What We Know About Virtual Organizations Is Evolving

Professor Nagel
CSE Department
Enterprise Systems Center
Virtual Organization

- Could include:
  - Customers,
  - Suppliers,
  - Partners,
  - Competitors

- Information enhanced
- Relationship based
- Networked environment

Agility Principle
New More Agile Economies Are Emerging

- The integration economy
  - Product
  - Information
  - Service
- The solution economy
- The experience economy
- The networked economy

Adaptable, People

Enriching

Virtual Organization
Agility Type II is Emerging

- Change from a focus on commodity items
  - To a focus on skills, knowledge and resources in a relationship over time
  - To create mutual value and enrichment
- Convert from products and services to solutions and experience model
The Shift From Providing Products & Services to Providing Solutions & Experiences Is Not Easy
Agility Type II

- Change from a focus on commodity items
  - To a focus on skills, knowledge and resources in a relationship over time
  - To create mutual value and enrichment
- Convert from products and services to solutions and experience model

Requires Significant Organizational Agility
Change Management and Innovation
Hierarchical Organization

- Leaders define what should be done and maintain tight control. The past is viewed as good old days
  - Decision making is slow
  - Change is negative to be avoided when possible
Hierarchical Organization

- People are told what to do, and how to do it. The organizational culture is:
  - Hierarchical,
  - Risk adverse, and
  - Punishes failure

- Slow action
Agile Networked Organization

- The future is viewed as an opportunity for which leaders define a compelling vision
  - The vision provides goals, metrics, constraints
  - Arms key players to act on objectives they set
- People (employee/leaders) are asked to make a positive difference in a new organizational culture where they are:
  - Trusted
  - Given authority
  - Rewarded
- Distributed authority, decision making and action
Why Do We Call Them Agile Economies?

Adaptable People Virtual Organization Enrichment

Because all four Agility principles are clearly important to success in each of the economies.

Product Service Information Solution Experience
Why Do We Call Them Agile Economies?

Adaptable People Virtual Organization Enrichment

Because all four Agility principles are clearly important to success in each of the economies.

Product Service Information Solution Experience

Network Economy

And Virtual Organization and Enrichment are essential to providing Solutions and Experiences in a Network
Virtual Organization & Enrichment Are Essential to Solutions And Experiences

- The shift from selling products and services to providing solutions and experiences
  - Frequently is more complex than one company can do on its own
  - Enrichment is providing value to stakeholders
We See and Value the Same Thing(s) Differently

EVERYBODY HAS A POINT-OF-VIEW!
Stakeholders See Value Differently

Value
Expectations
Different

Agile Thinking

Society

Partners

Media

Employees

Suppliers

Customers

Owners

Industry

Society

Partners

Media

Employees

Suppliers

Customers

Owners

Industry

Value Expectations Different
Changing The Value Proposition

- The integration economy
  ◆ Product, Service, Information
- The solution economy
- The experience economy
Using Information Technology for Business Agility

First To Deal With Complexity And Manage Change
Then For New Strategy And Innovation
Using Information Technology for Business Agility

This product complexity represents the problem faced by many businesses...
Imagine that…..

- Market needs are translated into project concepts
- Global teams collaborate with the customer to define requirements…
- Working in partnership with customers and suppliers, the product is developed by the design team…
- Suppliers from around the globe have access to a digital package for bidding…
- Completed designs are signed off by the plant/supplier and released for production…
- Customers have access to product information in the customer web center …

Source GE private communication
Digitization at GE

Digitization software tools support the product development process from concept capture to revenue generation…

Source GE private communication
Imagine that.....

- Your global teams are collaborating in real time to deliver growth through new products and services for your business

Source GE private communication
Digitization at GE

Imagine a virtual manufacturing floor… Without borders …

Where you can share materials and capabilities with all other facilities and suppliers as if they were next door.

Source GE private communication
Imagine a Purchasing System...

That anticipates your needs, puts supplies at your fingertips and takes care of the approval process.

And It Doesn’t matter where in the world they are
Digitization

Imagine the day will come when on the web a customer can .... View our Market Solutions for the right products and services

Source GE private communication
World Class Industrial Solutions
Backed by a Name You Can Trust: GE

During a Typical Month **GE Portal** Supports:

- 120,000 Visitors…20,000 Registered Users
- 5000 Orders Placed
- 40,000 Orders Tracked
- 100,000 Documents Downloaded
- 200 Sales Leads Generated
- 1000 Customers Contact Us

In Addition Customers can:

- Take 10 e-Learning Courses
- Configure Products from 50 Wizards
- Access 10,000 Documents
- Track Their Shipments & Payables
- Check Price & Availability
- Buy Parts Online
- Find Where to Buy Our Products
- View 25,000 Product, Services, and Solutions Pages
Using Information Technology for Business Agility
Four strategic areas

- Customized
  - Individual vs Population
  - Customer Configure Solutions

- Big Picture
  - Forest vs. Tree Strategies
  - Shift From Goods and Services To Solutions and Experiences

- Enhancements
  - Increased Capacity
  - Enhanced Productivity
  - Enhanced Capability & Scope
  - Previously Impossible
  - Enhance Relationships
  - Transparency Builds Trust

- Emerging
  - Collaboration Tools
  - Virtual Reality, Modeling, & Simulation
  - Collaboration Networks
  - Information Innovation Changes Business

CSE & Enterprise Systems Center
Lehigh University
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Information Integration Levels

What are you trying to do?
Is it strategic or tactical?

Reinvent Business
Transform Industry

Create Solutions & Experience

Access
Transaction
Digitization
Virtual org
Collaboration NW
Innovation NW

Enhance Relationship & Co-develop
Network Economy Emerges
First

• E-procurement
• Access
• Transaction

Second

• Logistics
• Transaction
• Digitization

Third

• E-Business
• Digitization
• Virtual ORG

Fourth

• SCM & ERP
• Collaborate NW

Then

• Collaborate NW
• Innovation NW

Co-development

• Right Information
• Right Place
• Right Time
• Every Time

Diagram Source: General Electric
The Intelligent Supply Chain
- Look-up or request for information in one or more “Sessions”
- Creates Strategic Value which in many cases redefines an industry
  - Convenience - Amazon
  - Transparency - Fedex
  - Referral – Google

- System to system Access
  - Information access within major business applications using standards and exchange formats
    - ERP
    - CRM
    - SCM
Information access is used to set a context for defining and executing a transaction.

- Can redefine an industry
  - Customized Product – Dell
  - Facilitate Market – EBAY
  - Convenience – EZPass
  - Transaction Hub - Covisint

- Updating of either parties data based on a previously defined context
The process of using information technology to replace, enhance or substitute for physical processes, resources and delivery systems

Can redefine an industry or distribution mechanism

- Digital delivery – Apple ITunes
- Remote Imaging – Kinkos
- Mobile Interactivity – N-Gage
- Distribute & Print – E-Stamps
- Automate Interaction – Continental
- Integrated Communication Services – RCN

Digitization In Business Software
Digitization

- Printable boarding passes for Airlines
- XM Radio
- Video-on-Demand – Pause, Rewind, Fast-Forward, just like VCR – You pick the Content
- Online Gaming
Digitization Impact

• Players Card
• Money Reader
• Payment Slip

Impact on Organization
Digitization In Business Software

Partners, Suppliers, Distributors

Supply Chain Management

Customers, Resellers

Employees

Admin. Control
HRMS/e-Procurement

HRMS  / e-Procurement

Enterprise Resource Planning (ERP)

Manufacturing

Distribution

Logistics & Warehousing

Business Intelligence

Enterprise Application Integration

Customer Relationship Management (CRM)

Marketing

Field Sales

Customer Service

Selling Chain Management

Source: e-Business 2.0 Roadmap for Success
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<td>“Distribute and Print”</td>
<td>E-Stamps, Kinkos</td>
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<tr>
<td></td>
<td>Facilitate Interactivity</td>
<td>WebEX, N-Gage</td>
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<tr>
<td></td>
<td>Provide self sufficiency</td>
<td>Airline check in</td>
</tr>
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Six Levels of Information Integration for Business Competitiveness

- Common Goals
  - Information Integration
  - Collaboration Network
  - Innovation Network

- Self Sufficiency & Enriched Relationships
  - Digitization
  - Virtual Organization

- Convenience & Trust
  - Transactions
  - Info Access

Source: PRTM
Committee or Team?

So we agree on new lighting as the solution!
We Learn About Collaboration

- Virtual organizations evolve through collaboration phases
  - Partner
  - Collaborate
  - Innovate

- The phase transitions are important and hard to understand
Virtual Organization

Integration Optimization

Come together

Resource Optimization

Create Value

Conserv Value

Shared Experience

Network or Group

Source: Patrick Schmid
- One for one  (Self interest)
- All for all (Community)
- One for All (Sacrifice)
- All for one (Solidarity)
- One for the other (Collaboration Network)

Virtual Organization

Integration Optimization  
Come together  
Resource Optimization

Create Value

Conserve Value

Source: Patrick Schmid
Innovation Network

Virtual Organization

Collaboration Network

Integration Optimization

Come together

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Shared Experience

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CSE & Enterprise Systems Center
Lehigh University

MSE 438 F105

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Cooperate to Compete by Building Agile Business Relationships

Virtual Organizations

Collaboration Network

Innovation Network

Phase Transition

Phase Transition
"Cooperate to Compete"
(Nagel, Preiss & Goldman)

Customers
- Multiple Points of View
- Teams, Not Committees
- Follow the Money
- Leaders & Manager’s Roles

Suppliers
- Work with Customers (Help each other)

Successful "Interprise"
- Interacting with Customers
- Integrating with Suppliers
- Changing Internally

"New’ Strategic Aim"
- Reengineer & Change Process
- Redefine Strategic Aim
- Streamline Internal Process

"Interprise” Relationships
- Enrichment
- Linkage
- Reward

Agile Supply Chain

Dynamic Systems
- Interoperability
- Reconfigurability
- Flexibility

Virtual Relationships
- Interoperability
- Reconfigurability
- Flexibility

Virtual Organization
- Think Global, Act Local
- Partnering in All Star Teams
- Protect & Share Intellectual Property
- Enhance Competitiveness

Organizational Inertia

Customization

Value Adding Processes

Work with Customers
(Help each other)

Sneakerizing

Fragmentation

Time Compression

Collaboration

Win-Win-Win

World-Class Enabler

Dynamic Customer Pull Process

Dynamic Systems

- Trust Factor
- People are Assets
- Empowerment

Enabling Infrastructure

- Forming a Web

Enrichment

Linkage

Reward

"Interprise”

Mindshare

Global Connection

"New’ Strategic Aim"
Agile Business Relationships

Change from functional organization to customer focused

Unlocking Critical Information

Customer Opportunity Teams

Working Together!

The Concurrent Enterprise
Agile Business Relationships

COMPETITION AND COOPERATION

WE COULD NEVER HAVE MADE THIS THING THIS POWERFUL WITHOUT YOUR TECHNOLOGY!

...AND WE COULDN'T HAVE MADE IT THIS SMALL & LIGHT WITHOUT YOUR TECHNOLOGY!

...AND MAY THE BEST COMPANY WIN!
Agile Business Relationships

A Network of Companies
The "Value Circle" Concept:

- A network of organizations who have been pre-qualified as partners and who are ready to form a virtual company when the opportunity arises.
- This can be a formal "group" with significant structure, or have no predefined structure at all.
The Value Circle As:

- An incubator for collaboratory virtual organizations
- A way of developing an “all star” team
  - Sharing opportunities
  - Sharing intellectual property
  - Combining resources
  - Creating effective teams
Value Circle Collaboration

Multiple Opportunities

A collaborating network or a WEB of companies
Value Circle Challenges

- Developing shared vision, metrics and goals
- Aligning expectations for ethics and values
- Putting in place an communication sharing technology and methodology
- Sharing and protecting information
Value Circle Examples:

- The **smart car**
  - Daimler Benz, swatch, & others
- Hughes DSS
- Dell
- Star **alliance**
  - United, Lufthansa, Singapore air, & others
- E-hubs, E-markets
A network of organizations

Networks of People & Information
A dynamic set of companies
  - That come together for a time based and opportunity driven goal
  - Relationships vary from formal to informal,
  - They need to practice working together to learn to communicate, share information, and IP etc.
  - Moderate interaction
    - Limited scope of activities
    - Limited collaboration
    - Many fail over trust issues
Virtual Organization Characteristics

- Opportunity-driven, information enabled
- Widen capability --one stop shopping
- Reduce concept to cash cycle time
- Reduce design conceptualization time
- Cooperating to increase competitiveness
- Inside the companies in teams and task forces
- Outside the organization in “webs” of suppliers and customers
Provide value in many ways:

- Global convenience – One World
- Standards – Rosetta Net
- Virtual resources – Pabst
- Finding compatible partners – Solid works Manufacturing Network
- Franchise (Node)
- Charisma – Ritz Carlton
Big, complex companies usually can't react fast enough. Small, nimble ones may not have the muscle. What's the answer? A new model that uses technology to link people. It's called the virtual corporation. Just another management fad — or a vision of the future?
Partner well.
Play fair.
Send the best and brightest.
Define objectives.
Build a common infrastructure.
  ➢ Source business week.
A Collaborating Network

THE VIRTUAL COMPANY

That acts like a single company
Collaboratory
Sharing resources to create value

Multiple Virtual Organizations

Value circle
Collaboration

The benefits of collaboration:

- Not letting each other make mistakes
- Sharing knowledge, know how for success
The Power of Trust

People & partners must be trusted
Consider These Four Ideas

- Borderless
  - Virtual teams across organizational lines
- Relationships
  - Empowerment, trust, responsibility
- Collaboratory
  - Shared goals, accountability
- Experience
  - Outcome value based focus (enrichment)
Borderless Suppliers Collaborate

Supply Chain Vs. Supply Chain

Process Vs. Process

Product Vs. Product
Some Measures of a Relationship

- Internal and/or external
  - We need each other and are willing to compromise
  - Conflicts are normal and get resolved by discussion
  - We understand each other’s interests and abilities

Steve Volm, EDS
Paul T. Winn, Genicom
Shared Goals & Accountability

Collaboratory
Shared Goals & Accountability

- We have extensive communications
- We can always rely on each other when it counts
- We actively work on each other’s needs
- We are exploring new opportunities together

Steve Volm, EDS
Paul T. Winn, Genicom
CUSTOMER OPPORTUNITY TEAMS

WORKING TOGETHER!
Customers Define Value

- In bottom line solutions which are **outcome and experience** focused
  - Outcomes are achieved by combining
    - Products
    - Information
    - Service
      - In a relationship over time
A set of companies who share a short and long term roadmap or vision and focus significant resources on value producing Intensive interaction

- Committed and involved in the goals and success of all collaborators
- Extensive Information Sharing
- Integrated Infrastructure facilitates both people and information networking
Collaboration Network Characteristics

- Partners are trusted
- Seamless and borderless integration of resources without organizational lines
  - Virtual vertical integration organized
  - Dynamic organizational structure
  - Inter-enterprise business/production systems
- Intensive, interactive, collaboration within and among companies
- Greater value potential than the sum of the collaborators value producing capabilities
Can redefine an industry and provide value in many ways:

- Distributed location & authority - CNN
- Swarm effect – VISA
- Network & Node Charisma - Cisco Systems

Collaboration Network

Supply Chain Vs. Supply Chain

Process Vs. Process

Product Vs. Product

Source UPS E-commerce
Collaboratory Success Factors

- Shared vision
- Implicit versus Explicit
  - Outcomes each player needs
- Values & Ethics
  - Ethical agreement
- Trust
  - Criticality
  - Time it takes
  - Short cuts
- Agreed upon explicit R³A
  - Risk
  - Reward
  - Responsibility
  - Accountability
- Intellectual property agreements
- Quality understanding
“Internet Business Solutions” Create Competitive Advantage

- Higher customer satisfaction
- Lower costs
- Competitive agility
- Accelerated time to market
- Higher employee efficiency

Ubiquitous Connectivity where the Business Runs on the Network
Cisco Example
CISCO Collaborates With Customers

- At Cisco systems - orders are entered by customers directly through the internet.
  - Typically these orders are for uniquely configured products which are assembled to order.
  - Because Cisco's suppliers are linked directly to the information system they are immediately alerted of the requirement for components.
  - At the same time the third party logistics service provider is informed of the impending shipment requirements.
  - As a result customized products can be delivered and installed in much shorter time-frames.
The Cisco Partnering/Collaborative Landscape

- Ecosystem Partners
- Customer Partnerships
- Solutions Partners
- Channel Partners
- Stategic Alliances
- Strategic Minority Investments
- OEM Partners
Supply Chain Collaboration: Management

- 70% cut in order cycle time (6-8 wks to 1-3 wks)
- $175M savings in annual operating costs
- 45% inventory reduction for Cisco and partners
- Time-to-volume cut by 25%; $270M annual revenue contribution
Strategic Alliances – What Makes Them Strategic

- Balanced Relationships
- Long term and short term goals
- Trading big “wins”
- Complementary business plans
- $1 + 1 = 3 +$
- Common customers
- Technology “AND” Marketing
New Internet Collaborative Capabilities
Cisco creates eHub Collaboration a “Live” Community

October 1, 2001

Source Cisco

- 11 CM Sites
- 1 Distributor
- 12 Suppliers
A Network In a Node

CISCO

Cisco Systems
Value Creation In Collaborative Networks

Culture (Ideas)

People (interaction)

Physical (Infrastructure)

Source: Napoleon Devia
Enterprises Are Multiple Networks

There are lots of networks in these nodes

Employees
How many?

Nth Tier

...... Tier

2nd Tier

1st Tier

Companies

Consumers
6 Billion?

Source: Napoleon Devia

85
Networks are...

Recursively Embedded

Node Charisma

Network in a node

CISCO

Node in a network

Network in a node

Employees How many?

Nth Tier

Employees

2nd Tier

1st Tier

Prime

Companies

Consumers 6 Billion?

6 Billion?
The Collaborative Enterprise Network

Source: Napoleon Devia
Network in a Node

Levels of Integration Determine Value

 SCM
 ERP
 CRM
Li & Fong Enterprise

SME Mindset
Multiple Networks

Business Model
Values & Ethics
Competencies

Fashion Driven
Fast Response

Ideas

Energy
Information & Value

People

Organized By Customers
Small Entrepreneurial Units
Swarm for Speed

Facilities

Materials

SE Asia
Hong Kong
EU & USA

Source: Napoleon Devia
Networks are...

Dynamic

Interactive

7500 Suppliers
26 Countries
2500 active anytime
200
Dispensed Manufacturing
$1

SE Asia
Hong Kong
EU & USA

74,000 Employees
6 Billion?

Organized By Customers
Small Entrepreneurial Units
Swarm for Speed

SME Mindset
Multiple Networks

Business Model
Values & Ethics
Competencies

Fashion Driven
Fast Response

60 Divisions 30 Pr. Managers
Front and Back End
Soft Manufacturing
VC for Structural Holes
$1M/employee

Consumers
6 Billion?

Li & Fung Limited

one supplier network per customer

Companies

Prime
First Tier
Second Tier
Third Tier
Nth Tier
Employees
How many?

Ideas

People

Facilities

Energy
Information & Value

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$1M/employee

Consumers
6 Billion?

Li & Fung Limited

one supplier network per customer
- A Web that evolves to build and deliver value through products & services, solutions & experiences or creates & manages networks of suppliers
  - A network of partners in innovative seamless relationships
  - Agile and use a variety of infrastructures to optimize for each client
Can redefine an industry and provide value in many ways:

- **Network Economy** - Li & Fung
- **Immersive interaction in virtual reality** – Asherons Call
- **Innovation – Agile Web of PA**
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Integration Strategies Continued

4. Virtual Organization
   - Star Alliance - Global Convenience
   - Rosetta Net – Standards
   - Pabst – Virtual resources availability
   - Solid works Manufacturing Network – Find compatible partners
   - Ritz Carlton Hotels – Node Charisma

5. Collaboration Network
   - CNN - Distributed authority
   - Visa - Swarm effect
   - Cisco – Network Charisma
   - Covisint – Collaboration HUB

6. Innovation Network
   - Agile Web of PA – New ways of collaborating
   - Asheron’s call – Virtual reality worlds
   - Li & Fong Enterprise – Network Economy
Six Levels of Information Integration for Business Competitiveness

1. Common Goals
2. Self Sufficiency & Enriched Relationships
3. Convenience & Trust
4. Virtual Organization
5. Collaboration Network
6. Innovation Network

Source: PRTM
Characteristics of the new electronic supply chain

- Customized products and services
- Global visibility
- Agile
- Lightning velocity
- Managing multiple suppliers seamlessly
Type I 20th Century Supplier

- Suppliers can’t be trusted
- They are held at arms length
- We assume they don’t understand and talk down to them
Type I 20th Century Supplier

- We beat them up for cost reductions
- They are asked to build to forecasts with huge safety margins for non-compliance
- Each supplier is independent of the others and works in isolation
- They are chosen on lowest price
Type II 21st Century Agile Supplier Network

- Integrated and connected on the internet
- Suppliers are trusted and trust each other
- We form relationships with and amongst them
- We use their knowledge and expertise
- We share cost reductions and seek speed in our collaboratory relationship(s)
- They are responsible for enabling our customers outcomes
- The collaboratory offers the benefits of concurrence
The New Supply Chain: More Than a Partnership

- Dynamic and exciting
- Respectful of elders AND newcomers
- Communicative and cooperative
- Flexible They mean agile of course
- Sharing and learning
- Builds on each other’s strengths
- Helps overcome each other’s weaknesses
Thank You

Roger N. Nagel
Wagner Professor and Senior Fellow
CSE Department &
The Enterprise Systems Center at Lehigh University
200 West Packer Avenue
Bethlehem, Pennsylvania, 18015
(610) 758-4086, (610) 868-0402 [fax]
rnagel@Lehigh.edu