

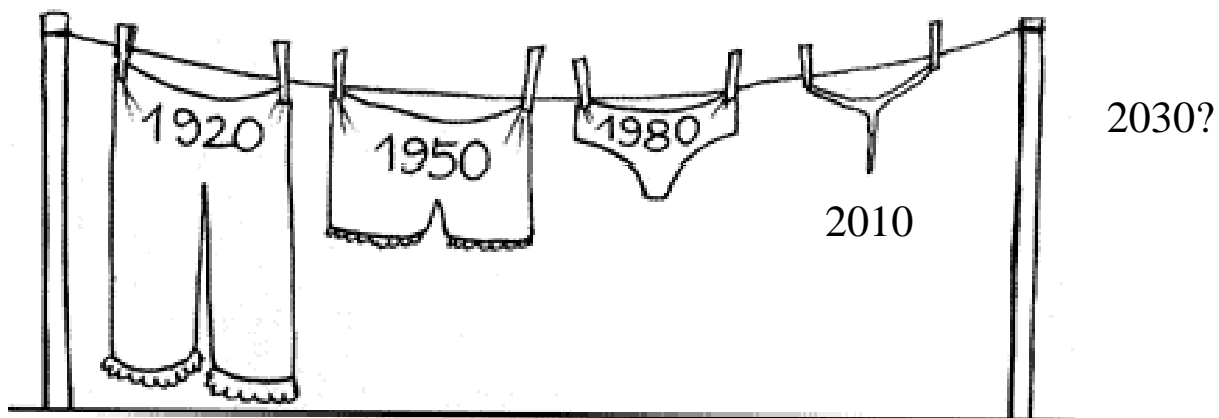
Lean i Lag Seminar  
Trondheim, 23.09.2010:

## "Beyond Lean" – hvor går veien videre?



**Jan Ola Strandhagen**  
Research Director SINTEF Industrial Management  
Professor NTNU IPK  
Project Director CRI NORMAN

## Lean: et historisk perspektiv...



R  
A  
P  
P  
O

# Just in Time i ordrestyrt produksjon

## Håndbok for innføring av JIT-teknikker

Desember 1994



**SINTEF**  
Produksjonsteknikk

Toyota Production System

Lean Manufacturing

x Production System

Den norske modellen

Hva nå ??

### 4.3.1-1 Beyond Lean Manufacturing – New Industrial Models for Product and Process Life Cycle

~~Technical content / scope: The main objective is to develop a new European production model (paradigm), which takes the Lean Manufacturing paradigm further by adding the relevant parts from the European manufacturing culture, standards and technology. This production model should provide an integrated approach to combining enterprise management systems with the enterprise technology base, applying human resources and technological factors for optimal leanness and agility, allowing the company to change its strategic and technical focus quickly in response to market trends and demands and to develop distinct core competencies. Among key development issues are: tool and methodological support for the integration of state-of-~~

## EUs 7 rammeprogram for forskning



processes of suppliers and customers capable of supporting continuous adaptation: systems based on

## Hva er Lean?

...Lean betyr eliminering av sløsing (Liker, 2006)

”den eneste vi gjør er å se på tidslinjen fra det øyeblikket kunden gir oss en ordre til det punktet vi får pengene. Og vi reduserer den tidslinjen ved å eliminere sløsing”

*”All we are doing is looking at the timeline from the moment the customer gives us an order til the point we collect the cash. And we are reducing that time line by removing the waste”*

Taiichi Ohno, 1988

# Hva betyr egentlig verdi?

Verdi kan defineres som aktivitetene i en prosess som:

- Forandrer form eller funksjon på materialer eller informasjon
- Blir gjort riktig på første forsøk
- Kunden er villig til å betale for

*"Bare når metallet bøyes skapes verdi; bare når materialer blir forandret eller montert skapes verdi."*

Shingo (1989)



### Talented employees

Komplett is an employer that offers a wide variety of duties. There are great opportunities for career development and for taking on new responsibilities. There are also many talented, wonderful employees working here.

*Thomas Serkitjis, Komplett.se*

### Common values

Komplett is a corporation in which everyone moves in the same direction in order to achieve the company's goals, and in which we all have common values and motivation factors. It's exciting and instructive to take part in an organisation that is constantly changing and developing.

*Lene Iren Oen, Komplett ASA*

### Great working environment

We have a great working environment here at Komplett. A good, secure workplace, as well as an innovative, unique and exciting environment that provides the opportunity to increase one's knowledge within many specialty branches.

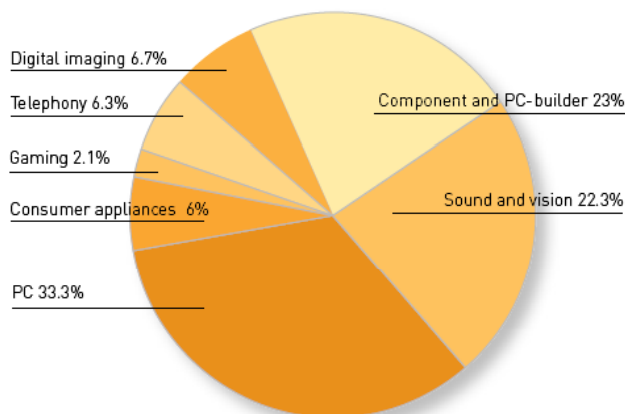
*Eilif Kiland, Komplett ASA*

### Opportunities

The nice thing about working for Komplett is that even as a young newcomer, you get a chance to carve out an important role for yourself by demonstrating commitment, determination and innovation.

*Maria Björnsson, Komplett.se*

## Revenue per product category



275 000 PCs  
89 000 Mobile phones  
85 000 TVs  
68 000 Digital cameras



In 2009 we delivered 1 371 682 orders containing totally 4 399 980 products.

On average one order every 23rd second 24 /7/365.

Best hour december 2009: One order shipped every 1,9 sec.





Robot in action



Working station



Pick and pack area



Robots in action



Automated packing



Outbound sorting

## A greener Komplet

- Komplet has environmental requirements when choosing suppliers and forwarders
- Our shipments travel by “public transport”. We do not use dedicated trucks.
- We sort our garbage and wastematerial.
- We are working with a number of measures to reduce the use of paper
  - Electronic marketing
  - Exchange of documents via EDI/e-mail (publications, invoices, order confirmations and packing lists etc.)
- Komplet has identified several areas for reduction of energy consumption in offices and warehouses
- Environmentally friendly packaging, filling material and plastic
- Video conferencing – reduce travelling for us and our partners
- Member of Elretur and Grønt Punkt



KOMPLETT MILJØ

# Lean i fremtiden

## Forutsetninger:

- High-tech kunnskapsintensiv produksjon
- Sterkere individuelle behov: Customer-of-one
- Økt miljø og ressursbevissthet

## Løsninger:

- "Ideell Fabrikk" / SFI Norman:
  - Samspillet mennesker og high-tech automatisering viktigere
- Responsevne og omstillingshastighet viktigere
- Økt bevissthet rundt Toyotas' virkelige konkurransefortrinn: organisasjonskulturen og filosofien bak
- Internasjonalt kunnskapssamarbeid

## Mer å lære mer å hente: Forskningsutfordringer for lean

1. Hvordan utnytte fordelene med "den norske modellen" til å skape unike resultater Beyond Lean?
2. Hvordan utvide lean fra bedrift (fabrikkgulvfokus) til verdikjede?
3. Hvordan realisere lean mass customisation ved bruk av IKT, i bedrift og verdikjede?
4. Hvordan utvide lean til "lean and green"?



Lean i Lag Seminar  
Trondheim, 23.09.2010:

# Vel hjem!



**Jan Ola Strandhagen**  
Research Director SINTEF Industrial Management  
Professor NTNU IPK  
Project Director CRI NORMAN

---