

Sustainability Partnerships within Internet of Things, AI and Blockchain

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The Highlight Towers – Munich, Germany

<https://www.youtube.com/watch?v=tCKxL6rliO0>





MAXIMO for civil Infrastructure –
Digitizing the infrastructure industry

Claus Klint



Roughly 50 billion dollars and two billion civil-engineering man hours are spent annually monitoring bridges for defects.

Denmark's Storebælt is the third longest suspension bridge in the world.



Sund ≅ Bælt

Sund ≅ Bælt



<https://vimeo.com/223196263>

CONCRETE INSPECTION ON STOREBÆLT LARGESCALE CONSTRUCTIONS

- General inspection of concrete structures on the East Bridge is challenging on the following constructions:



- Pylons

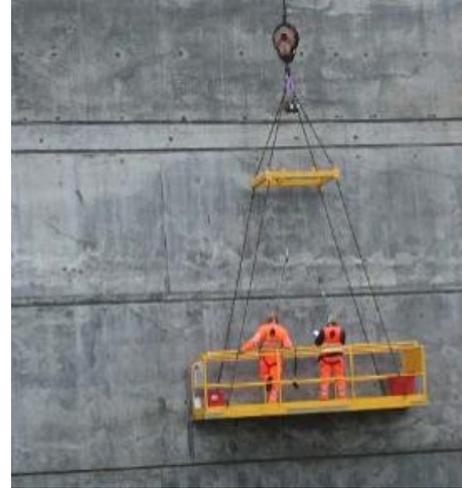
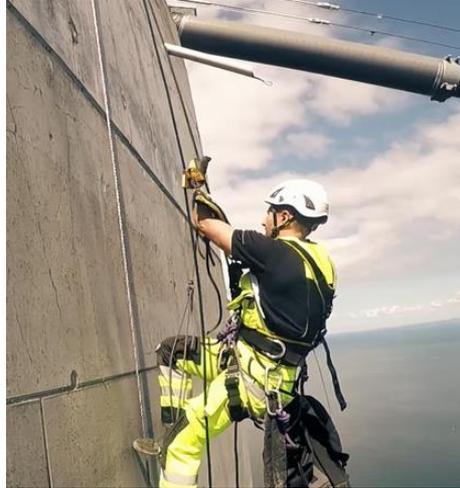


- Anchor blocks



- Piers
- Steel/Main cable/Catenary hanger

WHAT WE DID BEFORE



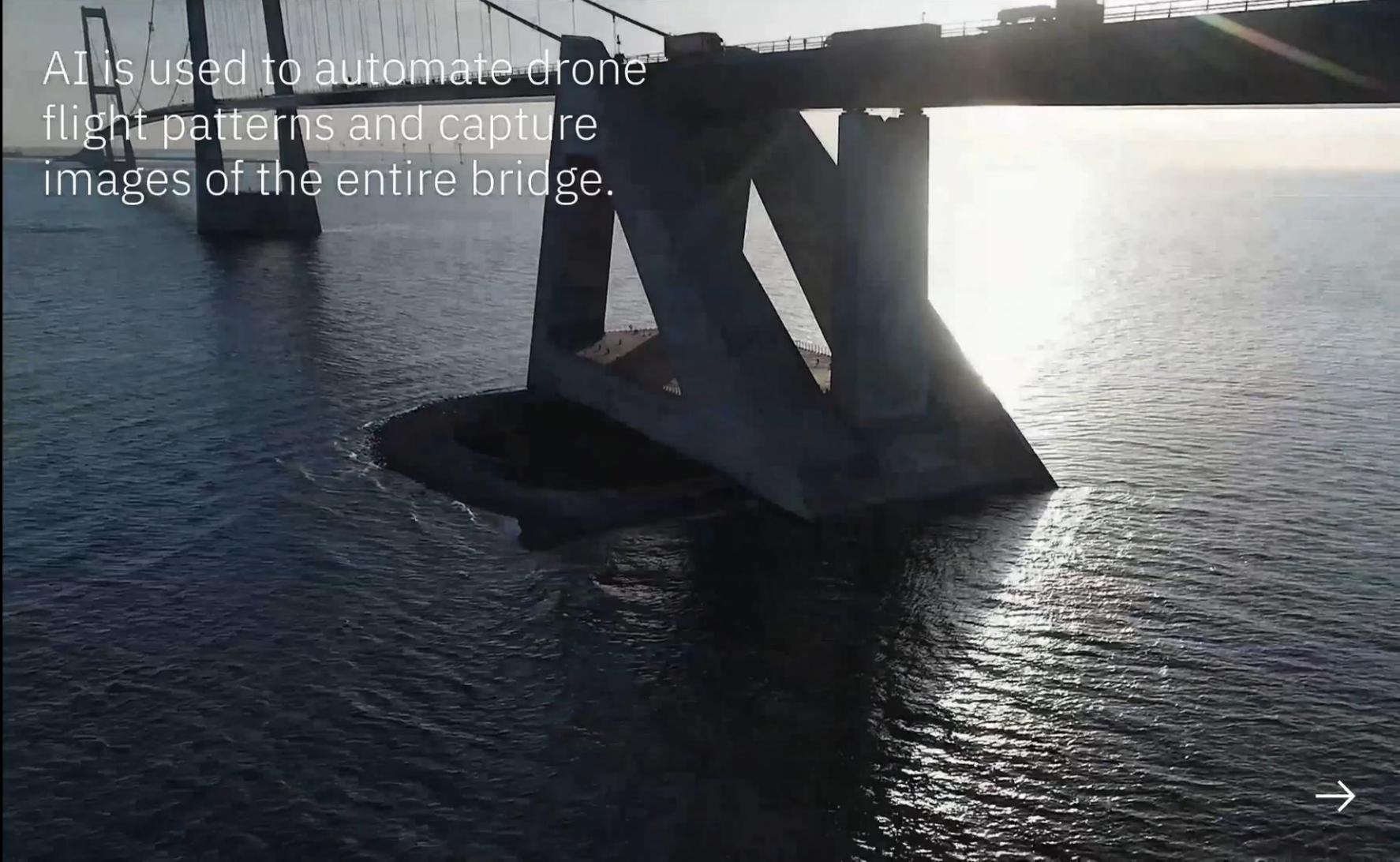
- Manual inspections
 - From the floor/ground
 - Lifts/platforms
 - Access facilities
 - Rope

- Registrations
 - Paper
 - Digital (DB / APP)

- Challenges
 - Traffic
 - High costs
 - The weather
 - Slow soluble
 - Hard to document



AI is used to automate drone flight patterns and capture images of the entire bridge.





Civil engineers provide continuous feedback to the models, making AI Automation faster and more accurate, bridge after bridge.





The remote inspection platform could one day scale to thousands of bridges.

Bridge status

- No action needed
- Needs preventative maintenance
- Needs urgent repair
- Closure and evacuation

*Colors shown are for illustrative purposes only. Does not reflect actual data.

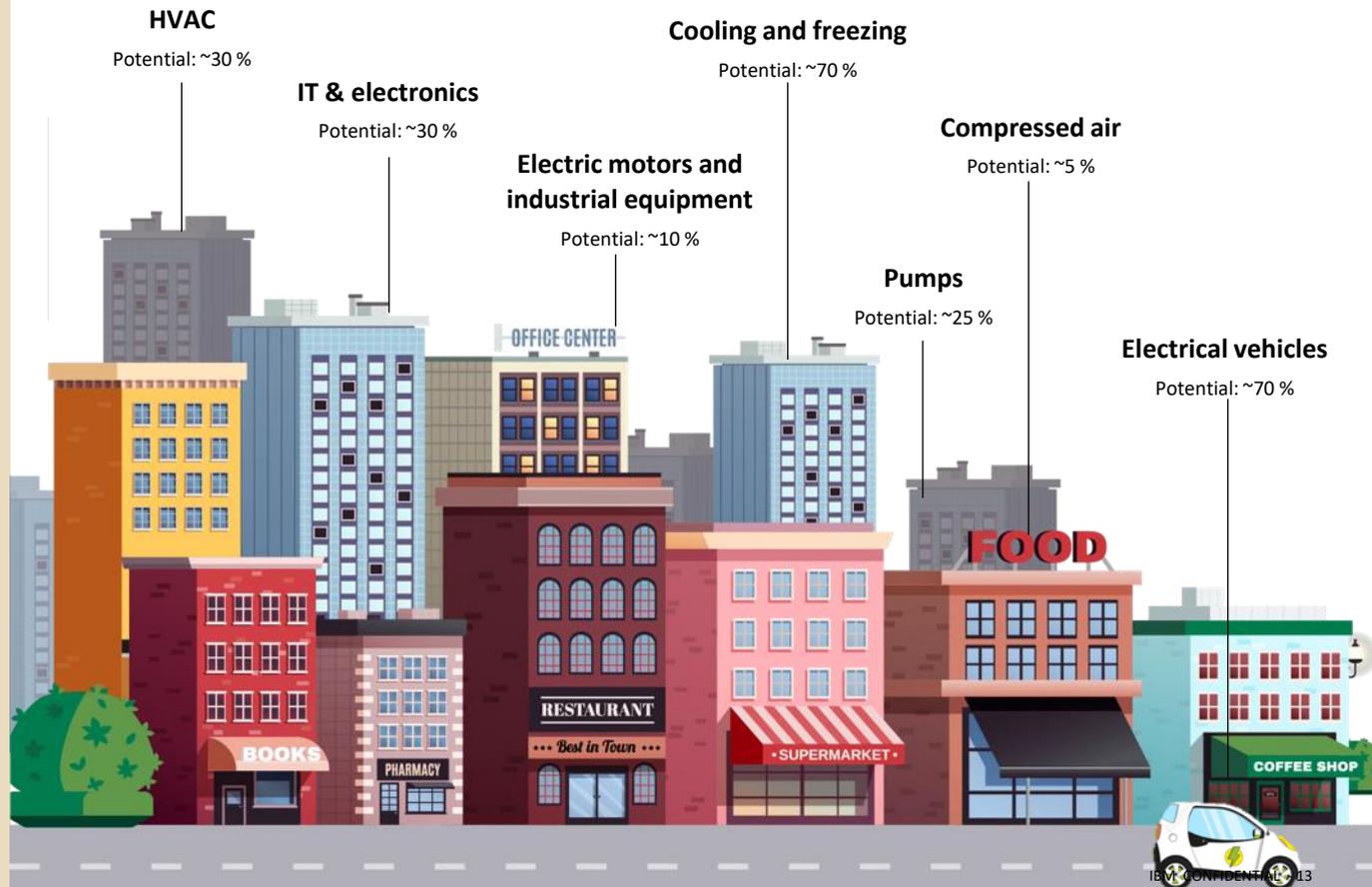


Flex Platform



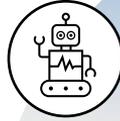
SERVICES BY CONTROLLING THEIR ELECTRICAL DEVICES AND UNLOCKING A VAST POOL OF FLEXIBILITY LARGE CORPORATIONS CAN PARTICIPATE IN THE MARKET FOR ANCILLARY AND NETWORK CONGESTION FLEXIBILITY

- Cities consume approx. **70%** of all energy
- Energy consumption in buildings make up for approx. **28%** off cities' energy consumption
- In buildings approx. **21%** of this energy is flexible

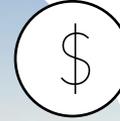


IMAGINE IF YOU COULD TRADE 15-21% OF YOUR ENERGY CONSUMPTION AS FLEXIBILITY SERVICES

...You could automatically turn up and down functions of your buildings to help balance the energy system.



...You were able to get compensated for the energy, you substitute from 'old' power plants.



**IMAGINE
IF...**

...You could easily measure the energy cost saving of your sustainability activities.



... You could clearly communicate and track your CO₂ reduction.





Digital transformation of facility services

ISS partners with IBM to create the workplace of the future through integrated facility management and workforce optimization.

<https://www.youtube.com/watch?v=sfeo8tbzG4k>

<https://www.youtube.com/watch?v= OD07apST-E>



