Assessing a complex, uncertain and disruptive technology environment for better IT alignment

Utility, Usability and Complexity of Emergent IS
Namur, December 2003

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Agenda

- **Business/IT alignment**
  - Internal, external & evolution

- **Business model**
  - IT profile
  - Application portfolio and IT infrastructure
  - Balanced Score Card

- **Environment assessment**
  - Complexity, uncertainty and disruptiveness
  - Environment model
  - Assessment tools

- **Evolution scenarios**
Information systems

- INFORMATION
- DECISION
- COORDINATION

- Teamwork
- Organization
- Inter-organizational

- MIS
- ERP
- BSC
- DSS
- CSCW
- SCM
- CRM
- workflow
3 levels of alignment (adaptation of IS)
Alignment with business

[Venkatraman, 1993]

Strategic Fit

**Business Strategy**
- Business Scope
- Distinctive Competencies
- Business Governance

**IT Strategy**
- Technology Scope
- Business Governance

**External**
- Automation

**Internal**
- Administrative Infrastructure
- Processes
- Skills

**Organizational Infrastructure and Processes**

**/business model**

**Strategic Linkage**

**Functional Integration**

**Technology**

**Business**
PART 1 - Business Model

WHAT?

Product innovation

Proposition

Infrastructure operation

Customer relationship

Financial Aspects

Revenue

Cost

Profit

WHO?

Customer

Channel

Relationship

HOW?

Capability

Configuration

Partnership

HOW MUCH?
A business model ontology
Business model with XML

Computer-aided design
Business model handbook
Value proposition, capabilities and customers

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<tr>
<th>Capability</th>
<th>Value Proposition</th>
<th>Target Customer</th>
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<td>Attractive MJF venue</td>
<td>MJF concerts</td>
<td>Festival visitors</td>
</tr>
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<td>Mobilize Volunteer Staff</td>
<td>MJF off</td>
<td>Shops</td>
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<tr>
<td>Atmosphere &amp; Experience</td>
<td>MJF frequentation</td>
<td>Sponsors</td>
</tr>
<tr>
<td>Contract stars</td>
<td>MJF sponsorship</td>
<td>Record, TV, artists</td>
</tr>
<tr>
<td>Attract people</td>
<td>MJF recordings</td>
<td>Franchisees</td>
</tr>
<tr>
<td></td>
<td>MJF Brand &amp; Franchise</td>
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</tbody>
</table>
Detailed value proposition

VALUE PROPOSITION Name: MJF sponsorship

Description: The international reputation and the size of the MJF makes it an ideal partner for sponsorships. With its great concerts, large crowd and international media presence it gives affiliated sponsors a large visibility.

Reasoning: {Use}: An MJF sponsorship contract gives a partner the possibility to potentially address 240'000 people and build be co-branded with the MJF.

{Risk}: As the MJF is an established institution with an established brand and a solid customer base the risk of entering a troubled partnership is very low.

Value level: {Me-too}: The MJF is a mass advertising "media" among others. Thought it is one of the top established festivals the value level of a sponsorship with the MJF is comparable to other festivals.

Price level: {Market}: The price level of a sponsorship at the MJF is situated at market levels.

Composed of OFFERINGs: (the detailed OFFERINGs are captured in annex XXX)

- Affiliation
- Advertising space
- Sponsors' events
- Free tickets

Value for TARGET CUSTOMER: TARGET CUSTOMER 3: Sponsors

Based on CAPABILITYies:

CAPABILITY 2: Attract and feature great stars and concerts

CAPABILITY 4: Attract people
## Distribution channels

### Channel strategy at the Montreux Jazz Festival (essentially for Festival visitors)

<table>
<thead>
<tr>
<th>Channel</th>
<th>Awareness</th>
<th>Evaluation</th>
<th>Purchase</th>
<th>After sales</th>
</tr>
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<tbody>
<tr>
<td><strong><a href="http://www.montreuxjazz.com">www.montreuxjazz.com</a></strong></td>
<td>Online program, news feed and real videos of past concerts</td>
<td>Artist descriptions, online program, MJF virtual tour</td>
<td>Online ticketing (48% of tickets) and online shop</td>
<td>Real videos of past concerts, various information</td>
</tr>
<tr>
<td><strong>MJF event</strong></td>
<td>Advertising for upcoming events</td>
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<tr>
<td><strong>Ticket Corner</strong></td>
<td>MJF advertising</td>
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<tr>
<td><strong><a href="http://www.ticketcorner.ch">www.ticketcorner.ch</a></strong></td>
<td>MJF concert listing</td>
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</tr>
<tr>
<td><strong>MJF program</strong></td>
<td>Free distribution of the MJF program, also as supplement</td>
<td>Artist and event descriptions</td>
<td>Online ticketing</td>
<td></td>
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<tr>
<td><strong>Media</strong></td>
<td>Emissions, and supplements on the MJF</td>
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<tr>
<td><strong><a href="http://www.montreuxsounds.com">www.montreuxsounds.com</a></strong></td>
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<tr>
<td><strong>MJF Sponsors</strong></td>
<td>Program distribution</td>
<td></td>
<td></td>
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<tr>
<td><strong>Swiss Tourism: Top Events of Switzerland</strong></td>
<td>Worldwide promotion</td>
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</tr>
</tbody>
</table>

**Swiss-wide ticket agency shops**

- 46% of tickets

**Program database, taste real videos**
Distribution channels

**CHANNEL Name:** www.ticketcorner.ch

**Description:** www.ticketcorner.ch belongs to Ticket Corner and is a partner CHANNEL that sells tickets of various Swiss events from concerts to sports events. They also sell MJF concert tickets.

**Reasoning:**
- **{Use}:** The concerts of the MJF can conveniently be found on the website in the Ticket Corner database.
- **{Effort}:** The customer can comfortably order the tickets over the Internet and get them delivered directly to his home.

**Value level:**
- **{Me-too}:** Online ordering of tickets for a specific event have become quite commonplace.

**Price level:**
- **{Free}:** Customers have to pay a fee for handling an delivery of an order.

**Composed of LINKs:**
- MJF concert listing.
- Online ticketing.

**Delivers VALUE PROPOSITION:** VALUE PROPOSITION 1: MJF concert (tickets).

**Delivers to TARGET CUSTOMER:** TARGET CUSTOMER 1: Festival visitors.
Activités & ressources

Focus: Programming decomposed into its sub-activities (forming a value shop)

- Define concert date and stage to be filled
- List music styles and possible artists
- Evaluate concert and ticket sales
- Nobs & staff

Execution
- Put artist in program
- Choose artist

Problem finding

Evaluation

Problem solving

Activity

Resource

By ACTOR

Legend

NETWORK PROMOTION
- Contract musicians
- Contract sponsors
- Ticketing
- Advertising the MJF

SERVICE PROVISIONING
- Selling recordings
- Concernts
- Food & Beverages
- Commerce
- Merchandising

NETWORK INFRASTRUCTURE
- Programming
- Recording concerts
- Production
- Manage infrastructure
- Manage volunteers

Sponsors
- Nobs & staff

Swiss tourism, Montreux Sounds
- Ticketing

Montreux Jazz Festival (MJF)

Montreux, Ticket Corner
- Advertisers
- Caterers
- Heineken
- Shops
- Municipality

Montreux Sounds
- Instruments
- Venues
- Share

Jazz
- Records
- Fit

Le lendemain
- Le lendemain
- Le lendemain

By MJF, sponsors, media, Nobs, "Switzerland tourism, Montreux Sounds"
Business model and business/IT alignment

Balanced ScoreCard

IS role
- PROSPECTOR
- ANALYZER
- DEFENDER

IS sourcing

IS structure

Alignment profile

STRATEGY
- Product innovation
- Infrastructure operation
- Customer relationship

ORGANIZATION
- Financial Aspects

TECHNOLOGY

IT application portfolio

Application infrastructure
- Communication
- Data management
- IT management
- Security
- Architecture & standards
- IT research & development
- IT education

IT infrastructure
IT infrastructure (e-payment)
IT infrastructure

[Weill, 2002]
Application portfolio

[Ward, 2002]

1. HIGH POTENTIAL
   Applications that may be important in achieving the future

2. STRATEGIC
   Applications that are critical to sustaining future

3. KEY OPERATIONAL
   Applications that are essential for success

4. SUPPORT
   Applications that are valuable for success

McFarlan
## IT infrastructure & application portfolio alignment

<table>
<thead>
<tr>
<th>IT infrastructure</th>
<th>IT application portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Application infrastructure</strong></td>
<td><strong>Value proposition</strong></td>
</tr>
<tr>
<td>Communication</td>
<td></td>
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<tr>
<td>Data management</td>
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<tr>
<td>IT management</td>
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<tr>
<td>Security</td>
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<tr>
<td>Architecture &amp; standards</td>
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<td>IT research &amp; development</td>
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<td>IT education</td>
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<table>
<thead>
<tr>
<th><strong>Target customers</strong></th>
<th><strong>Distribution channels</strong></th>
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<table>
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<tr>
<th><strong>Customer relationship</strong></th>
<th><strong>Capabilities</strong></th>
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<tr>
<th><strong>Activities</strong></th>
<th><strong>Partnerships</strong></th>
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<th><strong>Revenues</strong></th>
<th><strong>Costs</strong></th>
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<th><strong>TURNAROUND</strong></th>
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<tr>
<td>FACTORY</td>
<td>SUPPORT</td>
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<table>
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<th><strong>HIGH POTENTIAL</strong></th>
<th><strong>STRATEGIC</strong></th>
<th><strong>KEY OPERATIONAL</strong></th>
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</thead>
</table>

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# IT infrastructure alignment

## Value Proposition

- **✓** = basic service
- **☆** = key service
- **?** = potential basic service
- **☆☆** = potential key service
- **grey** = subject to change

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<tr>
<th>IT infrastructure</th>
<th>Application Infrastructure</th>
<th>Communication Infrastructure</th>
<th>Data Management</th>
<th>IT Management</th>
<th>Security</th>
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<td>NUF off</td>
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<td>NUF inauguration</td>
<td>☆☆</td>
<td>☆☆</td>
<td>☆☆</td>
<td>☆☆</td>
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<td>NUF recordings</td>
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<td>NUF brand &amp; franchise</td>
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</tbody>
</table>

### Target Customers

- Festival visitors
- Shoppers
- Sponsors
- Record, TV, artists
- Franchisees

### Distribution Channels

- [www.montreuxjazz.com](http://www.montreuxjazz.com)
- NUF event
- Ticket Corner
- [www.ticketcorner.ch](http://www.ticketcorner.ch)
- NUF program
- Media
- [www.montreuxsounds.com](http://www.montreuxsounds.com)
- NUF sponsor
- [Swiss Tourism (TOS)](http://www.swiss-tourism-tos.com)

### Relationships

- Sponsorship & VIP
- Festival visitor
- All (retention/branding)

### Capabilities

- Attract NUF venue
- Attract & retain donors

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Alignment profiles

[Hirschheim, 2001]

<table>
<thead>
<tr>
<th>Alignment Profile</th>
<th>Infusion: Alignment through Business Leadership</th>
<th>Alliance: Alignment through Partnering</th>
<th>Utility: Alignment through Low Cost Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Strategy</td>
<td>Prospector</td>
<td>Analyzer</td>
<td>Defender</td>
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<tr>
<td>IIS Strategy</td>
<td>Opportunistic</td>
<td>Comprehensive</td>
<td>Efficient</td>
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<tr>
<td>• IS Role</td>
<td>Insourcing</td>
<td>Selective Sourcing</td>
<td>Outsourcing</td>
</tr>
<tr>
<td>• IS Sourcing</td>
<td>Decentralized</td>
<td>Shared</td>
<td>Centralized</td>
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<tr>
<td>• IS Structure</td>
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## Alignment profiles

<table>
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<tr>
<th>IS Strategy</th>
<th>Alignment through Business Leadership</th>
<th>Alignment through Partnering</th>
<th>Alignment through Low Cost Delivery</th>
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<td>IS Structure</td>
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</table>
Balanced scorecard (BSC) & Intangible Assets Monitor

How to improve our services and our quality?

How do the customers perceive us?

How do shareholder perceive us?

In which process do we have to prove excellence?

[Kaplan, 1992]
### Balanced scorecard (BSC)

<table>
<thead>
<tr>
<th>BM element</th>
<th>Indicator</th>
<th>current</th>
<th>target</th>
<th>alarm</th>
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<tbody>
<tr>
<td>Value Proposition</td>
<td>MJF concerts</td>
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<td>Target Customer</td>
<td>Franchisees</td>
<td></td>
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<td>F&amp;B</td>
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<td>Attract and feature stars</td>
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<td>F&amp;B</td>
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<td>Cost Structure</td>
<td>Artists</td>
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<td>Revenue Model</td>
<td>Merchandizing</td>
<td></td>
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</tr>
</tbody>
</table>

- Percentage of seat capacity sold
- Quality of franchised festival
- Media coverage (e.g. Nr. of TV broadcasts)
- Sponsor questionnaire
- Hours out of beer
- Nr. of top 20 Jazz musicians
- Nr. of different exotic food stand
- Cost of contracts
- Percentage of total revenues
PART 2 - Environment Model
Assessing a technology environment …

Multi-perspective MODEL

PRODUCT INNOVATION

Financial aspects

Customer Market

Infrastructure Industry

LANDSCAPE
m-Business

REPRESENTATION

Analysis & visualization TOOL

Observation & capture STUDY

 Observation & capture STUDY
... and its evolution

[Meyer, 2003]

1. SCIENCE (Gestation)

2. TECHNOLOGY (Growth)

3. BUSINESS (Maturity)

4. ORGANIZATION (Decline)

[FOUR-QUARTER MODEL]

ECONOMIC VALUE ADDED

TIME

Sensor networks

TODAY

assessment

assessment
Multi-technology life cycle

FOUR-QUARTER MODEL

ECONOMIC VALUE ADDED

TIME

1. SCIENCE (Gestation)
2. TECHNOLOGY (Growth)
3. BUSINESS (Maturity)
4. ORGANIZATION (Decline)

RFid
P2P
WLAN

Sensor networks

assessment
Disruptive technology

[Christensen, 1997]

A disruptive technology is a technology or innovation that results in worse product performance, at least in the near term...

[It] brings to the market a very different value proposition than had been available previously...

Products that are based on disruptive technologies are typically cheaper, simpler, smaller, and, frequently, more convenient to use.

[But, they generally] under-perform established products in mainstream markets.
Hype curve for transportation technologies

Source: [Gartner, 2003]
No prediction …

• “This 'telephone' has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.”
  [West Union internal memo, 1876]

• “I have travelled the length and breadth of this country and walked with the best people, and I can assure you that data processing is a fad that won't last out the year.”
  [The editor of management books at Prentice-Hall, 1957]

• “There is no reason anyone would want a computer in their home.”
  [Ken Olsen, President and founder of Digital Equipment Corp., 1977]

• More recently, nobody anticipates the SMS phenomena …

… but scenarios
Assessing a technology environment

Environment
  - uncertain
  - complex
  - disruptive

Ontology
  - ISSUE
  - ACTOR
  - USE

Analysis
  - Structural analysis
  - Actor-issue analysis
  - Five forces analysis
  - Policy network analysis
  - Disruption analysis
  - Adoption analysis

MODEL
  Multi-perspective

Analysis & visualization
  TOOL

for assessing environment and designing scenarios
  (present)
  (future)
Actor/competitor analysis

[Porter, 2001]

Competitive analysis

Substitute products (services)

Rivalries among the competitors

New entrants

Customers (channels)

Suppliers

Bargaining power

Competitive forces

threats

Barriers to entries
Multi-perspective model: Actor, Issue and Usage

- **Actor**: Competitors, Business models, Infrastructure, Industry
- **Issue**: Product innovation
- **Usage**: Customer Market, Financial aspects
- **Influence**: Supply & position of stakeholders, Demand & adoption by the users

Factor & debatable question that influence the future
Actor/Issue focus

GOALS
- ranks the stakeholders’ positions on many strategic issues,
- assess the convergences and divergences, and
- anticipates coalitions and conflicts.

ROLES
- Prospective: prepare scenarios
- Negotiation

[Alias, 2001] [Godet, 2001]
Actor/issue input

• **POSITION**
  – What is the stakeholder’s preferred outcome on this issue?

• **SALIENCE**
  – How important is this issue to the stakeholder as compared with all other issues?

• **CLOUT**
  – As compared with other players, how much power does the stakeholder have to influence the decision on this issue?

• **INFLUENCE**
  – Which power has an actor to influence the behavior of another actor?
Influence model

- Actors influence other actors in order to use their clout on issues or their influence on other actors

- Direct influence: actors use their influence
  - to control part of the influenced actor's clout

- Indirect influence: the influence is used both
  - to control the influenced actor's clout and
  - to gain control of part of its influence

- Analysis
  - Influence & dependence
  - Mobilisation
  - Convergence & divergence …
Analysis and visualization system

Multi-Actor Strategic Analysis Model
## WLAN (wifi) issues

<table>
<thead>
<tr>
<th>Mobility</th>
<th>Wide Area</th>
<th>Device</th>
<th>FreeNet</th>
<th>Regulation</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Stationary</td>
<td>notebook</td>
<td>Few hotspots</td>
<td>Commercial only</td>
<td>Tight Licensing</td>
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<tr>
<td>neighborhood LAN</td>
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<td>1</td>
<td></td>
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<td>Nomadic</td>
<td>PDA</td>
<td>Many hotspots roaming</td>
<td>coexistence</td>
<td>Status quo</td>
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<td>Mobile</td>
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<td>Ubiquitous</td>
<td>Free networks</td>
<td>Loose</td>
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<td>WLAN &amp; GSM</td>
<td>mainly</td>
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</tbody>
</table>
WLAN (wifi) actors

- Mobile network operators (MNOs)
- Internet service providers (ISPs)
- Venues
  - Airports, hotels, cafes…
- Communities
  - and free networks (Myotis)
- Informatics-related companies
  - Hardware, software, network equipment, …
- Telephony-related companies
  - Device manufacturer, equipment, …
- Regulator
Position, salience & clout

<table>
<thead>
<tr>
<th></th>
<th>Mobility</th>
<th>Device</th>
<th>Wide Area</th>
<th>Free Net</th>
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Table 2: Position matrix

<table>
<thead>
<tr>
<th></th>
<th>Mobility</th>
<th>Device</th>
<th>Wide Area</th>
<th>Free Net</th>
<th>Regulation</th>
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<td>4</td>
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Table 3: Salience matrix

<table>
<thead>
<tr>
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<th>Wide Area</th>
<th>Free Net</th>
<th>Regulation</th>
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<tr>
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<td>0</td>
</tr>
<tr>
<td>Informatics</td>
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<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Telecom</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Regulator</td>
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<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 4: Clout matrix

- Interviews of actors
  - UniSG & Unil
- Case studies (WISP)
  - CHUV
  - Zurich Airport
  - Swisscom Mobile
  - Sunrise TDC
  - Monzoon
  - Netair
  - Myotis
  - …
- DELPHI approach
  - Matrices by experts
  - Consensus in meeting
Influence analysis

- Influence and relationship between actors
  - Dominancy, control, power, auto-control …

The operator can use its influence on the regulator.

MNOs powerful

Venues under control

Regulator is a conciliator …

relative power

auto-determination

influence by the others
Issue analysis and dissatisfaction

- Expected outcome of issues and dissatisfaction of actors
  - Importance of issue
  - (in-)stability

Slight divergence between informatics & telecoms
Midway outcome
MNOs & ISPs against communities for free network
Same for regulation
Actor analysis and power repartition

- Relative importance of issues
- Power repartition and salience of actors over issues

relative importance of issues

relative clout of actors

salience of actors (darker)

free networks

HOT TOPIC

MNOs & ISPs control 40% of the clout

Communities control 35% of the clout

NAPSTER

auto-organization

Telecom firms not salient MNOs allies?
Alliance analysis & proximity map

- Relative distance between actors
  - Based on an “alliance coefficient”

Regulator and venues; potential allies for others

MNOs & ISPs against communities for free access

FREE ACCESS

MOBILITY

MNOs & telecom for mobile use

ISPs, info & communities for stationary use

2 scenarios?
Application/issue analysis

Disruption analysis

Sony and Microsoft: the battle of convergence

Source Harvard Business Review
Part 3 - Alignment with the future

Levels of uncertainty:

- Clear-enough future forecast
- Alternate futures
  - Discrete options
  - Game theory
  - Decision analysis
- Range of futures
  - No natural option
- True ambiguity
  - No basis for forecast
  - analogies
  - Pattern recognition

SIMULATE
Scenarios

“Scenarios are a way of developing alternative futures based on different combinations of assumptions, facts and trends, [...] Building scenarios will force asking relevant questions and identify a range of possible choices or events” Caldwell

<table>
<thead>
<tr>
<th>Extrapolative and normative scenarios (Enich Jantech)</th>
</tr>
</thead>
<tbody>
<tr>
<td>extrapolative scenario</td>
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<tr>
<td></td>
</tr>
<tr>
<td>normative scenario</td>
</tr>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Probable and desirable scenarios (French school)</th>
</tr>
</thead>
<tbody>
<tr>
<td>probable scenario</td>
</tr>
<tr>
<td>desirable scenario</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>First- and second-generation scenarios (Shell - Stanford Research Institute school)</th>
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<tbody>
<tr>
<td>first-generation scenario</td>
</tr>
<tr>
<td>second-generation scenario</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Trend, optimistic, pessimistic, and contrasting scenarios (H. Kahn and Human and Social Futures Studies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>tendential-inertial or trend scenario</td>
</tr>
<tr>
<td>utopian scenario</td>
</tr>
<tr>
<td>catastrophic scenario</td>
</tr>
<tr>
<td>normative scenario</td>
</tr>
<tr>
<td>contrasting scenario</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

Backcasting

Looking from the Bottom up

Delphi Analysis or Questionnaire

Focus Groups

Technological Forecasting

Personal Interviews

Models or Simulations

Scenarios

Search Conference

Science Fiction

Surveys

Modified Trend Analysis

Concept Mapping

Cross Impact Analysis

Futuring Wheel

Separating Foresight from Data Collection
Scenario definition

[Caldwell, 2002]

- Identify general, broad, driving forces,
  - which are applicable to essentially all scenarios
- Identify a variety of PLAUSIBLE trends within each driving force topic
  - trends that vary depending on your assumptions so you get positive and negative perspectives
- Combine the trends so you get a series of scenarios
  - for example, mostly positive trends from all driving force topics would give a positive scenario

- The number of scenarios should be around 3-5 (positive, negative, neutral)
- Scenarios are good because one can play "what if" games
- The major use is UNDERSTANDING the situation rather than trying to predict the future
- Difficulty to identify the "right" scenario to include
“Scenarios for m-commerce 2006”

Scenario approach

- Search for key variables, driving forces, and assumptions
- Select scenarios logics and axes
- Develop scenarios

Assumptions

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>1</th>
<th>2</th>
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<tbody>
<tr>
<td>H1: Mobile network operators control the value chain as well as the customer base</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2: Seamless roaming between services, devices and networks</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H3: Investment by public sector will provide the catalyst for mobile services’ diffusion</td>
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<td>X</td>
<td></td>
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<tr>
<td>H4: Disputes over copyrights (IPR) in the mobile context are rare.</td>
<td></td>
<td>X</td>
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<tr>
<td>H5: Open standards are the norm. No single party controls the standards.</td>
<td></td>
<td>X</td>
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<tr>
<td>H6: Effective regulation and operations models exist regarding privacy issues</td>
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<tr>
<td>H7: Technological pluralism exists. UMTS will not be the only platform</td>
<td></td>
<td>X</td>
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</tbody>
</table>

Public Initiatives

- The World Changed: Telecom is backing off
- The Invisible Hand: Deregulated, Liberalistic markets
- Institutionalization: Consensus for controlled growth
- Business As Usual: Slow growth in search of Business Models

Operator Power

- Low
- High
Strategic modeling

[Constance, 2001]

Market Saturation and Network Benefits Causal Loops

- Willingness to pay
- Market Saturation
  - B
- Market Penetration
- Adoption
  - +

Network Benefits

- Value per user due to network effects
- Total expected benefit to a new adopter

Slowed Adoption and Installed Base Causal Loops

- Adoption
  - +
- Total Revenue
  - +
- Total Investment
  - +

- Slowed Adoption
  - B
- Installed Base Revenue
  - R
- Total expected benefit to a new adopter
- Switching Costs
  - -
- Total Value created by investments

SIMULATE

- Constance, 2001
Synthesis

3 levels of maturity, adaptability, utility and … complexity for Information systems

• IS aligned with the business
  – Align strategy, business and IT
  – with Business model

• IS aligned with the environment
  – Assess the markets forces
  – with Environment model
  – and analysis: adoption, application portfolio, competitive forces, actor/issue, disruption, …

• IS aligned with the future
  – Tame the future uncertainty
  – with Scenarios
  – and simulation