

# Hva kommer først – IKT eller nye logistikk løsninger?



Erfaringer fra forskningsprosjekter

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NTNU/SINTEF

# Modern times...



# Logistikk måles på kostnad, tid og service



- Raskere!
- Hyppigere!
- Billigere!
- Skreddersydd!
- Mer miljøvennlig!



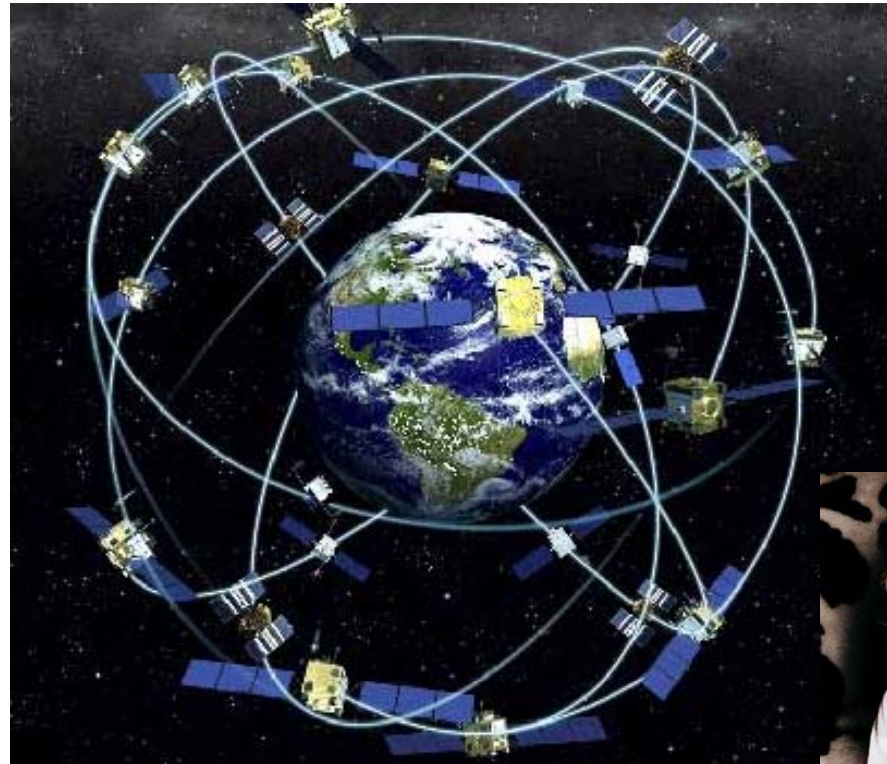
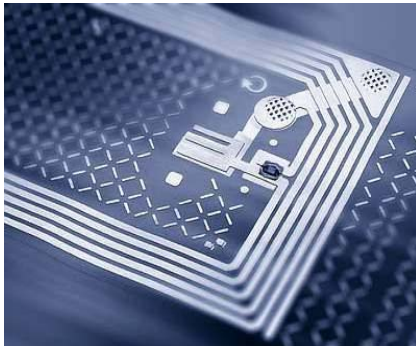
# Informasjonens rolle i verdikjeden





# Teknologi som muliggjør

32GB



twitter



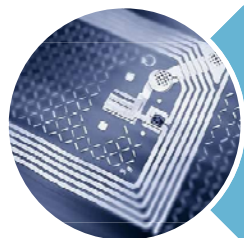
facebook



# Eksempler på IKT i verdikjeden



Automatisk  
vareforsyning



RFID



Sensortechnologi

# Kundetilpasset medisinforsyning



# Tid i verdikjeden



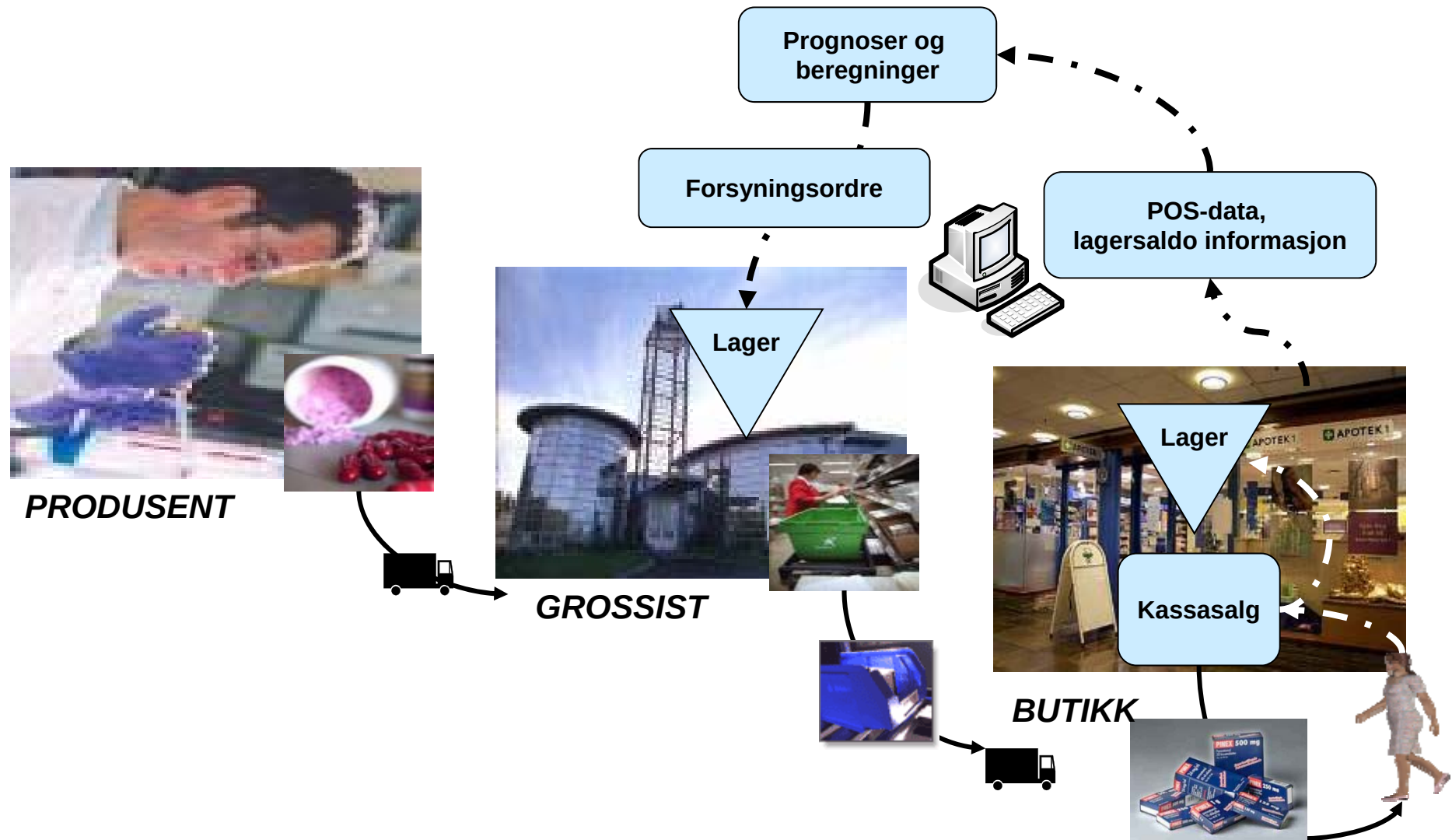
6 minutter



6 måneder



# Automatisk vareforsyning



# Apotekenes visjon



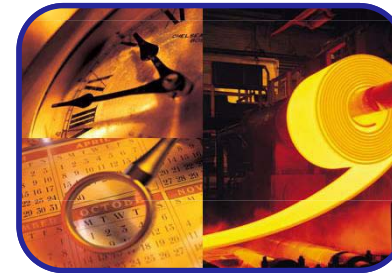
# Automatisk vareforsyning: IKT applikasjoner



**Kommunikasjons-  
-løsning**



**Prognose-  
verktøy**



**ERP**



**Kassesystem**



**Elektronisk  
lagersaldo**

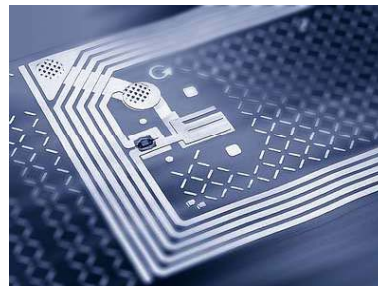
The logo features a square icon with a yellow background and three concentric, semi-circular lines in blue and grey, resembling a stylized signal or radar.

# Smart Vareflyt





# Mat som snakker



Dyrket i  
Spania

Temp.: 4 °C

Produkt:  
Appelsin, type  
Valencia

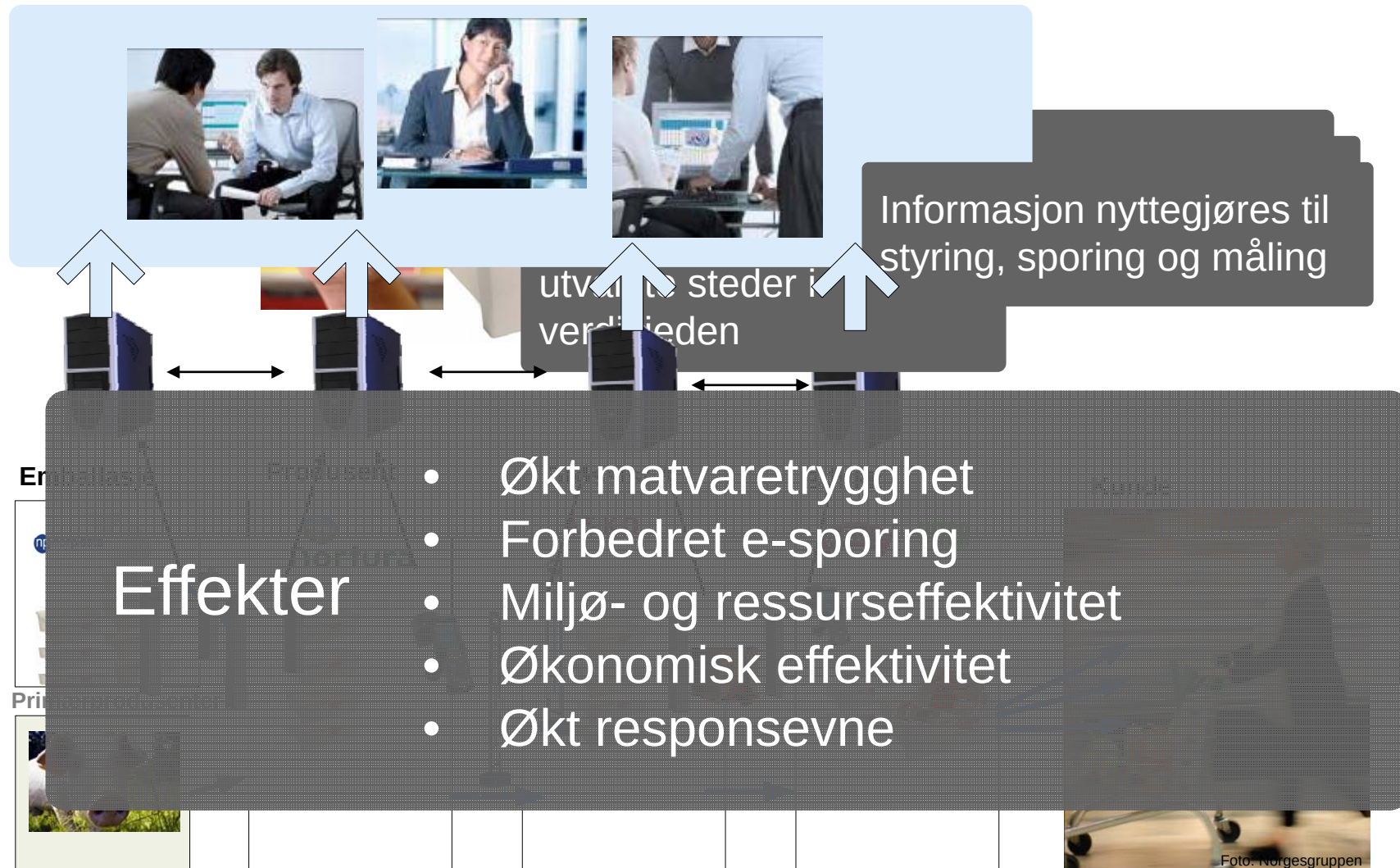
Skal til Bunnpris,  
Tyholt,  
Trondheim

Restholdbarhet: 14  
dager

# RFID i matkjeden



# Smart vareflyt



# RFID-merking av lastbærer

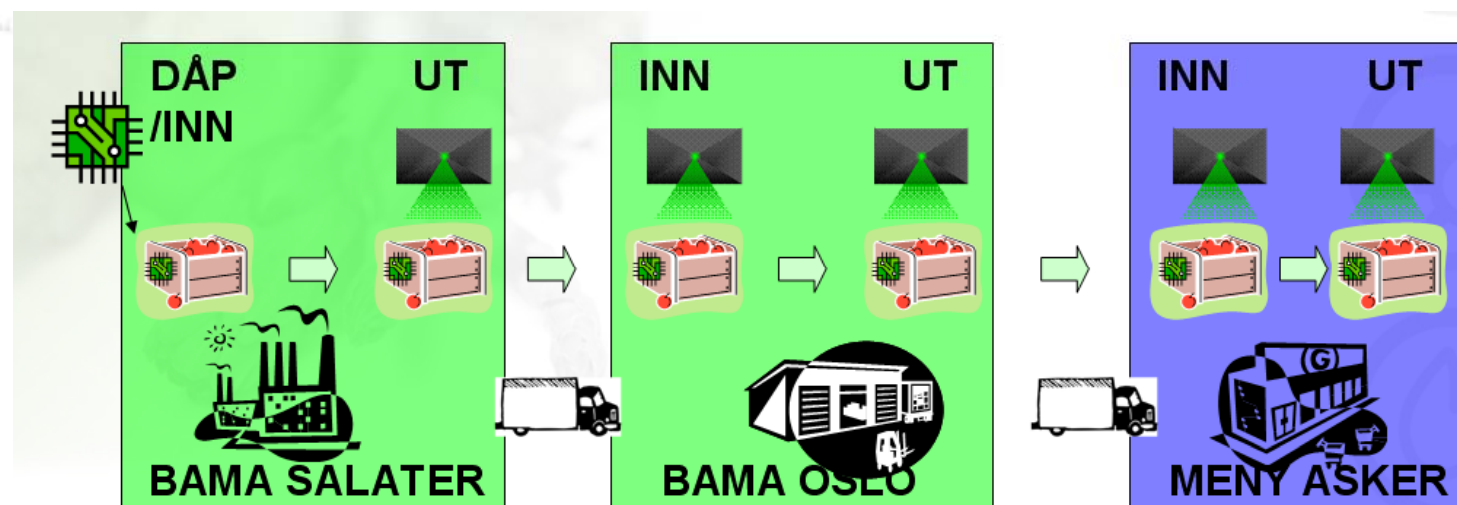


## RFID tag (brikke) for innstøping

- UHF med beregnet for 865- 870 MHz
- EPCGlobal Class 1 Generation 2 UHF Air Interface Protocol Standard
- 96 bit EPC minnebank



# RFID og temperatursensor



Figur: Bjørn Widding, Bama



### Manage your inventory

☐ Despatched products ☒ Products in store

Date: Apr 6, 2009

Stations [edit]

☒ BAMA Kalbakken Lager

Products [edit]

- ☒ Begersalat 215 G Kylling(606310)
- ☒ Begersalat 235 G Taco(606010)
- ☒ Begersalat 255 G Ost/Skinke(606110)
- ☒ Begersalat 250 G Gresk(606210)
- ☒ Begersalat 192 G Caesar Salat m/kylling(606510)

Apply

Status Apr 6, 2009. Unique products in store: 1,915.

| Station ^            | Products                            | Unacceptable | Not optimal | Acceptable | Expired |
|----------------------|-------------------------------------|--------------|-------------|------------|---------|
| BAMA Kalbakken Lager | Begersalat 235 G Taco(606010)       | 181          | 44          | 178        | 144     |
| BAMA Kalbakken Lager | Begersalat 255 G Ost/Skinke(606110) | 187          | 102         | 204        | 193     |
| BAMA Kalbakken Lager | Begersalat 250 G Gresk(606210)      | 0            | 0           | 65         | 0       |
| BAMA Kalbakken Lager | Begersalat 215 G Kylling(606310)    | 181          | 28          | 261        | 147     |

BAMA Kalbakken Lager: Begersalat 215 G Kylling(606310) Expired

| Product ID (EPC)                                     | Entered      | Product name                     | Shelf life | Expiry date ^ | Days in store |
|------------------------------------------------------|--------------|----------------------------------|------------|---------------|---------------|
| <a href="#">urn:epc:id:sgtin:0004071.518444.991</a>  | Mar 22, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 16            |
| <a href="#">urn:epc:id:sgtin:0004071.518444.981</a>  | Mar 22, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 16            |
| <a href="#">urn:epc:id:sgtin:0004071.518444.1612</a> | Mar 23, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 15            |
| <a href="#">urn:epc:id:sgtin:0004071.518444.1611</a> | Mar 23, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 15            |
| <a href="#">urn:epc:id:sgtin:0004071.518444.1610</a> | Mar 23, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 15            |
| <a href="#">urn:epc:id:sgtin:0004071.518444.1608</a> | Mar 23, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 15            |
| <a href="#">urn:epc:id:sgtin:0004071.518444.1607</a> | Mar 23, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 15            |
| <a href="#">urn:epc:id:sgtin:0004071.518444.1606</a> | Mar 23, 2009 | Begersalat 215 G Kylling(606310) | -7         | Mar 30, 2009  | 15            |

# Demonstrator: ProductChampion: Styring på holdbarhet

[www.smartvareflyt.no](http://www.smartvareflyt.no) (under  
"Resultater")  
[www.youtube.com](http://www.youtube.com) (søkeord  
"Smart Vareflyt")

...både og



...både og





# Konklusjon

