Enterprise Computing in the Networked Business Era

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• **Introduction:** *networked business paradigms*
  – Service-dominant business
  – Outcome economy

• **Main issues:** *what should we think about?*
  – Complexity – the simple doesn’t suffice now
  – Agility – the existing won’t suffice soon

• **Consequences:** *what should we do?*
  – Thinking outside-in
  – Making flexibility a first-order citizen
  – Separating strategy from tactics

• **Conclusions:** *[the/my] final point of view (for now)*
Introduction

service-dominant

business

outcome
economy
Service-dominant business
Service-dominant business
Service-dominant business
Markets are refocusing from assets to services

The value is in the functionality of an asset.
The effort is in the ownership of an asset.
Simple services are integrated into solutions

One-stop, customer-oriented value shops.
Explicit customer experience management.
Integrated solutions need to be flexible

In variety: mass customization.
In time: short solution life cycles.
Introduction

service-dominant

business

outcome

economy
Manufacturing products
“People don’t want to buy a quarter-inch drill. They want a quarter-inch hole.” - Theodore Levitt (Harvard University), 1983
People don't want a drill. Or a hole. Think deeper to win customers and keep them happy.
“The Outcome Economy is defined by the ability of companies to create value by delivering solutions to customers that in turn lead to quantifiable results.”

“Digital devices on the edge are powering an Outcome Economy and enabling a new business model that shifts the focus from selling things to selling results.”

*Accenture, Technology Vision 2015*
Simplified control model
Simplified control model

In

business process

Out

Simplified control model
Outcome Economy

focal organization

customer organization
1: Who is the customer?

2: What is the outcome?

3: How to measure the outcome?

4: How to control the provision?

focal organization

customer organization

Outcome Economy
Who is the customer?
Who is the customer?
The power of one percent: small changes (like increasing velocity of trains) can have a big impact on freight transport company performance.

Jeff Immelt (Chairman and CEO GE),
GE Minds + Machines 2014
Main issues
complexity
agility
4: How to control the provision?

3: How to measure the outcome?

1: Who is the customer?

2: What is the outcome?

NW-EIS

focal organization

customer organization

 Complexity and agility
Main issues
complexity
agility
Logistics domain
Multi-party business model (BASE/X)

Fast-Lane End-to-End Shipping

Inland Terminal
- + % fee - operational costs
- + flexibility
Handle containers
Priority
Guaranteed priority capacity

Inland Operator
- + % fee
- - operational costs
- - flexibility
Transport containers

Shipping Line
- + % fee - operational costs
- + branding - operational costs

Deep-sea Terminal
- + market share + branding
- - operational costs + % fee
Handle and unload containers

Actor coproduction activity
- actor cost/benefit
- actor value proposition

Provide clearance

Orchestrate
- + fast delivery
- - fee
- - operational costs
- - % fee

Prioritize
- order
- network knowledge

Integrate & information

Flexibility

Priority

Actor role

Shipper

Provider

Logistics Service
Traffic management domain
Multi-party business model (BASE/X)

Free Ride Amsterdam Event

Event Provider
- turnover
- popularity
- kickback fees

Event Location Provider
- pre/post comfort
- easy car disposal

Road Authority
- target met traffic
- traffic data
- traffic mngt.

Sell products
- turnover
- kickback fees
- available data

Provide content
- experience

Provide location
- content

Provide infrastructure
- manage traffic

Mobility Broker
- variable kickback fees
- parking fees
- data available

Event Organizer
- turnover
- popularity
- kickback fees

Actor value
- proposition

Actor coproduction activity
- atmosphere (crowd)

Actor cost/benefit
- non-event expenditures
- flexibility - time
- ticket fee - parking fees

Event Visitor
- free ride + concert experience

Scheduled Car
- ticket fee

Integration/ presentation
- orchestrate incl. visitors

Parking Provider
- incr. parking fees
- capacity constraints
- ext. operational costs
Service/value networks

Orchestrator

Customer

Partner
Partner
Partner
Partner
Partner
Partner
Partner
Service/value networks

Orchestrator

Customer

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner

Partner
Main issues

complexity

agility
Mobile devices
“The central idea of this book concerns our blindness with respect to randomness, particularly the large deviations: Why do we [...] tend to see the pennies instead of the dollars? Why do we keep focusing on the minutiae, not the possible significant large events [...]? And, if you follow my argument, why does reading newspapers actually decrease your knowledge of the world?”
YOUR RIDE, ON DEMAND
TRANSPORTATION IN MINUTES WITH THE UBER APP
SIGN UP

Service/value networks
Now, thanks to Uber, Gotham's medallion boom may finally be over. Medallion Financial's share price is off about 33 percent from its record high last November, and in the past year, the company's stock is down 13.73 percent. In yesterday's trading, share prices fell over 6%.

source: reason.com
“Social, economic, physical and cyber systems operate near their tipping points – perched on the edge of chaos, because they are optimized for maximum utility. [...] Traditional problem solving methods no longer work. Old ways of understanding our world no longer explain the current observed reality. Systems at all levels are out of bounds most of the time and increasingly collapse.”
3. Trust in the Digital Age

Causes?
Consequences

outside-in

flexible

separated
The inside-out ‘extended enterprise’
The outside-in networked enterprise
The networked integrator
Service enterprise architecture

Partners

Front End System

Customers

Front End System

Back End System

Back End System

Back End System

Back End System
Consequences
outside-in
flexible
separated
BASE/X reference architecture

Enterprise Service Bus (ESB)

- S-DW
- S-ETL
- S-EDS

- S-ETL
- T-DW
- T-EDS

- T-DW
- T-EDS

- ODS
- DBMS
- Mash
- BPMS

- Internal Service
- Internal Service
- Internal Service
- Internal Service

- External Service
- External Service
- External Service
- External Service

MSP

BS

SC

BM
Functionality vs. flexibility:

- **Basic Functionality**
  - MSP
  - Internal Service
  - Internal Service
  - Internal Service
  - Internal Service

- **Flexibility / Agility Support**
  - ESB
  - DSS
  - T-DW
  - T-ETL
  - External ESB
  - BPMS
  - Mash
  - Database Management System (DBMS)
  - Operational Data Store (ODS)

- **Enterprise Service Bus (ESB)**

**Summary:**
- Different systems and processes are connected to support both basic functionality and flexibility, ensuring that businesses can adapt and evolve as needed.
Traditional EIS Requirements

- Functionality
- Connectivity
- Flexibility
Networked EIS Requirements

- Functionality
- Connectivity
- Flexibility
Towards a stratified market?
Experience Orchestrator EIS Requirements

- Functionality
- Connectivity
- Flexibility
Powering flexibility via IoX
IoT: Intelligent Container
For your best friend

A new way to understand your dog, and add healthy, happy years to their life.

WATCH VIDEO
Consequences
outside-in
flexible
separated
SD business strategy

SD business models

Service compositions

Business services
The ‘what’ of business exists in two forms:

1. The stable part (identity):
   Business Strategy

2. The agile part (offerings):
   Business Models
The ‘how’ of business exists in two forms:
1. The stable part (capabilities): **Business Services**
2. The agile part (combinations): **Service Compositions**
Strategic Design Loop: Evolutionary alignment of identity and capabilities

Tactical Design Loop: Revolutionary conception of market offerings

Confrontation of Goals: Alignment of identity and market offerings

Confrontation Of Means: Alignment of required and available capabilities

BASE/X business engineering
BASE/X reference architecture

Enterprise Service Bus (ESB)

Strategic DSS → S-DW → S-ETL → S-EDS

Tactic DSS → T-DW → T-ETL → T-EDS

BPMS → Mash → DBMS → ODS

MSP

Internal Service

External Service

Internal Service

Internal Service

External Service

External Service
Functionality vs. flexibility

**Flexibility / Agility Support**

**Basic Functionality**
Functionality vs. flexibility

Strategic Evolution Support

Tactic Revolution Support

Basic Functionality

Strategic DSS
S-DW
S-ETL
Dash-board
Tactic DSS
BPMS
Mash
T-DW
DBMS
T-ETL
ODS
External ESB
Enterprise Service Bus (ESB)

MSP
Internal Service
Internal Service
Internal Service
Internal Service
External Service
External Service

T-EDS
S-EDS
Conclusions

business

and

enterprise
technology
In many domains, business is changing to an explicit outside-in, solution/value-oriented paradigm – with customers explicitly influencing/dictating functionality.

Being able to manage (distributed) complexity and (exogenous) flexibility is key to success in this paradigm.

For enterprise architecture/systems this means:

- Outside-in design: connectivity as a starting point, not as an ‘added feature’ – thinking in networks including customers – not chains with customers as ‘external entities’
- Flexibility support as a first order citizen, not as an ‘add-on’, both operational (BPMS) and tactical/strategic (DSS)
- Decoupled design of functionality in basic services and functionality in orchestrations / business processes, including governance with explicit link to business strategy respectively business models
Outcome Economy $\approx$ Service-Dominant Business + Internet of Everything ??
Business and technology
See things in the right perspective 😊