GIS Organizational Structures

Pierre Lemire
CTO
Autodesk

Michael Schlosser
Manager, Special Projects
Autodesk

autodesk®

Abstract

Organizational structure is an important element contributing to the success or failure of a GIS implementation.

People, workflow and technology are major factors contributing to organizational structure. Conversely, the way an organization is structured also influences the way people interact and work within that organization and determines the effectiveness of workflow and technology in addressing the organization's business drivers.

This presentation discusses the importance of organizational structure for a successful GIS implementation and reviews the role of people, workflow and technology in contributing to this success. The presentation concludes by describing approaches to organizational structure via several case studies.

autodesk®

autodesk®

Agenda

- Organizational Approaches
- Organizational structure and the role of:
  - Technology
  - Workflow
  - People
- Case Studies
  - City of Grande Prairie
  - City of Vancouver
- Observations
- Conclusions

autodesk®

The Need

"Our camp is so disorganized because we don't have a leader. We need to work as a team, and without a leader, we are not going to get it together,"

Jeanne Hebert
Team Jaburu
Survivor Amazon

The Need

"Our camp is so disorganized because we don't have a leader. We need to work as a team, and without a leader, we are not going to get it together,"

Jeanne Hebert,
Team Jaburu

Source: www.cbs.com

The Situation

- Clearly defined goals & objectives

- Willing and Enthusiastic participants

- Tools

- Abundance of resources

Outwit, Outplay, Outlast

Source: www.cbs.com

autodesk®

The Situation

- Clearly defined goals & objectives

- Willing and Enthusiastic participants

- Tools

- Abundance of resources

Outwit, Outplay, Outlast

Failure

Failure - Why?

- Lack of a clearly defined leader
- Lack of a clearly defined organizational structure
- Lack of "buy-in"

Aha!

autodesk®

Common Reasons for Failure
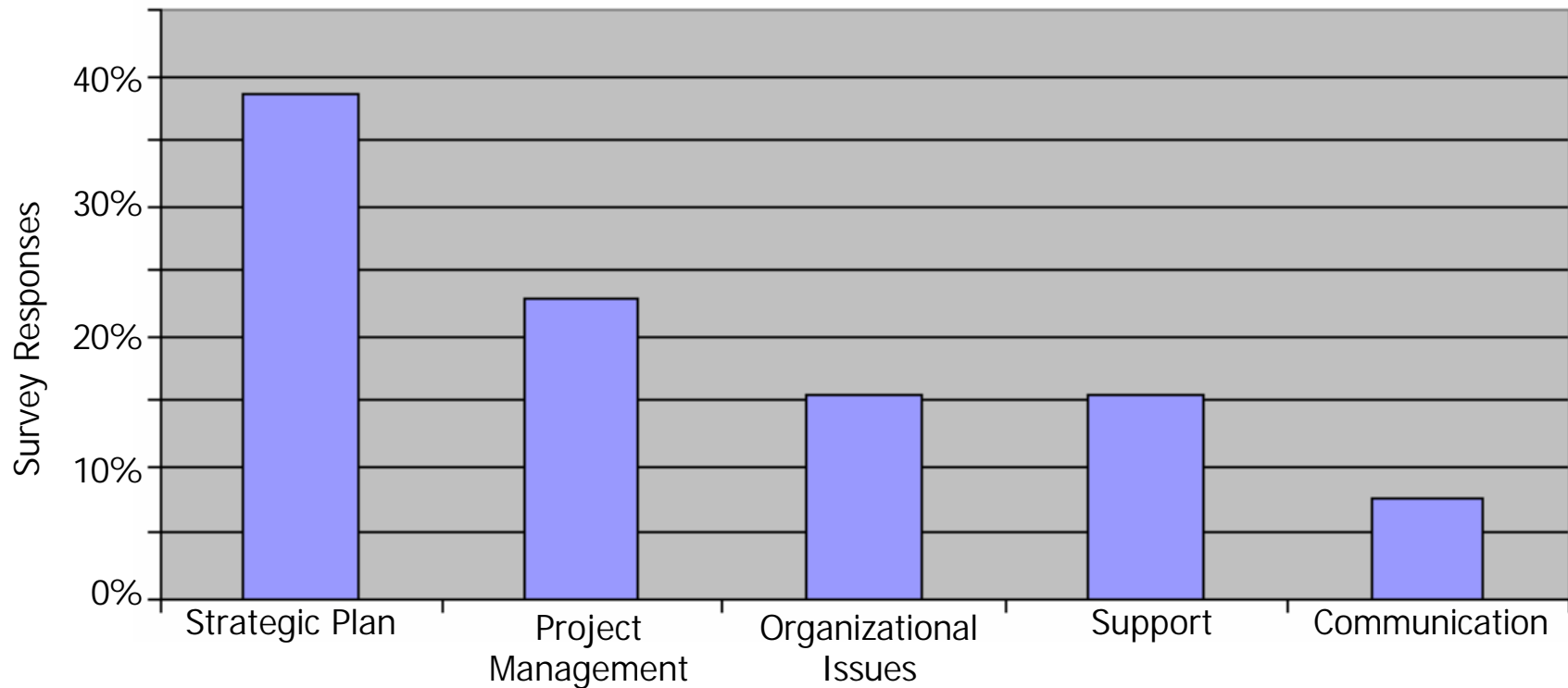
Source: Municipal GIS Implementation Planning and Strategies:
Evidence from North American Case Studies, Karen Lauritsen, May 2001

Importance of Structure

- Impacts effectiveness and efficiency
- Reduces redundant actions
- Promotes team work
- Improves communication
- Contributes to success/failure
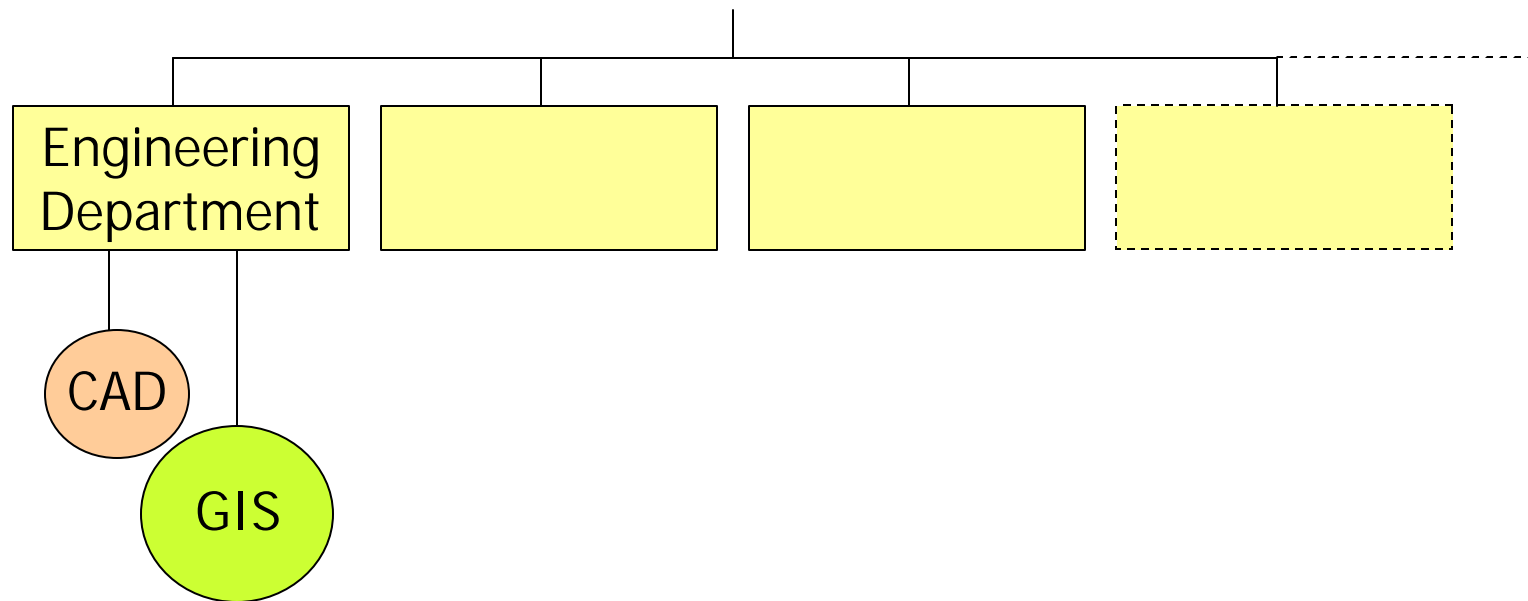
GIS Organizational Approaches

- ## Departmental
  (based on existing business unit)

- ## Multi Departmental

- ## Departmental
  (based on NEW business unit)

- ## Corporate

autodesk®

Departmental Approach
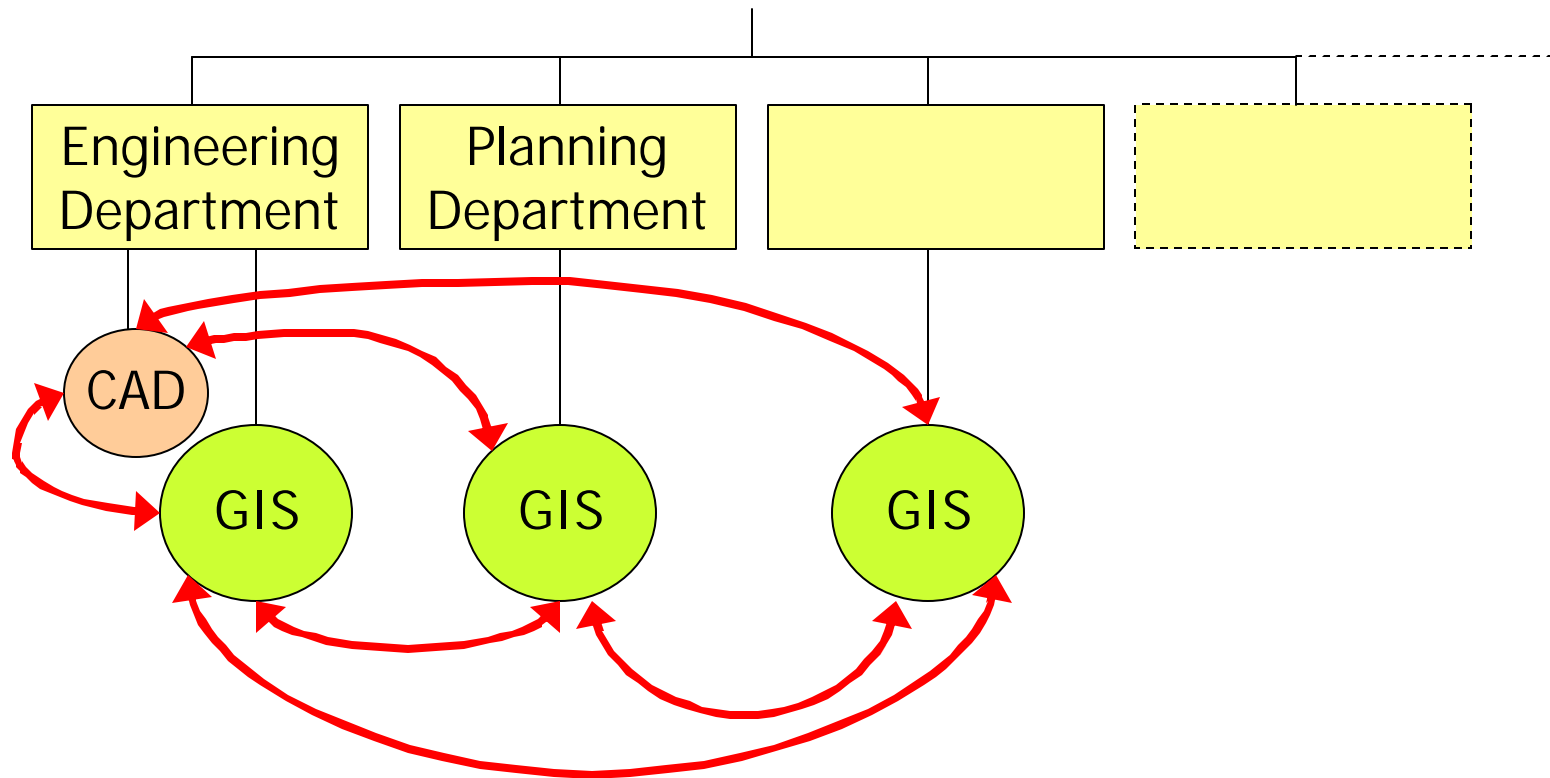
Existing Business Unit

autodesk®

Departmental Approach

Existing Business Unit

- Engineering/Planning departments typically the starting point for GIS

- Point solutions

- Satisfy departmental needs

- Minimal data sharing among departments

- Organizational structure predetermined by existing departmental structure

autodesk®

Multi Departmental Approach

Existing Business Unit

autodesk®

Multi Departmental Approach

Existing Business Unit

- Point solutions satisfying departmental needs
- GIS crosses departmental boundaries
- Need for increased data sharing, integration of data and applications
- Increased communication and coordination among departments
- Organizational structure predetermined by existing departmental structure

Departmental Approach

## NEW Business Unit

autodesk®
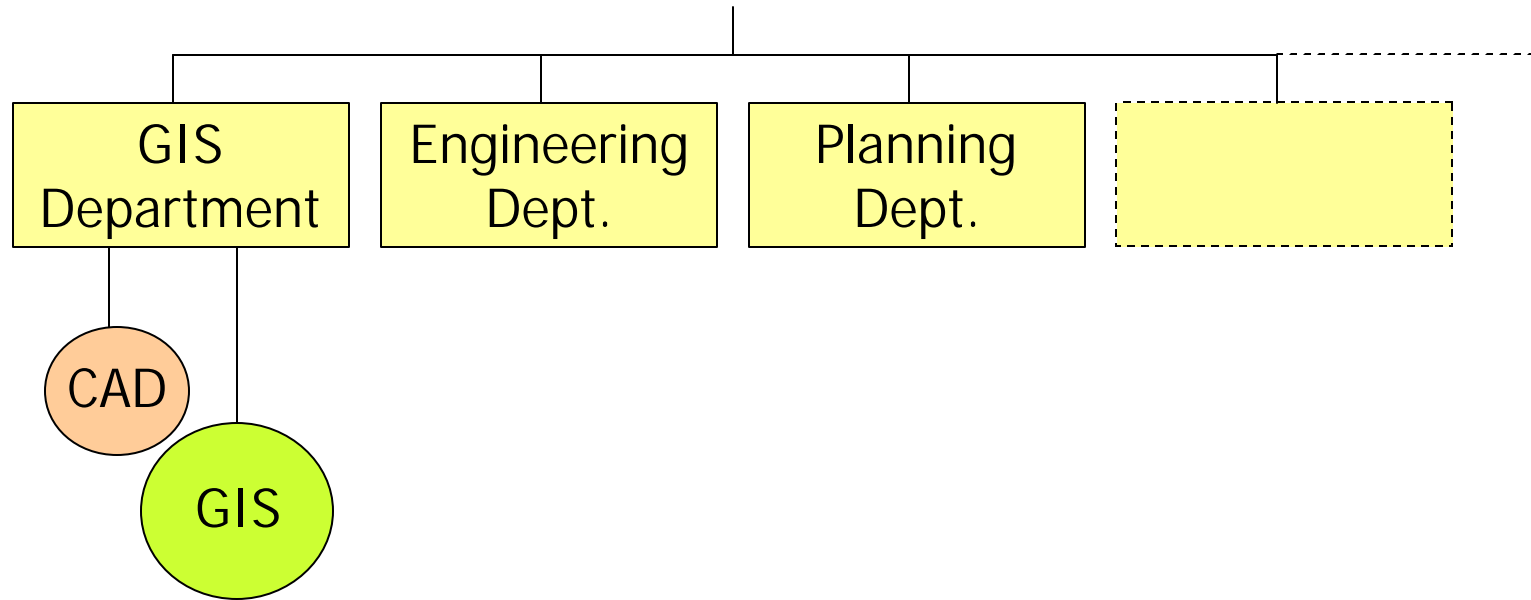
Multi Departmental Approach

NEW Business Unit

- Responds to corporate needs

- Focus on everything GIS

- Primary staff function able to address workflow and processes which are typically foreign to other departments.

- Autonomy allows for flexibility while maintaining interdepartmental relationships

- Improved visibility when competing for budget

autodesk®

# Corporate Approach
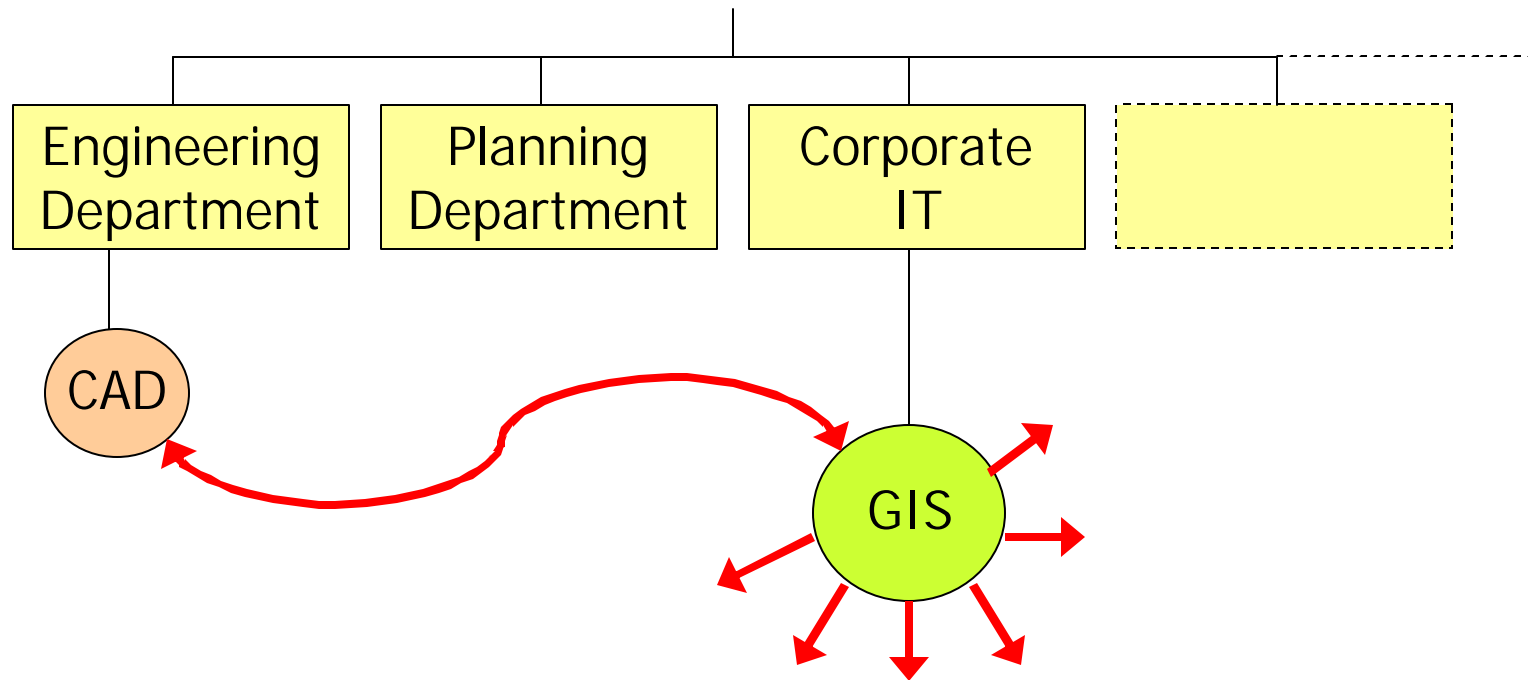
Centrally managed

Corporate Approach

- – Address corporate needs
- – Balance GIS resources across organization
- – Do more with higher budget, more staff
- – Need for corporate support but departmental representation
- – GIS crosses departmental boundaries
- – Interdepartmental teams are required
- – Sharing, coordination across organization
- – Influential departments may get more
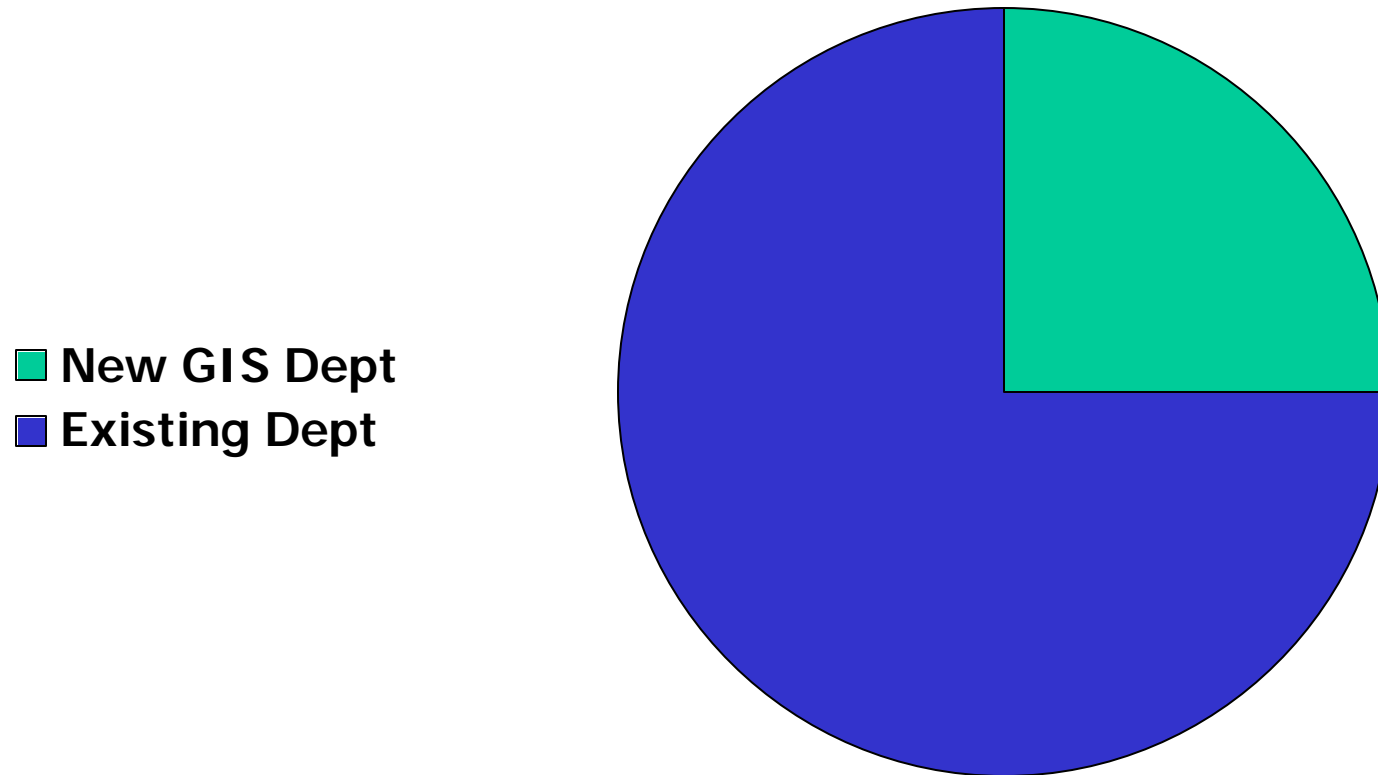- – May take longer to do things

autodesk®

Moving GIS into the Enterprise

- Moving from a departmental GIS to an enterprise GIS requires organizational change
- Corporate versus departmental
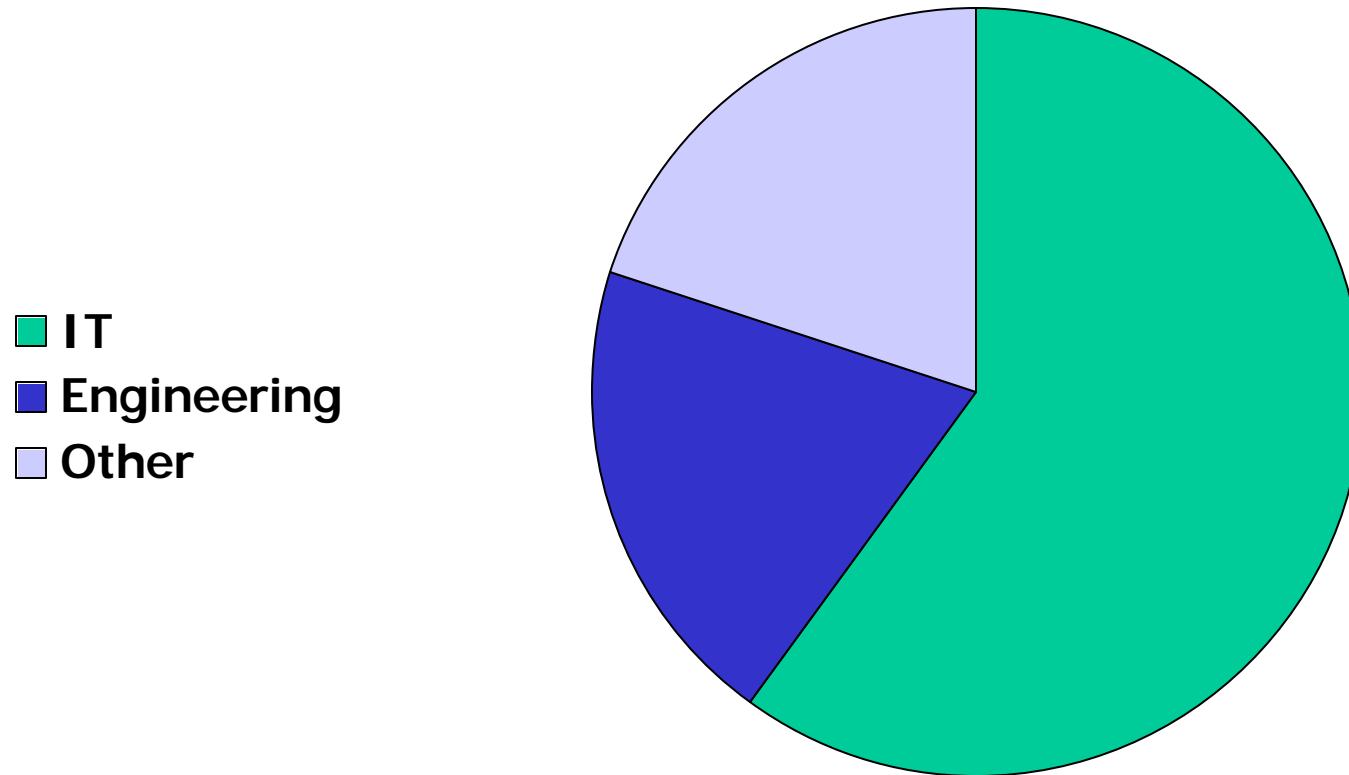- Centralized versus decentralized
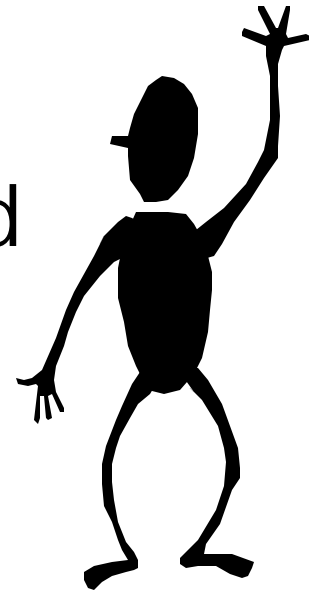
Observations

New Business Unit or Existing Business Unit

■ **New GIS Dept**
■ **Existing Dept**

Source: Municipal GIS Implementation Planning and Strategies:
Evidence from North American Case Studies, Karen Lauritsen, May 2001

autodesk®

Observations

GIS within Existing Business Unit
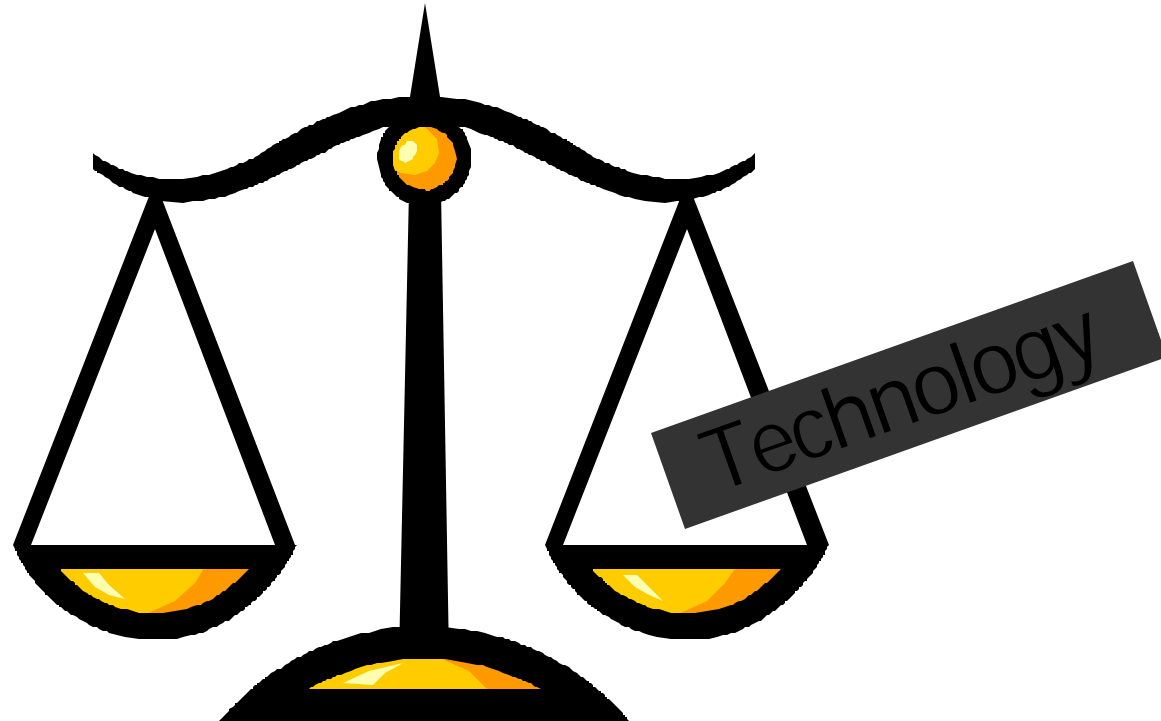
- ■ IT
- ■ Engineering
- ■ Other

Source: Municipal GIS Implementation Planning and Strategies:
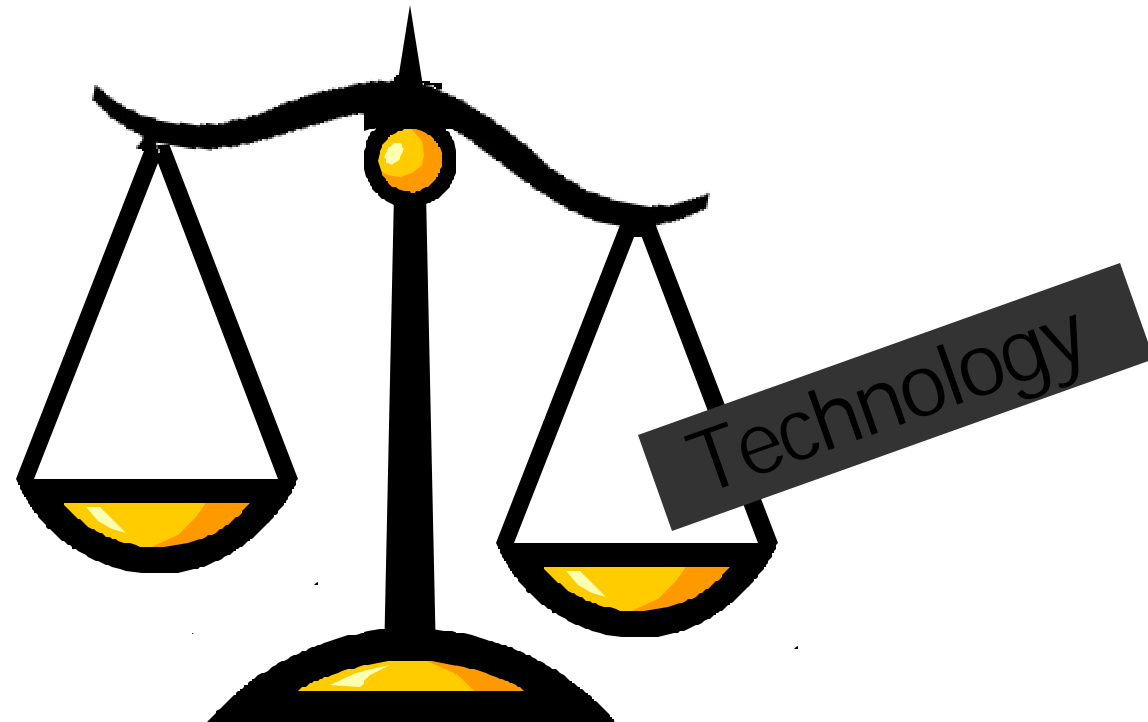*Evidence from North American Case Studies, Karen Lauritsen, May 2001*

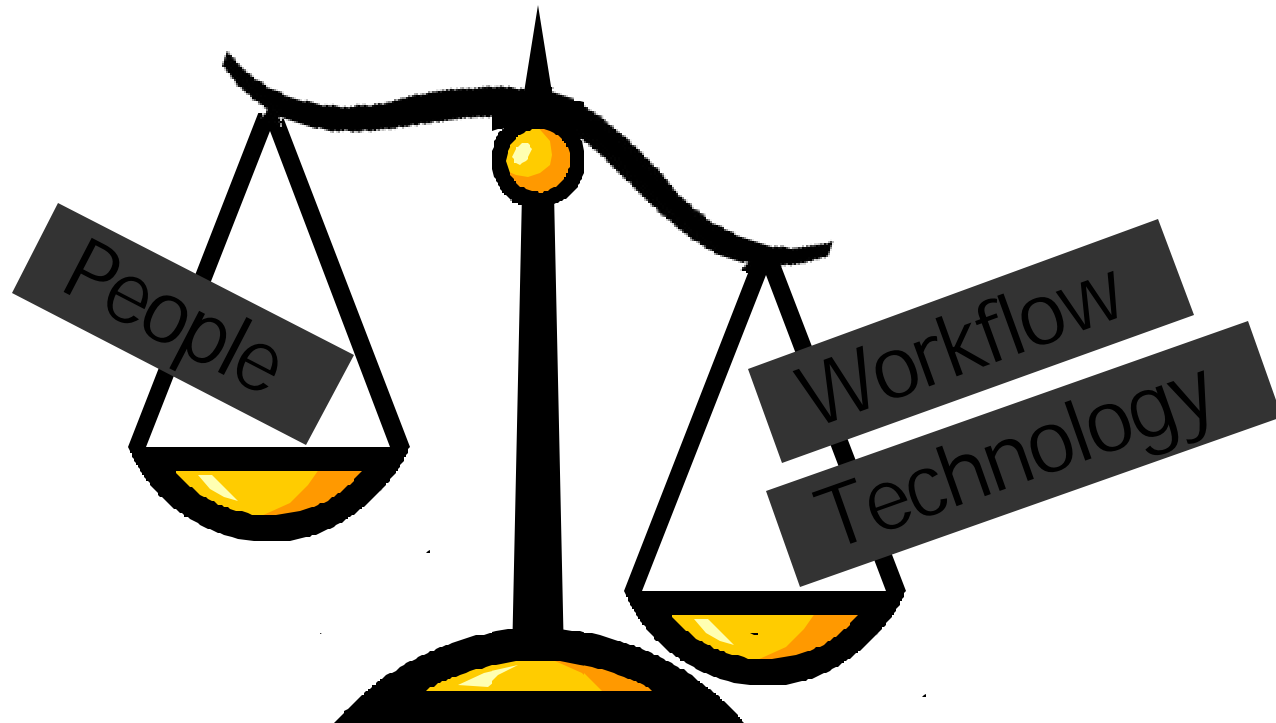# A Need for Balance

A Need for Balance

A Need for Balance

autodesk®

A Need for Balance

A Need for Balance

autodesk®

A Need for Balance

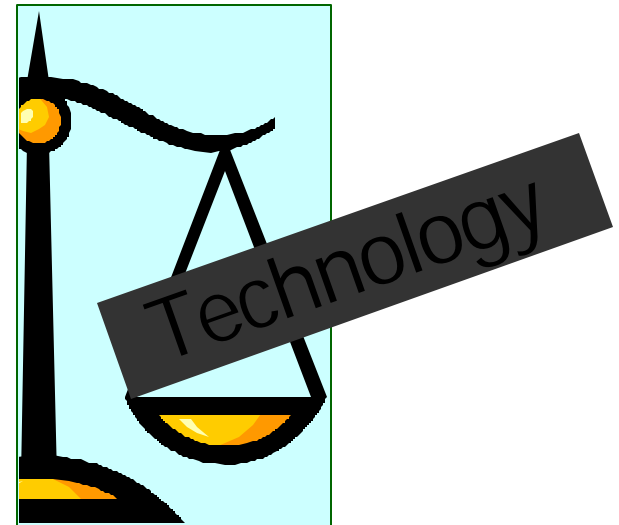# A Need for Balance

autodesk®

A Need for Balance

Source: Organizing for Successful Software Development
Mark Hamilton, Harris Kern, Nov 02, 2001

autodesk®

Technology

- The tools used to get things done
- Software/Hardware
- The need for specialists:
  - CAD team
  - GIS team
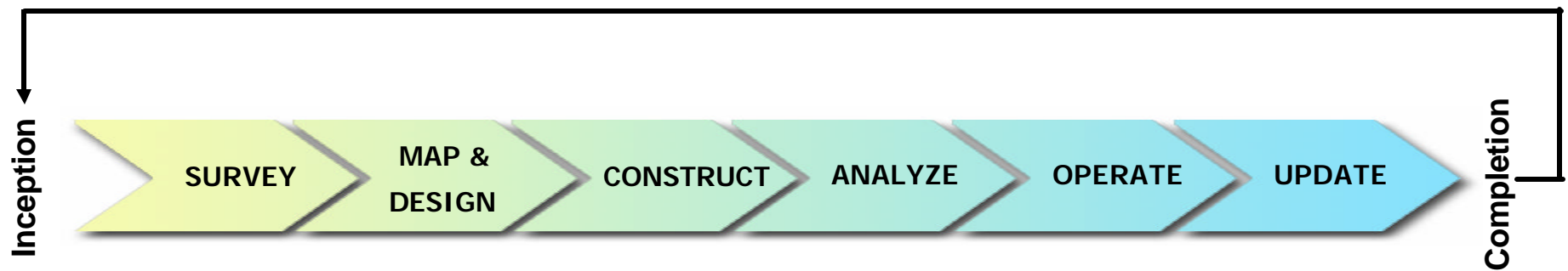 - Database team
  - IT Infrastructure team

autodesk®

Workflow

- Procedures and processes for getting things done
- Typically domain specific
- Often technology driven

autodesk®

Workflow

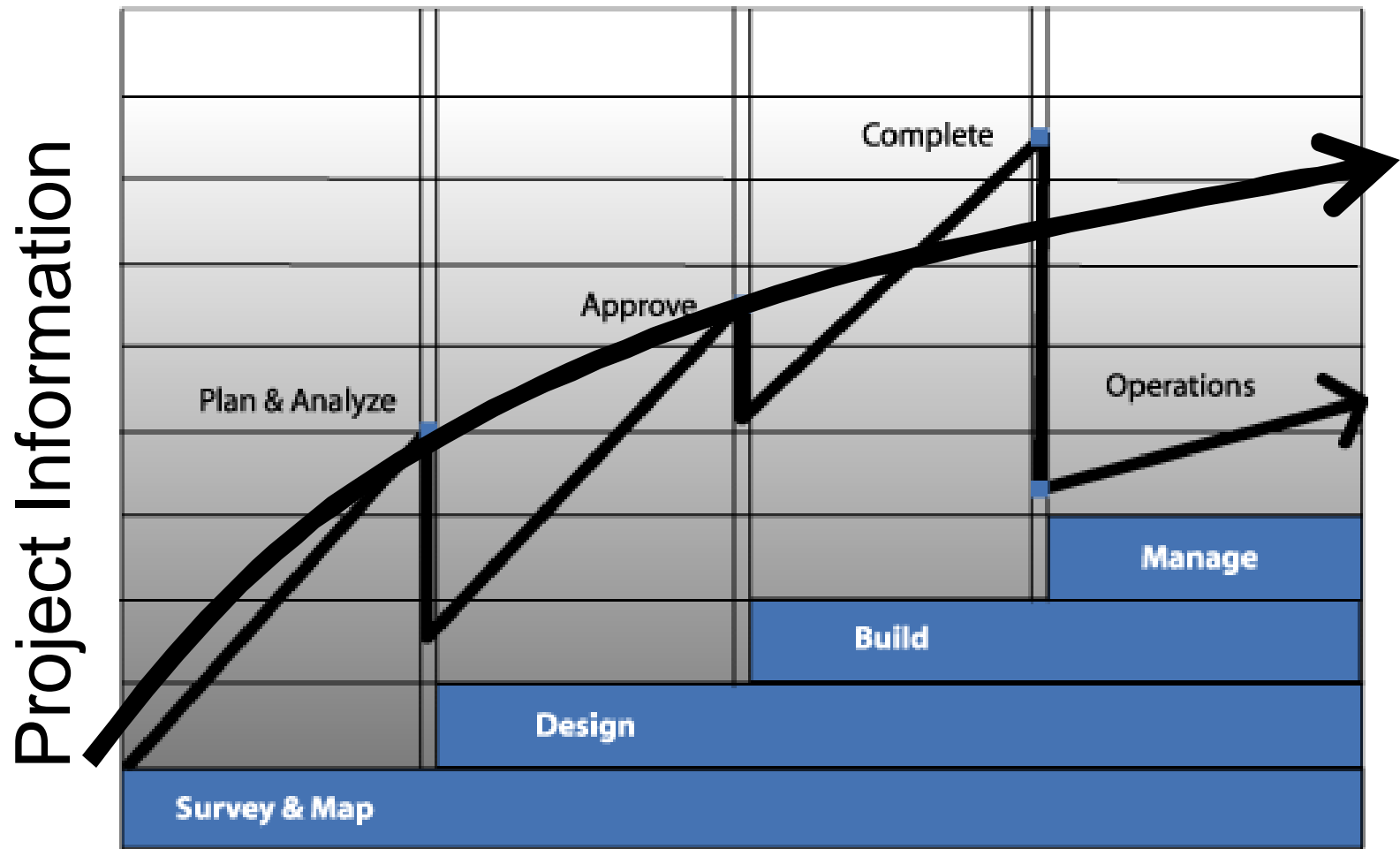Inception → SURVEY → MAP & DESIGN → CONSTRUCT → ANALYZE → OPERATE → UPDATE → Completion
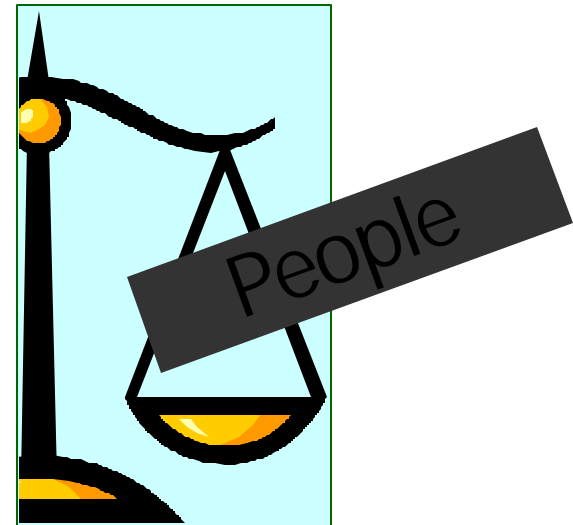
From inception   **to completion**

Workflow - Gaps

People

- Impact organizational culture and effectiveness
- Desire to succeed
- Trust
- Unique skills
- Personalities
- Performance

autodesk®

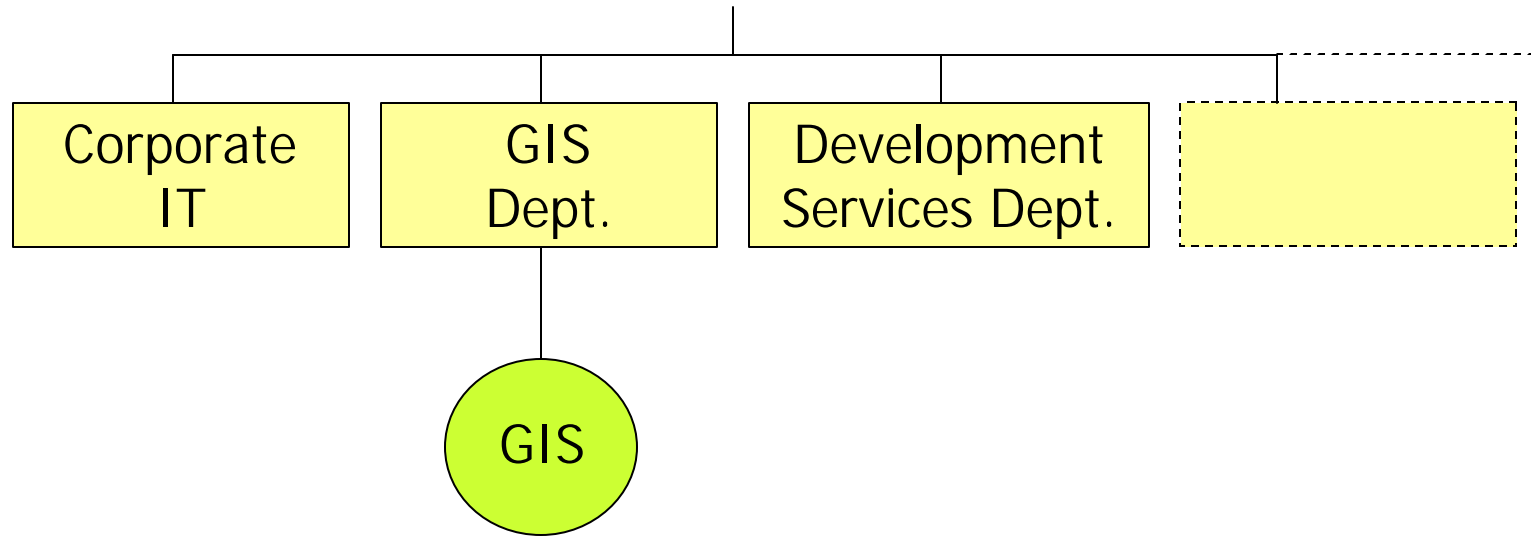# Case Study: City of Grande Prairie

autodesk®

Case Study: City of Grande Prairie

- Population: ~ 40,000
- Employees: ~ 600
- GIS support staff: 6
- Started using GIS: 1989
- GIS Department supports all things GIS
- Internal and external customers
- Desktop and web GIS environments

Case Study: City of Grande Prairie

Corporate IT	GIS Dept.	Development Services Dept.	

GIS

Case Study: City of Grande Prairie

"It works because of the people, the culture and the working relationships. It's about knowledge and effective communication with our customers - both internal and external."

Karen Lauritsen
GIS Manager, GIS Department
City of Grande Prairie, Alberta, Canada
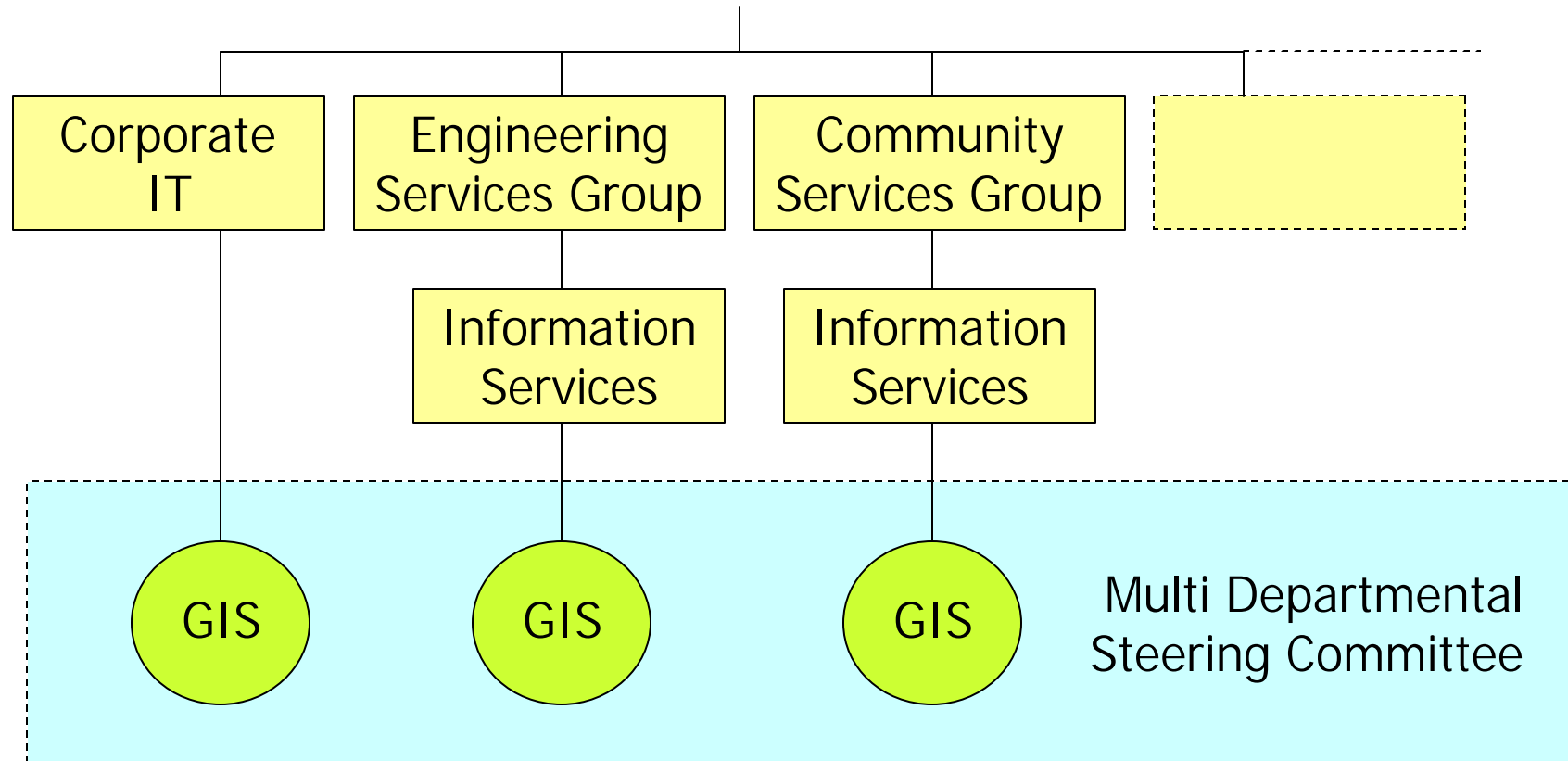
Case Study: City of Vancouver

Case Study: City of Vancouver

- Population: ~ 550,000
- Employees: ~ 8,000
- GIS support staff: 15 to 20
- Started using GIS: 1992
- Departments collaborate
- Enterprise GIS database
- Data integration among departments
- Web distribution to thousands

Case Study: City of Vancouver

Case Study: City of Vancouver

"We have been working to integrate business processes, products, and data in order to unify the organization"

"With our GIS organizational structure we can do a better job at meeting both corporate and departmental needs"

Jonathan Mark
GIS Manager, Information Technology Department
City of Vancouver, British Columbia, Canada

The Need for Champion(s):

- Most important during beginning stages of GIS implementation

- Solicits senior management sponsorship

- Crucial for maintaining momentum moving from departmental to enterprise GIS

- Continues to promote visibility of GIS (even during steady-state)

- Rallies support and says good things

Observations - Decentralized

- For smaller groups
- For departmental good
- Increased opportunities for change & innovation
- Improved internal response
- Improved internal communication
- People must become generalists

Observations - Centralized

- For larger groups
- For corporate good
- Increased control
- Offers economies of scale
- Conduit for sharing among departments
- Opportunity for specialists
- Corporate standards and procedures
- Opportunity to do more
- Reduced data duplication
- Reduced proliferation of data and technologies
- Improved use of information as central asset

Observations - Hurdles

- Rarely technological
- Buy-in needed for success
- Distrust between departments
- Cultural differences
- Silos of data, applications
- Balance departmental versus corporate needs

autodesk®

Conclusions

The need for balance..

Leadership leads to success…

Shawna Mitchell
Team Jaburu

"Deena has been a great leader so far."

Source: www.cbs.com

Sources

- *Organizing for Successful Software Development, Marc Hamilton, Harris Kern, Nov 02, 2001, www.informit.com*

- *Municipal GIS Implementation Planning and Strategies: Evidence from North American Case Studies, Karen Lauritsen, May 2001*

- *Strategic GIS for the Enterprise: Myths, Madness & Magic, Dianne Haley and Jonathan Mark, GeoSask , October 15, 2001.*

- *http://www.cbs.com*

- *http://www.city.grande-prairie.ab.ca*

- *http://www.city.vancouver.bc.ca*

autodesk®