Why Does IT Cost So Much?

Problem

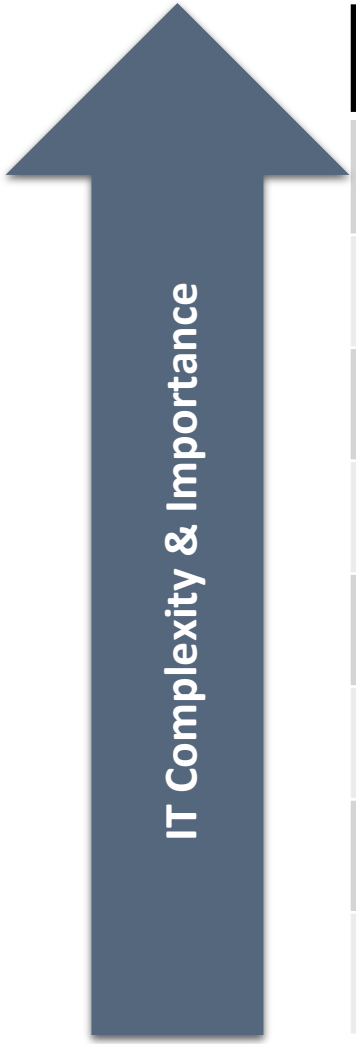
University IT budget demands continue to grow

- Era of greater cost scrutiny
- Expanding IT demand appears counterintuitive

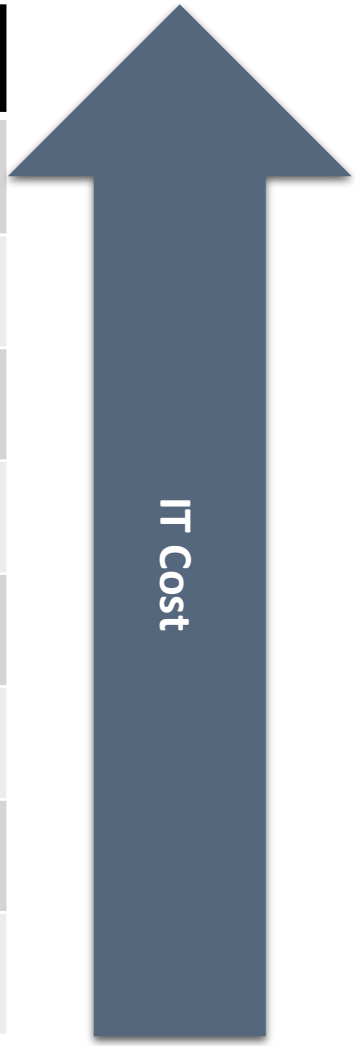
Senior university leaders asking why

- Simple answer: IT costs growing because it is used more
- Full answer: controllable and uncontrollable forces

Background

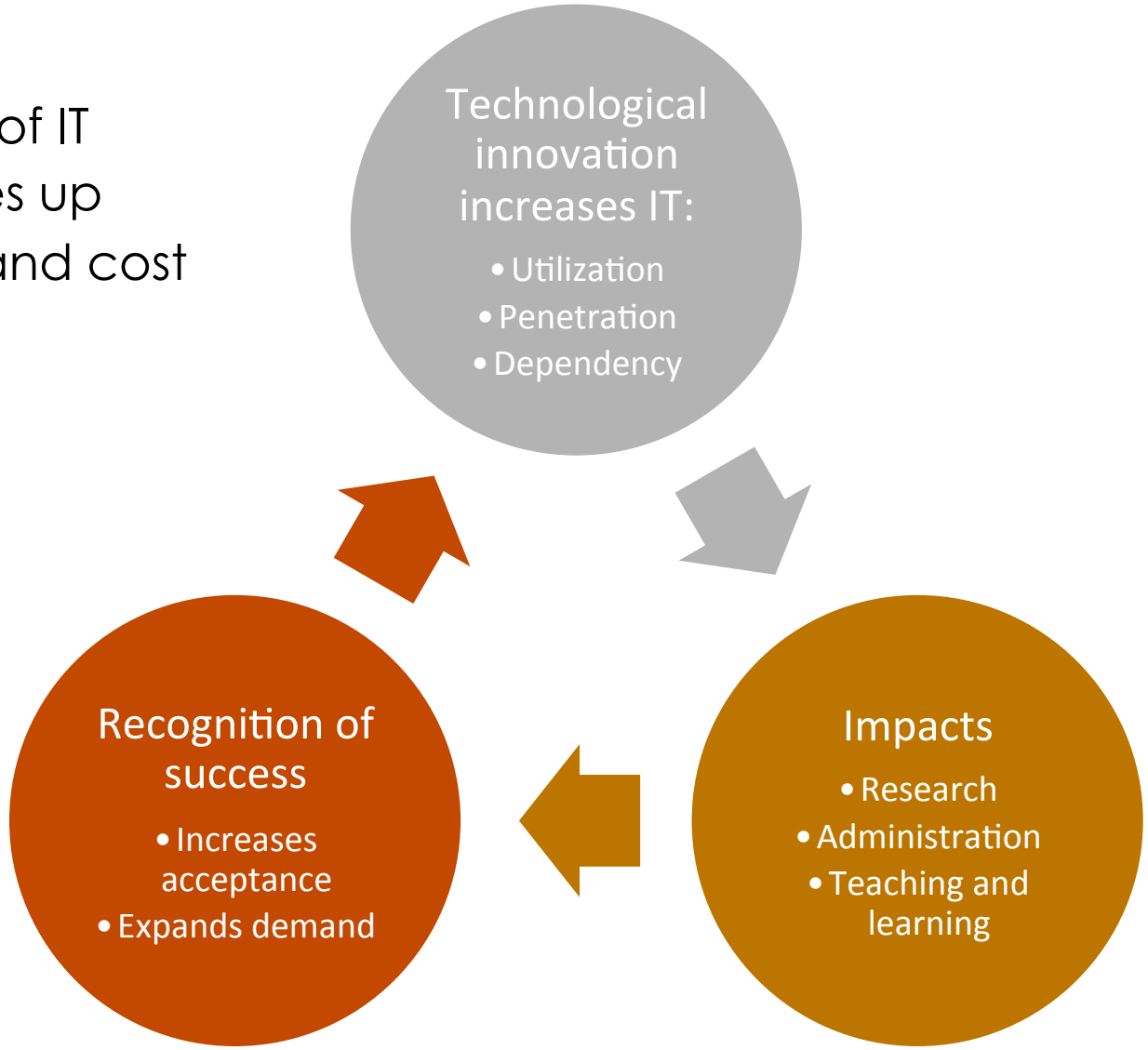


Timeframe	Characterization
Today	Ubiquitous
5 years ago	Mission critical
10 years ago	Growth enabler
15 years ago	Competitive advantage
20 years ago	Innovation driver
25 years ago	Operational necessity
35 years ago	Useful
45 years ago	Interesting



Virtuous Cycle

Importance of IT directly drives up complexity and cost



Uncontrollable Drivers of Cost Growth

Background

- Factors outside the university
- Strive to manage their impact:
    - On our bottom line
    - On our clients' expectations

Breadth of Demand

- Information systems used by everyone on campus
- Everything we do is impacted by IT
- Every process on campus has a direct or indirect IT component
- Stakeholder expectations assume high quality

“Strategy 101 is about choices: You can’t be all things to all people.”

- Michael Porter

Depth of Demand

- Not only are we using more systems, but we are using more devices to access those systems
- Average person brings 1½ IT devices on campus
- IT must keep the response time fast while seamlessly supporting all points of access

One size fits none.

Increasing Compliance Demands

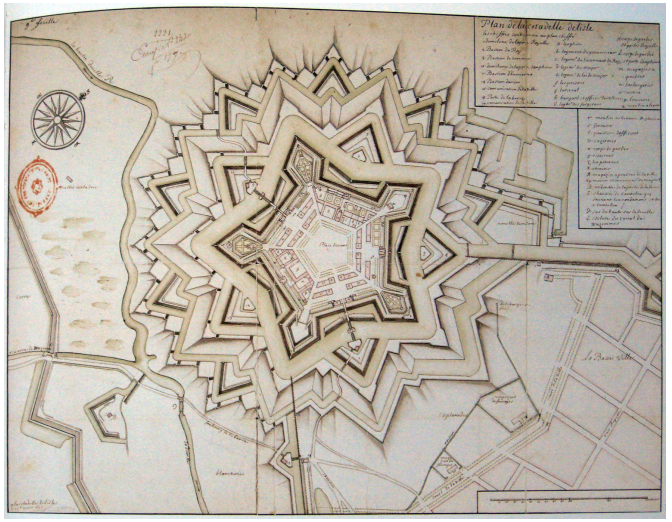
- Increased demand for information systems to support legislative compliance
  - Privacy
  - Copyright protection
  - Freedom of information
- New layer of cost and complexity

Can't implement a new system without a lawyer …

or a team of lawyers.

Increasing Security Demands

- IT world is an increasingly dangerous place
- Hacking has transcended simple acts of theft into high-stakes criminal cyber-attacks
- Attacks are coming from inside and outside our institutional boundaries
- Security protection requires artificial intelligence tools to detect attacks inside the perimeter
- New layers of security are vastly more complex and expensive



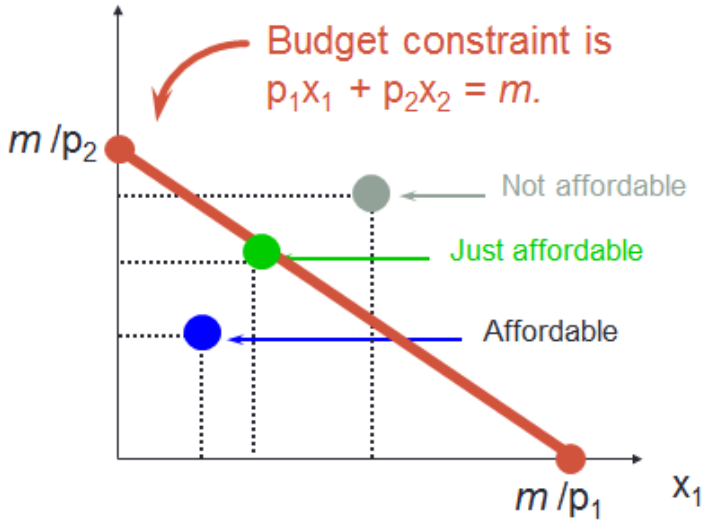
Technology built by humans will be surpassed by humans.

Any Device

- Increasing demand to support whatever technology the client desires is expensive
- We used to set some base standards for personal computer access to our network
- Our clients no longer tolerate that approach
- Now we have to install infrastructure and software to support every device imaginable

Any Time

- IT department budgets were established at a time when information systems were accessed during regular business hours
- Today, accessibility to systems is expected 24-hours-per-day, 7-days-per-week
- Not only is availability demanded, but round-the-clock staff support is required
- This broadening of system and support availability requires more money to implement and sustain

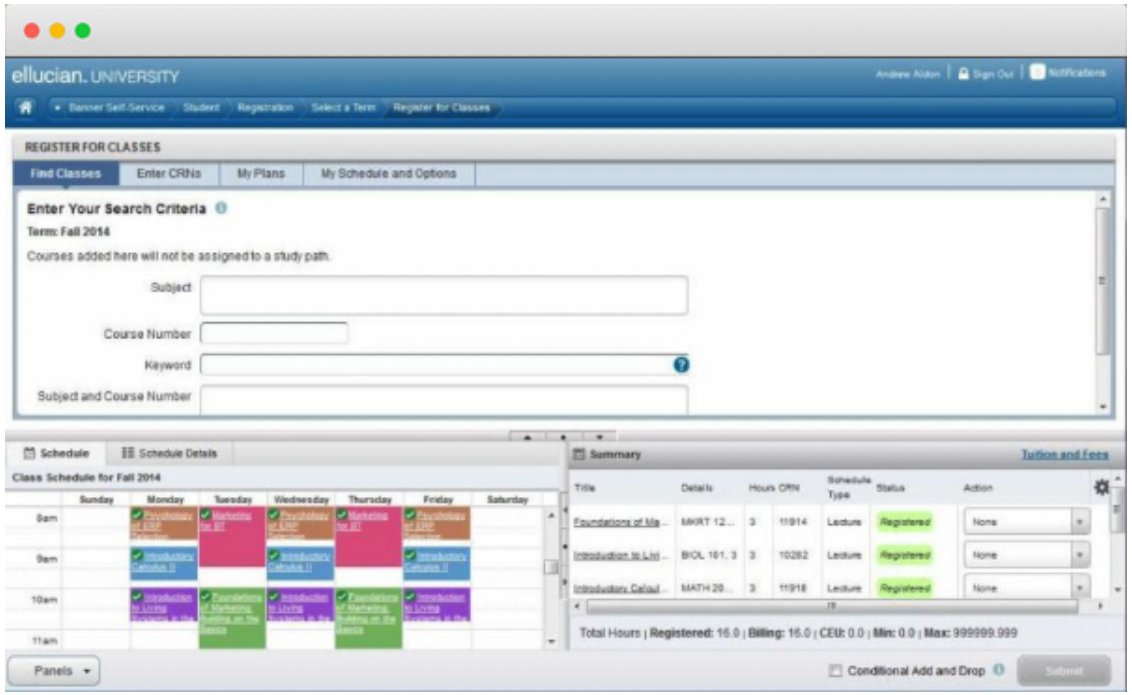


Note: not rocket science.

Any Place

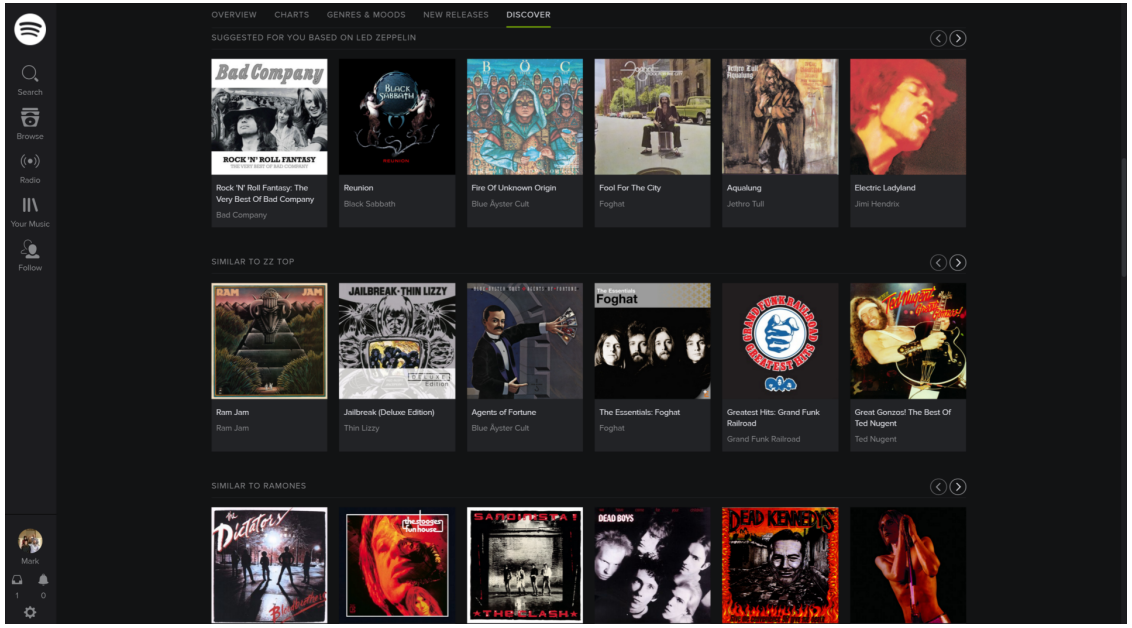
- IT departmental budgets were established to support systems within the physical boundaries of campus
- Distributed learning, distance education, and multiple campuses across the globe now require access to all of our systems from anywhere
- Building technical infrastructure to support the networking demand of this new world increases IT capital and operating costs

"Queen's has instant brand recognition in Canada. In Bangalore it is meaningless."



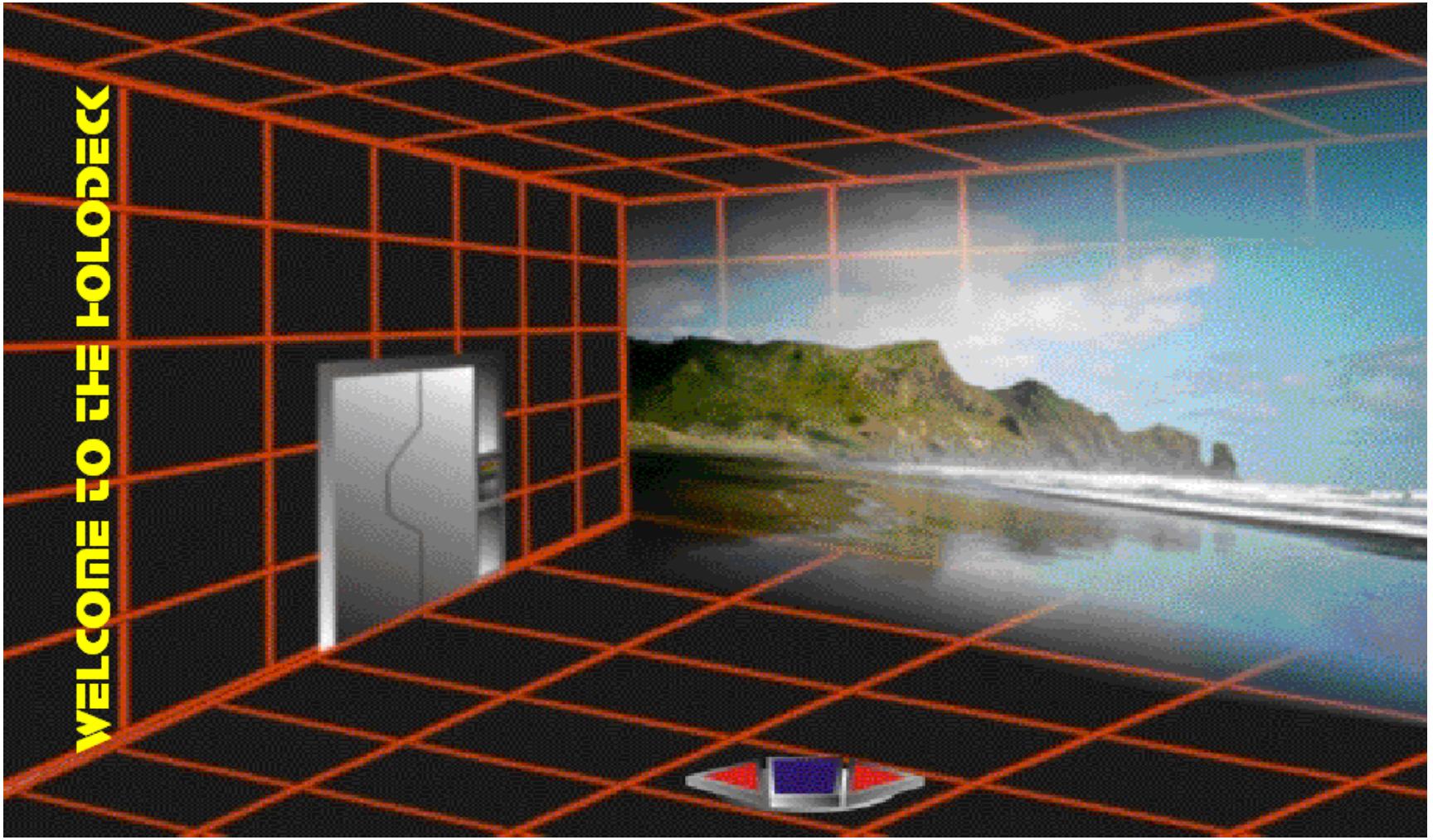
Banner Course Search

"Your systems suck."



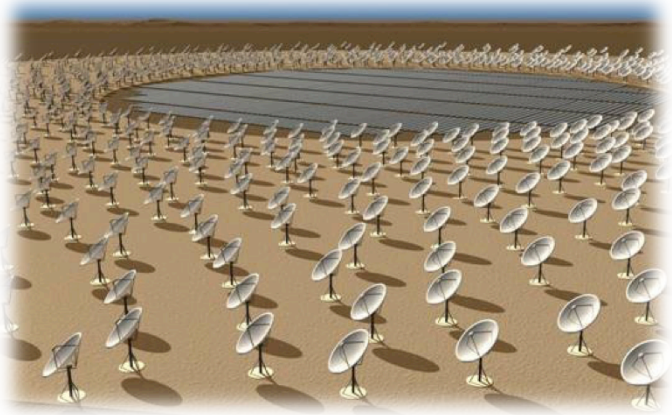
Spotify Music Search

New Teaching & Learning Tech



Exponential Research Data Growth

- Research data demands driven by changes in the nature of research computing
- For example, research using sensor networks leads to huge growth in data
- Store the data, transmit it, and back it up
- Growth in data demand is outpacing Moore's Law and driving up costs



Square Kilometer Array research project will store 1,500 petabytes/year.

Controllable Drivers of Cost Growth

Background

- Factors inside the university
- Veiled and protected by:
  - Myths
  - Rumours
  - Assumptions
  - Culture

Distributed IT

The growth of independent, isolated, and silo IT groups that are separate from central IT lead to:

- Duplication of efforts
- Ineffective standards
- Conflicting technologies
- Highly risky security incidents

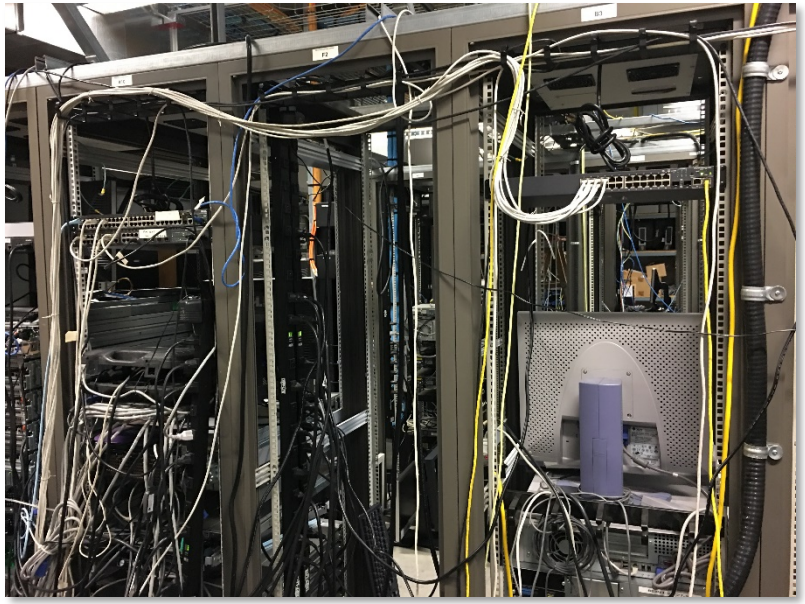
Expenditures for decentralized IT are often higher than central IT:

- Typical rigour and control of IT costs not applied
- IT not managed by experienced IT leaders
- Costs not assessed in a portfolio
- Costs not treated as investments

Distributed IT

Approximately 20% of data centre floor space on campus is managed by distributed IT

At least 30% of SFU IT staff are not part of central IT



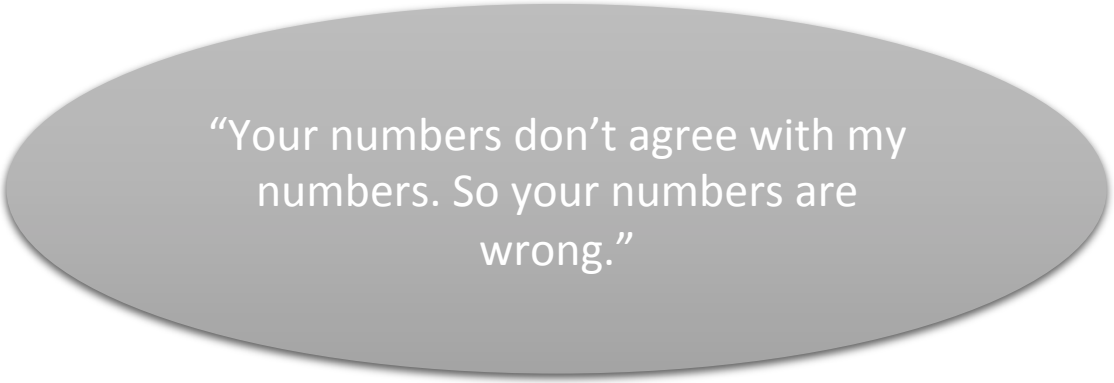
Redundant Systems

- Distributed IT responsibilities leads to the implementation of independent IT systems
    - No coordinated plan
    - No enterprise architecture
- Creates overlapping and redundant systems
- Disproportionate cost increases are needed to fund the inefficiencies

One of each.

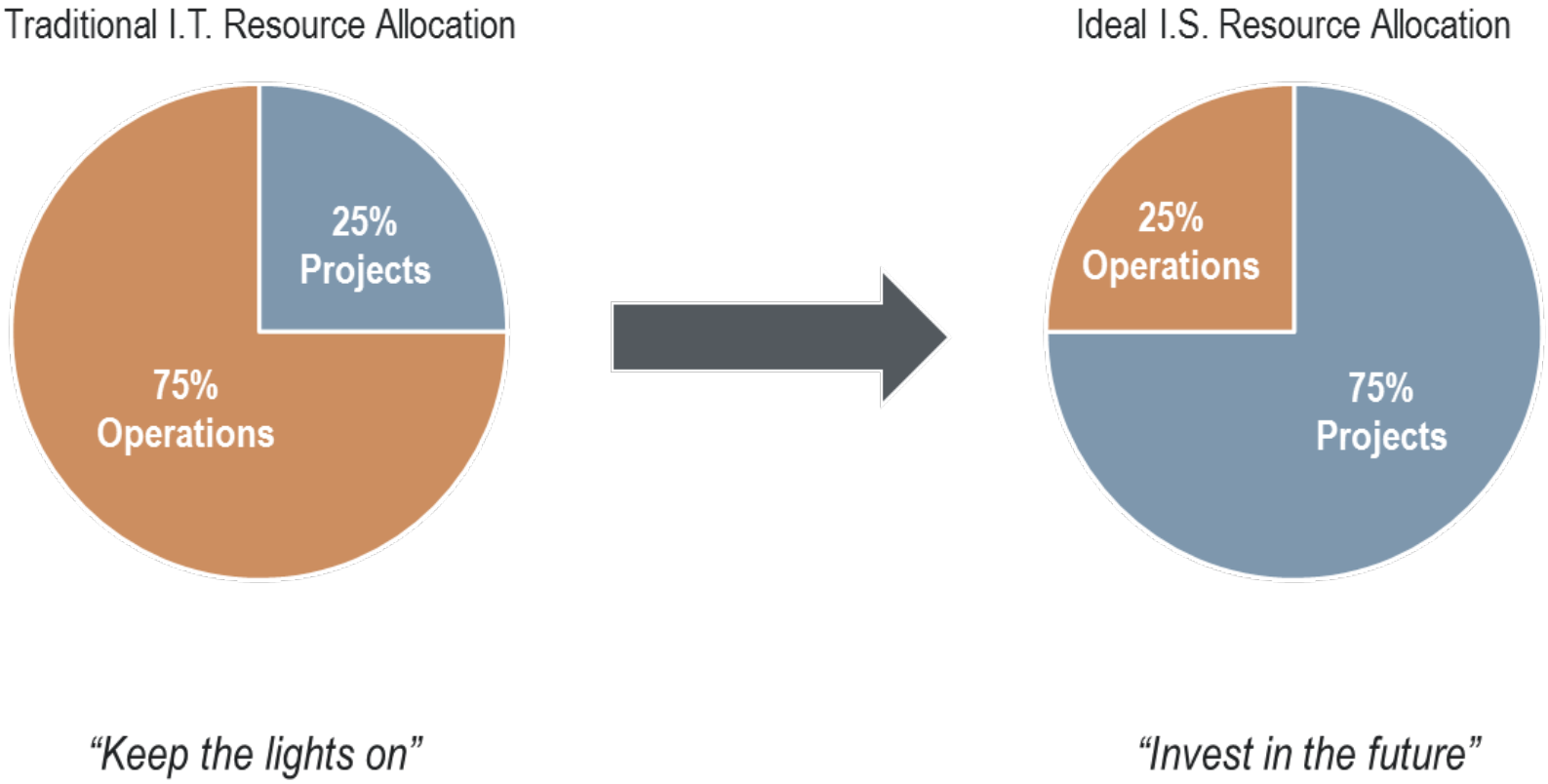
Data Integration

- Data created by distributed IT departments and disparate systems cannot be integrated effectively
- With multiple sources of data, there is duplication and redundancy in each of these systems
- Resolution of data conflicts among multiple systems or multiple IT departments is expensive



What to Do About It

IT is an Investment



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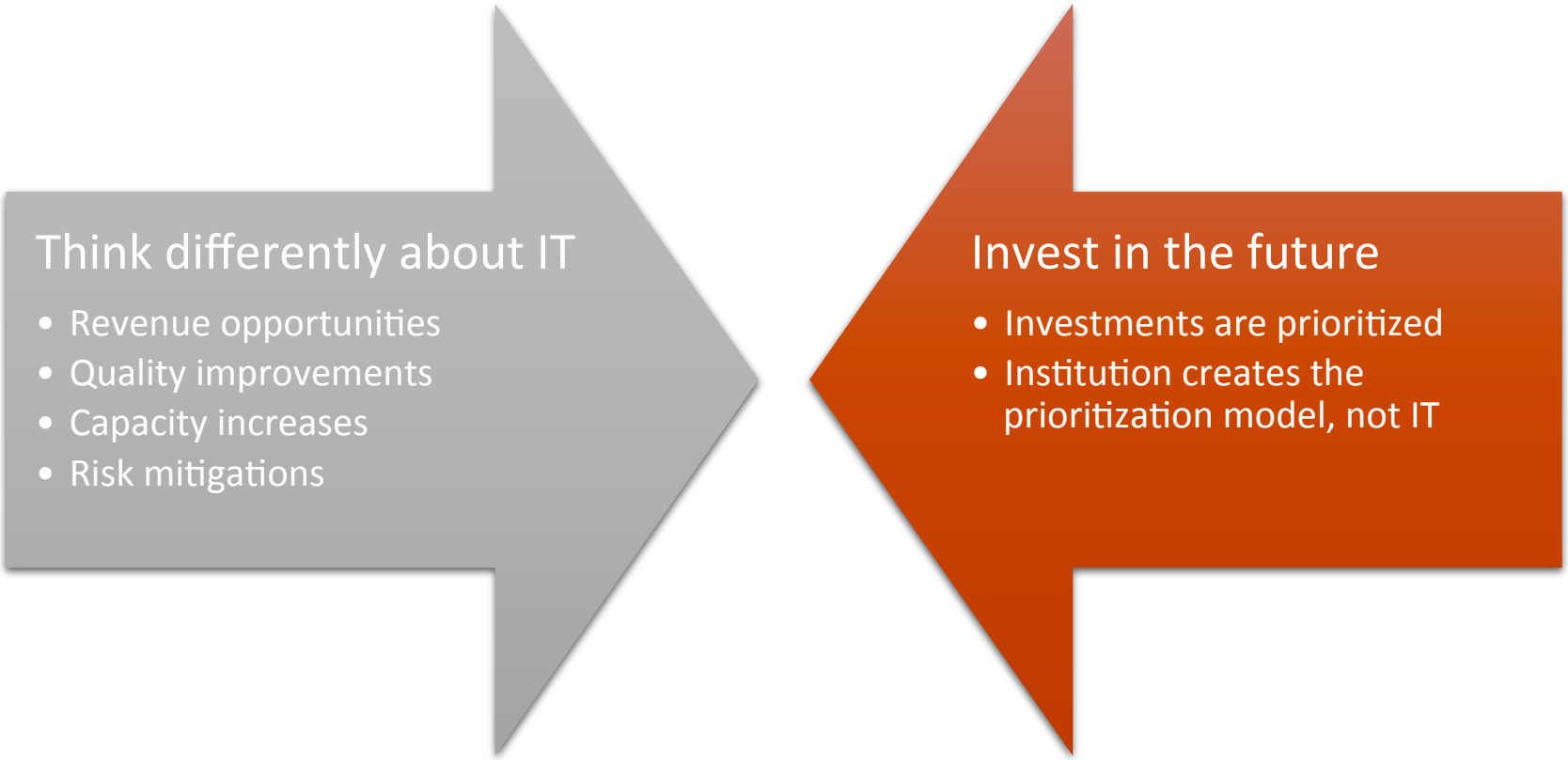


Find the Real Costs

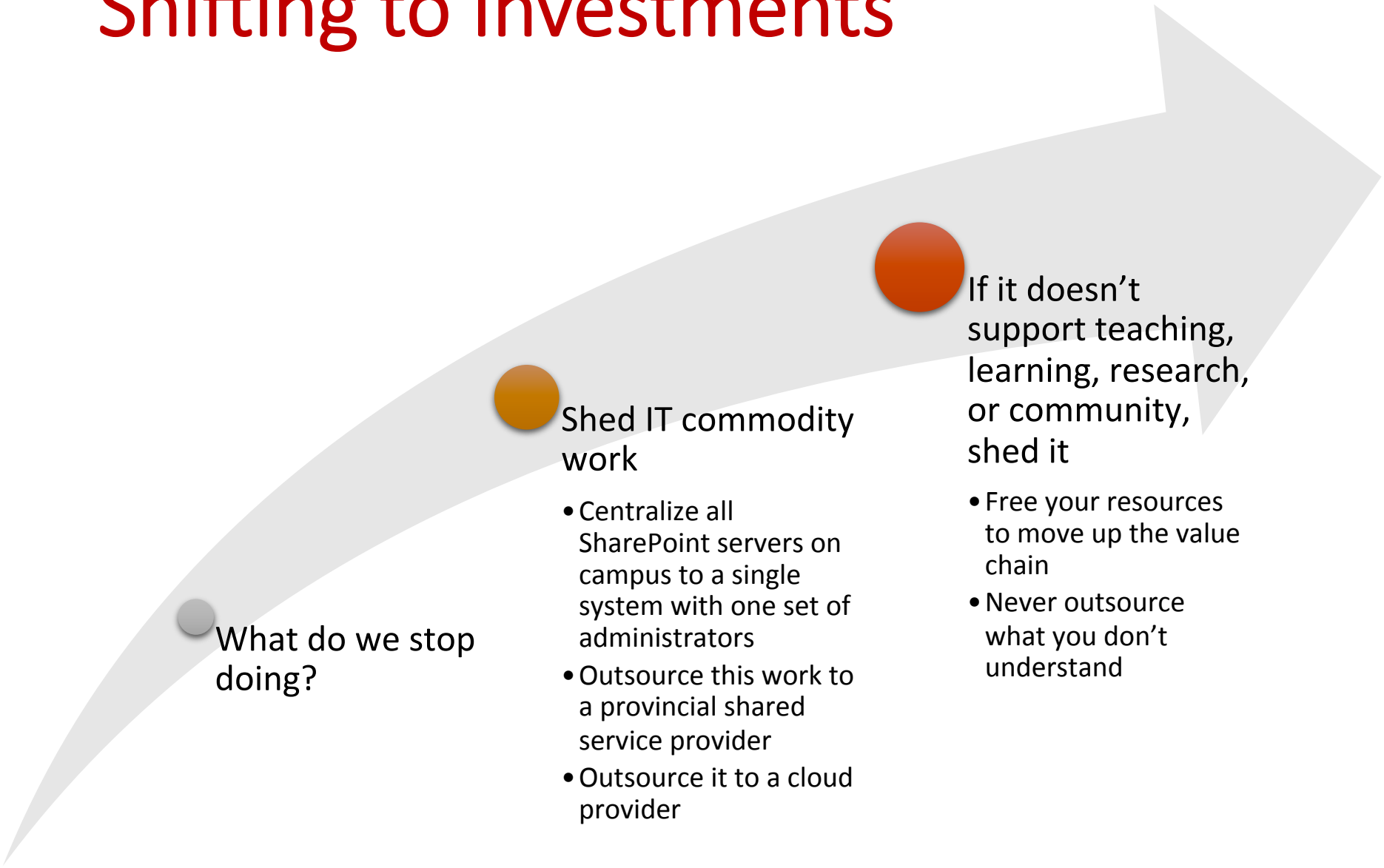
Replication of services

- “We have approximately 5 to 15 event management systems.”
- “Why have one CRM when we can own them all?”

Converged technologies not managed by converged organizations

- Classroom IT and AV not reporting to same leader

Shifting to Investments



Shifting to Investments

- Changing perspective of IT as cost vs. investment
    - Requires cultural shift
    - Achievable through stewardship model, not governance

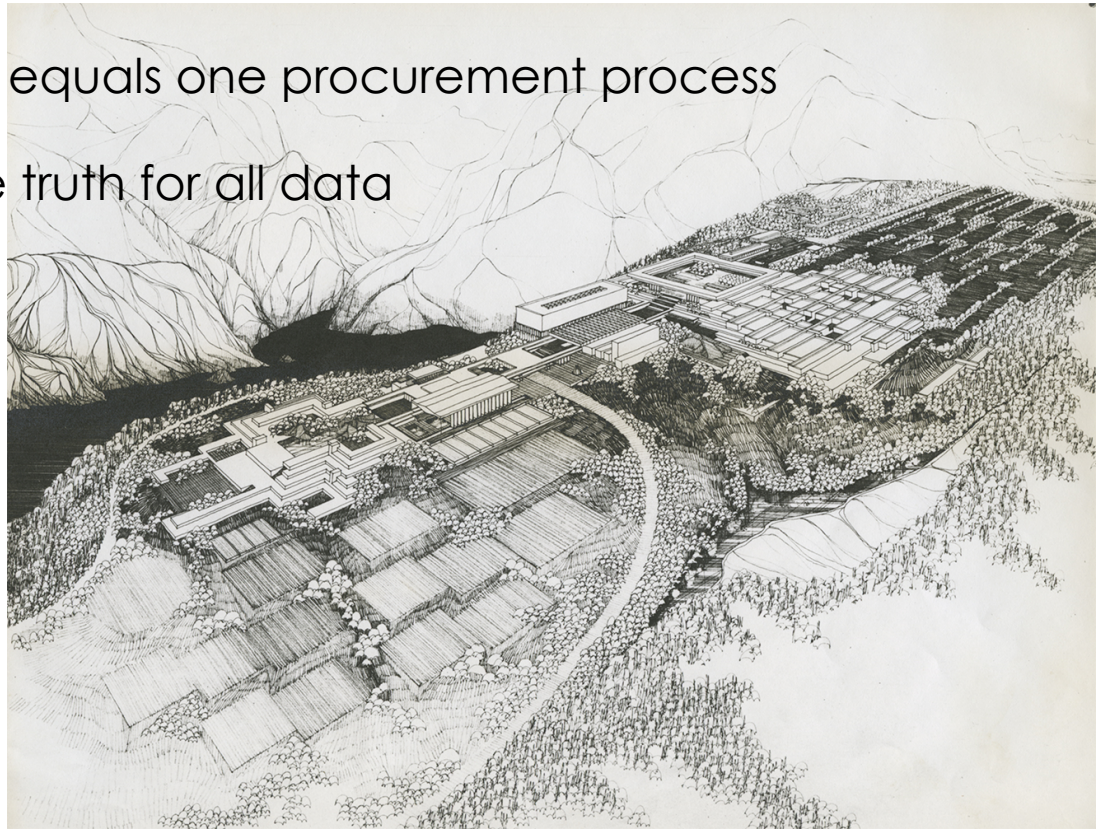
- When IT is viewed as an investment
    - Each project is an individual value proposition
    - Approved projects have positive ROI
    - IT projects are no longer bottom line expenses
    - IT projects are opportunities to create products or services where the benefits exceed the risks and costs

Top 5 Best Practices

Shift to a Common Infrastructure	Move to a single, common infrastructure for all information systems at the institution.
Leverage Shared Services	Work with existing provincial and national higher education service providers. Support and encourage development of these services.
Outsource to the Cloud	Shift commodity services to the cloud when the full business case is beneficial and the service is trustworthy.
Review for Currency	Review all information systems contracts as if they were being signed today. What should be changed?
Measure and Rationalize	Measure the performance and utilization of the university's information systems. Stop investing in low-value products and services.

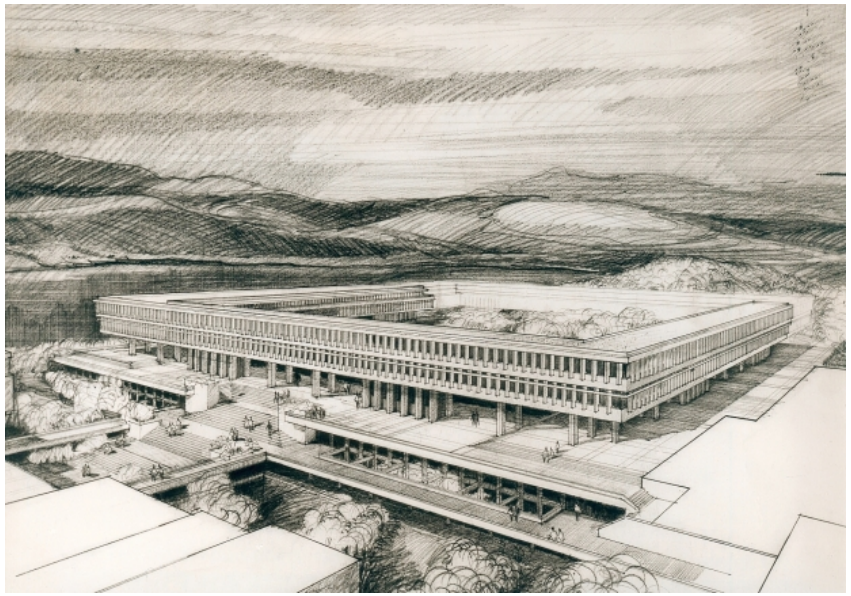
Maximize Value of IT Investments

- Common infrastructure
  - Local support / enterprise leadership
  - Diplomatically difficult
  - One IT department equals one procurement process
  - Single source of the truth for all data



Maximize Value of IT Investments

- Shared jurisdictional services
    - Leverage economic model for cost reduction pioneered by NYSERNET
    - Extrapolate concept of bandwidth sharing to other IT services (e.g. ORANs)
    - Pioneer above the network services (e.g. CANARIE)



Maximize Value of IT Investments

- Cloud computing = outsourcing economic model
  - Significant costs savings in some commodity IT services
  - Requires a careful business case
  - Assesses the quantitative and qualitative benefits against the long-term risks and hidden costs

Maximize Value of IT Investments

- IT contracts
  - Written once and then ignored
  - What software was purchased years ago in a bundle that is no longer being used?
  - Has staff, student, or faculty headcount declined?
  - Vendors do not always feel obliged to notify customers when billing could decrease

Maximize Value of IT Investments

- What can the university stop doing?
  - Develop metrics such as tracking usage rates of technology over time
  - Ratio of the number of users of each technology to the operating cost of that technology
  - Justify shutting down or outsourcing technologies that are not providing an appropriate ROI

Conclusions

Why & What

Why does IT costs so much?

- Outside world continues to demand more IT services from universities
- Institution are diplomatically delicate in their treatment of controllable IT costs

What we do?

- Manage expectations from the outside
- Apply leadership, strategy, and discipline to information systems management within the institution
- Create a vision that supports the world of ubiquitous IT

ONE I.S.

PEOPLE, PROCESS, DATA, & TECHNOLOGY