Research Seminar on Global Production and Communication

Seminar at NTNU 13th June 2008

Seminar report

Department of Industrial Economics and Technology Management
Norwegian University of Science and Technology, NTNU
Preface

The report is a summing up of a research seminar on Global Production and Communication. Since there has recently been a merger of two research groups within Globalization Program: Global Production and Global Communication into one called consequently Global Production and Communication (GL.P&C), there are now new questions and challenges opened to the researches.

The intention of the seminar was to present an ongoing research in both focus areas, and learn from each other about models of global production systems, and about communication tools and standards.
Research Seminar on
Global Production and Communication
13. June 2008 09.00-14.00
Sentralbygg 1 – 11 etg Rom 1164 Gløshaugen

Agenda:

0900-0915  Presentation of status and plans in the Global P&C-program, Annik M Fet
0915-0935  Models of global production systems, PhD Christofer Skaar
0935-0955  CSR and competitiveness in Global Production, PhD Natallia Vakar

Coffee break

1015-1045  Standardisation of communication, professor Tord Larsen
1045-1115  Communication Challenges faced by industry, direktør Tore Ulstein
1115-1145  'Culture' and management in a global context: The case of Auto ltd, post doc Sigrid Damman

Lunch break

1245-1315  Indicators and CSR-management as tool to promote better communication in value chains, post doc Ottar Michelsen and professor Annik M Fet
1315-1345  KPIs as communication tools in the maritime sector, senior researcher Egil Rensvik
1345-1400  Discussion, further plans.

Annik Magerholm Fet
Coordinator of GP&C
Participants of Research Seminar on
Global Production and Communication
13. June 2008 09.00-14.00
Sentralbygg 1 – 11 etg Rom 1164 Gløshaugen

Annik Magerholm Fet
Tore Ulstein
Tord Larsen
Egil Rensvik
Sigrid Dammen
Ottar Michelsen
Christofer Skaar
Natallia Vakar
Magnus Sparrevik
James Rydock
Lucia Liste Munoz
Alfnes Erlend
Øivind Hagen
Grøtman Tor Olav
Global Production and Communication (GP&C) - Priorities and Budget 2008

Annik Magerholm Fet
Seminar 13.juni 2008

Criteria
• Quality
• Relevance
• Multidicipl.

Global production & communication
technology, culture, market, society

Culture translation
- art, culture, values, religion

Conflict, mobility and changes
- politics, economy, state, market

Common key issues

GP: Production systems have been increasingly globalized, production is very often “off-shored” to countries with lower costs, lower labor and pollution control.

GC: Standardization of communication is central to the understanding of globalization processes as well as the understanding of the market in different cultural settings.

The area leader group:

• Annik Magerholm Fet (leader), Dep. of Industrial Economics and technology management
• Carla Dahl-Jørgensen Department of Social Anthropology
• Hans Otto Frøland, The Department of History and Classical studies
• Erlend Alfnes, Department of Production and Quality Engineering
• Øystein Moen, Dep. of Industrial Economics and technology management
• Egil Rensvik, MARINTEK
• Johan Hustad, The Department of Energy and Process Engineering
• Tord Larsen, Department of Social Anthropology
• Tore Ulstein, Ulstein Group

Secretary: Ottar Michelsen, Dep. of Industrial Economics and technology management
Overarching principles of GP&C

- Focus on sustainable (environmental, social and economic issues) and innovative solutions with a multidisciplinary perspective, particularly how sustainability can be a driver for innovation and how this is communicated.

- The understanding and communication of CSR in different countries will be an important part of the research.

Key research goals:

- **understanding the** environmental, cultural, social, economic and communicative challenges and expectations companies (large and SMEs) face in a global value chain.
- the examination of the barriers business need to overcome to position themselves in a global value chain while at the same time focusing on sustainable solutions in a global context.

The research should address

- how firms deal with challenges and opportunities in the design and management of their **upstream** supply chain and network (supply chain management), and **downstream** activities (product life cycle management), as well as extended **producer responsibilities**.

It will also address

- how information is understood and communicated in the production system.

Illustration of a model for CSR driven SCM
Prioritized sectors:

- The maritime industry, the energy sector, the material sector and the producers of common goods.

Priorities for the budget in 2008:

The total 2008-budget for GP&C is 542275 NOK. The area leader meeting 17.01.2008 recommended the following principles for prioritizations for 2008:

A Application of new project proposals with external funding
B Activities of relevance under GP&C
C Further development of the research problems under GP&C

Budsjett 2008

Eksempel aktiviteter våren 2008

- KMB-søknad Innovation in Global Maritime Production 2020 (IGLO-MP), budsjett 15 mill over 3 år
New call – opens sept 2008

SSH-2009 - 2.1.3. Impacts of corporate social responsibility

Corporate social responsibility (CSR) is an important new phenomenon that should give enterprises an important role in helping to achieve the Lisbon and Gothenburg objectives. However, there is still little empirical knowledge as to how CSR impacts on the EU economies and societies. Research should empirically assess how CSR is, in practice, beneficial to the Lisbon and Gothenburg objectives and favour the development of better methodologies and tools to measure the impact of CSR activities at different levels:

- At company level, addressing motivations to take up CSR activities by companies and reasons for differences in CSR performance across companies, also in the SME sector, including the link between CSR and innovation;
- At European, regional or sectoral levels, through comparisons of regions or business sectors where CSR strategies are deployed and have different impacts on growth, competitiveness, quality of jobs and sustainable development.

Funding scheme: Collaborative project (small or medium-scale focused research project)

Research seminar 13.06:

Models of global production systems, PhD Christofer Skaar
CSR and competitiveness in Global Production, PhD Natallia Vakar
Standardization of communication, førsteam. Tord Larsen
Communication Challenges faced by industry, direktør Tore Ulstein
’Culture’ and management in a global context: The case of Auto Ltd, PhD Sigrid Damman
Indicators and CSR-management as tool to promote better communication in value chains, post doc Ottar Michelsen and professor Annik M Fet
KPIs as communication tools in the maritime sector, senior researcher Egil Rensvik
UN Global Compact

- Human Rights
  - Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
  - Principle 2: make sure that they are not complicit in human rights abuses.
- Labour Standards
  - Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
  - Principle 4: the elimination of all forms of forced and compulsory labour;
  - Principle 5: the effective abolition of child labour; and
  - Principle 6: the elimination of discrimination in respect of employment and occupation.
- Environment
  - Principle 7: Businesses should support a precautionary approach to environmental challenges;
  - Principle 8: undertake initiatives to promote greater environmental responsibility; and
  - Principle 9: encourage the development and diffusion of environmentally friendly technologies.
- Anti-Corruption
  - Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

Global Reporting Initiative: TBL

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<thead>
<tr>
<th>Economic</th>
<th>Economic Performance, Market Presence, Indirect Economic Impacts</th>
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<tbody>
<tr>
<td>Society</td>
<td>Community, Corruption, Public Policy, Anti-Competitive Behavior, Compliance</td>
</tr>
<tr>
<td>Product Responsibility</td>
<td>Customer Health and Safety, Products and Service Labeling, Marketing Communications, Customer Privacy, Compliance</td>
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</tbody>
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Origin of value chain concept

Value chain

Hierarchical value chains

Value chain entry point

Key issues:
- Economic flows
- Material flows
- Information flows
- Governance
- Stakeholders
SC and VC

1. Value chain
2. Supply chain, value system, value chain
3. Supply chain
4. Supply chain, value chain
5. Extended supply chain, value chain

Defining foreground and background systems (1)

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<tr>
<th>Ship management</th>
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<th>Steel</th>
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Defining foreground and background systems (2)

Source: Modified from Azapagic and Perdan (2000)
Key issues

- How to include the corporate value chain in product information
  - Identifying the 'good' value chain
  - Social aspects in product information
    - Starting point: Occupational health and chemical use
- How to connect to overall sustainability measures and strategies
  - Are not connected or are loosely connected to top down approaches
- Is static, not dynamic
- Gathering specific information is resource consuming
  - What is the foreground system? (specific data)
  - What is the background system? (generic data from databases)
- How to aggregate when goals and targets will vary along the value chain?

Communicating the results

- KPI
- Balanced scorecard
- EPD
- Dashboard
- Index

The total demand can be found by calculating the Leontief inverse matrix $x=(I-Z)^{-1}y$. 

Source: Solli and Strømman (2005)
Competitiveness and CSR in Global Production

Seminar Gl.P&C
13 June 2008

Natallia Vakar
Department of Ind. Economics and Technology Management

... if you know your enemies and know yourself, you will fight without danger in battles.
If you only know yourself, but not your opponent, you may win or may lose.
If you know neither yourself nor your enemy, you will always endanger yourself.

"The Art of War " Sun Tzu , 6th century BC

Evaluation enables the firm to:

• determine what is working well, why and how to ensure that it will continue to do so;
• investigate what is not working well and why not,
• explore the barriers to success and what can be changed to overcome the barriers;
• assess what competitors and others in the sector are doing and have achieved;
• rethink original goals and make new ones if necessary.
5

**Competitiveness?**

“...strength of a company in comparison with its competitors.”
(Murtha and Lenway, 1998).

6

**World Competitiveness Centre (created in 1989)**

Prof. Stephane Garelli

**IMD (International Institute for Management Development), Lausanne, Switzerland**

7

8

“Traditionally, many authors have considered *productivity* as a good indicator of competitiveness at a firm level “

(Porter, 1985).
**Competitiveness ↔ CSR**

![Diagram showing Competitiveness ↔ CSR]

- Knowledge
- Relationships
- Image
- Reputation
- Talent
- ... [Intangible factors]
- Tangible factors

**Hypotheses:**

**1st hypothesis:**
It’s possible to define and assess the impact of CSR on companies’ C-ss as well as their interdependency.

**2nd hypothesis:**
It’s possible to assess the impact of upstream and downstream companies’ performance on the C-ss of the considered company.

**Companies for Case Studies**

- **Ulstein Group**
- **DEVOLD**

**Questions:**

- How is it possible for companies to use a concept of CSR and CSR-activities as a workable tool for managing (esp. enhancing) their level of competitiveness?

- How to use the obtained results of evaluation of companies’ competitiveness at a profit of development and innovation of the whole global value chain, products in a global supplier’s network, and marketing mechanisms for sustainable solutions?
Communication challenges in industry

Tore Ulstein, Dr.ing.
Deputy CEO, The Ulsteingroup

A possible model of integrating Communication ...

Efficient communication ... through different Channels / Arenas

- Meetings
- Exhibitions & conferences
- E-mail
- Get together
- Relation building happenings
- Agreement
- Contract
- Publications/web

Visjon – kommunikasjon

- Skape verdier for selskapet, tilsette, eigarane og KUNDENE gjennom:
  - Å identifisere, presentere og distribuere relevant informasjon til relevante målgrupper
  - Å bidra til å kommunikasjon vert brukt som et strategisk verktøy for å nå selskapet sine forretningsmessige mål
    - Komm.planar, publikasjonar, mediearbeid, web, intranett, messer, give-aways m.m
- Kommunisere på ein måte som skil oss ut i marknaden
Filosofi – kommunikasjon

- Kommunikasjon er ein del av verdikjeda
- Open og pro-aktiv kommunikasjon gir best resultat
- Bodskap skal ta utgangspunkt i og tilpassast målgrupper
  - Baserast på same kommunikasjonsplattform
  - Verdiar – identitet – fakta – profil
- God eksternkommunikasjon er tufta på god internkommunikasjon
- Integreide kommunikasjon gir størst gevinst
- All kommunikasjon skal vere mottakarorientert——
  - Kva betyr dette for meg?
  - ... og strategisk
  - Hva ynskjer vi å oppnå?

Understanding cultural differences

- Possible definition of an Innovation Culture
- Three important dimensions
  - Knowing … having the knowledge about something
  - Wanting … wanting to use it
  - Being allowed … being allowed to use it

"Being allowed"

"Willing"

"Knowing"

How do we approach this paradox?

Breaking the linear thinking...
Understanding cultural differences (iii)

# Publications

Academia

Financial results

Business

Understanding cultural differences (iv)

The "Nordic way"  The "Chinese way"

Law (Contracts)

Business

Law

- So, what does this mean??
  - consequences
  - measures

The "Nordic way"

Law (Contracts)

Business

Law

Business Development

ULSTEIN®

TURNING VISIONS INTO REALITY

Norge er et land med høyt kostnadsnivå!
- Sansynligheten for at dette stiger > enn at det går ned!
- Fokus på aktiviteter som forsvare eit høgt kostnadsnivå
  => Innovasjons- & kompetanseintensive aktiviteter

Business Development

ULSTEIN®

TURNING VISIONS INTO REALITY

Vekst gir mulighet til å overleve

Lønnsom Vekst

"Sikre volum"

Internasjonalisering

"Sikre fortrinn"

Kombinere lavkost arbeidskraft med høgkost innovasjonsevne

Forretningsutvikling

ULSTEIN®

TURNING VISIONS INTO REALITY

Lønnsomt Salg

"Sikre realisering"

Innovasjon

"Sikre fortrinn"
Forutsetninger for Internasjonalisering

Tenke globalt, arbeide lokal
Internasjonalisering
Kompetanse- & Tjenestefokus
Markeds- & Kundefokus
Nettverksorganisering

Kompetanse- & Tjenestefokus

Margin

25-30%
15-20%
5-7%
“Slave av egen kapasitet”

“Produktions orientert” selskap

“Markeds orientert” selskap

Verdikjede

Engineering
Sammenstilling
Design
Produksjon
Ettermarked

Global akter

Norway
Netherlands
Croatia
Poland
Sweden
Turkey
China
Brazil

Forretningsutvikling

• Norge eit land med høgt kostnadsnivå
  • Sannsynligheten for at dette aukar > at det minkar!
  • Fokus på aktiviteter som forsvarer eit høgt kostnadsnivå
    => Innovasjons- & kompetanseintensive aktiviteter

Lønnsom Vekst

“Sikre fortrinn”
Innovasjon
“Sikre volum”

Lønnsomt Salg
“Sikre realisering”

Vekst gir mulighet til å overleve

Lønnsom Vekst

Internasjonalisering
“Sikre volum”
Kombinere lavkost arbeidskraft med høgkost innovasjonsevne
Innovasjon

Implementering
Kvalitetskontroll
Lederskap
Innovasjon
Innovasjon
Kunnskapsressurser

\[ \text{\underline{INTEGRASJON}} \]

Ideen

Science Fiction
Form, function, esthetics

Tverrfaglig integrering av kunnskap

Overlapp = grå-soner som kan bli gro-soner

\[ \text{\underline{INTEGRASJON}} \]
Forretningsutvikling

- Norge eit land med høgt kostnadsnivå
- Samnøyingshella for at dette aukar > at det minkar!
- Fokus på aktiviteter som forsvarer eit høgt kostnadsnivå
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Vekst gir mulighet til å overleve

Lønnsom Vekst

Internasjonalisering

“Sikre volum”

Kombiner lavkost arbeidskraft med høgkost innovasjonsevne

Sikre fortrinn

Innovasjon

Lønnsomt Salg

"Sikre realisering"

"Sikre volum"

Lønnsomt Salg

Utvikling

Plattform + Varianter

Akselerert Forretningsutvikling

Redusert Ledetid & Kostnad

Dialog & Brukere

Utvikling

Akselerert Forretningsutvikling

Akselerert Forretningsutvikling

Redusert Ledetid & Kostnad

Kombinere lavkost arbeidskraft med høgkost innovasjonsevne

Lønnsomt Salg

Utgangspunkt

Nye markedstilnæringer er nødvendig...

- Flerkanals merkevarebygging og posisjonering er nødvendig
- Skipskatalog basert på modulariserte and standardiserte design og byggeprosesser
- Nettverksbasert utviklings- og produksjonsmiljø
- Forretningsystembygging er viktigare enn fremtiden til den enkelte produksjonsenhet
- Kanibalisering av egen operasjon/produksjon er viktig for å skape tilstrekkelig tilpasningsdynamikk og innovasjon i selskapet og i produkt- og tjenesteporteføljen

EtO

Offshore construction

Offshore support

Short Sea Shipping

StO

Market segment complexity

Market volume/Size of P&S portfolio

High complexity

Low complexity

Nye markedstilnæringer er nødvendig...

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Hvilke veier kan vi ta?

- "Foregangs"-selskap eller "Dilte-etter-selskap"
- Nær til kunder og kundes kunder – konseptleverandør
- fjern til kunder og kundes kunder - produktleverandør

Fokus bør være å identifisere og ta kontroll over de aktivitetene som tilfører produktet og kunden mest verdi

Kunnskapsressurser ... Barnehagar og skule

- Kunnskap om lokalt næringsliv og lokalsamfunnet
- Samspel mellom skule og næringsliv- ein vinn-vinn situasjon
- Bruke lokalsamfunnet sine ressursar for å få til ei levande undervisning

Kunnskapsressurser ... Barnehagar og skule

- Konkrete tiltak i nærmiljøet:
  - 4.klasse-prosjektet
  - Ungdomsskuleprosjekt i samarbeid med NTNU: Design og bygging av skipsmodellar
  - Kunst og handverksfaget: Designkonkurranse
  - Utplussering for yrkespraksis
  - Læringsplassar
  - TAF-ordning
  - Motivasjonskurs for vidaregåande skular mot ingeniøryrket
  - Praktiske matematikkoppgaver ute i bedriftene for 3.klasse vidaregåande.
Kunnskapsressurser ... Universitetsmiljøene – utfordringer?

- Vanskeliggjør å utføre forskningsarbeid i samarbeid med industrien pga mer aggressiv IPR regime ved universiteter.
  - Bedrifter risikerer at universiteter patenterer i bedriftens egen kjernevirksomhet de får innsyn i bedriftenes teknologi og problemstillinger.

- "Universiteter på hvert nes" gjør at vi kan risikere å ende opp med mange underkritiske fagmiljøer bestående av middelmådigheter. => SFF og SFI er gode tiltak mot dette

- Norske universitetene har de siste årene blitt mindre attraktive for ansatte ift industrien
  - Topp forskere i Norge er også attraktive for internasjonale FoU miljøer. Med andre ord kan norske universiteter tappes for dyktige folk både til industri og internasjonale FoU miljøer/universiteter.

Konklusjoner

- Ulike markedssituasjoner og tilstander krever ulike forretningsløsninger for hvordan beste verdiskaping kan genereres
- Det er derfor nødvendig å utfordre sitt eget forretningskonsept når markedssituasjonen eller et mulighetens tidsvindu spelers seg
- Morgendagens forretningskonsept består av integrerte operasjoner gjeme i form av ulike korporativt ressursnettverk
- Ressursnettverkene må normalt krysse landegrenser for å gi maksimal verdiskaping, forutsigbarhet og robusthet
- Det finnes teori, metoder, og praksis for hvordan slike samvirkende ressursnettverk kan bygges opp og vedlikeholdes, men det er ikke så lett å få det til…

Å tiltrekke seg de beste "hodene" er kanskje vår største utfordring i årene som kommer …
  - Tenke langsiktig!!

Vi samarbeider når det er mulig og konkurrerer når det er nødvendig!

Takk for oppmerksomheten!
For ytterligere detaljer og spørsmål:
  - Tore.Ulstein@ulsteingroup.com
'Culture’ and management in a global context

The case of Auto Ltd

Sigrid Damman
Seminar GP&C, NTNU
13 June 2008

'Culture' and management in a global context

- Interdisciplinary framework
- Auto Ltd
  - Global presence
  - Global culture?
- Longitudinal study
  - Data from 2001-2005
- Research and action
  - 180 interviews
  - Observation
  - 'Peripheral' participation
    - Dialogue, training, improvement proposals

Practically-oriented part studies

- Team leadership and training (Norway and Sweden)
- Production transfer (Poland, UK, Sweden, Norway)
- Central vs. distributed decision-making (US and Mexico)
- Communication and motivation in intercultural organisations (South Korea)
- Defining and debating corporate values (all units)
- Global management (all units)

Overarching research focus

- Management as a social process
- 'Auto’s way'
  - Project and practice
  - Standardisation scheme
- Cross-border negotiations
  - Time/space
  - History
  - Social ranking, positions
  - Technology
  - Organisational politics
  - (Cultural) selves and others
  - Rational of the organisation
- Application of the culture concept in this context
Analytical approach

- 'Culture' as
  - Management instrument
  - Standard
  - Object of translation
  - Object of discourse
- Interaction with other standards
  - Lean production
  - MBTI
  - (SAP, TQM, etc)
- Opportunities and limitations to cooperation and communication
- Critical perspective

Core values, Auto Ltd.:

HONESTY
DISCIPLINE
INNOVATIVENESS
THRIFTY
HOUSEKEEPING

Auto’s Way in Poland

- Xerox-method
- Speed and action, directness, discipline
- Individual competence
- Lean production
  - Common definition vs. embedded notions
  - Knowledge transfer and consensus vs. implicit struggles and negotiations
  - Solutions and learning through conflict and improvisation
- Standardisation with unforeseen turns

’Right people on the bus’

- MBTI, Insights, cultural assessments
- Common language
- Rational-analytic vs. ‘softer’ qualities
- Therapeutic control and resistance
- Structures of common difference?
- Programme vs. technology
- Standardisation as a ground for further socio-cultural translations

Concluding remarks

- Link; cultural management and standardisation
- Adverse effects
- Intent: facilitate communication
- Multiplicity and ‘mess’
- “…faith in the hands of the users...”
- Subject to negotiation
- Opening and closure of discursive fields
- Need to identify cultural premises
- How they affect and are affected by standardisation efforts in different times and places
Indicators and CSR-management as tools to promote better communication in value chains

Professor Annik Magerholm Fet / Dr. Ottar Michelsen


Corporate Social Responsibility - CSR

CSR implies to work along different dimensions in global production systems

Focus on systems thinking

Important CSR-issues

• Business Ethics
• Community Investment
• Environment
• Governance & Accountability
• Human Rights
• Marketplace
• Workplace
• Corruption
• Product responsibility
Main environmental and workplace aspects:

Environmental aspects
- Use of resources (renewable/non-renewable)
- Pollution to water
- Pollution to soil
- Emissions to air
- Waste
- Environmental aspect of products throughout the entire life cycle

Workplace aspects:
- Child Labour
- Forced Labour
- Health and Safety
- Freedom of Association
- Right to Collective Bargaining
- Discrimination
- Disciplinary Practices
- Working Hours
- Remuneration/wages
- HSE-management systems

Examples of CSR-reference documents

Firms should document compliance with for example the
- Environmental management standards (ISO 14000)
- Global Reporting Initiative (GRI) guidelines
- The Global Compact
- The millennium goals
- AccountAbility AA1000-standards
- Social Accountability SA 8000 standard
- International guidelines for social responsibility (SR) (ISO 26000 - June 2008 ?)

Environmental Management Systems

Follow the principles:
- Plan
- Do
- Check
- Act

Mapping CSR into the PDCA-circle:
From local to global perspective

OPTIMISING:
- Resource efficiency
- Energy efficiency
- Emissions efficiency
- Economic efficiency

Different systems perspectives

Micro
- Site focus
- Value chain focus
- Industrial network focus

Macro
- Recycled materials

Supply chain

Definition:
‘the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hand of the ultimate consumer’. Christopher (1998)

A supply network is thus a complex combination different subsystems linked with each other by material flows, energy, monetary flows and flows of information.

The inputs and outputs of each subsystem can further be measured, calculated or monitored, and values can be aggregated along the supply chain.

‘Extended Supply Chain’ also includes the use and the end-of-life of the products

The Extended Supply Chain also includes the use and the end-of-life of the products
Communication in the extended supply chain

- Extraction of raw materials
- Suppliers
- Demand from customers
- Retailers
- Demands from operating environment
- Authorities
- Neighbours
- Society
- NGOs
- Competitors
- etc.

Performance indicators are used as communication tool

Use of performance indicators

Indicators can be used to develop the supply chain by

Setting requirements upstream - Fulfilling obligations downstream

**Requirements**
- upstream:
  - to suppliers performance (management practice)
  - to products, processes, materials

**Obligations**
- downstream:
  - to provide information (to customer) about
  - internal management procedures
  - products' performances and potential implication during use and end of life

THE GRI-INDICATOR FRAMEWORK

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>ASPECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Direct Economic Impacts: Customers, Suppliers, Employees, Providers of capital, Public sector</td>
</tr>
<tr>
<td>Environmental</td>
<td>Materials, Energy, Water, Biodiversity, Emissions, pollutants, and waste</td>
</tr>
<tr>
<td></td>
<td>Suppliers, Products and services, Compliance, Transport, Overall</td>
</tr>
<tr>
<td>Labour Practices and Decent Work</td>
<td>Employment, Labour management relations, Health and safety, Training and education, Diversity and opportunity</td>
</tr>
<tr>
<td>Social</td>
<td>Community, Bribery and corruption, Political contributions, Corruption and pricing</td>
</tr>
<tr>
<td>Product Responsibility</td>
<td>Customer health and safety, Products and services, Advertising, Respect for privacy</td>
</tr>
</tbody>
</table>

Supply Chain Strategy

Logistical objectives

Specification of variables

Managed system

Managing system

LIS

Organisation

Supply Chain Performance

Overall performance of the company

CSR Strategy

SCM - model

(modified after Van der Vorst, 2000)
**Supply Chain Strategy**

- **Logistical objectives**
  - Specification of variables
  - Managing system
  - LIS
  - Organisation

- **Product/market characteristics**

**Overall performance of the company**

(modified after Van der Vorst, 2000)

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**Indicators as supporting management tool**

<table>
<thead>
<tr>
<th>CSR-issue</th>
<th>Performance Indicators</th>
</tr>
</thead>
</table>
| Workplace | • Evidence of compliance with the ILO Guidelines for Health MS.  
• Average hours of training per year per employee |
| Environment | • Performance of suppliers relative to responsible programmes  
• Significant environmental impacts of products and services. |
| Corruption | • Description of policy, management systems and compliance mechanisms for managing political lobbying and contributions.  
• Amount of money paid to political parties and institutions |
| Product responsibility | • Description of policy for preserving customer health and safety during use of products and services  
• Voluntary code compliance, product labels or awards with respect to social and environmental responsibility |

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**Outline of model for CSR driven SCM**

- **CSR issues**
  - Production
  - Managing system
  - LIS
  - Organisation

- **Partnerships**
  - Authorities
  - Neighbours
  - Society
  - NGOs
  - Competitors etc.

**Demand for explicit performance—need for CSR management**

- **Extraction of raw materials**
  - Suppliers
  - Producer

**Obligation to present information**

- **Consumers**
  - Plan—do—check—act

**Choice of materials and processes, product modularity**

- **Choice of suppliers and other partners**
  - Ability to effectively respond to undesired practices in supply network

**Take-back systems through distribution channels**

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**Which CSR-indicators should be used in SCM?**

<table>
<thead>
<tr>
<th>CSR-issues</th>
<th>Managed system</th>
<th>Managing system</th>
<th>Information system</th>
<th>Organization</th>
</tr>
</thead>
</table>
| Workplace  | Choice of equipment and infrastructure for transport, handling and production  
Level of coordination with suppliers about usage and change of infrastructure  
Availability of relevant information about physical properties of materials flow, processes and infrastructure used in the supply chain, its environmental impact, behavior of supply chain partners and usage of products by customers. |
| Environment| Choice of materials and processes  
Ability to effectively avoid waste, emissions and spillage of resources  
Level of alignment between individual values and responsibility in the network |
| Corruption | Choice of suppliers and other partners  
Ability to effectively respond to undesired practices in supply network  
Level of agreement about CSR-objectives and how to measure performance |
| Product responsibility | Choice of materials and processes, product modularity  
Ability to effectively respond to accidents, faulty products etc  
The use of performance indicators |

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An EPD gives quantitative information about the product

Ex.: CO2-account for products

Documentation through EPD
The shipping sector – Social responsibility

Our most important contribution to accepting social responsibility is to conduct our business well in accordance with the international and national regulations which govern its operations.

Focus on
- Workplace conditions
- Safety
- Environment
- Marketing potential

The roles of the participants

Top-down
Government

Civil society

Business

Consumers

Bottom-up

The roles of the participants

Global trends - summary

Sustainability

Government Agenda

Business Agenda

Stockholm 1972
Rio 1992
Jo'burg 2002

Eco-Efficiency
Cleaner Production
Compliance
Corporate Social Responsibility

Partnership
Economic Instruments
Co-regulatory/ Voluntary
Command & Control Legislation

www.ntnu.no
Current situation

- Too many different indicators (KPIs)
  - Opportunities for confusions and mistakes
- Comparison of performance between companies is difficult
- Additional manpower required to present the same information in many different ways (onboard and in office)
- Difficult to mobilize organizational focus on quality improvement
- New reporting requirements are emerging, especially regarding environmental issues and CSR

"ISMA Code phase II"

- Improve the effectiveness of the ISM Code
- Support a new regulatory regime of setting minimum operational standards
- Change from "process management regulation" (ISMA/ISM Code) to "process output regulation"
- The Shipping KPI Report Card (Performance rating system)
  - Limited number of Performance Indexes
  - Meets future stakeholder requirements
The challenge

The impact of the Shipping KPI Project depends on the acceptance by the industry of the developed KPIs and the Shipping Performance Indexes (SPIs).

The project runs three processes in parallel:

- The rational process – developing the KPI depository structure and the KPIs.
- The emotional process – facilitate stakeholders detachment from current practices.
- The political process – visualize the benefits for the industry and the stakeholders.

Project objectives

Develop an international standard and tools for measuring company's and vessels' performance

In order to:
- boost performance improvements internally in companies engaged in ship management activities
- provide an efficient communication platform of ship management performance both for the management onboard and ashore

This shall:
- avoid each company spending resources on developing the same (measurement criteria and tools)
- ensure focus on the most efficient performance indicators by the shipping industry
- avoid tailor-made reporting to all the different stakeholders both onboard and shore
**Increased transparency**

- Focus on quality matters, safety issues and environmental performance
- Develop frameworks for reporting of operational performance
  - meaningful for stakeholders without technical/ maritime background

**Enhanced governance**

- Facilitate performance improvement processes (e.g. benchmarking)
- Further develop standardization of "best practices"
- "The adoption of CSR* strategies and the disclosure of performance in relation to announced goals represent an alternative to regulation. “
  (EC - European Maritime Policy excerpts from Green Paper 2006)

* = Corporate Social Responsibility

**The KPI depository**

**KPI Depository - Structure**

A reference model for the shipping industry with regard to measurement of performance in ship operation

- **KPI – Definition** (to achieve consistence and repeatability)
- **Indexing** (alphabetical, vessel type, stakeholder, etc.)
- **Purpose** (considerations of objective, rationale, etc.)
- **Metrics** (validity, inaccuracies, limitations, etc.)
- **Application** (lesson learned, best practices, etc.)
- **Review Board** (observations, recommendations, etc.)

- "Fact sheets" for recommended KPIs (definition and attributes)
- Relations between KPIs – Hierarchical structure
**KPI Depository - Features**

- A collection of “recommended KPIs” for measurement of operational performance in shipping
- Constitutes the collective “wisdom” with regard to measurement of operational performance
- A reference model for individual companies establishing (or revising) their respective performance measurement indicators

**KPI Depository - Misconceptions**

- The depository is NOT a database for capturing operational performance information from the participants
- Benchmarking will NOT be done as part of the project
- The project will NOT set any “minimum operation standard”

**KPI Depository - Opportunities**

- Enable companies to compare (and align) own in-house performance indicators with an industry norm
- Allows comparison and benchmarking of operational performance between companies using identical KPIs
- With sufficient support from the industry the depository will form the foundation for an international standard
- Standardized KPIs are the “building blocks” of a performance rating system (SPIs)

**Indicator hierarchy**

- Weighted sum of 2-4 KPIs
- Aggregated from 2-6 PIs
- Unambiguous operational measurements
- Key Performance Indicators (KPIs)
- Performance Indicators (PIs)
- Shipping Performance Indexes (SPIs)
Not all KPIs are equally relevant for all companies
Example: Ship Management company

Not all KPIs are equally relevant for all companies
Example: Stakeholder - Regulator

Methodology

Defining the “building blocks”
The project phase 1 identified building blocks for a new KPI framework

- Bottom-up approach where KPIs already in use by ship management companies were collected and analysed
- The analysis showed that few, if any, KPIs used today comply with basic requirements and expectations

<table>
<thead>
<tr>
<th>175 KPIs collected from participants</th>
<th>65 KPIs collected from Intellectual Capital Services (ICS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring the same KPIs</td>
<td></td>
</tr>
<tr>
<td>Approximately 50 KPIs</td>
<td></td>
</tr>
<tr>
<td>Evaluated towards validation criteria</td>
<td></td>
</tr>
<tr>
<td>28 KPIs + 50 PIs</td>
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</tbody>
</table>

Preliminary Shipping KPIs

- 1.1) Port State Control Deficiency Rate
- 1.2) Port State Control Detention Rate
- 1.3) Overdue non-conformances from external audits
- 1.4) No of loss of ISPS clearance (1-3)
- 1.5) No of customs/immigration issues
- 1.6) No of stowaways
- 2.1) Availability
- 2.2) Technical Failures
- 3.1) Energy Efficiency/CO2
- 3.2) SOX
- 3.3) NOX
- 3.4) Incident Related Spills
- 3.5) Ballast Handling
- 3.5) VOC
- 3.6) PM
- 4.1) Lost Time Injuries Frequency
- 5.1) Public Apperance
- 5.2) Industry Reputation
- 5.3) Total no Of Claims
- 6.1) Cargo Incident
- 6.2) Delay
- 7.1) Crew Retention
- 7.2) Crew Quality/Performance
- 7.3) Crew Planning
- 7.4) Crew Availability
- 8.1) Financial Stability/Robustness
- 8.2) Financial Predictability
- 8.3) Cost Efficiency

Approach to identify requirements to KPIs for internal improvement

- Each stakeholder have individual reporting requirements
- Shipping companies have internal individually defined KPIs

Shipping KPI project scope

Current situation

- Each stakeholder have individual reporting requirements
- Shipping companies have internal individually defined KPIs
Shipping KPI project scope
To-Be Situation
- External and internal KPIs defined in common KPI depository
- External reporting through Report card – Indexes based on KPIs
- Internal KPIs based on depository definitions

The Balanced Scorecard (BSC) is a framework designed to improve long term value creation

The BSC framework provides a structure for organizing KPIs in order to address internal improvement areas
- The Balanced Scorecard framework encompasses four different perspectives:
  1. The financial perspective
  2. The customer perspective
  3. The internal-business-process perspective
  4. The Human Resources & Information Systems
- Due to an increasing focus on “Corporate Social Responsibility” within the business community, the project suggests to add a fifth perspective on HSE issues
  5. The health-safety-environment perspective

Preliminary Shipping KPIs evaluated and categorised in the five different perspectives
28 KPIs -> 34 KPIs
- Finance
  - Profitability
  - Financial Stability/Robustness
  - Cost Efficiency
- Customer
  - Total no of Received Claims
  - Sales activities
  - Off-Hire
  - Budget Predictability
- Processes
  - Port State Control Deficiency Rate
  - Port State Control Detention Rate
  - Overdue non-conformances from external audits/surveys
  - No of loss of ISPS clearance (1-3)
  - No of customs/immigration issues
  - No of stowaways
  - Cargo Incident
  - Delay
  - Technical Failures
- HR & IT
  - Crew Retention
  - Crew Discipline
  - Crew Planning
  - Crew Availability
  - Crew Training
  - Number of new recruits/cadets
  - Sign-off process
  - Shore-personnel
  - IT-Systems
- Health, Safety & Environment
  - Energy Efficiency/CO2
  - SOX
  - NOX
  - Incident Related Spills
  - Ballast Handling
  - VOC
  - PM
  - Lost Time Injuries Frequency
  - Health
Approach to identify requirements to KPIs for reporting to external stakeholder

Briefly about stakeholder analysis

- Identification of most important stakeholders, stakeholder roles and their interest areas.
- Analysis based on stakeholder and their roles, intended to make a more accurate definition of each stakeholder.
- Identification of most relevant KPIs that may be used to create a set of SPIs

Tentative results – This is the scope of next workshop with KPI working group

- Seven (7) Shipping Performance Indexes tentatively identified
  - Company image
  - Environmental sustainability
  - Attractiveness as employer
  - Safety
  - Security
  - Commercial reliability
  - Financial attractiveness
- Based on 30 different KPIs
  - Some reuse of 6 KPIs
Example of stakeholder mapping: Environmental sustainability SPI

**Stakeholders**
- Port State
- Flag State
- Port/Channel Authorities
- Multi-National Governmental Organisations

**Role**
- Regulator

**SPI**
- Environmental Sustainability

**KPIs**
- SOx
- Energy Efficiency
- NOx
- Emitted mass (CO2)
- Transport Work (t/m)
- NOx-Factor
- Cleansing-Effect

**PIs**
- Sulphur in Bunker
- Incident-Related Ballast Handling

**Example of stakeholder mapping:**
- Environmental sustainability SPI
- Project Participants
  - Anglo Eastern Ship Management
  - B+H Equimar Singapore
  - Wilhelmsen Maritime Services
  - BW Gas
  - Chemikalien Seetransport
  - Columbia Shipmanagement
  - Dobson Fleet Management
  - DS Schiffahrt GmbH
  - Eurasia Group
  - Fleet Management
  - Hanseatic Shipping Company
  - Høegh Fleet Services
  - Jebsen Total Transport Solution Services
  - Navigo Shipmanagers
  - OSM Group
  - Seaspan Ship Management
  - Stolt-Nielsen Transportation Group
  - Eitzen Maritime Services
  - Thome Ship Management
  - V. Ships Shipmanagement
  - Wallem Group Ltd

**KPI – development process**
- **Collection**
  - Collection of KPI’s in use from the companies participating in the KPI project

- **Development**
  - Analysis of information collected. Compilation and structuring of available know-how and experience

- **Review**
  - Review developed KPI’s with regard to suitability for industry wide application

- **Storage**
  - KPI Depository
  - Recommended KPIs

**Involvement:**
- Participating Companies
- Marintek
- University resources
- External stakeholders

**More information?**
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