Strategic System Integration in Tourism

Interaction, Cola and Humming-Tops

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THE SYSTEMS LANDSCAPE OF A TOURISM COMPANY IS LIKE A HUMMING-TOP… IT NEEDS TO KEEP TURNING AND IT TAKES EFFORT TO KEEP IT TURNING!
System Integration in Perspective
The ‘Holiday Factories’

“Systems landscapes are for tourism companies what factories are for automobile producers”

Integration:
- Ensuring that all components harmoniously work together…
- To enable the corresponding business model

Tourism Software Integration ≅ Tourism System Integration

Taking this analogy a bit further…

- ‘Interfaces’ represent ‘assembly lines / conveyor belts’
- ‘Hardware & applications’ represent ‘machine stations’
- ‘Data’ represents ‘processed material’

There is more to a factory than materials and machines!!
- ‘Users’ represent the ‘machine operators’
- ‘Workflow & processes’ represent ‘work routines’
- ‘Organisational structures’ represent the ‘factory setup’
- ‘Inter- & Extra-organisational systems’ represent ‘supply & distribution chains’

SYSTEM INTEGRATION IS ENSURING THAT ALL THE AFOREMENTIONED COMPONENTS WORK TOGETHER… WHAT KEEPS THE FACTORY PRODUCTIVE & THE COMPANY PROFITABLE!
Essentially this means that if a tourism company is to **SUSTAIN ITS OPERATIONS & REMAIN COMPETITIVE** in the short-term the system landscape needs to:

**BE FUNCTIONAL** (support operational processes)  
AND  
**REMAIN SO OVER TIME** (corrective, adaptive, perfective and preventive maintenance)

**MAINTENANCE TRAP:** Over time Maintenance tends to:

- Increase the complexity of the systems landscape
- Which can leads to a maintenance backlog (i.e. focus on corrective & adaptive maintenance)
- Which in turn, by neglecting preventive maint. Increases complexity
- Causing maintenance costs to explode at the expense of new development projects
- Discouraging IT staff and reducing development quality
- Negative reinforcement and gradual deterioration in the medium-term

**IT TAKES MORE PHYSICAL EFFORT TO SPIN THE HUMMING TOP!!**
E-Tourism Evolution & the Hyper Connectivity
Hypothesis (abbr. HCH)

Increased Information-Intensity

Techno-Enablers

Emergence of Mixed-Mode Governance Structures

- Market saturation & Overcapacities
  - Need for differentiation
  - Competition for customer attention
  - Production efficiencies
- Market demands for transparency & stand/tion
- Ubiquitous / pervasive technologies
- Interface standardisation (XML)
- Middleware (EAI) solutions
- Improved development cycles (Methodologies, CASE)
- Co-Existence of E-hierarchies & E-markets for:
  - Tourism components (core & aux)
  - Holiday packages
  - Co-operation (GNEs) & M&A activity
  - Fading of sector- & organisational boundaries

Intra- & Extra-Organisational Connectivity Pull

System Integration Requirements

Limits? Restrictions? Implications? Challenges?

At a market-level we are experiencing:

- Rising customer demands for information
- Increasing content availability and magnitude
- And a derived need for transparency and standardisation

At the same time (technology front):

- Technology is becoming more pervasive, affordable and diffused at all level of business and society
- Enabling and simplifying application development and connectivity

The interplay between the mentioned MARKET-DRIVERS and TECHNOLOGY-ENABLERS has contributed to the emergence of:

- New business models in tourism…
- Fuelling new competitive as well as cooperative options…
- Expressed by the wave of M&A activity and joint ventures over the last years… Not mentioning the more recent trend of Global New Entrants (competing with GDS)

In the light of all this one can expect a tendency for what I call hyper-connectivity, which in turn imposes significant requirements on system integration practices and aproaches
As connectivity requirements increase:

- The meaning of Integration surpasses the notion of software integration
- Including additional business system components
- And extending beyond organisational boundaries

The increasing degree of integration is concurrently:

- A necessity for operational survival – Supporting the existing system model
- A maintainability-reduction factor – Eroding the efficiency of the current business model, whilst disabling its adaptation to future requirements

The spinning top becomes heavier, decreasing its spinning speed, requiring more effort to spin it, and is less likely to cruise along the floor/table!!
Issues for Discussion
Future Rotations…!!

- **Evaluation & potential implications of the HCH:**
  - Do you see evidence supporting this hypothesis?
  - How does this affect the future of ‘traditional’ tourism intermediaries?
  - To what extent is this relevant for Tourism E-intermediaries?
  - **Can we expect an ‘E-Tourism Bubble’?**

- **Meeting the COLA challenge:**
  - Are current ‘legacy system solutions’ adequate?
    - EAI solutions?
    - Architectural schemas?
    - Development methodologies?
    - IS governance structures & management practices?
  - Where do we go from here?
  - **Are ‘IT-legacies’ simply replaced by ‘E-Legacies’?**
APPENDIX A
(System Integration Levels)
Software Integration
Level 1-3

**Level 1**

- Data Exchange
- Point 2 Point data exchange
- Data export and import (proprietary or standardised formats)
- Benefit: Elimination of double data-entry
- Risks: Increased complexity with system evolution / maintenance

**Level 2**

- Common Application Access
- Accessing a number of applications through a common GUI
- Application to application data exchange may be enabled by an automated translation procedure (macro)

**Level 3**

- Common Data Access
- The different data sets from the various databases are maintained in a single logical database (physically centralised or distributed)
- Requires strong access and version management (sync rules / data merge functionality)
- Benefits: Improved data integrity, better MIS
- Challenges: Data semantics / meanings and manual translation

Software Integration (Cont’d)
Levels 4-5

**Level 4**
Data Sharing
- Common data model utilised by the entire IS landscape (ERP Model)
- Benefits: No need for translation / data semantics
- Challenges: Standardisation

**Level 5**
Application Interoperability
- Common application access + data sharing
- Highest level of individual IS integration

**Level 6**
Full Integration
- Application interoperability + Metadata management & control
- Metadata Management: Object-model, workflow, applied architecture standards (i.e. embedded rules), automatic notification

APPENDIX B
(Evolutionary Systems Integration & Maintenance Trap)
Generic Tourism Systems Landscape*
Evolutionary System Integration

- Publishing System
- Travel Document Production System
- Websites
- Travel Agency Front-Office Systems
- Financial Systems
- Yield Management System
- Content Management System
- Complaint Processing System
- Pricing & Packaging System
- Price-Table Production
- Reservation System
- Data Warehouse
- Hotel Purchasing / Planning System
- Competitor Prices Analysis System

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* Since this is a “Generic” SLI, we are talking about logical components and not separate applications (which may contain several components)
Trapped in Maintenance
A Typical Series of Events

- Operational Dependence on TIS
- Importance of Smooth Operation and Maintenance
- Focus On Maintenance Development ("patching")
- Tension Between IT and End-Users
- Reinforcing Tendency

- Deterioration of maint. dev. quality
- In the medium-term
- Increasing Complexity of Legacy IT landscape
- Increases

- Operational Problems And Disruptions
- In the long-term
- Increases

- Focus On Maintenance Skills
- Increases

- De-motivated development staff
- Leads to

- Avoidance of New System Development Projects

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