7th European Conference on ICT for Transport Logistics

Title: Innovative Business Models in Logistics

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What is a logistics business model?

- Multitude of definitions used. Business models are often studied without explicitly having defined the concept
- Basic properties of a logistics business model:
  - Is centred on a focal organisation, but with **boundaries extending further**
  - It emphasizes a **holistic approach** trying to show how firms do business
  - It seeks to explain **value creation and capture**.
- Innovative logistics business models provide:
  - innovative ways to **reach the customer**
  - innovative **configurations** of the supply chain actors
  - innovative supply chain **coordination mechanisms**.

What you find is that:

- although the term logistics business model is frequently mentioned in case studies, **no real information** is usually presented **on the specific model employed**
- the **boundaries** between logistics **business models** and logistics **practices** are usually very hard to discern
- when **logistics innovation** is mentioned, this is usually **understood** as the result of **ICT introduction** or as an **improvement of an existing process**
- the focus on **scientific journals/publications** on logistics innovation is directed to **methodologies** for assessing innovation impacts, **conceptual models / frameworks** of logistics innovation, or innovative **technologies.**

Logistics business model examples (1)

- crowdsourcing for the last mile
  - DHL's “Bring.BUDDY” (city dwellers’ based model)
  - Wal-Mart (retail customers’ based model)
- decoupling the logistics service provider/user time windows
  - Amazon & 7-Eleven
  - Consignity
  - BentoBox
  - Relais-colis
  - DHL’s parcel station

Logistics business model examples (2)

- shared supply chain
  - shippers' collaborative schemes, e.g. retailers in France (Mars, United Biscuits, Saupiquet and Wrigley), Distrivaart in the Netherlands (Grolsch, Heineken, Bavaria, Inbev, Schuitema, Albert Heijn, Laurus and Super de Boer & Coca-Cola), the Beer Boat (NL)
  - shared access to restricted zones
- green supply chain
  - DHL GoGreen
  - Deutsche Bahn ecoplus – BMW
  - UPS carbon neutral
- ethical supply chain
  - Ethical Purchasing Groups (EPGs)
  - smallholders-based sourcing of food products in global supply chains

Crowdsourcing for the last mile

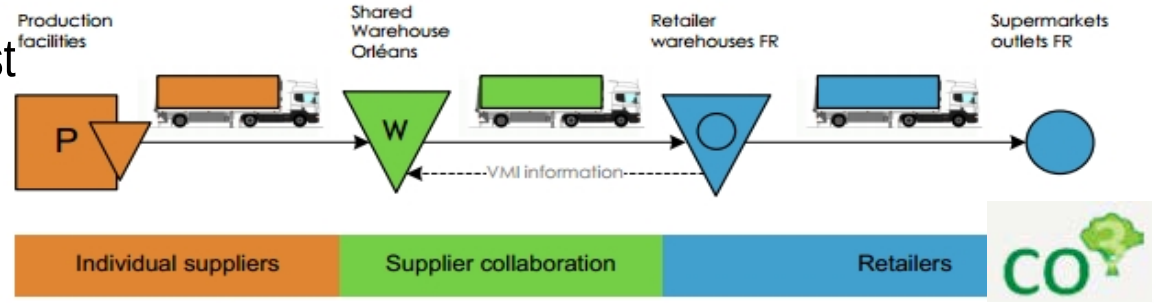
- DHL's 'Bring.BUDDY'
  - Basic idea: people who already move across the city could carry parcels for a part of the parcels' trip (**city logistics social network**)
  - Rolled out as DHL's MyWays service, facilitated by a smart phone application available for download
  - Value proposition: efficient & environmentally friendly last mile delivery

Decoupling the logistics service provider/user time windows

- Amazon & 7-Eleven
  - Problem: For a delivery to be made, the LSP and the recipient have to be **synchronised** (especially demanding in city deliveries).
  - Basic idea: while people move across the city, they dispatch and pick up their parcels themselves from specially built parcel pickup station, thus **decoupling** their time windows
  - Amazon delivers your package in a locker system housed in a 24-hour convenience, grocery or drug store (**third entity**). You are sent an email with a pickup code for opening the door of the locker containing your package.
  - Value proposition: 24/7 service availability for the customer

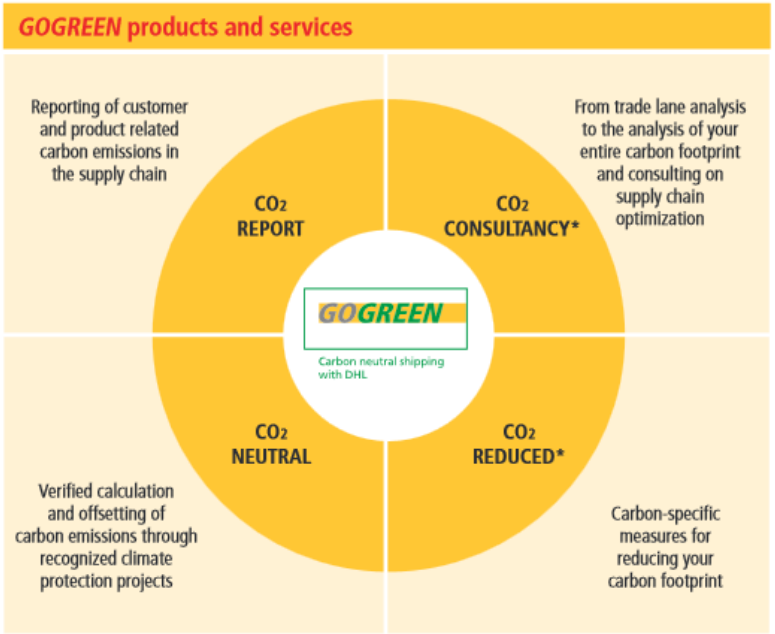
Shared supply chain

- Mars PF France, United Biscuits, Saupiquet, Wrigley & Norbert Dentressangle (CO3 project)
  - Four independent shippers establishing a **community** to "bundle" their overlapping freight flows
  - The LSP assumes an "**orchestrator's**" or "trustee's" role, as the collaborating shippers are also competitors and information/data confidentiality must be assured
  - The LSP **calculates** and **allocates** to the 4 retailers the efficiency **gains** from asset sharing
  - A formal contract exists between the four companies and the LSP, while **only a letter of intent** between the four retailers
  - Value proposition: low-cost cooperative distribution



Green supply chain

- DHL's 'GoGreen'
  - The issue: 1/2 of end consumers say they will pay attention to CO2 labelling on services & products. 60% of business customers say they will favour a greener LSP over a cheaper one. 2/3 of end consumers expect greener logistics services to be available at the same price as conventional transport
  - Value proposition: carbon-neutral cargo delivery
  - Between 2008 and 2009, GoGreen shipments increased by 387% (mainly from business customers. In 2011, around 1.86 billion shipments have been sent with GoGreen.



Ethical supply chain

- Ethical Purchasing Groups (EPGs)

  - Collective food purchasing by consumers from their producers, at a price that is considered fair to both parties
  - Choice of products and producers on the basis of their respect to the environment (re-usable or eco-compatible products) and to solidarity between consumers & producers
  - **Short distance logistics networks**, to ensure product freshness and minimum negative impact on the environment
  - Coordination of **supply chain operations by the EPGs**, ranging from the involvement of one LSP, to EPG-operated distribution schemes (with environmentally friendly means, e.g. tricycles, bicycles, etc.)
  - Value proposition: Provision of low-cost eco-friendly products, responsible consumerism

Main barriers to business model innovation (1)

Barriers to business model innovation (2)

- **Missing/limited hard facts:** Pilots usually focus on ICT or process introduction. The business models behind them remain a "black box" with their impact usually treated as "other qualitative impacts“.
- **Misaligned performance metrics:** Innovative business models by their very nature have inter-firm (and firm-customer) cooperation as a prerequisite. For cooperation to be realised, alignment between the performance metrics of the involved supply chain actors is needed.
- **Lack of gain-sharing models:** How do we quantify and allocate the gains of cooperative business models among the various actors?
- **Customer security issues:** In the cases of business models that incorporate the consumer or city-dweller for the last mile, how can the perception of the goods recipient on whether it is safe to accept deliveries by a “stranger” or a “neighbour”, be addressed?

Barriers to business model innovation (3)

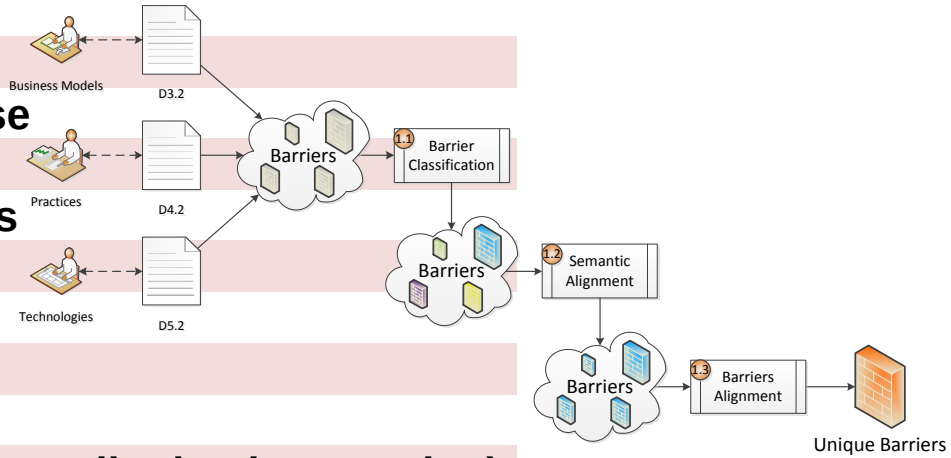
- **Lack of appropriate legal framework:** How do you promote horizontal cooperation of supply chain actors and at the same time comply with anti-trust legislation? How do you handle city-dwellers' compensation & cargo insurance issues in the case of crowdsourcing?
- **Lack of critical mass of on-line private users:** Innovative business models incorporating the social media, require a minimum critical mass of "enrolled" online private users (critical when social media is used as an operational tool).
- **Lack of commonly accepted methodologies:** for allocating the cost of urban-shared distribution systems, for estimating the environmental impact of logistics operations, for assessing the level of risk in supply chain networks, for obtaining the required data, etc.

Barriers to business model innovation (4)

- **Lack of Trust:** A fundamental requirement for realising the full effect of innovative business innovations. Short term, arms-length relationships are the main cause.
- **Short logistics contract durations:** Bringing an innovative business model in the marketplace requires a significant investment (in terms of preparation time and trust building) between the supply chain actors.
- **Financing issues:** Although important, are sometimes overrated. True innovation should be able to overcome this to a certain extent.

Unique aligned barriers

- Complexity in administration
- Costs - Financial Issues
- Deployment considerations - system governance and ownership
- Fuel emissions
- Immature technology
- Infrastructure issues
- IT interoperability
- Labor considerations - workforce expertise
- Lack of awareness
- Lack of cooperation between stakeholders
- Lack of legal/institutional framework
- Lack of operational interoperability
- Lack of Standardization
- Lack of Trust
- Limited/Misaligned evaluation data (e.g from pilot implementation)
- Need for processing huge amounts of data
- Privacy - Security issues
- Reliability – Quality - Accuracy of data
- Users' & market size considerations



Monitoring logistics business model innovation

- Current innovation monitoring frameworks **do not focus on logistics innovation**
- We could use a **Logistics Innovation Scoreboard**:
  - To be used as a monitoring system and as a tool for promoting innovation in logistics
  - To be linked to existing innovation frameworks (e.g. Innovation Union Scoreboard) and initiative roadmaps (e.g. Alice)
  - To address all stages of the innovation life-cycle, i.e. the innovation enablers, the innovation management process and the outcomes of the innovation process
  - To integrate three dimensions (logistics business models, practices and facilitating technologies) into one composite index (Logistics Innovation Index – LII)

Monitoring logistics business model innovation (an example)

Logistics innovation stage		
Innovation enabling KPIs	**Innovation management KPIs**	**Innovation outcome KPIs**
• logistics-related employees with a tertiary education (%) • public financing support received for logistics-related innovation activities (% of R&D expenditures) • number of logistics clusters	• cooperation agreements on innovation activities with other supply chain members (% of companies having realised one) • performance / gain sharing alignment among cooperating supply chain actors (& of companies having realised one) • logistics-related R&D expenditures (% of value added)	• new business model introduction (% of companies having introduced one) • new business model sustainability (% of companies still exploiting a business model introduced 2 years ago)

Conclusions

- Although business models are frequently brought into the innovation discussion, a lot of **effort** still remains at a **scientific level** for defining their properties, and understanding their impacts
- Innovative logistics **business models** serve as the **basis of innovative practices** and are **facilitated by innovative uses of ICT**
- A **variety** of logistics **business model examples** can be found in real life applications
- Among the various barriers to introducing innovative logistics business models, most probably the most important ones are: the **limited hard facts** on their impacts and the **missing/misaligned gain sharing models and performance metrics**
- A **Logistics Innovation Scoreboard** could serve as a valuable tool to monitor and subsequently promote logistics innovation

Thank you

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