

GREEN SUPPLY CHAIN EVENT MANAGEMENT

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Today in general:

- Green and sustainable logistics concepts are focused on **strategic** decisions

For future improvements and concept development:

- The dimension of **operative** logistics is just as well important

Day-to-day example:

- A production delay in Asia tends to result in short-term transports via airplane – with a significant environmental impact

Concepts of ‚green‘ supply chain event management have to contain sustainable information:

- e.g. the additionally implicated CO₂ emission by changing the transport mode from seaway to air

- ➔ in order to become ‚green‘ CO₂ calculation models have to be ***merged*** with SCEM concepts

- ➔ this will enable informed operative logistics decisions integrating a green logistics perspective

2. LITERATURE REVIEW

Development of more sustainable concepts is driven by several triggers:

- **politically** influenced (e.g. the Kyoto Protocol of 1997, followed by the Copenhagen Protocol)
- influenced by the **media** (e.g. regarding PR concepts from companies)
- **management** influenced (e.g. with a view to raw material prices in future)

So far such management concepts are maximally in an initial stage of development and often only one perspective is regarded

At least the term ‚Green logistics‘

- was used by authors the last 20 years and
- can be found in agendas of companies for more than 15 years

Literature is often affected by the **costs**, **quality** or **risk** oriented

- so far **sustainability** in such concepts plays only an inferior role and
- contains mostly the view of a special sector or an industry

→ Until today there is no broad discussion about GSCEM

Existing SCEM concepts usual focus on:

- real-time information,
- transparency (e.g. via tracking and tracing tools)
- decisions aided by computer systems

Nowadays a **task of SCEM** mainly is to realize ‚all‘ data / transparency along a supply chain. An exemplary definition reads:

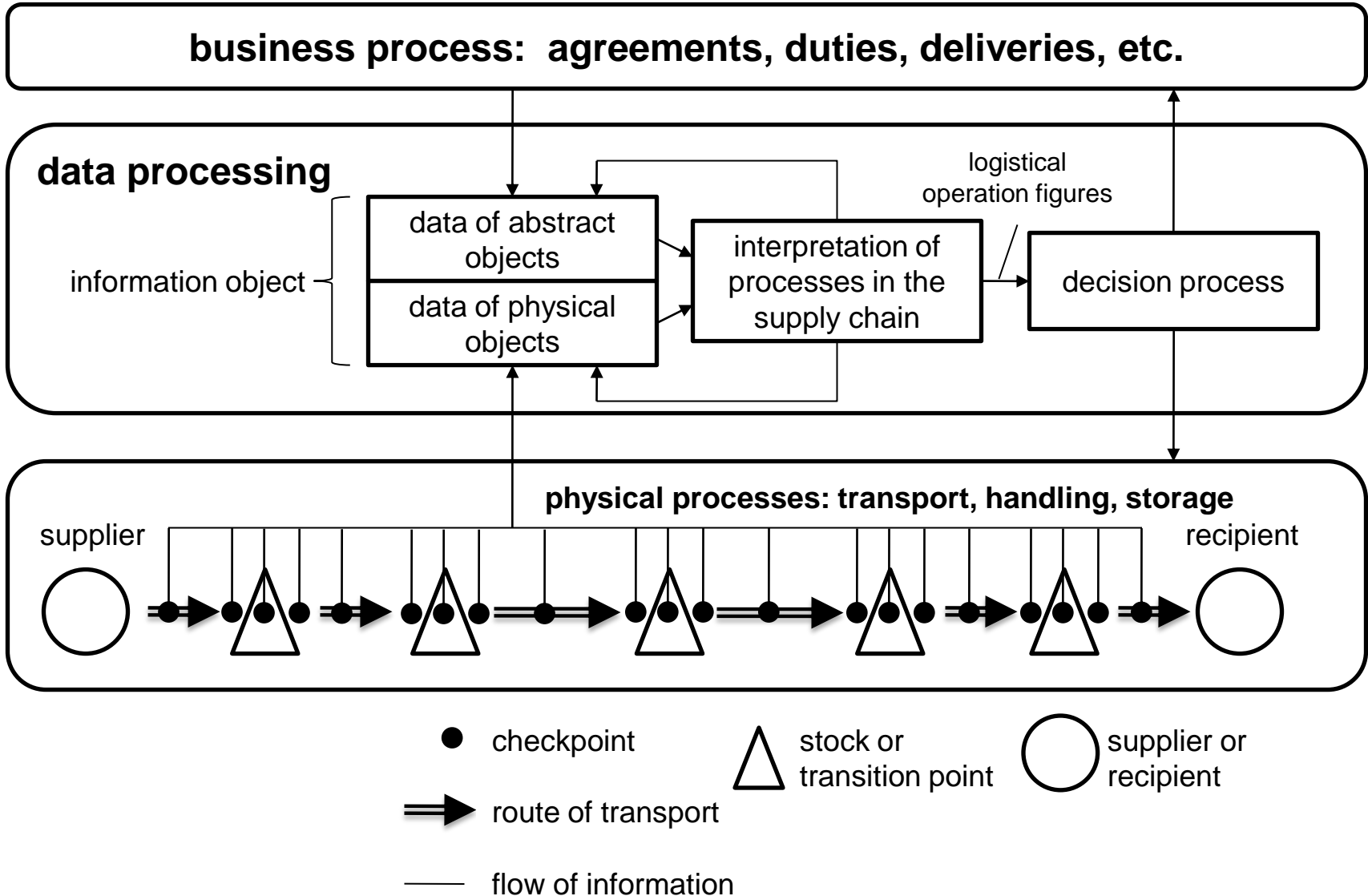
„Event oriented systems enable the **monitoring** of stocks, orders and goods deliveries along the entire delivery chain. They **identify** expected events as well as unplanned disturbances and **inform** the decision maker about their status with the goal of a punctual identification of the disturbances and the states of emergency to guarantee.“

SCEM has to realize thereby:

- a permanent monitoring of material and goods flows along the entire chain and
- additionally has to make coordinated management action possible in case of supply disturbances and exceptional cases

As the following illustration shows, there are many points between manufacturers and customer conceivable at those GSCEM can be used:

3. TRANSPARENCY IN SCO



The **task of SCEM** is:

- an active and customer oriented monitoring of the delivery chain to recognize disturbances and give possible solutions
 - thus SCEM increases the flexibility and capacity of reaction of the entire supply chain
- ➔ The first theoretical bases of SCEM were already compiled in the form of elaboration about management by exception (MBE) in the middle of the last century

3. TRANSPARENCY IN SCO

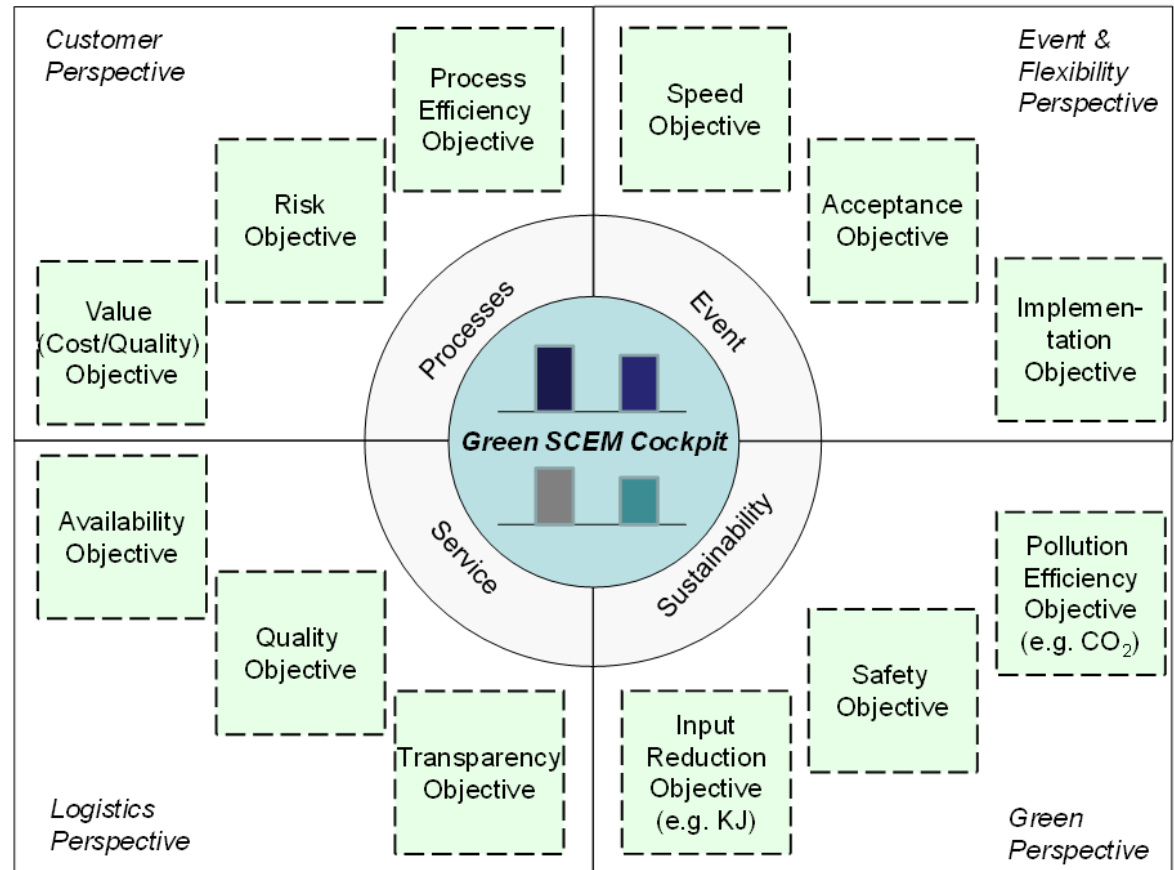
Characteristic for the MBE approach is:

- the fact of reducing control and steering activities of the responsible person
 - that an intervention is only necessary if an event cannot be processed and/or settled independently by the SCEM system
- ➔ with SCEM an interface is provided between the pre-defining supply chain planning (SCP), the planned process and the real operational sequence along the supply chain

4. GREEN SCEM MODEL

In order to integrate all specified perspectives needed in a Green SCEM system a holistic management model has to be drafted

First there has to be a **sustainability** or **green perspective** in combination with a **logistics perspective, customer perspective** and additionally the **event and flexibility perspective**



Sustainability or green perspective:

- *Input Reduction* objective calling for lower inputs of non-renewable materials as e.g. energy and raw materials needed for transport equipment and transport and logistics services
- *Safety* objective describing the absence of harmful events such as oil and other dangerous goods spills in natural habitats or human injuries
- *Pollution efficiency* objective determining a reduction of emissions of e.g. greenhouse gases or other pollutants in relation to logistics service outputs

Logistics perspective:

- *Availability* objective describing the basic function of logistics to ensure availability of the right goods at the right place and on time
- *Quality* objective addressing the need for unharmed goods transport and smoothness of logistics *services* (service orientation, security awareness)
- *Transparency* objective in logistics depicting the aim to provide accurate and real-time information about transport, goods status and overall logistics performance for customers and other partners in the supply chain

Customer perspective:

- *Value* objective addressing the ration of costs and *product* quality in purchasing to be guarded and improved
- *Risk* objective defining an overall risk management approach in order to avoid situations threatening company existence
- *Process efficiency* objective determining the process time and internal process costs to be reduced in supply management e.g. by E-Procurement

Event and flexibility perspective:

- *Speed* objective according to standard events in supply chains as usually disruptions in transport chain create a need for higher speed
- *Acceptance* objective mentioning that with increasing technology impact on all steps, persons and companies in a supply chain there has to be more emphasizing of acceptance
- *Implementation* objective determining the fact that future technologies will need even more education and training efforts in order to fledge their full potential in supply chain event management (*implementation hurdle*)

Business Simulation Example – DACHSER Germany:

ActiveReport **DACHSER**

Annahme verweigert Reporterstellung: 2006-07-13, 08:24 Uhr

Empfänger: OHG FEGRO/SELGRÖS
EUROPA-ALLEE 35
D-50226 FRECHEN

Absender: BREMER HACHEZ CHOCOLADE
GMBH & CO.KG
WESTERSTR. 32
D-28199 BREMEN

Auftragsdatum: 2006-07-12

Auftrags-Nr. Kunde: 9001214663

Sendungs-Nr.: 41400547280

Auftragszeilen:

Anzahl	VP	Markierung	Inhalt	Gewicht
1	C4		SCHOKOLADENPRODUKTE	31 KG
6	KT	9001214663	FARBEN UND LÄCKE	31 KG

NVE:

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00340222779015987534	0034022277901598754	

Lieferschein:

9001214663
56489747136478641634

Statustexte:

Kunde will keine Nachlieferung

Zusatzinformationen:

Hallo Frau Stengel,
die Bdnng. wurde bei Anl. nicht angenommen, da der Empf. keine Nachlieferung möchte. Die NL ergab sich aufgrund der Datenprobleme Bitte verfügen Sie. Vielen Dank
MFG: A. Manuela Pasemann

[Zusätzliche Status/Beleginformationen erhalten Sie hier.](#)

Freundliche Grüße
DACHSER GmbH & Co. KG Langenhagen

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Sitz der Gesellschaft: Komplex-Osternang, Gerichtsgerichtsbeurteilung: AG Kempten HR Abteilung A Nr. 3038 Persönlich haftende
Gesellschafterin: Dachser Gesellschaft mbH, Sitz Wien, Handelsgericht Wien FN 34773 y Geschäftsführer: Dr. Ingo Böckenhof, Thomas
Reiter, Gerhard Riebler, Michael Schilling, Bernhard Senes

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Sendungsnr. (Originalnummer): 41400547280

NVE (SSOC): 00340222779015987503

Aufnahme vom (Eingangsknoten): DE 01.2003 06:33

Bestandeshalter (Station): Uscher/Langenhag

Abnehmer (Kunde): DE-KUNDE OHG & CO.KG
EUROPA-ALLEE
D-50226 FRECHEN

Prüfungsort (Station): NPT0 BOSCHHOF 70MFA 1.60FF
ALTEBAUERSTR. 11
D-8080 GUTENBORH

Auftraggeber (Zyklus Nr.): 00340222779015987503

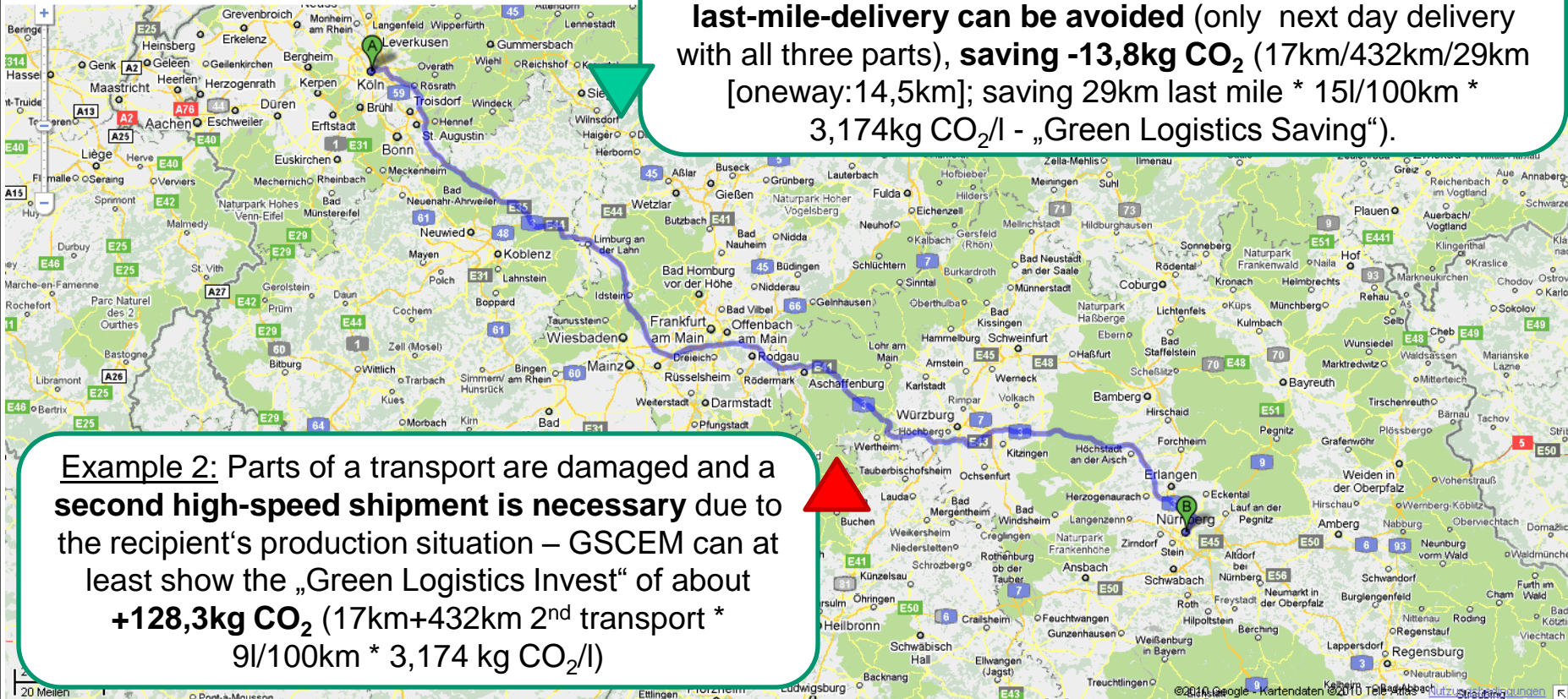
Bemerkung (Freier Text): Folie aufgabbar / keinen beschädigt



Business Simulation Example – DACHSER Germany:

Example 1: One of three parts within a transport missing in the incoming depot (Nuremberg), due to ActiveReport (SCEM System) the recipient can be informed and an **unnecessary last-mile-delivery can be avoided** (only next day delivery with all three parts), **saving -13,8kg CO₂** (17km/432km/29km [oneway:14,5km]; saving 29km last mile * 15l/100km * 3,174kg CO₂/l - „Green Logistics Saving“).

Example 2: Parts of a transport are damaged and a **second high-speed shipment is necessary** due to the recipient's production situation – GSCEM can at least show the „Green Logistics Invest“ of about **+128,3kg CO₂** (17km+432km 2nd transport * 9l/100km * 3,174 kg CO₂/l)



Future developments will bring a *further interest in sustainability* concepts as for example the visitors of the largest European logistics fair in Munich predicted:

- These experts see green and sustainable logistics concepts as the *most important trend* for 2015
- Therefore research has to adapt to this trend and also to an increasing number of questions asked by practitioners in supply and logistics management regarding green concepts

This research demand will have to be answered in three areas:

- *Measurement* and indicator concepts have to be established and validated as suggested in this article
- *Management* concepts for Green SCEM have to be developed in order to guarantee for an integrated perspective on green supply and logistics
- *Implementation and education* concepts have to be detailed in order to secure the impact of such research and management theory concepts

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Thank you for your kind attention!

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