Capabilities-based IS/IT Strategy, Structure and Systems for Managing IT Resources/Activities

Presented by

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To the MIS Research Center
Presentation Outline

- CIO collaborative research project background
- IS/IT organization challenges and opportunities
- IS/IT-business alignment
- IS/IT strategy, organization strategy and IS/IT activities
- Organizing Logics – IS/IT Organizational Structure
- Capabilities as an organizing logic for
  - managing IS/IT activities
  - achieving IS/IT-business alignment
  - achieving alignment of IS/IT operations to the IS/IT functional strategy
- Q&A

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CIO Collaborative Research Project Background

- CIO collaborative research project on IS/IT organizational design and governance

  - Mission
  - Vision
  - Core CIO group
  - Larger CIO panel survey capabilities

- Process
  - Core CIO group meetings
  - Off-line onsite interviews
  - Large sample surveys
IT Organization Challenges and Opportunities

- Unprecedented IS/IT change rate (Moore’s law)
  - Disruptive technology advancement
  - Technology convergence
  - Short useful life cycle
  - Seamless integration/ubiquitous use
  - Off-shelf software, enterprise systems
  - Existence of multiple systems (legacy, new, ……)
  - Constant pressure for learning new stuff …………. 

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IT Organization Challenges and Opportunities

- Unprecedented business uncertainty (hypercompetition)
  - Dynamic business environment
  - Unstable business strategies, structure and processes
  - Business demands IS flexibility and responsiveness
  - IS function is pressured to show business value of investment
  - Transformation of the role of IS and IS leadership
Emerging IT/Business Models

Yesterday

Suppliers → Biz Process (Front-office) → Customers

IT (Back-office)

Tomorrow

Suppliers → Biz Process (Front-office) → Customers

IT (Back-office)

Today

Suppliers → Biz Process (Front-office) → Customers

IT (Back-office)
IT Organization Challenges and Opportunities

Biz - Past ↔ Biz - Current ↔ Biz - Future

IT - Past ↔ IT - Current ↔ IT - Future

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IT Organization Challenges and Opportunities

- Performance of IS/IT is **critical** and becoming more so:
  
  - Expenditures - 1-10% (information intensive companies) and growing
  
  - > 50% of most capital budgets

  - Essential to the execution of virtually all new initiatives
CIOs’ Top IT Organization Challenges

- IT-biz alignment
- IT responsiveness to biz
- Resource allocation
- Security
- IT infrastructure
- Integration
- IT strategy
- Business value
- IT portfolio mgmt
- IT architecture
- IT personnel
- Enable BPR
- IT tech flexibility
- Role of CIO
- Outsourcing
- Distributed system
- E-biz model

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IT Organization Challenges and Opportunities

- Business-IT alignment
- IT responsiveness and flexibility (because of the unprecedented technology and business uncertainty)
IT-Business Alignment

» Why alignment
  » Essence of IS/IT development
  » Essential difficulties of IS/IT development

» Concept and meaning of alignment

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Essential Difficulties of IS Development

- **Essential knowledge gaps**
  - Cross-functional gaps
    - Business people don’t understand IT/IS
    - IS people don’t understand business
  - Within-functional gaps - business
    - Business people don’t understand what’s going on
    - Business people don’t know what they want/need for a change
  - Within-functional gaps - IS
    - IS people don’t understand existing IT
    - IS people don’t know new IT
Our Focus on Aspects of Alignment

Alignment is subject to various interpretations. Our interest in alignment has two foci

1. Among business units, corporate units, and IS/IT

2. Within IS/IT between the top management and the “operating” activities of IS/IT
Different Perspectives of Alignment

1) Strategy execution

Business strategy → IT strategy
Org. infrastructure → IT infrastructure

2) Technology potential

Business strategy → IT strategy
Org. infrastructure → IT infrastructure

3) Competitive potential

Business strategy → IT strategy
Org. infrastructure → IT infrastructure

4) Service level

Business strategy → IT strategy
Org. infrastructure → IT infrastructure
## Challenges of Alignment - Enablers & Inhibitors *

<table>
<thead>
<tr>
<th>Rank</th>
<th>Enablers</th>
<th>Inhibitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Senior executives support IT**</td>
<td>IT/business lack close relationships**</td>
</tr>
<tr>
<td>2</td>
<td>IT involved in strategy development</td>
<td>IT does not prioritize well**</td>
</tr>
<tr>
<td>3</td>
<td>IT understands business**</td>
<td>IT fails to meet its commitments**</td>
</tr>
<tr>
<td>4</td>
<td>Business-IT partnership**</td>
<td>IT does not understand business**</td>
</tr>
<tr>
<td>5</td>
<td>IT demonstrates leadership**</td>
<td>Senior executives do not support IT**</td>
</tr>
<tr>
<td>6</td>
<td>Well-prioritized IT efforts**</td>
<td>IT management lacks leadership**</td>
</tr>
<tr>
<td>7</td>
<td>IT meets commitment**</td>
<td>IT fails to achieve strategic goals</td>
</tr>
</tbody>
</table>

* Based on IBM’s survey of 1,051 executives from 500 US Fortune 1000 organizations from 1992-1997
** Same factor in both lists

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Alignment and Performance

 Alignment has been a perennial issue for CIOs and business executives for at least two decades (recent survey and HBR article)

 Assumption is that alignment defines the condition of top performance. In fact, for some it is definitional.

 Concern for dynamics of alignment in a high volatility environment
## Alignment Approaches – Current Practices

<table>
<thead>
<tr>
<th>Approach</th>
<th>Example Companies utilizing approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure &amp; Staffing</td>
<td>Company D, Company E, Company F</td>
</tr>
<tr>
<td>Planning Process</td>
<td>Company G, Company H, Company A</td>
</tr>
<tr>
<td>Incentive System</td>
<td></td>
</tr>
<tr>
<td>Market System</td>
<td>Company C</td>
</tr>
<tr>
<td>Collegial System</td>
<td>Company B</td>
</tr>
</tbody>
</table>

### Examples
- Company A using IT capabilities/strategy
- Company B relying on collegial operations to operations
- Company C using Return on gross investment

### Trends
- Moving toward planning process
Why IS/IT Strategy is Important

- IS/IT as a business within business
- IT strategy and strategic thinking are core parts of CIO job
- IT strategy
  - as an organizing basis for thinking about the issues
  - alignment
  - resource allocation
  - integration
  - flexibility/responsiveness
  - security
  - outsourcing

- IT strategy – Address three needs
  - Intermediate between business strategy and IS/IT operations
  - Guide IS/IT operations in the absence of a clear stable business strategy
  - Aid achievement of cross-business unit synergies and avoidance of business unit sub optimization
IS/IT Strategy – Difficulties Experienced

- Availability of “Standard” Constructs
- Operationalizing Constructs
- “Standard” Process Methodology
- Effort Required
- Clarity of Corporate, Business Unit(s), and Other Functional Strategies
- Cross Functional and Cross Business Units Governance
- Alignment (“Fit”) Among Strategies
- Evaluation of Strategic Alternatives
Alignment ("Fit") Among Strategies

Objects of Alignment

- Corporate Strategy (businesses; synergy sought)
- Business Unit(s) (basis of competition)
- Other Functions (portfolio of capabilities)

Measures of Alignment

- Common Understanding
- Alignment Process Maturity
- Optimality of Enterprise Performance

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IS/IT Functional Strategy

IS/IT strategy as the third strategy type among

- Corporate Strategy – mix of business areas undertaken (diversification, vertical integration, alliances)

- Business Strategy – basis of competition with other firms in an “industry” segment (product/market position, core competencies)

- Functional Strategy – basis of support for business strategies (and other functional strategies) and ensure enterprise synergies

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Different Perspectives of IS/IT Strategy

- Plan of Action (possibly contingent)
  - Conveys prioritization
  - Expresses commitment(s)

- Mode(s) of Behavior - e.g. business w/in a business

- Current or Aspirational Position
  - Portfolio of Capabilities
  - Portfolio of Real Options

- Process of Alignment – e.g. Consultants

- .... Others?
IS/IT Functional Strategy

Same as Business Strategy
- Porter – cost leadership, differentiation, focus
- Miles & Snow – defender, analyzer, prospector

Unique to IS/IT Function
- Technology Driven – leading edge adoption
- Client Driven
- Cost Driven

Each strategy implies a configuration of capabilities

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Organizing Logics – IS/IT Organizational Structure

- Client Relationship
  e.g. - financial systems development

- Processes
  e.g. - supply chain support

- Technology Applications
  e.g. - EAI technology to integrate files

- Capabilities Development and Deployment
  e.g. - project management

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Organizational Capabilities

- Capability - ability to combine tangible and intangible assets to achieve an organizational objective
  - Tangible assets include equipment and individuals
  - Intangible assets include knowledge, skills, and reputation
  - Take individual as the special case of an organization with one element

\[
\text{Capability} = f(\text{tangible assets, intangible assets, path})
\]
  - Path reflects the context of past experiences
  - Capabilities are themselves intangible assets

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Capabilities as a Basis for IS/IT Strategy

Strategy - statement of organizational position (actual or desired)

Strategy = f(scope, capabilities, governance)

Numerous interactions with IS/IT strategy can be viewed efficiently in the position form

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Capabilities as a Basis for IS/IT Structure

- Capabilities as an organizing logic of each structural unit promote modularity.
  - Modularity facilitates flexibility and adaptability.
  - Simplifies sourcing decision.
  - May facilitate acquisition of outside resources.
Capabilities as a Basis for IS/IT Management Systems

- Provides an integrated framework to relate management information and decisions
- Based on hierarchical nature of capabilities
IS/IT Strategy as a Positioning of Capabilities

IT strategy can be viewed as a statement of position

- **Scope** – range & reach of technology, functionality, and data
- **Competencies** – systemic and specific
- **Governance** – internal and external arrangements to develop and deploy capabilities/competencies in chosen scope

Operationally this is reflected in the role of IT and its portfolio of capabilities

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Taxonomy of Generic IS/IT Functional Strategies

- Definition of IS/IT Strategy Requires
  - Taxonomy for each of scope, competencies, and governance
  - Generic set of IS/IT strategies (each of which is a scope, competencies, governance combination)
### Operationalizing IS/IT Strategy Configurations

<table>
<thead>
<tr>
<th>Scope</th>
<th>3</th>
<th>2</th>
<th>2</th>
<th>4</th>
<th>47</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology Adoption – early, middle, late</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology Deployment – targeted, broad</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functions – simple, complex</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data – limited separate, limited integrated, extensive separate, extensive integrated</td>
<td>4</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competencies</th>
<th>3</th>
<th>3</th>
<th>3</th>
<th>27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management – high, medium, low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development – high, medium, low</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations – high, medium, low</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Governance</th>
<th>2</th>
<th>3</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralization – centralized, decentralized</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizing Logic – capability, function, client</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total configuration choices 48 x 27 x 6 = 7,756
Descriptors of IS/IT Positions

Scope
- Range of functionality (e.g. integration of a complex transaction from multiple applications)
- Reach of connectivity (e.g. across geographically spread out units with in the same business)

Capabilities
- Value chain
  - R&D/ Innovation
  - Operations/Solution Delivery
  - Marketing/Client Relations
  - Post Delivery Services
- Learning
- Management of Resources (Technological, Human, Financial, Relationship)

Governance
- Centralization
- Standardization
- Integration
- Sourcing

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<table>
<thead>
<tr>
<th>Scope</th>
<th>Reach</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anyone, anywhere</td>
</tr>
<tr>
<td></td>
<td>Customers, suppliers regardless of IT base</td>
</tr>
<tr>
<td></td>
<td>Customers, suppliers with the same IT base as ours</td>
</tr>
<tr>
<td></td>
<td>Across different business units abroad</td>
</tr>
<tr>
<td></td>
<td>Across different business units domestically</td>
</tr>
<tr>
<td></td>
<td>Across geographically spread single business unit locations</td>
</tr>
<tr>
<td></td>
<td>Within a single business location</td>
</tr>
<tr>
<td></td>
<td>Send messages</td>
</tr>
<tr>
<td></td>
<td>Access to stored information/intranet</td>
</tr>
<tr>
<td></td>
<td>Perform simple transactions</td>
</tr>
<tr>
<td></td>
<td>Perform complex transactions on multiple applications</td>
</tr>
</tbody>
</table>

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Summary

- Business – IS/IT alignment in terms of strategy “integration” does not sufficiently highlight the key distinction between business units (and their strategies) and corporate functional units (and their reflection of corporate strategy). Thus, the role of IS/IT strategy in reflecting the trade-offs among support for the various strategies is overloaded.

- Corporate functional unit strategies should reflect aspects of the corporate strategy (HR, R&D, Marketing, Finance, Operations)

- IS/IT strategy is not just the portion of business strategy that involves IS/IT (e.g. use IS/IT to increase switching costs)
IS/IT strategy should be stated in a way that gives guidance to the IS/IT “operations” beyond what portions of the business strategy involve IS/IT or the commitment to support business units with its activities.

There is a need to bridge the space between business/corporate strategy and IS/IT operations choices.

The choice of IS/IT strategy should influence the choice of IS/IT structure and management systems. (7 S’s – strategy, structure, systems, staffing, skills, style, shared values)
Use of the capabilities construct can help integrate the statement of IS/IT strategy with business and corporate strategies, with IS/IT structure, and with IS/IT management systems.

Capabilities are hierarchical from individual skills to projects, to portfolios of projects and on up to business capabilities.

Using capabilities as an organizing logic for IS/IT facilitates modularity that may be useful in high volatility environments.
Observations

1. There exist various data but mostly for point solutions/uses, are not consolidated/integrated (location, format, media) to provide systematic planning and control use

2. Existing data are not put into effective use

3. Tools versus processes

4. Need to be able to aggregate across levels of capabilities (individual-project-portfolio-function-enterprise)

5. If taken, an incremental approach, could gain significant value over time (status report, control, dashboard, improvement, decision support)
An Incremental Approach to Implement Capability Based IS/IT Portfolio Management

- Developing frameworks/training (awareness and shared vision)
- Inventory of individual components/portfolios (knowing)
  - Biz principles/architecture
  - Projects
  - Asset/applications
  - Skills/capabilities
- Maintaining Inventory of individual components/portfolios (sustaining)
- Relationships between components (integrating)
- Decision making
- Monitoring/control (dashboard)

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