Virtual Organizations

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Lectures

(1. The Information Age)
(2. A multi-actor approach to organization)
3. Types of Virtual Organization
4. Virtual Organization Architecture
3. Types of Virtual Organization

3.1. The Discussion About Virtual Organizations

3.2. Basic Types of Virtual Organization

3.3. Composite Types of Virtual Organization
3.1. The Discussion About Virtual Organizations

- Origins of the Virtual Organization Concept
- Current Discussion About the Virtual Organization
- Missing Points
- Principles of Virtual Organization
3.1. Origins of the Virtual Organization Concept (1)

Vincent Giuliano 1982: the virtual office -> network organization

- There is no longer any need to assemble all workers at the same place and time
- Computers and facilities for communication create a virtual office
3.1. Origins of the Virtual Organization Concept (2)

- Abbe Mowshowitz 1994: the virtual organization -> organization network
  - Metaphor of virtual memory
  - The virtual organization is based on the principle of switching. Management has to switch the allocation of concrete means in order to satisfy changing abstract requirements
3.1. Current Discussion About the Virtual Organization (1)

Based on Mowshowitz’ work, in most publications the virtual organization is defined as an organization network, e.g.,

A temporary network of autonomous organizations that cooperate based on complementary competencies and connect their information systems to those of their partners via networks aiming at developing, making, and distributing products in cooperation.
3.1. Current Discussion About the Virtual Organization (2)

- www.virtual-organization.net: discussions about the virtual organization as

  - **Organization network**
    - A temporary network of autonomous organizations that cooperate based on complementary competencies and connect their information systems to those of their partners via networks aiming at developing, making, and distributing products in cooperation (Mowshowitz 1994)

  - **Network organization**
    - Work organization of actors that cooperate dispersed in place and time (Giuliano 1982)
3.1. Missing Points

The discussion of the virtual organization in the literature is unsatisfactory, because it misses essential points:

- Virtual actors do work for us
  - The fact that information systems automatically generate and distribute information is an essential characteristic of the information age
- We are confronted with a new, virtual domain
  - We buy books, ..., using the Internet
  - National states do not have power over virtual worlds
- Therefore, we need a virtual organization concept that encompasses the virtual domain
3.1. Principles of Virtual Organization (1)

- Virtual is something intangible, nonmaterial that we can imagine based on perceived images or practical experiences.
- The virtual domain is mainly composed of:
  - Virtual actors
  - Virtual objects and virtual spaces (based on active representations)
- Virtualization: primary role of virtual domain
  - Physical places of exchange become virtual places of exchange.
The virtual organization is a multi-actor system consisting of

✓ Humans and
✓ Computer actors
✓ That communicate and cooperate based on the virtual domain
3.1. Principles of Virtual Organization (3)

✓ The virtual organization

✓ Crosses formal boundaries
  - Customers are part of the organization (according to Simon 1945)

✓ Breaks with conventional structures in space and time
  - Deterritorialization: place and territory are no longer the basis of an organization
  - Structures in time loose their grip on organizational events
    - Websites are open 24 hours a day
3.2. Simple Types of Virtual Organization (1)

- **VO 1: Organization Network**
  - Work organization that consists of several autonomous organizations

- **VO 2: Network Organization**
  - Work organization of actors that cooperate dispersed in place and time

- **VO 3: Objective Virtual Organization**
  - Formal organization with humans and virtual actors in which virtual actors have formal mandates

- **VO 4: Subjective Virtual Organization**
  - Artifact organization within the virtual domain that influences participating humans
3.2. Simple Types of Virtual Organization (2)

✗ For making composite forms of virtual organization, we also need a simple type of real organization:
✓ RO 1: Self-Organizing Groups
3.2. RO 1: Self-Organizing Groups

- Groups organize their own work
- Group members can have several functions
- Within each group, there must be sufficient variety
- Groups have autonomy within clear boundaries (planning and reporting system)
- Aimed at improvement/learning by modification
- Optimization on attention and interaction
3.2. VO 1: Organization Network (1)

- Work organization that consists of several autonomous organizations and that crosses boundaries of formal organization
- Flexible organization network that perform tasks based on complementary competencies
- Answer to globalization and informatization (Castells)
- Flexibility by:
  - Sense & respond instead of make & sell
  - Temporary alliances
3.2. VO 1: Organization Network (2)

- Core competence approach; knowledge management
- In extreme form: the hollow organization: a manager and a box of ever-changing contracts
- Predecessors:
  - Hansa in medieval times
  - The United Dutch East Indies Company trade network
3.2. VO 1: Organization Network (3)

Applicable to:

- Flexible networks resulting from contracting out and autonomizing organizational units
- Industry chains with a structure between market and hierarchy
  - Trust-based cooperation (Hakansson, Nooteboom)
3.2. Smith-Kline Beecham

- Organization network includes customers
  ✔ Simon included customers in the organization in his book Administrative Behavior of 1945
- SB collects data about shipments and customer reactions via global network
- SB makes trends and statistics and sells these to customers
- www.sb.com
3.2. Capespan

- Organization network includes fruit producers and logistic firms
- Use of quality products with brand names requires processing of detailed information and quality control
- Detailed data are printed on each packaging unit (producer chemical treatment)
- Shipment tracking
- Information precedes product shipment
- [www.capefruit.com](http://www.capefruit.com)
3.2. VO 2: Network Organization (1)

- Work organization of humans and computer actors that cooperate dispersed in place and time
- Aimed at knowledge creation, innovation and learning by creating variety and selection
- Optimization of creativity
- Computer actors (information systems) have to be built using human information processing as a starting point (importance of investigation of user task performance)
3.2. VO 2: Network Organization (2)

- Professionals use IT to attain higher levels of productivity and quality.
- Professionals rely more and more on IT as virtual instrument (e.g., KB-DSS) and access to virtual worlds (e.g., Internet) (information system as an assistant).
- Let professionals be supported by KB-DSS and Internet.
3.2. VO 2: Network Organization (3)

- Important role for group DSS
  - Basic Support for Cooperative Work: bcsw.gmd.de
  - Web4Groups: www.socoec.oeaw.ac.at/w4g/
- Applicable to: scientific groups, policy networks, product development teams, some government committees
- Example: a Swiss government committee, the Organizational Semiotics Group
  - Website developers: www.wisdom.nl
    www.macaw.nl
3.2. Wisdom

- Network organization
- Has network of consultants
- Makes websites for other companies in global virtual teams
  - A global team consists of people from Europe and India cooperating on a project
- www.wisdom.nl
3.2. VO 3: Objective Virtual Organization (1)

- Formal organization with humans and virtual actors in which virtual actors replace humans
- Virtual actors perform work
  - They order beer
  - They pay salaries
- Virtual actors have the mandate to perform acts that
  - Change positions of legal commitment
  - Create new rights
3.2. VO 3: Objective Virtual Organization (2)

- Virtual actors can have the role of, a.o., logistic planning system (SAP, BAAN)
- Optimization on efficiency and quality
- Applicable to: process organizations
- Developed by Business Process Redesign (BPR)
- Described as McDonaldization
3.2. The Process Organization (1)

- Process organizations are based on automated logistics and robots (evolutionary development of computer actor)
- Pre-administration: record data first, do later
- A process organization has to work as a reliable and efficient machine aimed at an optimal service level
3.2. The Process Organization (2)

- Middle management in the process organization is largely done by information systems (horizontalization of organizations)
- Managers must be able to control these crucial information systems
- Operationally we have the robot or the automated worker
3.2. VO 3a: McDonaldization (Ritzer) (1)

- Leads to: Process organization
- Strong standardization
- What can be automated, is automated
- Flat organization
- Registration of customer data for customer oriented marketing and sales (credit card society)
3.2. VO 3a: McDonaldization (Ritzer) (2)

- Example: Albert Heijn & Heineken (in Argentina: Disco)
- AH humans scan products at sales point
- AH virtual actor calculates beer order based on sales and weather
- AH virtual actor places order at H virtual actor
- H virtual actor calculates optimal delivery route and sends this to human driver
- H human driver delivers goods (beer)

www.ahold.com  www.ah.nl (Dutch)
3.2. VO 3a: McDonaldization (Ritzer) (3)

- Monitoring is a moral problem (Big Brother is watching you)
  - Books by Garson, Ritzer

- Examples of monitoring
  - Reading Email
  - Monitoring time spent on tasks via applications used
  - Monitoring web use (in the office and at home; reading of pornography can be reason for firing a person)
3.2. VO 4: Subjective Virtual Organization (1)

- Artifact organization within the virtual domain that influences participating humans
- Virtual world in which people or computer actors react on what you do or what you say
  - Boundaries between real and virtual become less clear, people wander in virtual domains
  - Meeting places, virtual communities
  - Influence on human behavior and social structure can be significant (Turkle)
  - Castells: the culture of real virtuality
3.2. VO 4: Subjective Virtual Organization (2)

- Optimization on attention and interaction
- Predecessors:
  - In medieval times, churches were windows to the virtual worlds of heaven and hell
  - Storytelling, writing, books, radio, and television TV have brought us windows to the real world as well as to virtual worlds
- Now: electronic media (internet, computer games)
3.3. Composite Types of Virtual Organization (2)

- Front-Office / Back-Office
- Operational Core / Variety Absorbing Subsystem
- Synthesis
- The problem of unbundling organizations (Hagel & Singer)
- The E-commerce Organization
3.3. Front-Office / Back-Office

- Optimization of attention paid to customer in front office
  - Self-Organizing Group (HO 1)
  - Subjective Virtual Organization (VO 4))
- Optimization of processing speed, efficiency, quality in back office
  - Objective Virtual Organization (VO 3)
- Examples: banks, some government agencies
3.3. Operational Core / Variety Absorbing Subsystem

- Optimization of efficiency and quality in operational core
  - Objective Virtual Organization (VO 3)

- Optimization of creativity and knowledge absorption in variety absorbing subsystem
  - Network Organization (VO 2)
3.3. Synthesis

- Customers
- Front Office
- Back Office / Operational Core
- Variety Absorbing Subsystem
- Knowledge Carriers
- Stakeholders
- Self-Organizing Groups; Subjective Virtual Organization
- Objective Virtual Organization
- Network Organization
3.3. Unbundling the Organization (1)

Hagel and Singer (HBR, 1999) think that organizations will unbundle their core processes, leading to specialized parts for:

- **Customer relationship management**
  - Identify, attract, and build relationships with customers

- **Infrastructure management**
  - Build and manage facilities for high-volume, repetitive operational tasks

- **Product innovation**
  - Conceive of attractive new products and services and commercialize them
3.3. Unbundling the Organization (2)

✔ Customer relationship management
  = Self-Organizing Group (HO 1), Subjective Virtual Organization (VO 4)

✔ Infrastructure management
  = Objective Virtual Organization (VO 3)

✔ Product innovation
  = Network Organization (VO 2)

✗ Will organizations unbundle?
3.3. The E-commerce Organization

- Is a combination of a virtual shop with an efficient system of order processing
  - Virtual shop = subjective virtual organization (VO 4)
  - Efficient order processing system = objective virtual organization (VO 3)
- Traditional middlemen and retailers become superfluous
- The direct contacts with customers and citizens are important change forces
3.3. Rosenbluth
International Travels (1)

- E-commerce organization
- Selects best offers for customer, uses company policy and customer preferences (yield management)
- Does travel administration for customer
- Use of Internet by customer and travel agent
- Customer work is part of production process (IKEA principle)
3.3. Rosenbluth International Travels (2)

- Efficiency by investigation of keyboard usage of users during task fulfillment (up to 50% gain in efficiency)
- Reservation centers in areas with low wages and high labor morality
- www.rosenbluth.com
3.3. Schneider National

- E-commerce organization
- New situation created by deregulation of transport and high customer demands because of JIT
- Culture change: customer oriented, democracy, stimulation of improvement proposals, bonuses for good work
- Information systems have a central role in: truck tracking, organizing the whole logistic chain (possibly by hiring subcontractors), website for customers

- www.schneider.com
3.3. Marshall Industries

- E-commerce organization
- Supplies chips and other technical parts
- Sales via website with
  - Web-based order center
  - Order status/ package tracking
3.3. Marshall Industries

✗ Support via website with
  ✓ Extensive news section
  ✓ Technical documentation
  ✓ Net seminars
  ✓ Example programs for encoding chips
  ✓ Virtual experiments/ chip tests

✗ www.marshall.com
3.3. The E-commerce Organization

✗ Advantages for the shop holder
✓ Direct connection to customers, suppliers, trading partners
✓ Use of customer profiles makes specific offers to individual customers possible (e.g., Amazon)
✓ Customer data are more easily available and can be analyzed
✓ Some clerical work is done by the customer (the IKEA principle of the working customer)
✓ Simple, cheap, effective technology (a reason for application in internal networks, intranets)
✓ Large volumes of transactions are no problem
3.3. The E-commerce Organization

- Advantages for the customer
  - Less shopping time, less shopping costs (no physical transport to shops needed)
  - Lower prices (e.g., Amazon breaks the Dutch book cartel)
  - Shorter delivery time
  - Websites are open 24 hours a day
  - Order tracking (e.g., Amazon)
  - Customer gets up-to-date information (e.g., www.travelweb.com)
  - Customer questions are answered immediately (e.g., Dell www.dell.com)
3.3. The E-commerce Organization

✓ Opportunities

✓ Auctions are easy to organize and attract people

✓ Discussion platforms and virtual communities provide access to groups that are interested in specific subjects
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Lectures

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4. Virtual Organization Architecture
Something to think about

Do you think that organizations will unbundle or even split (Hagel and Singer hypothesis)?