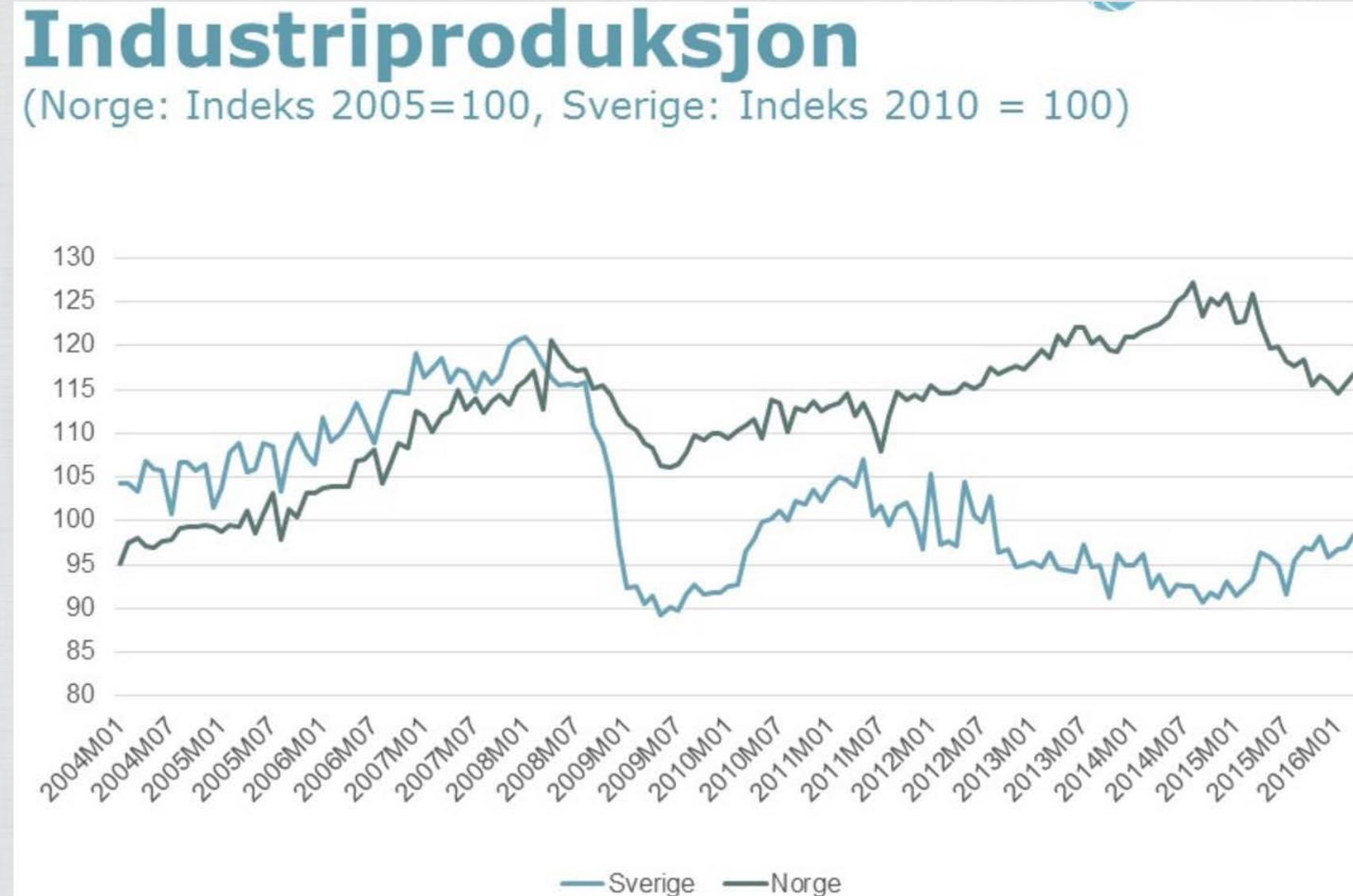


# Industrie 4.0. på norsk?

**Roger Schjerva**  
Chief Economist  
IKT-Norge

# Industrien er viktig for norsk økonomi

- Knappe 9 prosent av sysselsettingen
- 25 prosent av eksporten
- 2,5 prosent produktivitetsvekst
- 33 prosent av alle private FoU-innvesteringer
- Setter rammene for inntektsdannelsen



# Tyskland – mot strømmen

- Industriens andel av verdiskapningen synker i Norge og Europa
- Ett unntak er Tyskland
- Skyldes det Industrie 4.0?

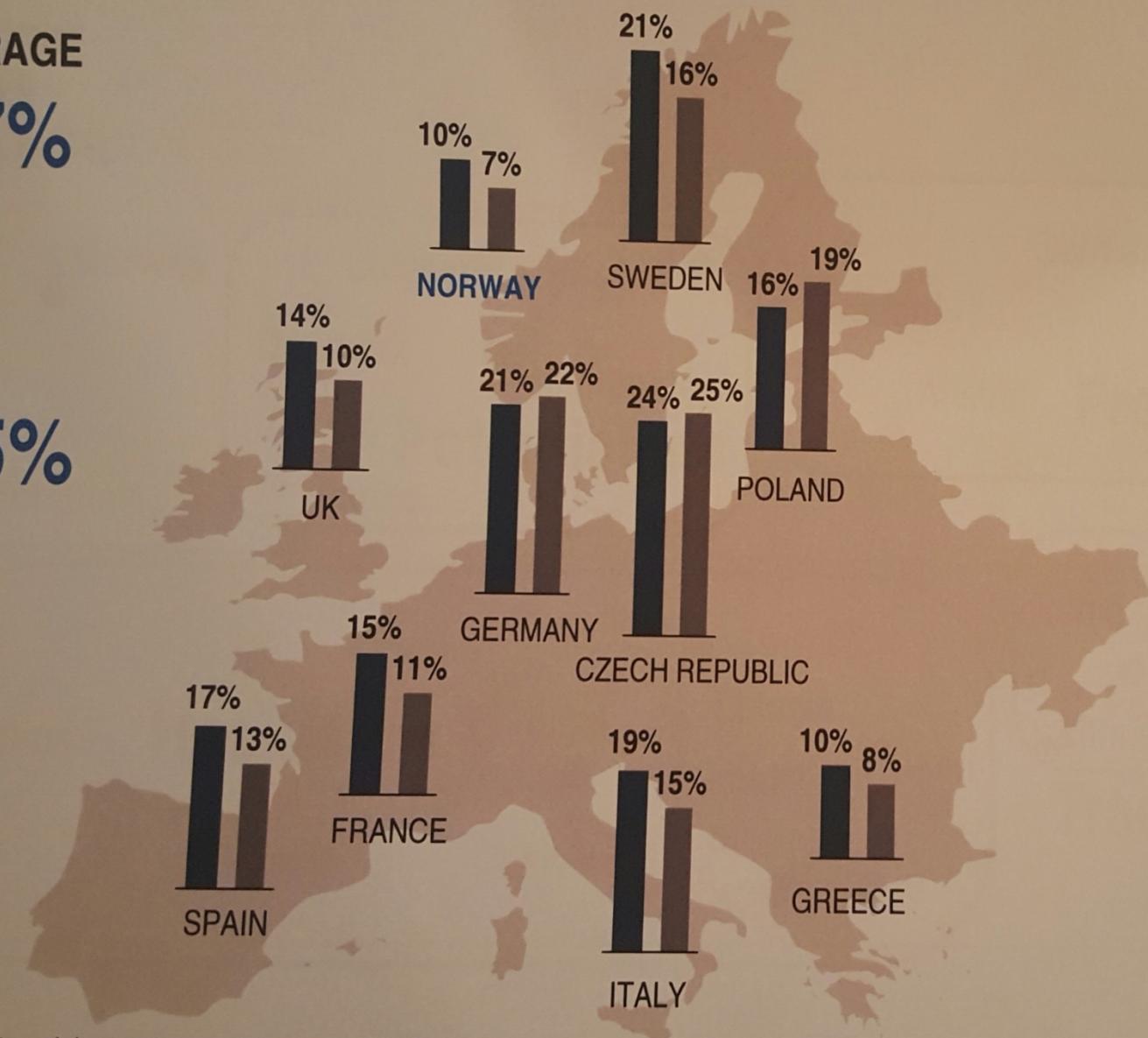
Industrial share of value added<sup>1)</sup> in selected countries [%]

EU<sup>2)</sup> AVERAGE

2002 17%



2013 15%

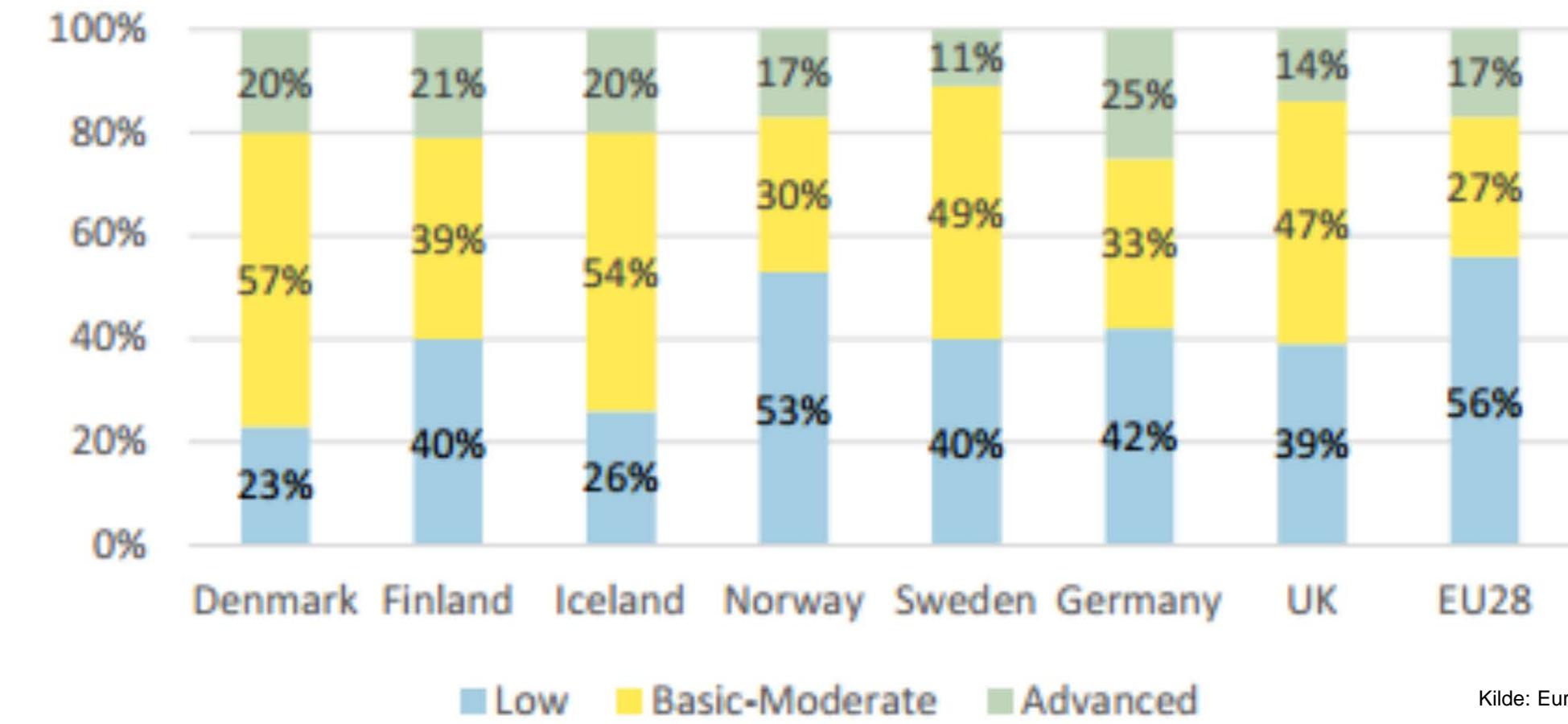


1) Excluding electricity, mining and quarrying

2) EU 27

# Norge har lite avansert industri

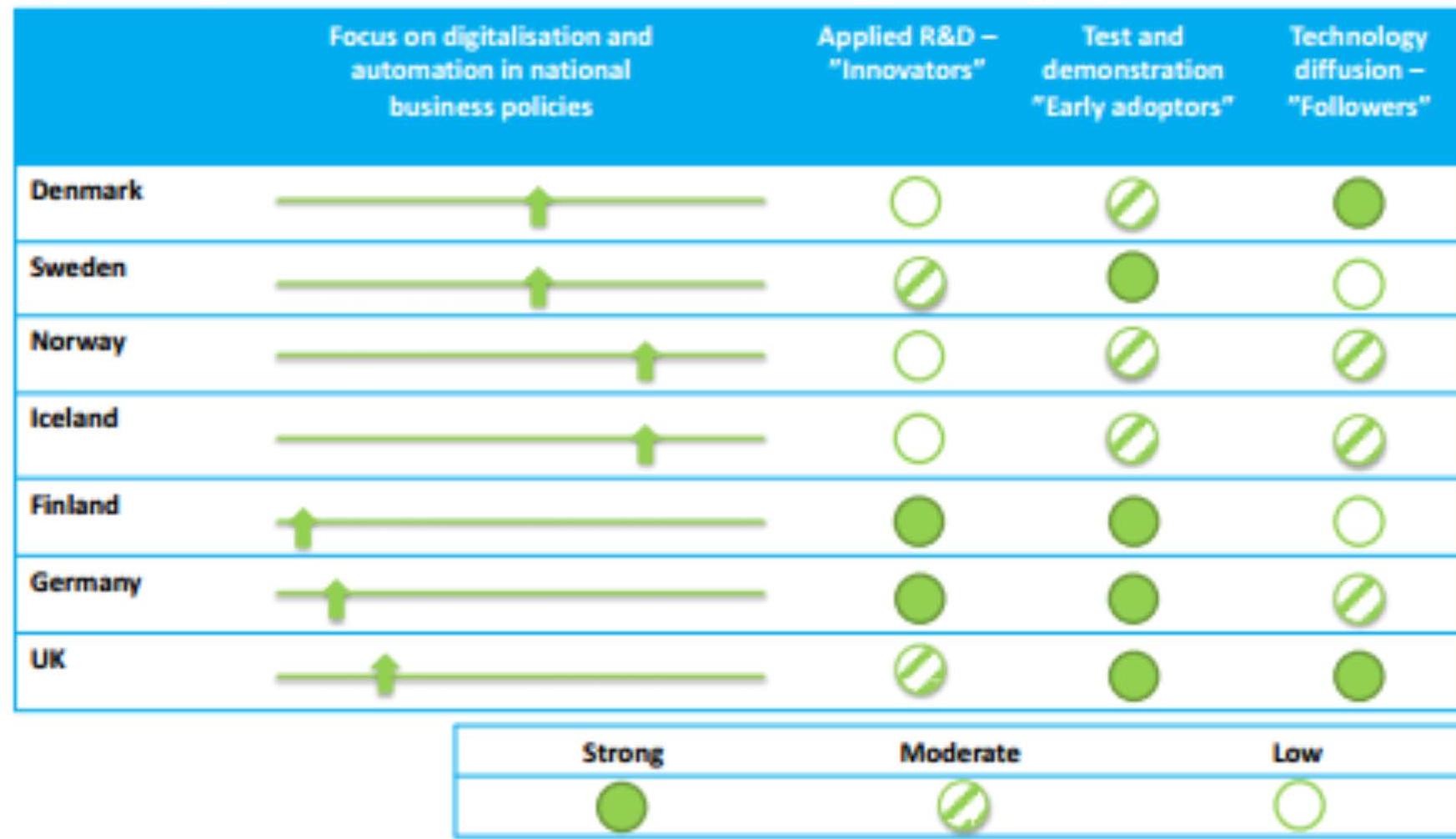
Figure 1.2: Level of digitalisation and automation in manufacturing companies in the Nordic countries, Germany, UK and EU



Kilde: Eurostat, Iris Group

# Henger sammen med lite politikk?

Figure 1.3: Digitalisation and automation in manufacturing – current policy focus



Source: IRIS Group.



# Overview of European Initiatives on Digitising Industry

## EU-level initiatives

- Application Public Private Partnerships
- ICT Innovation for Manufacturing SMEs (I4MS)
- Smart Anything Everywhere
- Digital Sector Public Private Partnerships

## Multi-region Initiatives

- Vanguard

### United Kingdom

- High Value Manufacturing Catapult
- Innovate UK
- EPSRC Manufacturing the Future
- Action Plan for Manufacturing (Scotland)

### Belgium

- Made Different
- Flanders Make/iMinds (Flanders)
- Marshall 4.0 (Wallonia)

### France

- Nouvelle France Industrielle
- Industrie du Futur
- Transition Numérique
- Le Programme des Investissements d'Avenir
- Plan Industries Île-de-France

### Portugal

- PRODUTECH

- European Initiatives
- National Initiatives
- Regional Initiatives

### Spain

- Industria Conectada 4.0
- Basque Industry 4.0 (TECNALIA)

### Italy

- Internet of Things and Industry 4.0
- Fabbrica Intelligente
- Ass. Fabbr. Intell. Lombardia

### Sweden

- Produktion 2030

### Denmark

- MADE

### Netherlands

- Smart Industry (NL)

### Finland

- FIMECC PPP Programmes
- DIGILE
- TEKES

### Latvia

- Demola (Riga IT TechHub)

### Poland

- INNOMED
- INNOLOT
- CuBR
- BIOSTRATEG

### Germany

- Plattform Industrie 4.0
- Mittelstand 4.0
- Smart Service World
- Autonomik fur Industrie 4.0
- It's OWL (Ostwestfalen-Lippe)
- Allianz Industrie 4.0 (Baden-Württemberg)

### Slovakia

- Smart Industry (SK)

### Czech Republic

- Průmysl 4.0

### Austria

- Produktion der Zukunft

### Greece

- Operational Programme in Region Western Greece



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# Digitalisering av industrien må bli hovedsak i industrimeldingen





## Smart industri – en nyindustrialisningsstrategi för Sverige

*Företag i svensk industri ska vara ledande inom den digitala utvecklingen och i att utnyttja digitaliseringens möjligheter. Därför behöver genomförandet inriktas mot följande:*

- Stimulera utvecklingen, spridningen och användningen av den digitala teknik som har högst potential att leda industrins omvandling.
  - Utnyttja digitaliseringens möjligheter brett oavsett bransch, företagsstorlek och geografisk lokalisering.
  - Uppmuntra nya affärs- och organisationsmodeller för att tillgodogöra potentialen i den nya tekniken.
    - Möta nya kunskapsbehov som den digitala utvecklingen medför.
    - Anpassa ramvillkor och infrastruktur för den digitala eran.

# Hindringer for videre digitalisering og automatisering



- Ulikhet i *standarder*
- Mangel på *IT-spesialister*
- Koble sammen felles *FoU-prosjekt*
- Tilgang på *finansiering* av avansert/anvendt forskning
- Mangel på kompetanse på *forretningsmodeller*
- Mangel på tilgang til rimelige muligheter til *testing og demonstrasjon*
- Troverdig *datasikkerhet* og tilgang til eksterne data
- Utilstrekkelige *lederressurser* for utvikling av nye forretningsmodeller, teknologiimplementering og omorganisering
- Utilstrekkelig *bevissthet* om de teknologiske mulighetene

# Handlingspunkter for Industri 4.0 på norsk:

- Sikre at vi beholder den *industrielle basen* vi har igjen
- Koordiner alle relevante aktører og sett opp *et veikart med visjoner, virkemidler, fremme samarbeid* bedrifter/institusjoner, *bevisstgjøring* av industrien innad og *markedsføringsstøtte* utad
- Kartlegge *kompetansebehov* og heve kompetansen i utdanningssystem og hos arbeidstakerne – og styr *utdanningsproduksjonen* mer
- Kartlegge *barrierer for investeringer* i ny teknologi i bedriftene – og gjør noe med disse
- Økt *FOU-innsats*: Innovasjonssenter for testing av Industri 4.0 teknologi
- Troverdige og konkurransedyktige regler for *informasjonssikkerhet*
- Raskere internasjonal *standardisering*



# Takk for at dere hørte på!

[www.industrie40.no](http://www.industrie40.no)Deutsch-Norwegische | Norsk-Tysk  
HANDELSKAMMER

IKT NORGES

[Bakgrunn](#) [Program](#) [Foredragsholdere](#) [Påmelding](#) [Sted](#) [Sponsorer](#)

# Industrie 4.0

på norsk

**Veien videre for en digital norsk industri****KONFERANSE****DEN 9. JUNI i OSLO**

# #DigitalSingleMarket

## DIGITISING EU INDUSTRY

**Why do we need this?**

- For a smooth transition to a smart economy
- To prepare the next generation of products & services
- To boost innovation capacity across industry
- To increase EU GDP by €110bn/year

**European Industrial Strengths**

EU companies are world leaders in

Manufacturing	Electronics for automotive & aerospace	Electronics for security & energy	Robotics	Telecom equipment	Business & professional software	Laser & sensor technologies

World-class Research & Technology institutions

Traditional sectors & SMEs

Construction	Food & beverage	Textiles	Publishing & printing	Craft industries

**Digitising European Industry**

To facilitate coordination of European, national & regional initiatives such as Industrie 4.0 (DE), Smart Industry (NL) (SK), Industrie du Futur (FR)

<b>Mainstreaming digital innovation across all sectors:</b> Setting up a pan-European network of Digital Innovation Hubs	<b>Strengthening leadership in digital technologies:</b> <ul style="list-style-type: none"> <li>• Public-Private Partnerships</li> <li>• Industrial platforms</li> <li>• Large scale pilots &amp; test beds</li> </ul>	<b>Preparing People for the digital age:</b> Skills & Training
<b>Regulatory framework:</b> <ul style="list-style-type: none"> <li>• Free flow of data &amp; data ownership</li> <li>• Safety &amp; liability of autonomous systems &amp; Internet of Things</li> </ul>	<b>CLOUD</b> <b>European Cloud Initiative in a data-driven economy:</b> <ul style="list-style-type: none"> <li>• European Open Science Cloud</li> <li>• European Data Infrastructure</li> <li>• Widening access &amp; building trust</li> </ul> <b>STANDARDS</b> <b>Fast development in 5 priority areas:</b> <ul style="list-style-type: none"> <li>• 5G</li> <li>• Cloud Computing</li> <li>• Internet of Things</li> <li>• Data Technologies</li> <li>• Cybersecurity</li> </ul>	<b>DIGITAL PUBLIC SERVICES</b> <b>eGovernment Action Plan:</b> <ul style="list-style-type: none"> <li>• New Digital Single Gateway</li> <li>• eJustice Portal</li> <li>• "Once-only" principle in Administrations</li> <li>• Cross-border Health services</li> <li>• eProcurement &amp; "Once-only" in public procurement</li> </ul>

Challenges & opportunities of the Internet of Things

**CLOUD**   
**European Cloud Initiative in a data-driven economy:**  

- European Open Science Cloud
- European Data Infrastructure
- Widening access & building trust

  
**STANDARDS**   
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- New Digital Single Gateway
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- "Once-only" principle in Administrations
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To focus investments  
(Horizon 2020, EU Investment Plan, EU Structural & Investment Funds, national & regional funds, private sector)

MOBILISING €50bn of public & private investments

**They can all benefit from Digital opportunities**

ikt-norge.no



# #DigitalSingleMarket

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# Formidlingsøkonomien – hva må gjøres?

**Roger Schjerva**

Chief Economist