Scale, Scope, Speed

ABI Focus Series: The Leaders' Edge --
Innovating to Create Customer Value

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IBM Advanced Business Institute
September 10, 2001, at Palisades, New York
What will be the focus for the next 90 minutes?

How should we understand the initiatives and investments driven by e-business?
What will be the focus for the next 90 minutes?

Influencing ... e-business solutions architectures

How should we understand the initiatives and investments driven by e-business?

Informed by ... ideas from Adaptive Enterprise / Sense & Respond
What will be the focus for the next 90 minutes?

How should we understand the initiatives and investments driven by e-business?

influencing ... e-business solutions architectures

informed by ... ideas from Adaptive Enterprise / Sense & Respond

Facing issues in the "Business-I/T Gap"
- Business ↔ Information Technology
- Business Operations ↔ Business Economics
- (Model ↔ Variation) and (Model ↔ Change)
A. Economics foundations with exercise 1

B. Capacity and capabilities with exercise 2

C. Application in the "dialogue"

Appendix: References
A. Economics foundations with exercise 1

B. Capacity and capabilities with exercise 2

C. Application in the "dialogue"

Appendix: References
Why invest, as a firm?

Related to:
"Theory of the Firm"; "Institutional Economics"; "Transaction Cost Economics"

<table>
<thead>
<tr>
<th>&quot;The Visible Hand&quot;</th>
<th>&quot;The Invisible Hand&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management</td>
<td>Markets</td>
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<tr>
<td>Intent</td>
<td>Emergence</td>
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<tr>
<td>Development</td>
<td>Efficiency</td>
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<tr>
<td>Investment</td>
<td>Self-Organization</td>
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</table>

Source: David Ing, IBM Advanced Business Institute
Management should be motivated by at least one of the economies of scale, scope, or speed. The visible hand can decrease costs more rapidly than the invisible hand through:

- **economies of scale**
  - larger plants
  - division of labor

- **economies of scope**
  - joint production or distribution
  - knowhow reapplied
  - intensity with customers

- **economies of speed**
  - integration of work
  - coordination of work flows

See Appendix for references.
These economies can "pull" the business in three different directions.
Research into defining metrics has resulted in reconsidering speed as two separate ideas:

- **Scale**: A rate at which products are created.

- **Scope**: A rate at which relationships are leveraged.

- **Speed (as variation)**: A rate at which existing capabilities are assembled in different ways.

- **Speed (as innovation)**: A rate at which new capabilities are developed and deployed.

*Source: David Ing, IBM Advanced Business Institute*
**Exercise 1 ...**

What metrics for scale, scope, variation and innovation make sense for your e-business?

**Examples**

<table>
<thead>
<tr>
<th></th>
<th>metric for scale</th>
<th>metric for scope</th>
<th>metric for variation</th>
<th>metric for innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>a B2B e-market</td>
<td># of orders per week</td>
<td># of persons per B2B customer served per week</td>
<td># of catalogs customized per week</td>
<td># of new RfPs (Requests for Proposals) or RfQs (... for Quotations) per month</td>
</tr>
<tr>
<td>a portal</td>
<td># of web pages served per week</td>
<td># of categories viewed per profile- holder per week</td>
<td># of profiles self-configured by users per week</td>
<td># of new sponsors per month</td>
</tr>
</tbody>
</table>
In a continued discussion on economics, questions would include ...

In your industry, what would be considered ...

- (small, moderate and large) scale?
- (narrow, moderate and wide) scope?
- (focused, moderate and broad) variation?
- (slow, moderate and quick) innovation?

At what scale, scope, variation and innovation are you currently operating?
A. Economics foundations with exercise 1

B. Capacity and capabilities with exercise 2

C. Application in the "dialogue"

Appendix: References
Why invest in capacity?

Forecast, Budget, Make, then Sell

Sense Customer Value, Establish Capabilities, Dispatch Unique

Source: David Ing, IBM Advanced Business Institute
The portion invested toward each of the economies reflects e-business direction.

**Example: Mass Producer**
- Large scale, moderate scope, rapid speed in variation, slow speed in innovation

**Example: Custom Inventor**
- Small scale, broad scope, slow speed in variation, rapid speed in innovation
The motivation behind e-business initiatives can be categorized by the four economies:

- An investment in *physical plant* can result in economies of scale, e.g. faster servers, more storage, application functionality.

- An investment in *customer relationships or physical distribution* can result in economies of scope, e.g. e-marketing, global presence.

- An investment in *coordination, personalization or workflow* can result in economies of speed through *adaptive variation*, e.g. instant messaging; self-service production configurators / bots; inter-enterprise integration with procurement systems.

- An investment in *collaboration, business intelligence or knowledge management* can result in economies of speed through *adaptive innovation*, e.g. purchase pattern recognition / data mining, collaborative design of new products, e-community development.
What portion of your investment primarily enables scale, scope, variation or innovation in e-business?

**Examples**

<table>
<thead>
<tr>
<th>% of investment primarily towards</th>
<th>previous investment</th>
<th>investment period forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>scale-oriented capabilities</td>
<td>50% (infrastructure)</td>
<td>10%</td>
</tr>
<tr>
<td>scope-oriented capabilities</td>
<td>10%</td>
<td>40% (trade show)</td>
</tr>
<tr>
<td>variation-oriented capabilities</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>innovation-oriented capabilities</td>
<td>30% (new function)</td>
<td>35% (new function)</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
In foresight, designing for ranges of scale, scope and speed involves trade-offs between the three:

**Scale**
- A rate at which products are created
- E.g. # of products delivered per period

**Scope**
- A rate at which relationships are leveraged
- E.g. # of customers served per week

**Speed (as variation)**
- A rate at which existing capabilities are assembled in different ways
- E.g. # of different configurations of capabilities assembled per week

**Speed (as innovation)**
- A rate at which new capabilities are developed and deployed
- E.g. # of completely new capabilities introduced (or obsoleted capabilities outmoded) per week

*Source: David Ing, IBM Advanced Business Institute*
In hindsight, scale, scope and speed may be observed within or outside expectations.

**Scale**
- A rate at which products are created
- E.g. # of products delivered per period

**Scope**
- A rate at which relationships are leveraged
- E.g. # of customers served per week

**Speed (as variation)**
- A rate at which existing capabilities are assembled in different ways
- E.g. # of different configurations of capabilities assembled per week

**Speed (as innovation)**
- A rate at which new capabilities are developed and deployed
- E.g. # of completely new capabilities introduced (or obsoleted capabilities outmoded) per week

**Source:** David Ing, IBM Advanced Business Institute
In a continued discussion on capabilities, questions would include ...

Which are the most important capabilities requiring investment and deinvestment, to support the enablement of ...

- scale,
- scope,
- variation, and
- speed?
A. Economics foundations with exercise 1

B. Capacity and capabilities with exercise 2

C. Application in the "dialogue"

Appendix: References
"Capacity and capabilities" is part of a two-day dialogue to convert "unknown unknowns" to "known unknowns"
The containing context includes the design environment and business direction

<table>
<thead>
<tr>
<th>Customer Set(s)</th>
<th>Influencers</th>
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<tbody>
<tr>
<td>Organizational Purpose &amp; Bounds</td>
<td>Strategic Control</td>
</tr>
<tr>
<td>Capacity &amp; Capabilities</td>
<td></td>
</tr>
</tbody>
</table>
Capability investment also requires understanding viability of capital flows

| Capacity & Capabilities | Capital Flows |
The deployment of capabilities is different when compact than when expansive.
How should we understand the initiatives and investments driven by e-business?

Facing issues in the "Business-I/T Gap"
- Business ⇌ Information Technology
- Business Operations ⇌ Business Economics
  - (Model ⇌ Variation) and (Model ⇌ Change)

Capacity and capabilities is a key component in the understanding of e-business

- Customer Set(s)
- Influencers
  - Organizational Purpose & Bounds
  - Strategic Control
  - Capacity & Capabilities
  - Capital Flows
  - Sites & Territories [Physical Space]
  - Roles & Communities [Social Space]
  - Representations & Classifications [Information Space]

Enabling Infrastructure
A. Economics foundations with exercise 1

B. Capacity and capabilities with exercise 2

C. Application in the "dialogue"

Appendix: References
Why the "visible hand" of management, when there's an "invisible hand" in markets?

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<tr>
<th>Economies of scale</th>
<th>Economies of scope</th>
<th>Economies of speed</th>
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<tr>
<td>.. in the size of plant, and in division of labor</td>
<td>.. in joint production or distribution</td>
<td>.. in integration and coordination of work</td>
</tr>
<tr>
<td>• Economies of scale ... result when the increased size of a single operating unit producing or distributing a single product reduces the unit cost of production or distribution. [Chandler, p. 17]</td>
<td>• Economies of joint production or distribution are those resulting from the use of processes within a single operating unit to produce or distribute more than one product. [Chandler, p. 17]</td>
<td>• Increases in productivity and decreases in unit costs ... resulted ... from the increases in the volume and velocity of throughput.... Such economies came more from the ability to integrate and coordinate the flow of materials through the plant .... [Chandler, p. 281]</td>
</tr>
<tr>
<td>.. in knowhow</td>
<td>.. in knowhow</td>
<td></td>
</tr>
<tr>
<td>• Knowhow ... represents a shared input which can find a variety of end product applications .... The transfer of proprietary information to alternative activities is likely to generate scope economies if organizational modes can be discovered to conduct the transfer at low cost. [Teece, p. 226]</td>
<td>• &quot;Economies of scope&quot; ... derive from &quot;knowhow&quot; about individual customers. The more expertise any single enterprise has with respect to meeting the needs of an particular, individual customer, the greater that enterprise's economies of scope will be for selling that individual a series of products -- both in terms of different products and the same products sold repeatedly over an extended period of time. [Peppers &amp; Rogers, pp. 407-408]</td>
<td></td>
</tr>
<tr>
<td>.. in customers</td>
<td></td>
<td></td>
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