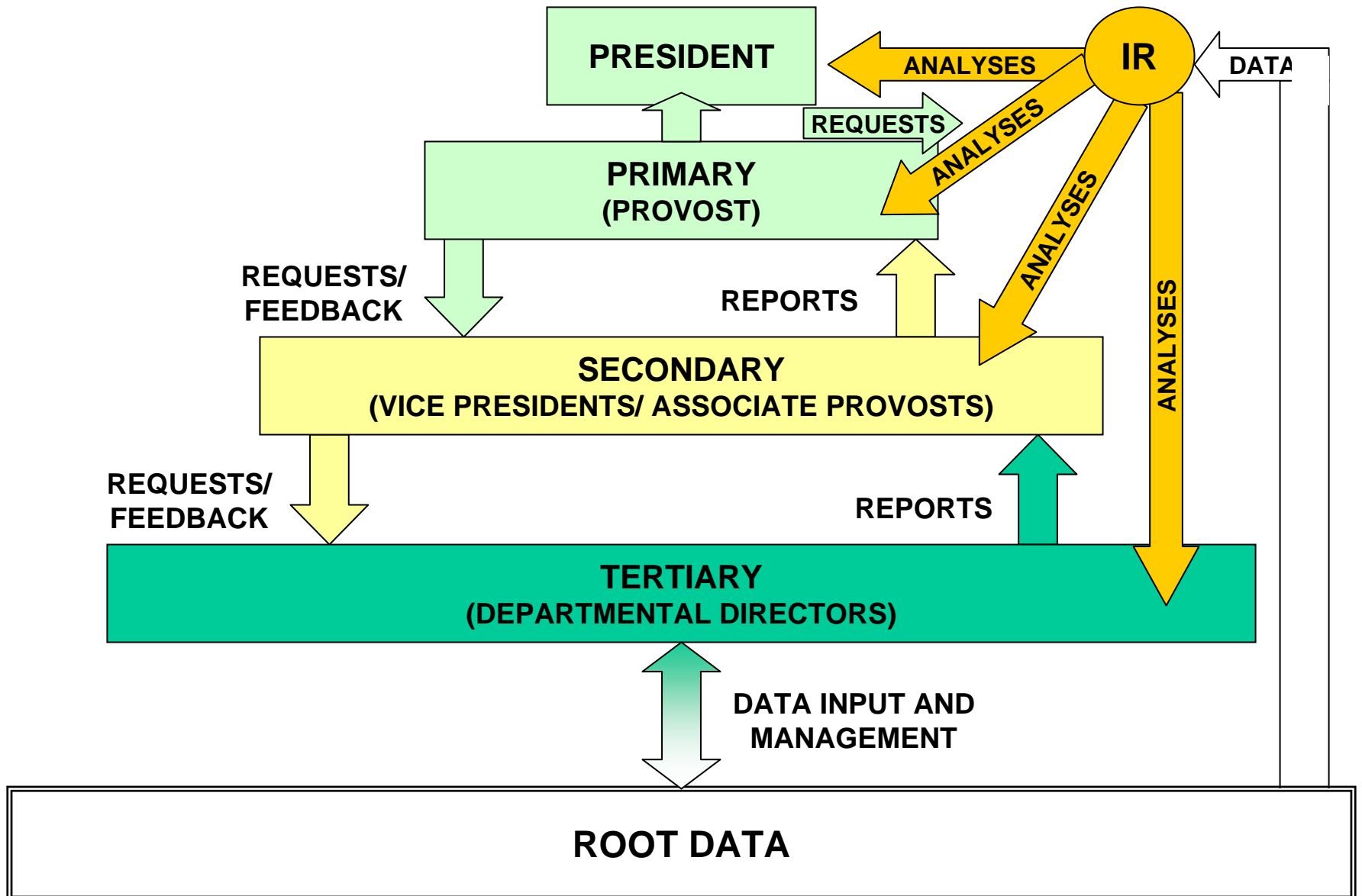
INSTITUTIONAL RESEARCH OFFICE – PROACTIVE MODEL

University's "Think Tank"



INSTITUTIONAL RESEARCH OFFICE

Strategy Driven Independence



Organizational Variables Influencing IR

“Institutional Power”

- **Communications flows** from IR upward and outward, to whom DII flows, and what these **clients** do with the information are important organizational conditions enhancing or limiting the impact of the office and its output.
- Conditioning the **placement** of IR in the organizational hierarchy, and the **bundles of functions** performed are **institutional characteristics** such as size, public-private, and age.
- The higher up in the **administrative hierarchy** the office is attached the greater the power
- The more **data flows** (e.g., student, faculty, financial, R&D) **aggregated by IR**, the greater the power
- The greater the **access to multiple data sets** the greater the power (research functions)
- The more **integrative** the office is in **providing intelligence** as opposed to data the greater the power.
- The more **exclusivity** of IR to data the greater the power. Conversely, **the more data providers** there are to senior management, the lesser the power of IR.

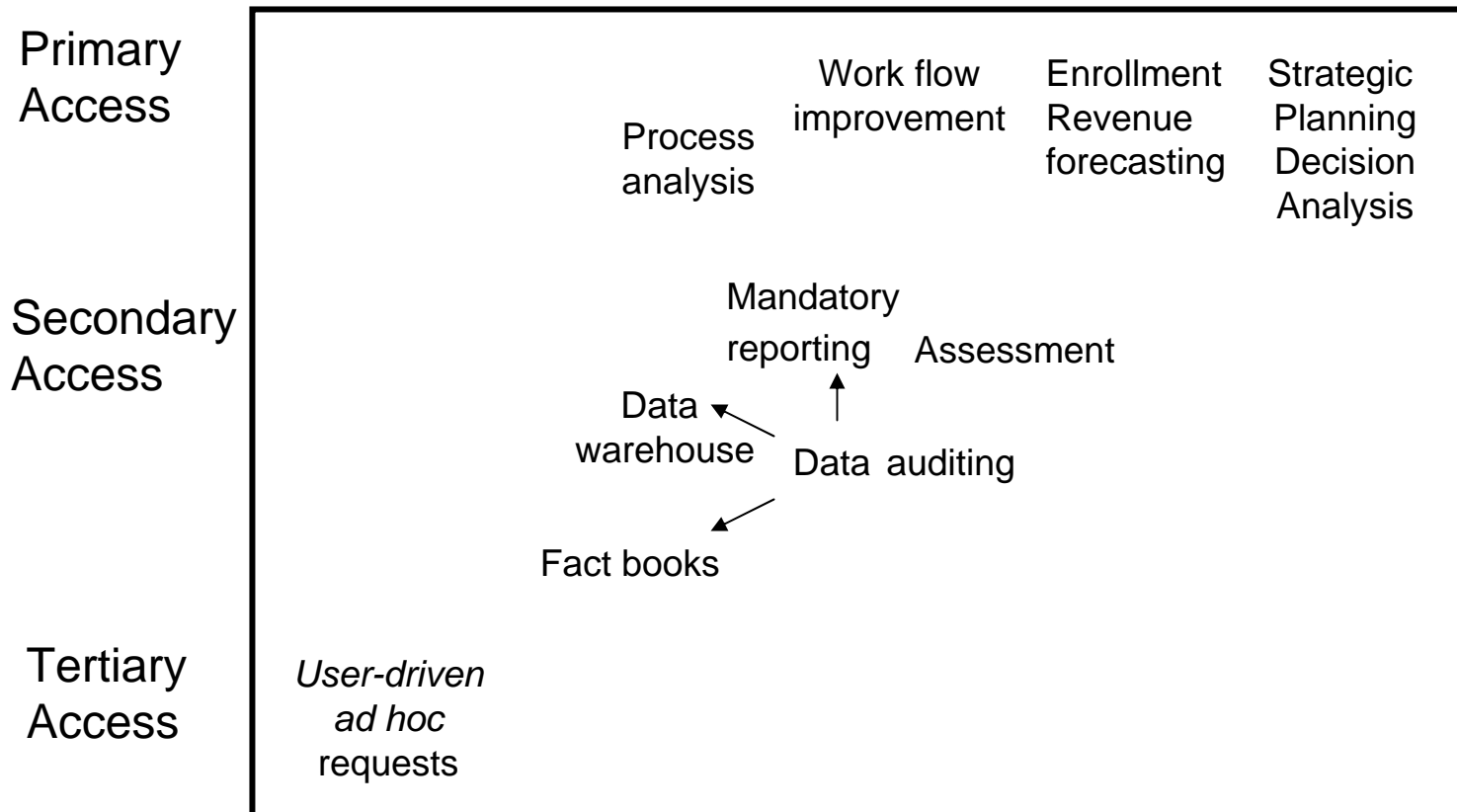
Organizational Variables Influencing IR

“Institutional Power”

- The **more transparent and distributed** the data and information are, the greater the power of IR. Conversely, the fewer the number of faculty/staff with access the less the power of IR.
- The greater the **power of the faculty** in running the institution the lower the power of IR.
- The more the **loci of organizational power** is distributed to academic units, the more decoupled the technical cores are from the central administration, the lower the power of IR.
- Conversely, the greater the power lodged in the **managerial and administrative culture** the more likely that IR will have more power.
- The greater the **perceived technical competence** of IR staff, the greater the power.
- The **higher the demand for accountability** by external stakeholders, the great the power of IR.
- Collaterally, the closer the institution is to **important accreditation**, the higher the power of IR.

REPORTING STRUCTURE AND RESPONSIBILITIES OF VARIOUS INSTITUTIONAL RESEARCH OFFICES

R
E
S
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C
E
S



Passive Supportive Interactive Proactive

PRIMARY FUNCTION(S)

PARADIGMATIC TENSIONS AND I.R.

Collegial

Managerial

Undergraduate students	Learners	Customers; credit hour generators
Graduate students	Apprentices	Employees
	Learners	Customers; “Employees who provide service for other customers (undergraduates)”
Faculty	Researchers and teachers	“Revenue maximizers and value creators”— production employees
	Tenured and on-track	“Contingent” jobbers, itinerants
Universities	Publicly supported good	Privatized “capitalized” business
	Learning centers	Managed professionals

COLLEGIAL INSTITUTIONS: Idealized Type

1. Rely on tradition, precedent and informal power structures.
2. Faculty Driven Policies.
3. Emphasize equality of faculty standing, thoroughness of deliberation, consensus building, lengthy time frame for decision-making.
4. President “first among equals” who relies on expertise and relationships as opposed to coercion and rewards to bring about incremental change.
5. The external environment is sealed off from the internal, which tends toward being a closed system.
6. Relatively small in size and unlikely to have professional schools.
7. IR’s role: Buffer the Technical Core from the Outside

BUREAUCRATIC INSTITUTIONS: Idealized Type

1. Likely to be of mid-size, community college or state university.
2. Emphasis on job descriptions, reporting lines.
3. Partitioning of Authority. Delegation of administration.
4. Rational planning, equity, fairness, competency-based rewards are examples of idealized goals in such a system.
5. Friction between bureaucratic administrative controls and professional (faculty) governance.
6. Role of IR: buffering + measuring efficiencies, effectiveness, outcomes as defined by location in organization

Bureaucratic control may be more effective at institutions where fewer faculty have doctorates, have weak professional ties, and low expectations of involvement in decision-making (Birnbaum, 1988: 127).

From a managerial point of view IR should gather data to answer questions like:

- Do educational outcomes suffer when faculty teach a three course load versus a two course load?
- Do students exposed to a tenured faculty member learn more than a student exposed to a non-tenured member and/or a part time lecturer?
- Do educational outcomes suffer from instruction delivered by on line, on demand courses as opposed to classroom instruction?

From a faculty point of view, while such questions *may* be interesting, they challenge fundamental values of the academy.

**FOR DATA TO HAVE ANY IMPACT IT MUST BE
WIDELY AND ACTIVELY DISSEMINATED ACROSS
ALL STAKEHOLDERS.**

- 1. What data and information will most effectively support the stated objectives of the institution given the technical system and the characteristics of the environment?**
- 2. How best to achieve the widest possible dissemination, accountability and actionable consequences?**

Effects on Traditional Structures

- Data-driven management is an acid—cutting across traditional organizational lines and prerogatives.**
- As information becomes more distributed and outcomes more transparent, hierarchical and divisional barriers often become stressed.**
- When data as opposed to tradition, policy or politics is used to drive decisions, there often ensues a need for rethinking taken-for-granted areas of university life.**

Effects on Institutional Research

- 1. Data auditing, cleansing, passive reporting will continue to be the foci because these routines are essential to buffering the Technical core--the # 1 function of IR.**
- 2. Structural variables influence the degree to which an IR office can have any impact on the technical core of the university. IR is seen as an arm of the managerial culture unless IR actively involves faculty constituencies.**
- 3. Even so, internal impact is more likely in areas not threatening to the collegial value/behavior system (e.g., facilities management, admissions workflow improvements).**
- 4. Much of the most important information produced by IR will never make its way to the “Fact Book.”**