Leveraging Information Systems for E-Business Performance

Advancing Information Strategy to ‘Internet Time’
"The lack of correlation of information technology spending with financial results has led me to conclude that it is not computers that make the difference, but what people do with them..."

-- Paul Strassmann, in *The Squandered Computer*
Illusive IT Performance Gains

“In the last 20 years, US industry has invested more than $1 trillion in technology, but has realized little improvement in the efficiency of its knowledge workers… and virtually none in their effectiveness…

... the problems businesses have assimilating technology are human ones”

- John Seely Brown in Information Strategy
The New World of “Re-Everything”

“In the increasing-returns world, especially in high tech, re-everything has become necessary because every time the quest changes the company needs to change. It needs to reinvent its purpose, its goals, its way of doing things.”

From Prediction to Anticipation

“The future is moving so quickly that you can't anticipate it...We have put a tremendous emphasis on quick response instead of planning.

We will continue to be surprised, but we won't be surprised that we are surprised...

...We will anticipate the surprise.”

– Steve Kerr in Planning Review
Information Strategy

Information & Control Systems for…

- Faster and faster pace of change
- Shift from incremental to radical change
- Shift from continuous to discontinuous change
- Shift from internal to external locus of change
- New world of business: world of “re-everything”
- Shift from reactive to anticipatory response

Shift from “Focus on Core Competencies”… to…
Creation of New Business Models and Industries
Information Strategy - Synopsis

• IT Performance is dependent upon effective utilization of IT…
• IT Performance is dependent upon the strategic context of IT utilization
• Business world of ‘re-everything’ requires ‘re-everything’ IT strategy and IT design

Integrated E-Business IT Architecture supporting…
“Agile” E-Business Service Architecture
### Process Focus: CQI to Radical Redesign

<table>
<thead>
<tr>
<th>Level of Change</th>
<th>TQM</th>
<th>BPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start From</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Frequency</td>
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<td>✓</td>
</tr>
<tr>
<td>Time Required</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Participation</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Typical Scope</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Risk</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Primary Enabler</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Type of Change</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

- **TQM**
  - ✓ Incremental
  - ✓ Existing Process
  - ✓ One-time/Continuous
  - ✓ Short
  - ✓ Bottom-Up
  - ✓ Narrow [within]
  - ✓ Moderate
  - ✓ Statistical Control
  - ✓ Cultural

- **BPR**
  - ✓ Radical
  - ✓ Clean Slate
  - ✓ One-time
  - ✓ Long
  - ✓ Top-Down
  - ✓ Cross-functional
  - ✓ High
  - ✓ I. T.
  - ✓ Cultural/Structural
From Reengineering to “Re-Everything”

OLD

Technology Focus

Reengineering
Rationalization
Automation

NEW

e-Customer Focus

“Re-Everything”
Business Model Innovation

Reengineering …IT-intensive Radical Redesign
Rationalization …Streamlining Workflows
Automation …Replacing humans with machines
“Re-Everything” for e-Customer Focus

“The most productive and successful companies focus on increasing market share by staying one step ahead of the customer and coming up with brand-new product innovations that will inspire his imagination, rather than by battling for market share in an already crowded market.”

“Quality, then, means anticipating the needs of the customer.”
Until Reengineering…

“Internal” Focus

Optimization-based Efficiencies

- Automation
- Rationalization
- Reengineering
  “Radical Redesign” of Business Processes

Beyond BPR
Beyond Reengineering…

“External” Focus

Re-everything

High

Low

RISK

Business Model Innovation

NEW

‘White Spaces’
Virtual Form
E-Form
Ecosystems
Extended Supply Chains…

“Radical Redesign”
of Business Processes

REENGINEERING

RATIONALIZATION

AUTOMATION
Beyond Reengineering…

‘e-Agility’ Focus

Radical Rethinking of the organization and its business

Low

High

RISK

Low

Business Model Innovation

NEW

‘White Spaces’
Virtual Form
E-Form
Ecosystems
Extended Supply Chains…

REENGINEERING

“Radical Redesign”

of Business Processes

70% RISKS

70% RETURNS

RETURN

‘Machine’ Focus

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Rapid Fire Changes – IT Infrastructures

“The classic timeline of BPR – where consultants are brought in, models are drawn up, and plans are implemented gradually – just isn’t fast enough...”

“Many companies can’t go back to the ‘clean slate’ and completely rearchitect critical systems such as order fulfillment and product databases from the bottom up because they greatly depend on existing infrastructures.”

“E-Business is forcing companies to rearchitect all or part of their IT infrastructures – and to do it quickly.”

- Rapid Fire IT Infrastructures, Information Week, January 31, 2000
The E-Business (R)evolution

- Why firms exist? The Net changes everything!!
- **Emergence** of e-Business Communities
  - iVillage.com, AOL, Amazon.com, Geocities, Linux,…
- Emphasis on **intellectual capital and intangibles**
- Beyond ‘Deep Blue’ and Kasparov…
- Business ecosystems – complementary co-evolution
- From ‘core’ to creating new markets & industries
- Splitting of the ‘atoms’ and the ‘bits’
- Click-and-mortar vs. ‘Pure Plays’
Strategic Context of IT Utilization

‘Old’ Biz

- Metaphor
- Knowledge
- Assets
- Strategy
- Design
- Role of IT
- Management
- Returns

Ecosystem
- Creation
- Intangibles
- Anticipation
- Edge of Chaos
- Diverge
- Self-Control
- Increasing

E-Biz

- Machine
- Utilization
- Tangibles
- Prediction
- Structure
- Converge
- Compliance
- Diminishing

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The E-Business (R)evolution

“We’re shifting back to our natural way of doing business because of the Net. For most business history, people did business through bazaar, where the exchange of knowledge was the raison’d’etre and the exchange of currency and products the by-product.”


“To be truly successful with B2C E-business, you need a different set of skills and deliverables than what would have made you successful in the pre-Web time.”
BPR to e-Agility

<table>
<thead>
<tr>
<th>BPR</th>
<th>e-Agility</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Radical</td>
<td>✓ Radical / Incremental</td>
</tr>
<tr>
<td>✓ Clean Slate</td>
<td>✓ Existing Model</td>
</tr>
<tr>
<td>✓ One-time</td>
<td>✓ Ongoing</td>
</tr>
<tr>
<td>✓ Long</td>
<td>✓ Short / Long</td>
</tr>
<tr>
<td>✓ Top-Down</td>
<td>✓ All Levels</td>
</tr>
<tr>
<td>✓ X-functional</td>
<td>✓ X-Network</td>
</tr>
<tr>
<td>✓ High</td>
<td>✓ High / Critical</td>
</tr>
<tr>
<td>✓ IT</td>
<td>✓ IT / Human Capital</td>
</tr>
<tr>
<td>✓ Culture/Structure</td>
<td>“Re-Everything”</td>
</tr>
</tbody>
</table>
Changing Business Environment
Information Processing vs. Business Model Innovation

• **OLD Focus on Information-Processing (Automation)**
  – Focus on ‘right questions’ and ‘best answers’
  – Emphasis on Information systems and databases
  – Digitized memory, experience and expertise
  – Technology is central, People are less important

• **NEW Focus on Business Model Innovation (e-Agility*)**
  – Multiple views of the problems and related solutions
  – Emphasis on Vision, Beliefs and Action.
  – Creative conflict, Dialog, ‘Questioning the Status Quo’
  – People are central, Technology is also important
KNOWLEDGE PROCESS

Knowledge Creation

Knowledge Utilization

Human Capital as Key Enabler

External Controls for Compliance

Self Controls for Commitment

Self Control for Knowledge Utilization

‘Wicked’ Organizational Environment

Pre-specification of rules, procedures and best practices

Stable and Predictable Organizational Environment

Supplier Coopetition in Business Ecosystems

Customer Driven Virtual Communities

e-Biz (R)evolution

Human Capital as Key Enabler

Customer Driven Virtual Communities

Supplier Coopetition in Business Ecosystems

Human Capital as Key Enabler

FROM COMPLIANCE TO COMMITMENT

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Business Model Innovation for E-Biz Performance

- Focus on performance outcomes of organizational adaptation, survival, and competence
- Embodies organizational knowledge processes
- Seeks synergistic combination of
  - data and information-processing capacity of information technologies, and,
  - creative and innovative capacity of human beings.

"The wise see knowledge and action as one."
   -- Stafford Beer, quoted from Bhagvad-Gita
Leveraging Innovation & Technology*

- Non-linear Technologies for a Non-linear era
- Designing Systems for Creative Abrasion
- Designing for Divergence of Meaning
- Designing for Emergence of Knowledge
- Designing “Loose-Tight” Systems
  - Ongoing ‘learning’ and ‘unlearning’
  - Renewal of organizational memory
  - Multiple views of ‘problems’
  - Creating multiple ‘solutions’
e-Business Performance

e-Business Model Innovation

RADICAL DISCONTINUOUS CHANGE

DESIGN FOR AGILITY, FLEXIBILITY AND ADAPTABILITY

INFORMATION-PROCESSING MODEL OF KM

SENSE-MAKING MODEL OF KM

GUIDING FRAMEWORK OF KNOWLEDGE MANAGEMENT

TIGHT EFFICIENCIES OF SCALE & SCOPE

LOOSE AGILITY & FLEXIBILITY

OPTIMIZATION-DRIVEN PROCESSING FOR EFFICIENCY

KNOWLEDGE CREATION & RENEWAL FOR EFFECTIVENESS

INTEGRATION OF DATA, ACTIVITIES & PROCESSES

CREATIVE ABRASION & CREATIVE CONFLICT

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e-Business Performance

Intellectual Capital & Financial Capital

Financial Capital

Past

Market Capital
Present

Human Capital

Process Capital
Present

Renewal & Development Capital
Future

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Intellectual Capital & Intangible Assets

Human Capital: Capabilities of *individuals* to provide *solutions* to the *market* (*Products*)

Structural Capital: Organizational capabilities to meet market requirements (*Processes*)

Market Capital: Value of an organization’s relationships and networks (*Channels*)
Dimensions of e-Business Performance

- Increasing Returns
- Virtual product
- Virtual channel

From Bricks to Clicks
From Atoms to Bits
‘Gray Matter’ to e-Matter
From BPR to e-Agility

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Business Model Innovation for E-Biz Performance

Information Networks + Creativity & Innovation ➔ Knowledge Management ➔ e-Business Performance

Product – From atoms to bits
Channel – From bricks to clicks
Processes – From BPR to e-Agility
Industrial Age Corp.
Vertical Fully Integrated

Customer Driven
Virtual Communities

Supplier Coopetition in Business Ecosystems

Human Capital as Key Enabler

Customer-driven e-Markets

E-Business Ecosystems

Cyber Corporation Extended ‘Chains’ Tightly coupled

Product – From atoms to bits
Channel – From bricks to clicks
Processes – From BPR to e-Agility
Promise & Challenge of Knowledge Markets

- Individual and Organizational Knowledge
- Why people search for knowledge?
- Exchanges of knowledge
- Market forces of knowledge exchange ???
- Formal and informal exchanges of knowledge
- Players in the K-market
Political Economy of Knowledge Markets

- Buyers, sellers and brokers
- Knowledge sharing vs. knowledge hoarding
- Incentives and rewards for K-sharing???
- Formal & Informal roles
- K-experts and K-entrepreneurs
- Price system: reciprocity, repute, altruism
- Deposits in the ‘goodwill’ bank
The K-Price System

• Reciprocity – ‘the favor bank’
• Repute – increasing importance
• Altruism – for the love of it…
• Trust – visible, ubiquitous, from the top…
• Knowledge Market Signals
  – Credentials, positions and education
  – Informal networks – largely unseen
  – Communities of Practice (CoPs) – slackers???
K-Market Inefficiencies & Pathologies

- Incompleteness of information
- Asymmetry of Knowledge
- Localness of Knowledge
- Monopolies
- Artificial Scarcity
- K-trade barriers – NIH, status issues
The Knowledge Edge

- Accounting for K-Assets
- K-assets versus capital assets
- Intangible assets – brands, vision, patents, loyalty, ‘stickiness’, anticipated future…
- Intellectual Capital – Human, Market, Structural
Drivers of KM

- Failing to Know what you Know
- Can’t find what is needed...
- Lessons learned but not shared
- Playing the catch up game...
- K-Sluggishness – successes vs. failures
- K-Velocity – I to K to A
- Tacit Knowledge vs. Explicit Knowledge
KM Drivers

- K=Power
- Unlearning vs. Learning
- Compressed Product & Process Life Cycles
- K – Strategy – IT – Linkage
- Product, Service, Industry convergence
- Learning from Past Mistakes
- Predictive Anticipation
- Increasing Returns