

Digitalisering og Industri 4.0

Hvad skal du høre om?

Hvordan kan de digitale værktøjer under betegnelsen "Industri 4.0" hjælpe med at forøge produktivitet og kvalitet, samt reducere klimaaftryk?

- Baggrund – Digitalisering & Industri 4.0
- Gennemgang - Industri 4.0 værktøjer - med eksempler
- Hvordan kommer man i gang?



Digitalisering og Industri 4.0

Hvem skal du høre på?



Carsten G. Jensen
Administrerende Direktør
Au2mate A/S

Area of expertise:

Process automation & industrial IT

Target industry:

F&B industry

Founded:

2001

Locations:

Offices in Denmark, the UK, Dubai, Norway, Sweden, Australia & Germany

Number of employees:

130

References:

More than 2000 projects delivered worldwide

Examples of end users:

Arla, Tine, Lactalis, Nestle, Kraft, Almarai, Novozymes

Design philosophy:

Solutions based on open platforms & international standards



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Hvad er/betyder digitalisering?

Digitalisation is:

The use of digital technologies (sensors, connected devices, network equipment and infrastructure) to reduce costs or to change the underlying business model by creating new sources of revenue. Digital technologies include new sources of data and communications; improved decision support, using new tools to analyse and visualise information and automation.

| | | | | |
|----------------|-------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------------|---------------------------|
| Taxi |  | ▶ |  | Owens no taxis |
| Accommodation |  | ▶ |  | Owens no real estate |
| Communications |  | ▶ |  | Owens no infrastructure |
| Retail |  | ▶ |  | Owens no inventory |
| Photography |  | ▶ |  | Owens no cameras/printers |

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Vil digitalisering forandre din forretning ?

LARGEST GLOBAL COMPANIES IN 2018 VS 2008:
SEVEN OUT OF TEN ARE NOW BASED ON PLATFORM BUSINESS MODELS

2018

| RANK | COMPANY | FOUNDED | USBn |
|------|----------------------------------------------------------------------------------------|---------|------|
| 1. |  * | 1976 | 890 |
| 2. |  * | 1998 | 768 |
| 3. |  * | 1975 | 680 |
| 4. |  * | 1994 | 592 |
| 5. |  * | 2004 | 545 |
| 6. |  * 腾讯 | 1998 | 526 |
| 7. | BERKSHIRE HATHAWAY | 1955 | 496 |
| 8. |  * | 1999 | 488 |
| 9. |  | 1886 | 380 |
| 10. | J.P.Morgan | 1871 | 375 |

* Companies based on the platform model

2008

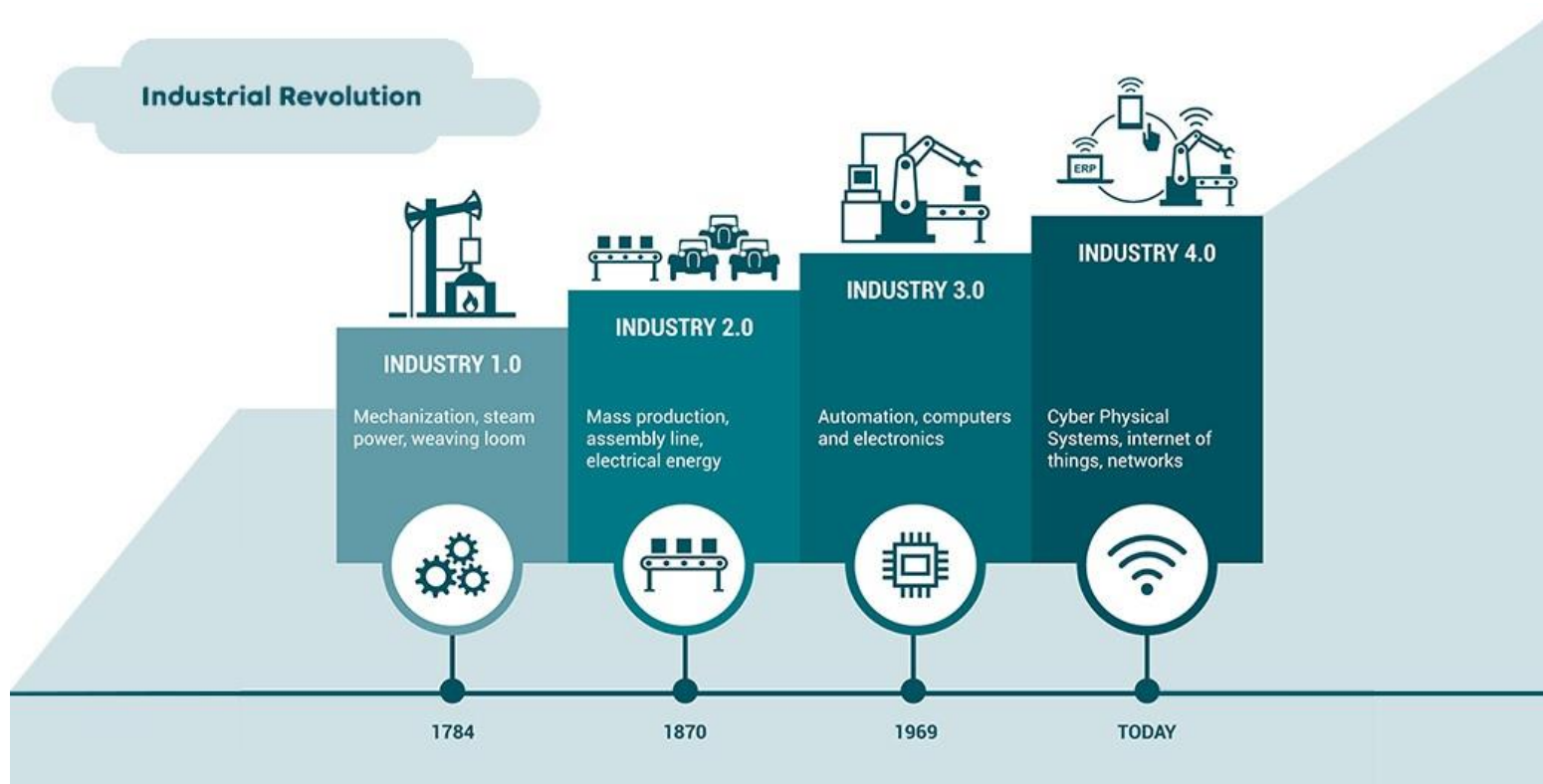
| RANK | COMPANY | FOUNDED | USBn |
|------|----------------------------------------------------------------------------------------------------------|---------|------|
| 1. |  PetroChina | 1999 | 728 |
| 2. |  EXXON | 1870 | 492 |
| 3. |  | 1892 | 358 |
| 4. |  中国移动 China Mobile | 1997 | 344 |
| 5. |  ICBC | 1984 | 336 |
| 6. |  GAZPROM | 1989 | 332 |
| 7. |  Microsoft | 1975 | 313 |
| 8. |  | 1907 | 266 |
| 9. |  | 2000 | 257 |
| 10. |  AT&T | 1885 | 238 |

Sources: Bloomberg, Google

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Hvad er Industri 4.0 ?

The term “Industry 4.0” (Industrie 4.0), originated in 2011 from a project in the high-tech strategy of the German government, which promotes the computerization of manufacturing



Digitalisering og Industri 4.0

Industri 4.0 værktøjer



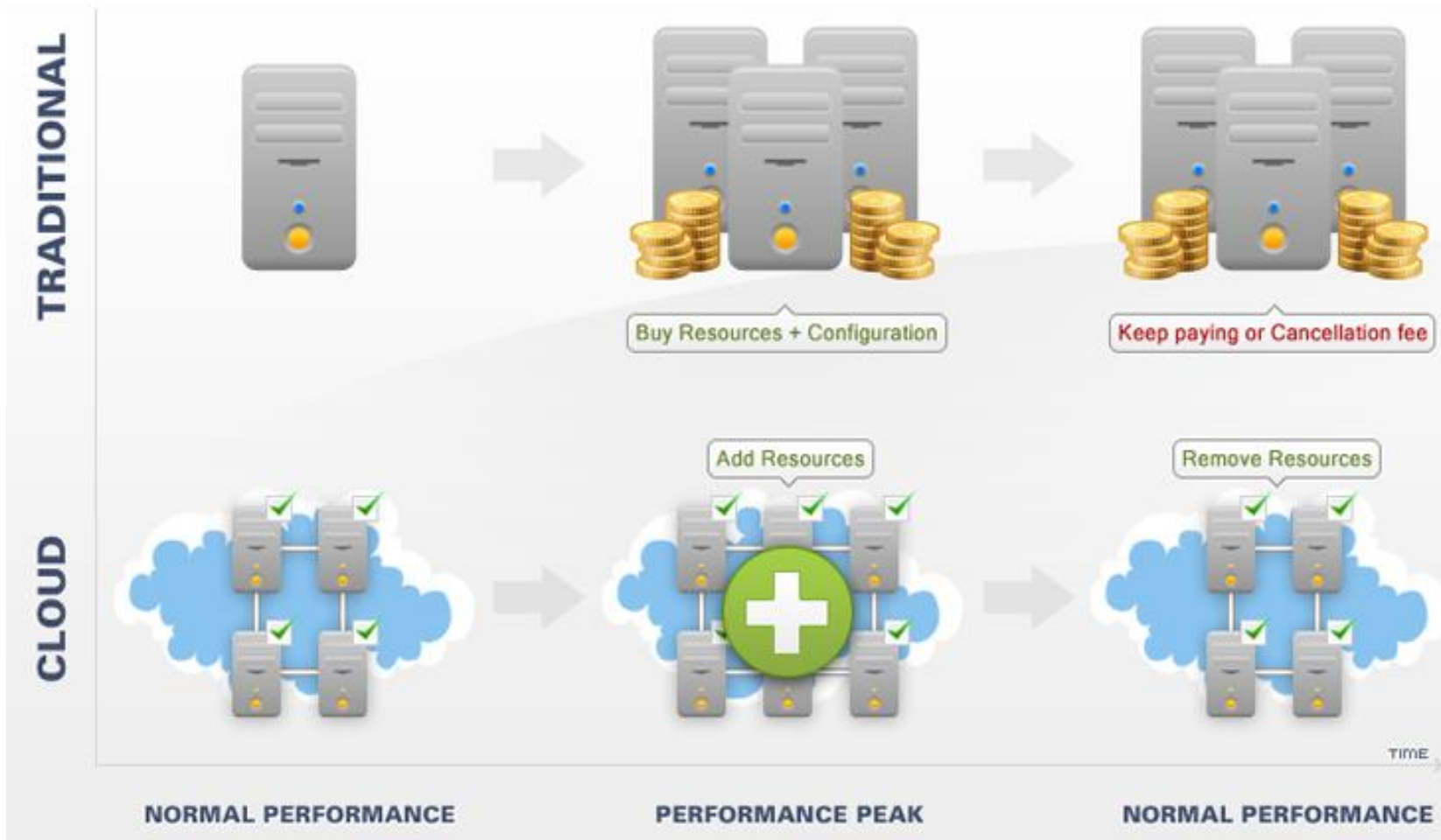
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Cloud computing & storage



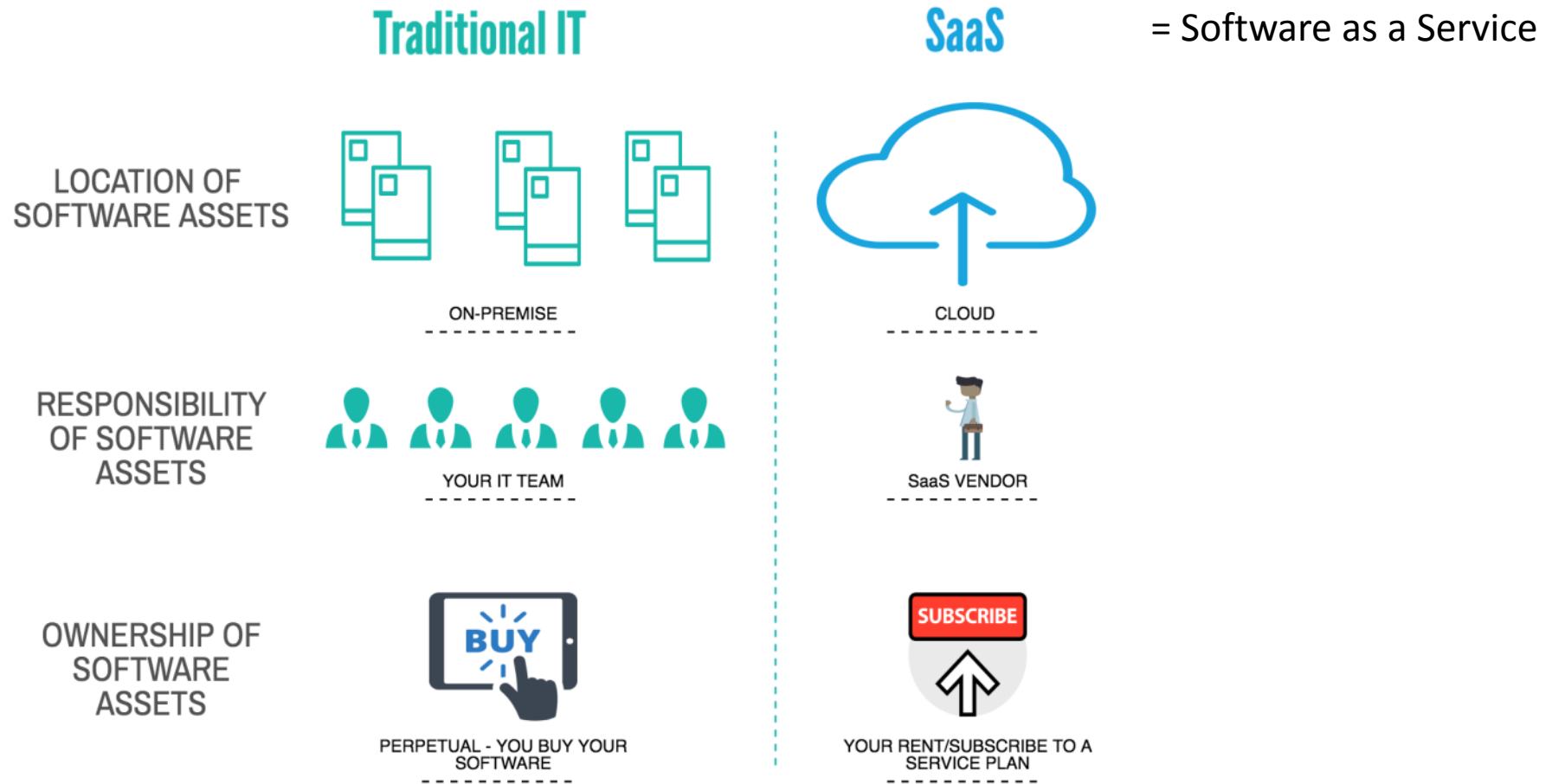
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Cloud computing & storage



Digitalisering og Industri 4.0

Cloud computing & storage



Digitalisering og Industri 4.0

Cloud computing & storage

MindApps

Powerful industry applications and digital services for asset transparency and analytical insights

MindSphere

Open Platform as a Service (PaaS) for scalable, global IoT connectivity and application development

MindConnect

Secured plug-and-play connection of Siemens and third-party products, plants, systems and machines



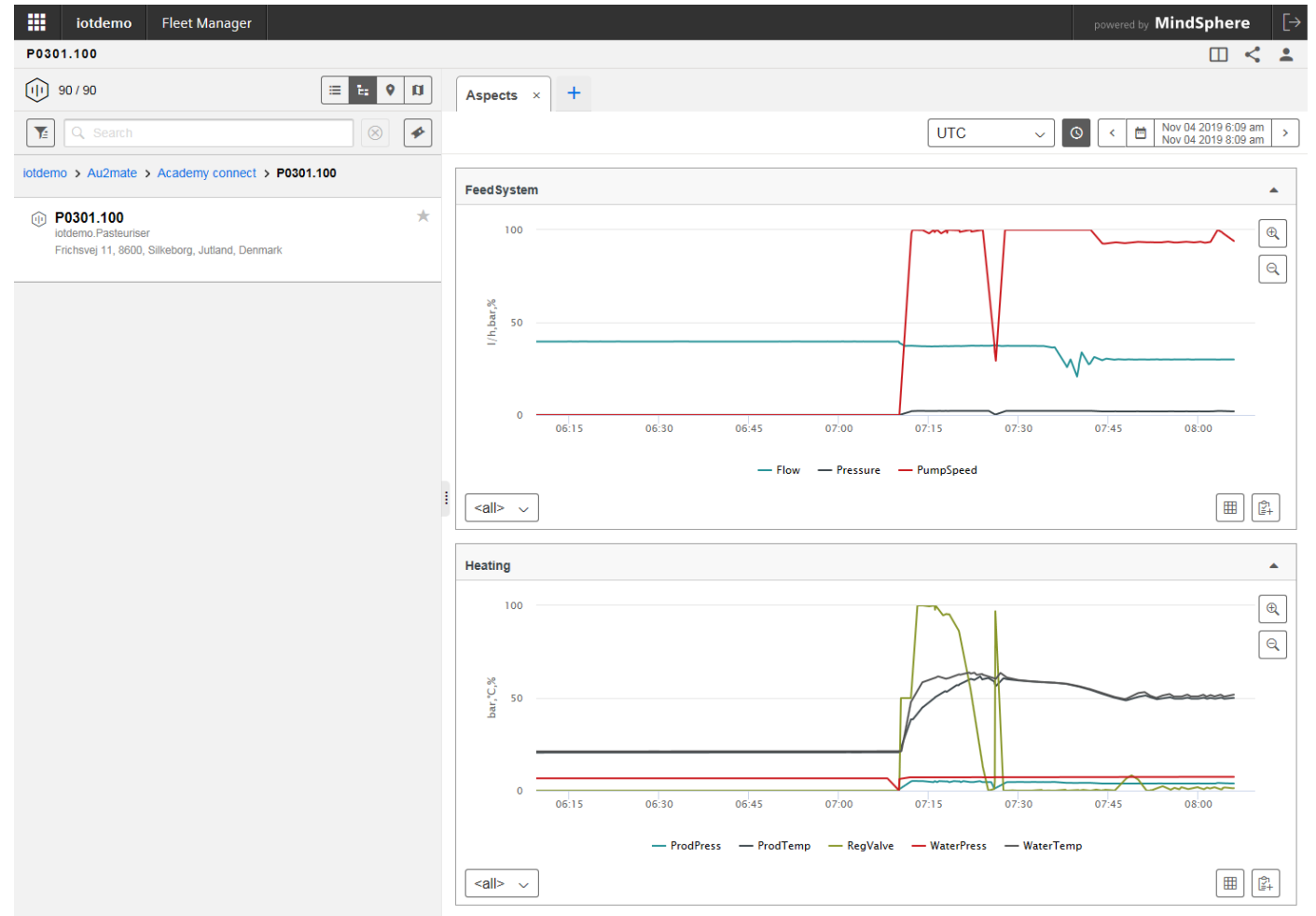
SIEMENS

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Cloud computing & storage (Eksempel)



Mindconnect NANO



Energy management software

Using industry-leading technology and research to automate cost savings



next



Flexible System Integration

Fiscal Meters

Capture data from fiscal meter points across all utilities, often possible with no additional hardware.



Existing Systems

Flexible options for capturing data from existing systems such as Building Management Systems and process control systems (SCADA).



New Meter Points

Cost-effective options for turn key solutions to collect a range of utility consumption data, including power quality data and peak flows.



MS Power BI

Integration with Microsoft's Power BI advanced reporting platform for unrivalled reporting outputs.



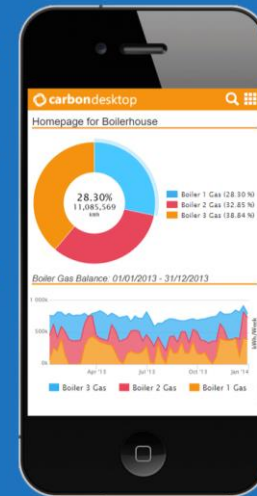
Custom reporting

Use of Carbon Desktop's in built report builder for rapid set up of customisable reports, dashboards and external display screens.



System Notifications

Set up instant and scheduled system alerts to keep on top of performance and unusual trends.



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Cloud computing & storage (Eksempel)

"Carbon Desktop has led to sustainable reductions in carbon emissions and multi-million pound costs savings over the last seven years."



Arla Foods
Global Sustainability Manager

"We have been using Carbon Desktop for almost 7 years and it really is the heart of our efforts on reducing our environmental footprint. It is very difficult to imagine collating the data across our operating sites without it and the investment has paid for itself many times over."



PZ Cussons
Group Supply Chain Lead Process Engineer

"We have delivered substantial carbon and cost savings and we are currently exceeding our corporate environmental targets."



Tulip
Group Environment Manager

Quick & easy access via QR codes to your complete plant documentation - always updated, always at hand

The Au2mate Smart Documentation module features:

- Easy access to documentation via mobile phone/tablet by scan of QR codes
- Documentation database structured according to ISA 88
- Handles text files, PDF-files, pictures and videos
- QR label printer included



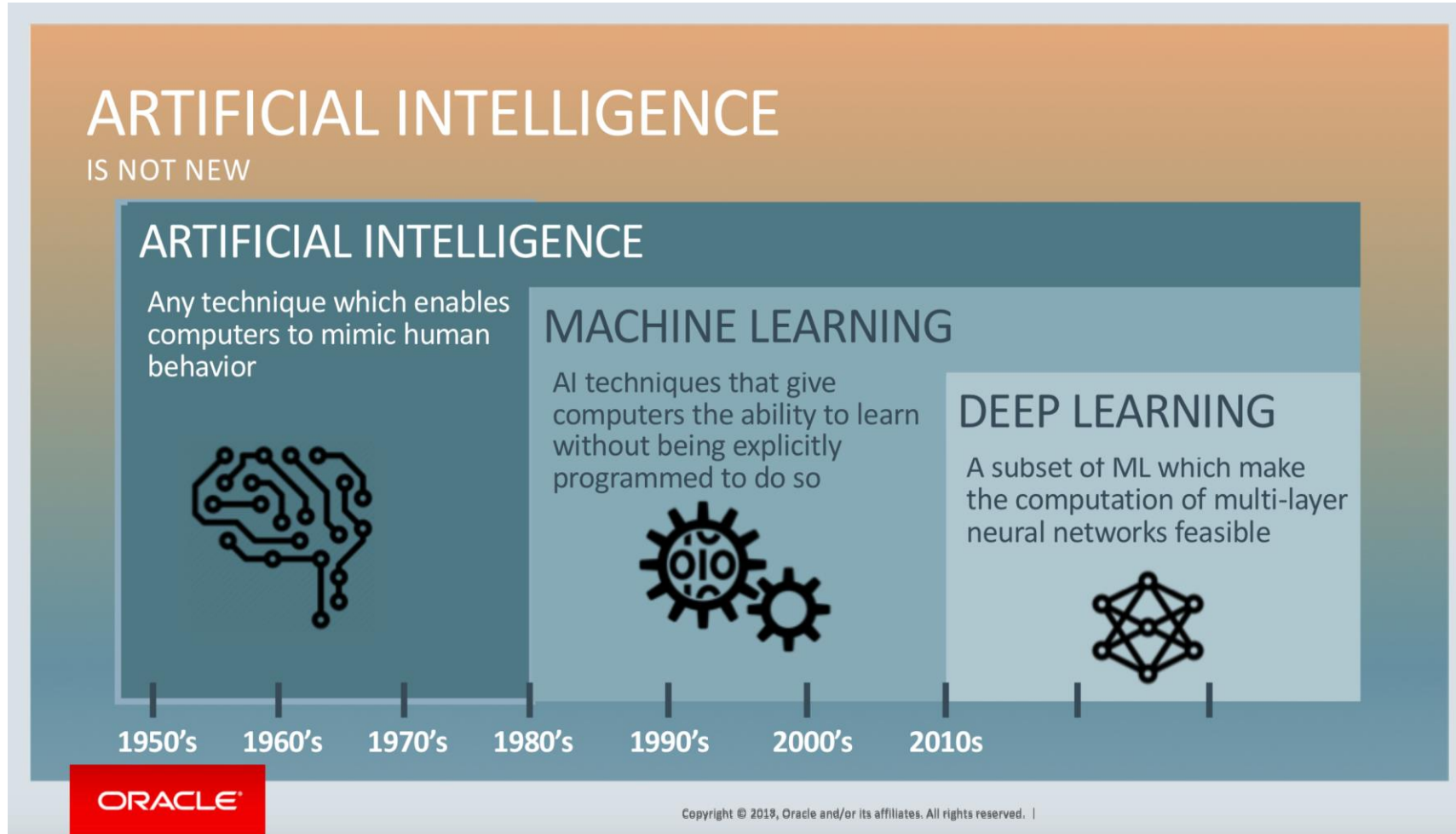
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Machine Learning / Artificial Intelligence



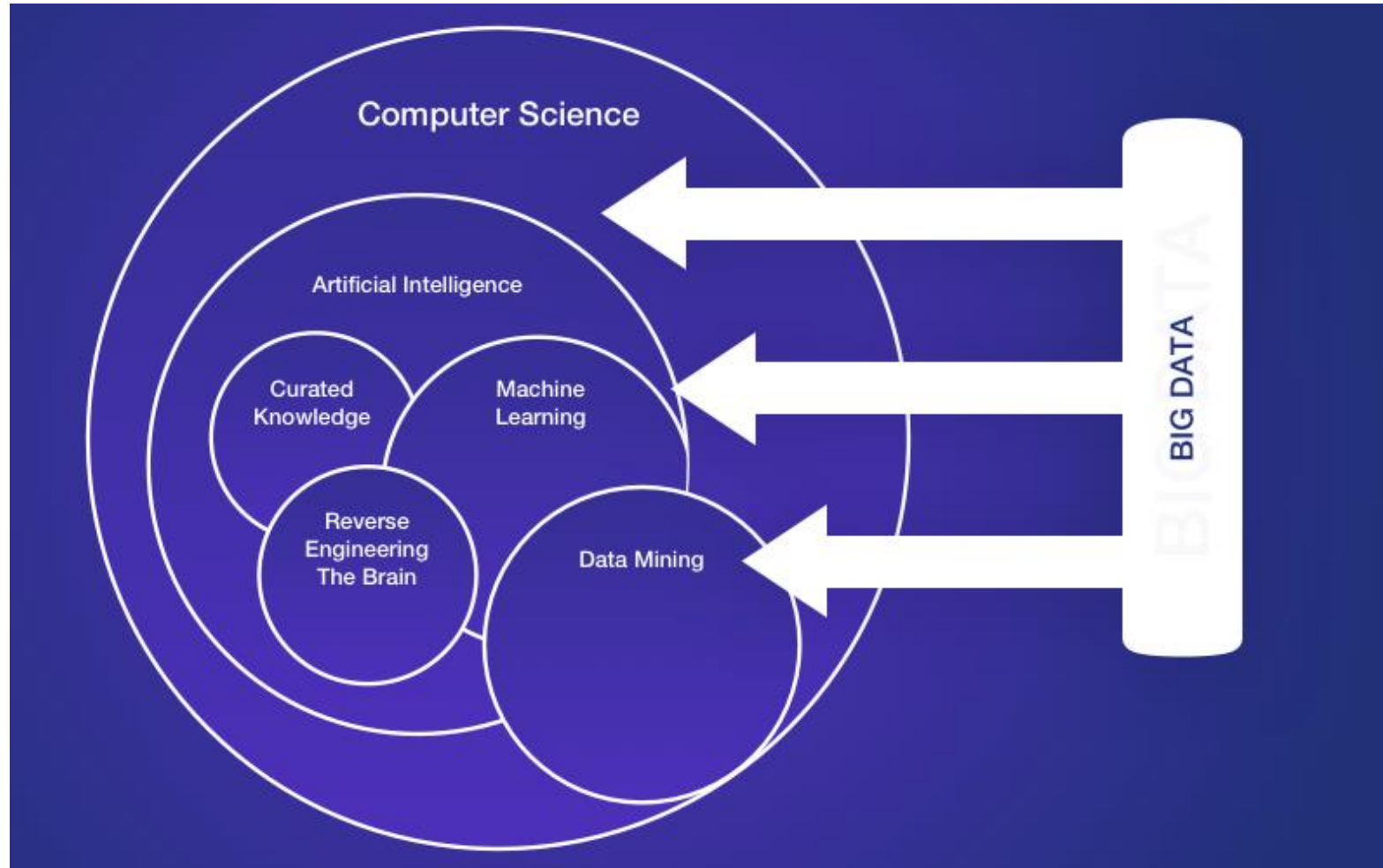
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Machine Learning / Artificial Intelligence



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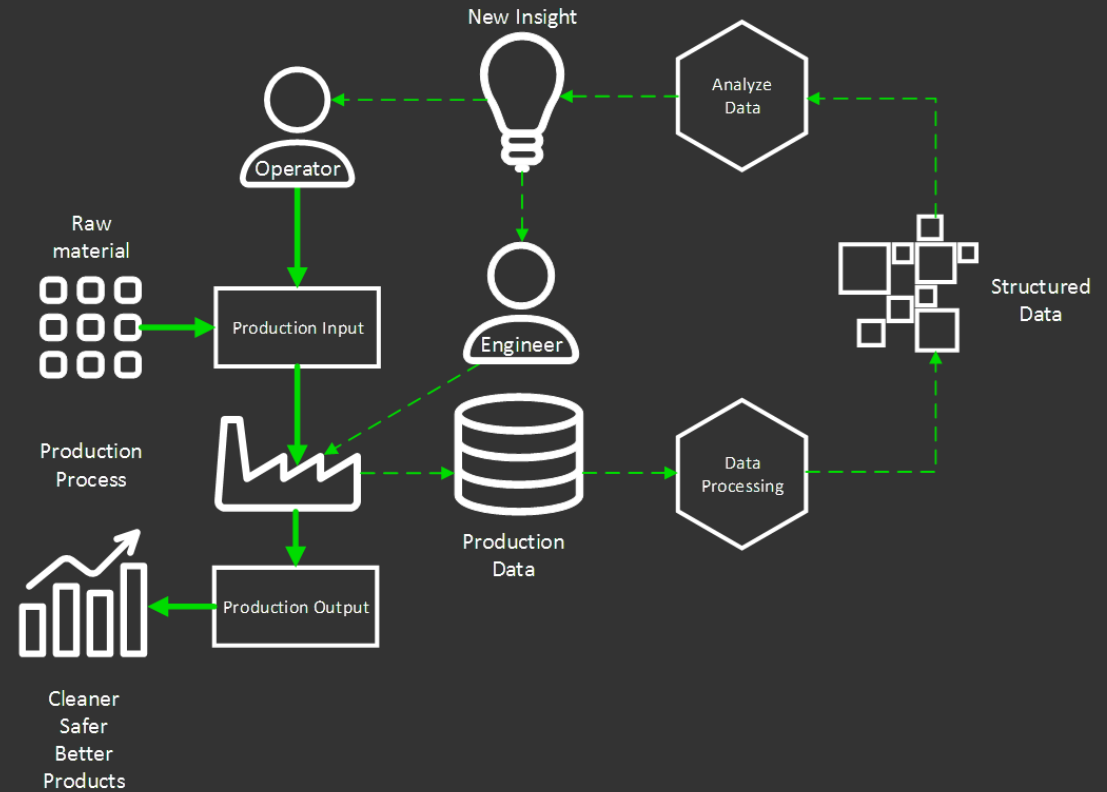
Machine Learning / Artificial Intelligence





Concept

«Off-the-shelf»
Advanced analytics for
manufacturing



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Machine Learning / Artificial Intelligence (Eksempel)

New Insight

→ Understand what have happened

Intelcey anomaly report Logout

8121T03TT001.PV
8121T03_Raw_milk_storage
14:24 28-07-2018 (13:54 - 14:54)
No description available

Status: **IN PROGRESS**

| Timestamp | ID | Tag |
|-------------------|------|-----------------|
| 16/07/18 00:07:00 | 1887 | 8121T03TT001.PV |
| 28/07/18 14:24:00 | 1888 | 8121T03TT001.PV |
| 11/04/18 00:11:00 | 1889 | 8121T03LT001.PV |

ADD COMMENT +

IN PROGRESS SAVE

PREV NEXT

Events for 8121T03_Raw_milk_storage

| Time | Tag | Type | State | Value | Limit | Value String | Limit String | Operator N... | Operator N... | Comment |
|----------------|-----------------------------------------|------|-------|-------|-------|--------------|--------------|---------------|---------------|---------|
| 28/07/18 14:17 | 8121T03TT001.HMI_OperatorReq | OPR | | 0 | 0 | Manual | None | | | |
| 28/07/18 14:18 | 8121T03TT001.PV | OPR | | 0 | 0 | 20.0 | 75.40509 | | | |
| 28/07/18 14:18 | 8121T03_RM_Storage_Phase.iIOSoftKeyCmd0 | OPR | | 0 | 0 | 1 | false | | | |
| 28/07/18 14:18 | 8121T03_RM_Storage_Phase.bParaSaveAlarm | OPR | | 0 | 0 | false | false | | | |

Previous Page 1 of 1 20 rows Next

Alarms for 8121T03_Raw_milk_storage

Related Tags

- 8121T03LSL001.PV
- 8121T03LSL001.PV_Actual
- 7591X01TT001.PV
- 8121T03_RM_Storage_Phase.iOPPhaseStepNo
- 8121T03LT001.PV
- 8121T03R001.PV
- 8121T03R001.LPV
- 8121T03R001.SCPV
- 8121T03V010.PV
- 8121T03V012.PV
- 8121T03V020.PV
- 8121T03V021.PV
- 8121T03V301.PV

8121T03TT001.PV [View in Trend](#)

8121T03TT001.PV

8121T03TT001.PV

8121T03TT001.PV

13:55 14:00 14:05 14:10 14:15 14:20 14:25 14:30 14:35 14:40 14:45 14:50

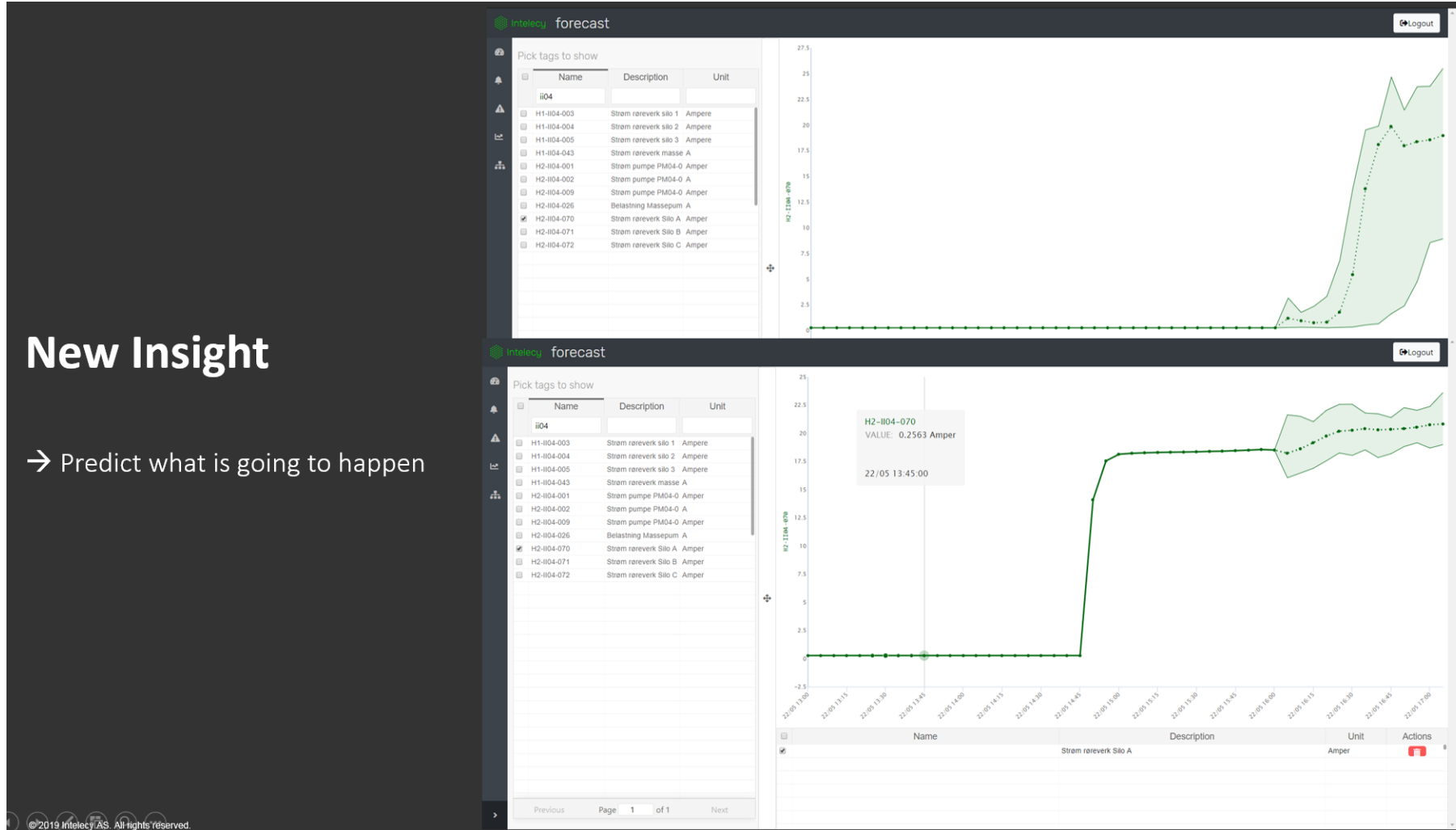
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Machine Learning / Artificial Intelligence (Eksempel)

New Insight

→ Predict what is going to happen



Overall Equipment Effectiveness - OEE



The Au2mate OEE software module offers a unique tool for identifying:

- OEE Score - Key indicator of the effectiveness of your equipment/line/factory
- Top 10 stop reasons – What to fix to get the greatest improvement
- Here and now status of your production line – Is production on schedule / where is support needed?



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Augmented Reality (AR)

Augmented reality, commonly abbreviated "AR," is computer-generated content overlaid on a real-world environment.



Digitalisering og Industri 4.0

Augmented Reality – AR (Eksempel)

EMPLOYEE EXPERIENCE

**Virsabi og NNIT vil løfte
dansk produktion gennem
virtual og augmented
reality**



Quick & intuitive access to live plant status & data

The Au2mate AR module features:

- Intuitive access to live plant status & data by use of your mobile phone/tablet.
- Can display all data available from your control system
- Easy to configure



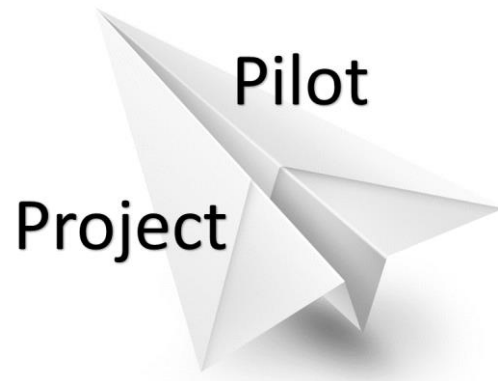
1.



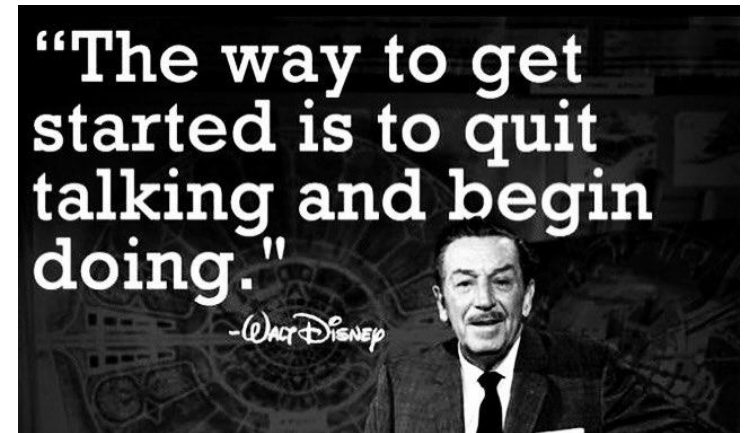
2.



3.



4.



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Spørgsmål ?

