GOVERNANCE OF INFORMATION TECHNOLOGY (IT)

Chapter 3

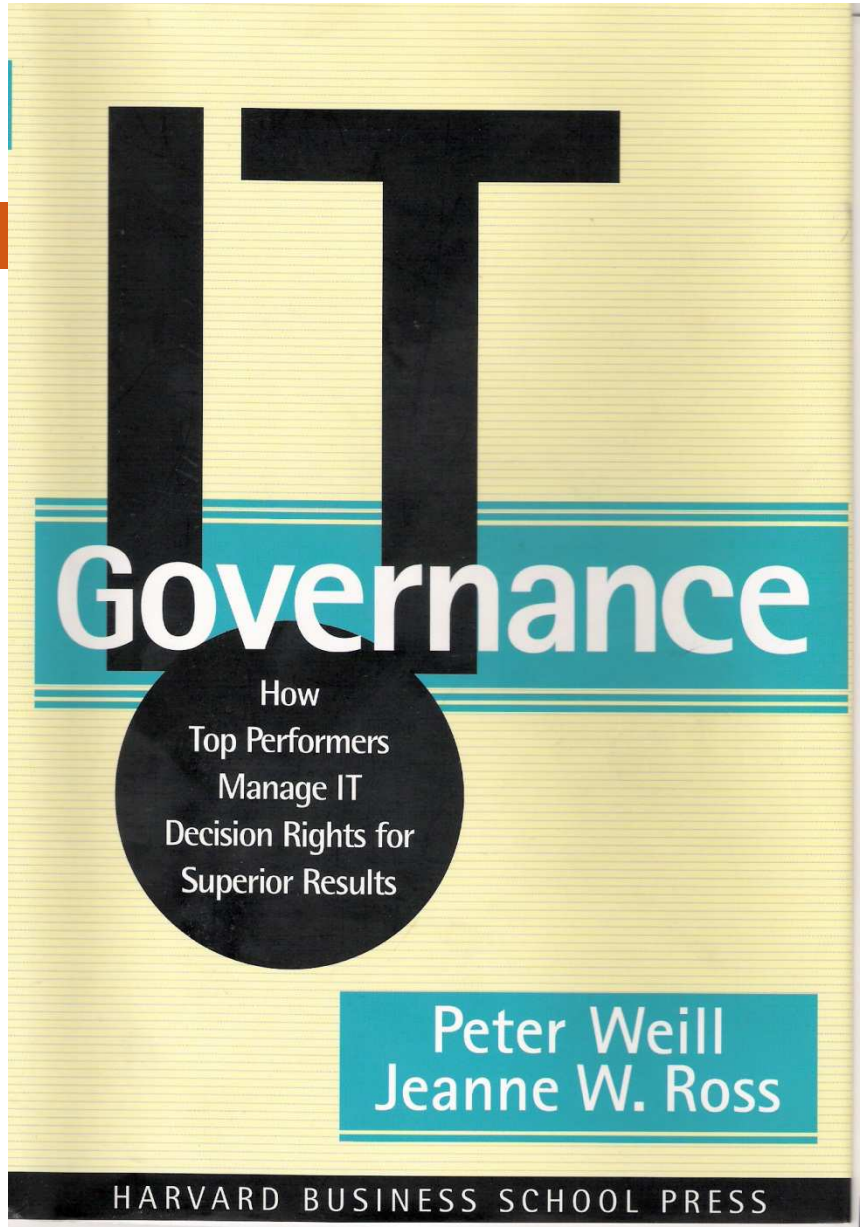
"Needless perfect government; you need one that is practical."
Aristoteles (384 A.C. -322 A.C.)

Summary

1. Introduction. Governing IT.
2. Management vs. Governance.
3. Decision-making and …
4. … structures of governance of IT.
5. Starting a framework for IT governance in their company without standards.
6. Business strategy, performance and governance of IT.
7. Align IT: indicators of progress.
8. The role of the CIO: IT leadership.
9. The value of IT.
10. ISO 38500, a conceptual model: the six principles of the standard.
11. Adapting the conceptual model of governance to the reality of the company.
12. Example Apps to aid decision-making for CIOs
13. Example Application Portfolio Management
14. To govern public enterprises, The 4 "E's"

Basic Reference

- **IT Governance: How Top Performers Manage IT Decision Rights for Superior Results Peter Weill & Jeanne Ross (2004)**



3. Five key decisions

- *"The significant problems we face can not be solved by the same level of thinking that created them"?-* Albert Einstein
- The difference between management and governance is like the difference between a basketball team training hard and practicing a lot, and the same team analyzing its composition, its performance and its strategy in the game.
  - Perhaps this analysis reveals that the team needs a new physical trainer, or define new responsibilities of the guard, ...

2. Governance of IT: direct and control

- The governance of IT consists on effectively answer these three questions:
  - What decisions must be made to ensure effective management and use of IT?
  - Who should make these decisions?
  - How are these decisions be made and how they monitored?
- The aim of this course is to provide a framework of governance and to understand how it helps to address these issues

3. Five key decisions

- IT managers make hundreds of decisions a week, many of the frenzy of everyday life.
  - The design and analysis of IT governance, need to escape from day to day operations, to identify the key decisions on what to perform and who is best placed to make those decisions.
- This topic is about the first of the three questions that the governance of IT is:
  - What decisions must be made?

FIGURE 2-1

Key IT Governance Decisions

<table>
<tr><td colspan="3">IT principles decisions
High-level statements about how IT is used in the business</td></tr>
<tr><td rowspan="2">IT architecture decisions
Organizing logic for data, applications, and infrastructure captured in a set of policies, relationships, and technical choices to achieve desired business and technical standardization and integration</td><td>IT infrastructure decisions
Centrally coordinated, shared IT services that provide the foundation for the enterprise's IT capability</td><td rowspan="2">IT investment and prioritization decisions
Decisions about how much and where to invest in IT, including project approvals and justification techniques</td></tr>
<tr><td>Business applications needs
Specifying the business need for purchased or internally developed IT applications</td></tr>
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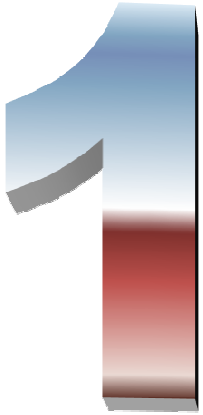
3. Five key decisions



- IT principles:
- They should be few but well articulated:
  - They are a set of statements related high level of abstraction on how IT should be used in the company's business
  - Once articulated, must become the lexicon of management and can be discussed, debated, supported, evolved ...
  - MeadWestvaco case (paper, cardboard, office material,…)

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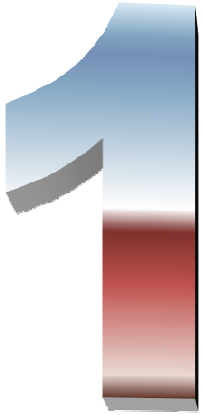

3. Five key decisions

- MeadWestvaco wanted to preserve the efficiencies, taking advantage had invested in an ERP system (Enterprise Resource Planning), of more standardized processes, but also supporting the value of the diversity of the various business units.
- Business Principles (B's):
  1. Promote economies of scale
  2. Standardize processes and technologies where appropriate
  3. Use common tools for a diversified business (ERP system)
  4. Control costs and operational efficiency
  5. Align with the requirements of the business units through negotiation and acceptable response times

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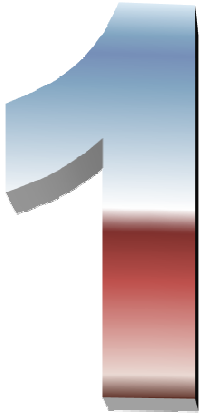

3. Five key decisions

- MeadWestvaco IT principles:
  1. TCO (Total Cost Ownership) lower as benchmarks
  2. Architectural integrity
  3. Flexible and consistent architecture
  4. Rapid deployment of new applications
  5. Measured, improved and communicated values, acceptable response times

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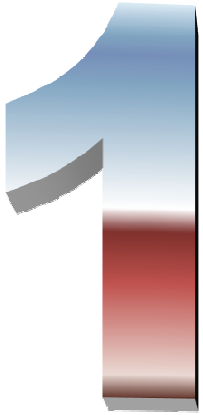


3. Five key decisions

- A set of effective IT principles is the clear evidence of the connection between the principles of business and IT.
  - For MeadWestvaco, the IT2 objective provides standardized technologies and processes (B2) and cost-efficient operations (B4)
  - The IT4 promotes alignment with the requirements (B5)
  - The IT3 would enable the 5 principles of business
  - The principles of business and IT combined MeadWestvaco provide a clear direction for the use of IT, which enable a business strategy.

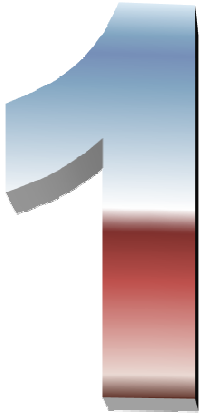
3. Five key decisions

- IT principles are also a tool to educate executives about technology strategy and investment decisions.
- MetLife created seven IT principles to "*establish a shared understanding of the strategic direction of ICT and guide tactical decisions, so that they can be translated into specific policies, standards and guidelines*."

3. Five key decisions

- MetLife IT principles:
  1. Enable business
  2. Ensuring the integrity of the information
  3. Create a common vision for the customer
  4. Promote a consistent architecture
  5. Using industry standards
  6. Reuse before buy
  7. Buy before build

3. Five key decisions



- MeadWestvaco ICT and MetLife principles are specific to each company strategies, but at least 3 should clarify expectations of IT:
  - What is the business model of the company to be?
  - How that model will be supported with IT?
  - How can IT be financed?
- Unfortunately, few companies provide to IT clearly those principles.
- Since the principles provide the direction of all IT decisions, not have them early or being wrong will be limiting the effectiveness of the other 4 remaining decisions.

3. Five key decisions

- IT architecture: the organized logic to the data, applications and infrastructure, captured in a set of policies, services and technical options to achieve the desired business and technical integration and standardization.
  - The key to the integration process from a technological perspective is the standardization of data, providing a single definition and a unique set of features that are captured with an item.
  - The key to the integration process is the discipline, adherence to a unique way of doing things consistent.
- "The standardization of processes provides predictability and efficiency as the process of cooking burgers at McDonald's"

3. Five key decisions

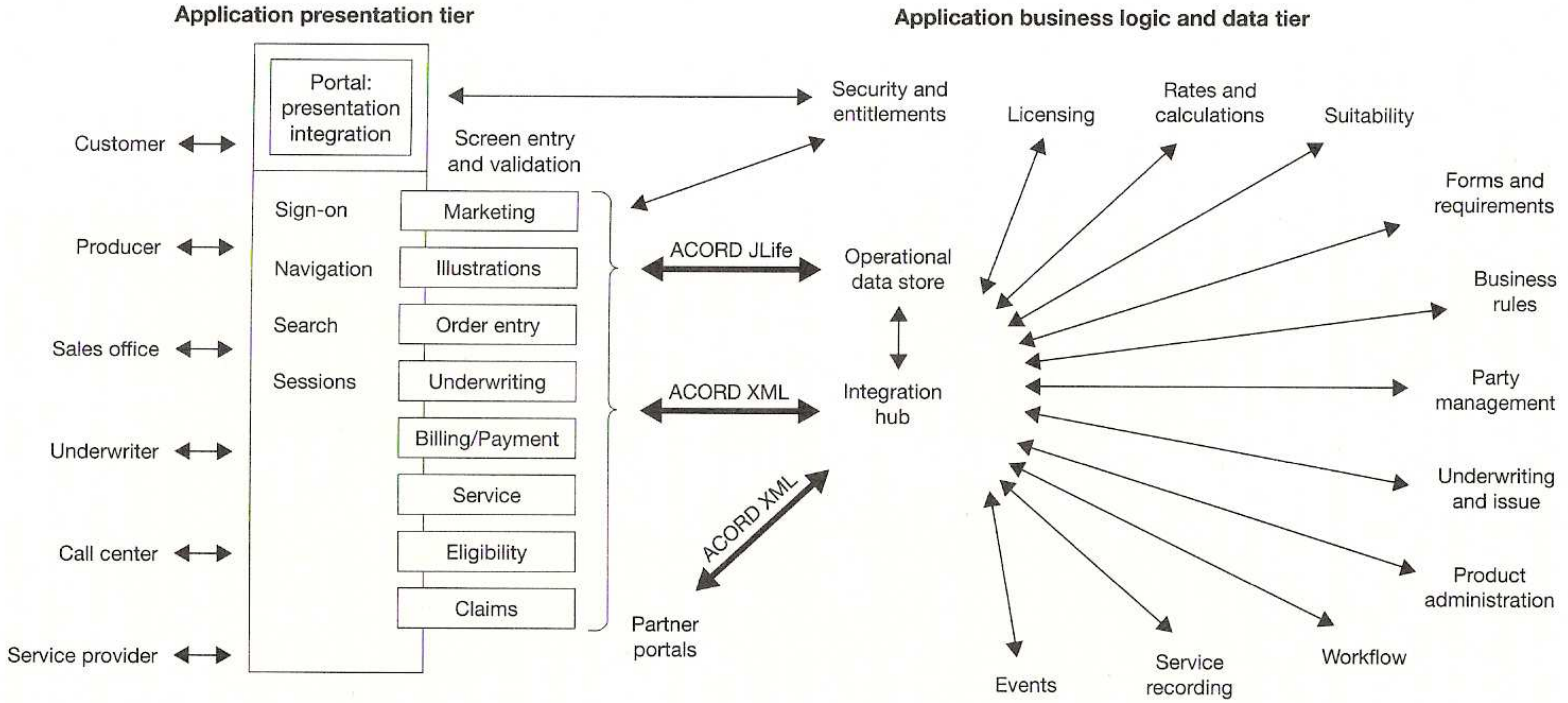
- Standardization of data and processes are the defining characteristics of the enterprise architecture.
- Technical standardization facilitates common objectives: cost-effective processes, negotiated agreements with suppliers and security throughout the company.
- The elections on standardization and data, technical processes, strongly influence the design of the IT architecture.

3. Five key decisions

- MetLife IT principles specified the need for a common vision for customers (standardization of data) and ensure the integrity of information; use and reuse standards before buy, buy before they develop.
- These principles are the foundation of architecture as seen in the next figure.

FIGURE 2-2

MetLife's Enterprise Architecture



Source: Adapted from MetLife documents. Used with permission.

3. Five key decisions

- The architecture defines data that support the application changes.
- The company needs change constantly, so you need flexibility in its architecture, but applications need to be built based on => the infrastructure and provide the common data base.
- MetLife data in shared customers and via a single portal interface will support future applications without limiting the ability of the firm to provide services or new markets

3. Five key decisions

- The distinction between infrastructure and applications allows companies to promote economies of scale, without giving up the flexibility to respond to change.
- The architectures are often expressed through modular components that tend to be viewed by the business units.

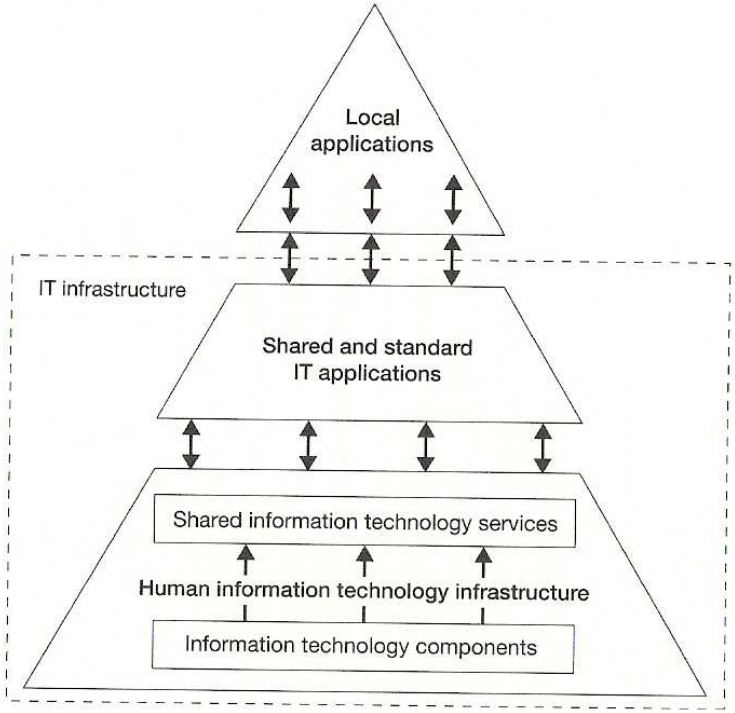
3. Five key decisions

- **IT Infrastructure:**
  - **It is the foundation of human and technical IT planned, available everywhere in the company as shared and reliable services, used by multiple applications capability.**
- **In a typical company, the infrastructure is 55% of the total investment in IT**

Five key decisions

FIGURE 2-3

IT Infrastructure as a Centrally Coordinated Set of Shared and Reliable Services



Fast-changing local business applications such as insurance claim processing, Web bank loan applications, customer complaints support system, phone order support systems

Shared and standard applications that change less regularly, such as accounting, budgeting, human resource management

Services that are stable over time, such as management of shared customer databases, PC/LAN access

Human infrastructure of knowledge, skills, policies, standards, and experience binds components

Commodities such as computers, printers, routers, database software, operating systems, credit card swipers

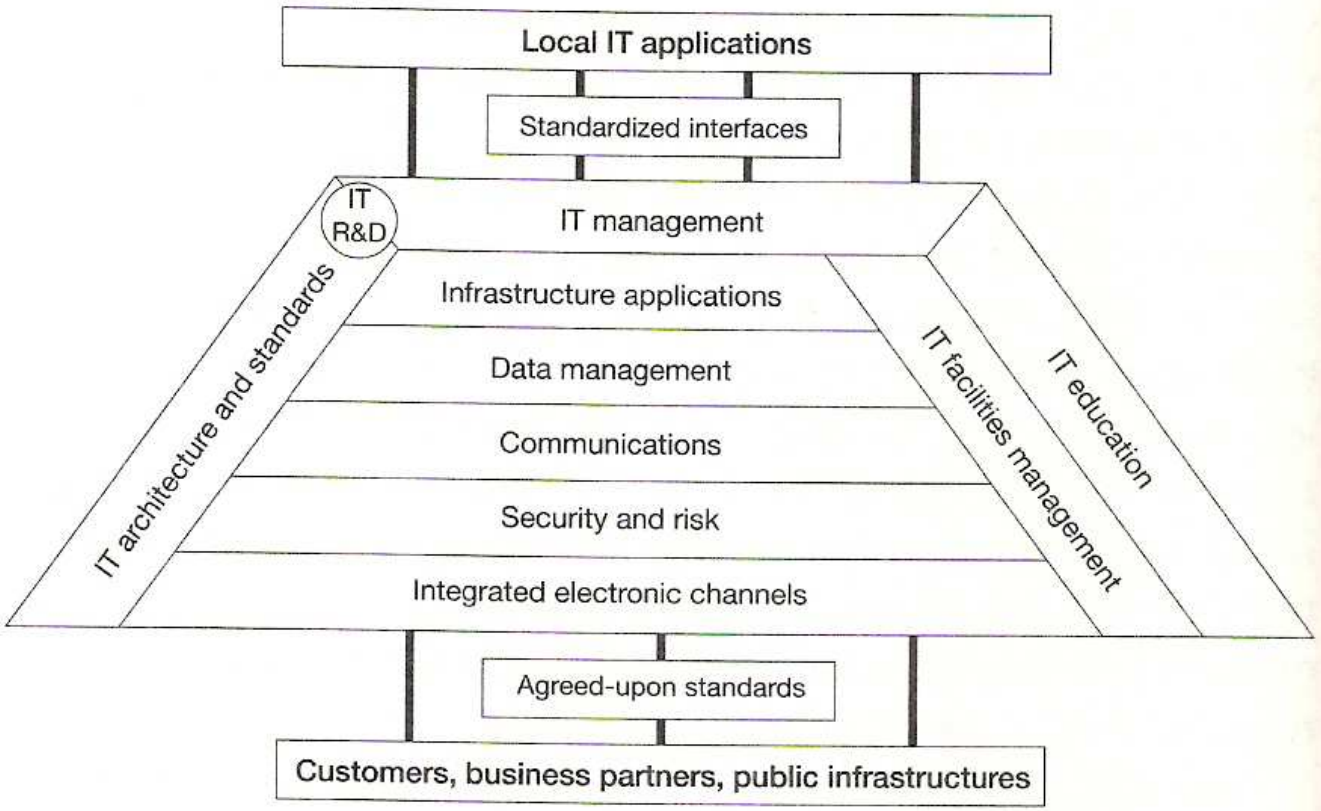
Source: Peter Weill and Marianne Broadbent, *Leveraging the New Infrastructure: How Market Leaders Capitalize on IT* (Boston: Harvard Business School Press, 1998).

3. Five key decisions

- An integrated IT infrastructure combines all the capabilities of the company to conduct business.
- It is considered that an integrated infrastructure has 10 clusters of capacity for local enterprise applications.
- There is a set of services in each cluster, which connects the outside world of customers, suppliers, etc. and the IT at company.

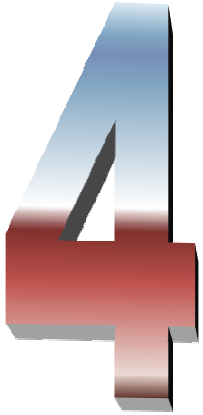
FIGURE 2-4

IT Infrastructure Services in Ten Clusters



Source: Peter Weill, Mani Subramani, and Marianne Broadbent, "Building IT Infrastructure for Strategic Agility," *MIT Sloan Management Review* 44, no. 1 (Fall 2002): 57–65.

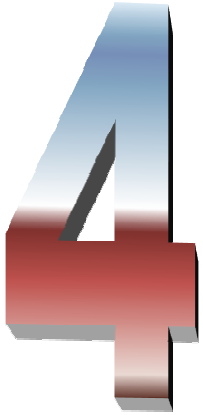
3. Five key decisions



Business needs Apps:

- **Identify the needs of IT applications often they have two conflicting objectives - creativity and discipline.**
  - **Creativity is to identify new and more effective ways to build value for customers through IT. It means identifying applications that support strategic business objectives and provide the same experiments.**
  - **Discipline is the architectural integrity, ensuring that applications are not made out of the principles on which the architecture is based. It means focusing resources to achieve business goals.**

3. Five key decisions



- Change systems is hard: employees who implement the change should understand the new processes. Training and structural support is needed.
  - To ensure that staff can absorb the changes, many companies organize their projects into programs.
  - The programs consist of all projects related to a major initiative: customer relations, product development, financial management, ...
  - By management programs (implementation, training, timing, ...) ensuring that new systems combine the desired effective use of resources are coordinated effect.

3. Five key decisions

- Investment and prioritization of IT:
  - It is the most visible and controversial decision 5.
  - Some projects are approved, others are rejected and others are suspended in "limbo“.
  - Successful companies collect higher value of IT investments focusing on strategic priorities, distinguishing between "must have" and "would be nice to have it."
- IT investment decisions lead to three dilemmas:
  - How much to spend
  - Where to spend it
  - How to reconcile the different needs

3. Five key decisions

- How much you spend:
  - Normally benchmarks for early estimates look good. But not always companies got the same spend, even in the same sector:
  - FedEx and UPS spend $ each year 1millardo of ICT, but FedEx (that bill 20 times that value) is 2/3 of UPS.
- The level of interest expense reflects different strategic roles of IT:
  - UPS focuses on business efficiencies, consistency and confidence, while FedEx focuses on meeting individual customer needs.

3. Five key decisions

- What to spend: IT investment portfolio
  - Investments need indicators of success of the portfolio (like any investment). The portfolio may change if conditions change.
  - Implement a portfolio of IT investment requires a categorization that reflect business objectives. Group the investment objectives helps to select projects that shape the strategy of the company.
  - Historic help reverse (as in the trade market)

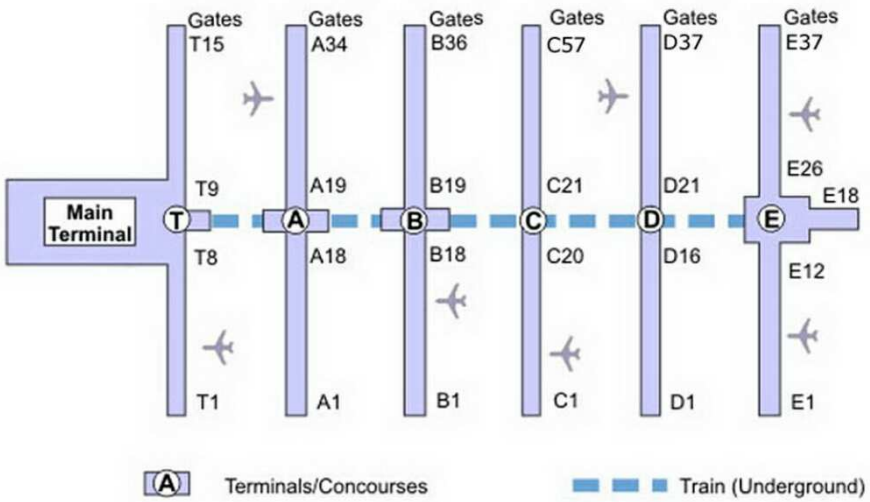
3. Five key decisions

- Where to spend: IT investment portfolio
  - An approach for analyzing the IT portfolio gives 4 kinds of IT assets, each supporting a target:
    - strategic (gain competitive advantage)
    - informational (providing information)
    - transactional (to process and cut costs)
    - infrastructure (to provide shared services and integration).
- The companies fit the definition of these asset classes for their business and develop metrics to measure the performance of their IT investments.

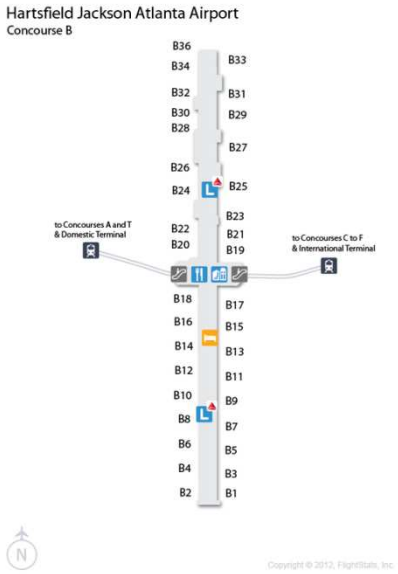
3. Five key decisions

- Where to spend: IT investment portfolio
  - Key question: Can we explain the differences between our portfolio and the benchmark for our strategy? If the explanation is credible, the portfolio is a good fit, otherwise start again.
  - The risks inherent in a business, IT investment companies exposed to 4 risks:
    - Market
    - Financial
    - Organizational
    - Technical.

3. Five key decisions



- The five decisions we have seen can not be isolated from each other. If the government is well designed, decisions reinforce each other ensuring that target strategic objectives.
- Case Study: Delta Air Lines
  - 84K employees, customers 117M.
  - In 1997 Big Problem: 17 functional units with isolation systems developed and supported. The infrastructure system was disconnected, for example, there were 35 databases of customers and dozens of databases flights.
  - If the gate was changed, employees in the gate, could not know the change in real time.



3. Five key decisions

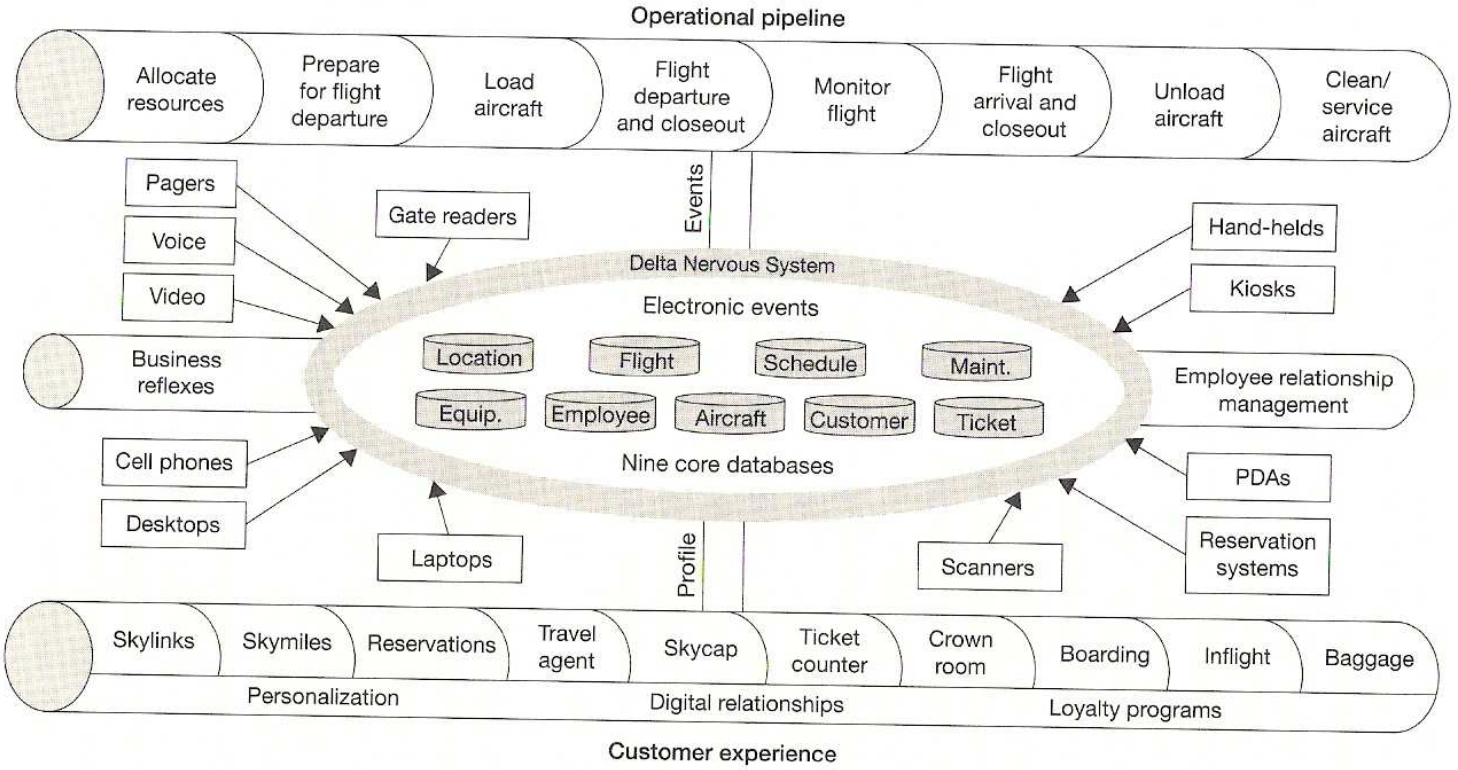
- Case Study: Delta Airlines (cont.)
  - A small committee of senior executives (IT Committee) should lead the transformation of the organization built on the adoption of a system of real-time information is created.
  - The committee defines the role of IT in the company through four principles:
    - Adopt a procedural vision of the company
    - Build a corporate infrastructure to support functional processes (not just intra-function)
    - Build and influence a standardized environment
    - Customer focus

3. Five key decisions

- Case Study: Delta Air Lines (count.)
  - Consistent with these principles CIO (Chief Information Officer) creates enterprise architecture:
    - Core processes: customer experience, flight operations, digital panel benefit management and administrative functions connected.
    - Since they could not be financed 4 processes, choose two: flight operations and customer experience.
    - Business managers defined the information requirements of these two core processes in 9 databases: location, planning, flight, maintenance, equipment, employees, avionics, and airline customers.

FIGURE 2-5

Delta's Enterprise Architecture



Source: Jeanne W. Ross, "E-Business at Delta Air Lines: Extracting Value from a Multi-Faceted Approach," working paper 317, MIT Sloan School Center for Information Systems Research, Cambridge, MA, August 2001.

3. Five key decisions

- Case Study: Delta Air Lines (in.)
  - A key component of the architecture was the Delta Nervous System (DNS), middleware environment (publish and subscribe) that captures and disseminates the information to employees and their applications.
  - Its architecture reflects the core processes, data that lead these core processes and distribution channels of data to employees, customers and partners.
  - Based on this architecture, the leaders were able to develop IT infrastructure requirements. The key requirement was to have accessible, safe, standardized and centralized for all stakeholders through many channels data.

3. Five key decisions

- Case Study: Delta Air Lines (in.)
  - IT leaders designed the channel management, communications, data and security services to meet those requirements.
  - The IT committee established priorities for application development, simultaneously investing in infrastructure and end applications.
  - Infrastructure investments endured-functional requirements of the core processes and provided the foundation for new applications.
  - The IT committee has become the prioritization of IT investments for the company.

4. Key questions

- Each of the five decisions require individual attention but no can be done in isolation.
- An approach to IT governance distributes the process of decision making in the people best placed to understand the business requirements and their implications

4. Key questions

- Formalize governance processes ensures communication and feedback from these key decisions
- We can list a number of questions representing each of the five decisions.
  - Effectively answer these questions or similar, is the work of the people responsible for making decisions and how IT is designed in the governance framework.

FIGURE 2-6

Questions Key to Each IT Decision

IT principles	What is the enterprise's operating model?
	What is the role of IT in the business?
	What are IT-desirable behaviors?
	How will IT be funded?
IT architecture	What are the core business processes of the enterprise? How are they related?
	What information drives these core processes? How must the data be integrated?
	What technical capabilities should be standardized enterprise-wide to support IT efficiencies and facilitate process standardization and integration?
	What activities must be standardized enterprisewide to support data integration?
	What technology choices will guide the enterprise's approach to IT initiatives?

IT infrastructure	What infrastructure services are most critical to achieving the enterprise's strategic objectives? For each capability cluster, what infrastructure services should be implemented enterprisewide and what are the service-level requirements of those services? How should infrastructure services be priced? What is the plan for keeping underlying technologies up to date? What infrastructure services should be outsourced?
Business application needs	What are the market and business process opportunities for new business applications? How are experiments designed to assess whether they are successful? How can business needs be addressed within architectural standards? When does a business need justify an exception to standard? Who will own the outcomes of each project and institute organizational changes to ensure the value?
IT investment and prioritization	What process changes or enhancements are strategically most important to the enterprise? What are the distributions in the current and proposed IT portfolios? Are these portfolios consistent with the enterprise's strategic objectives? What is the relative importance of enterprisewide versus business unit investments? Do actual investment practices reflect their relative importance?