60 YEARS OF EXPERTISE

# Digital & Innovation

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# NET ZERO CO2

## Plasterboard production in Fredrikstad, Norway

*Klaus Birk*
Director for Public Affairs,
Saint-Gobain Denmark

# NET ZERO $CO_2$ Plasterboard production in Norway

- The Gyproc plant in Fredrikstad, Norway, is currently being rebuilt to accommodate **100 % electrified** production of plasterboards.

- LNG gas is currently used for the calcination of gypsum and the drying of plasterboards. These processes are being be replaced by all new electric air heating systems, which will phase out **116 GWh** of LNG and reduce $CO_2$ emissions by more than **23 000 tons.**


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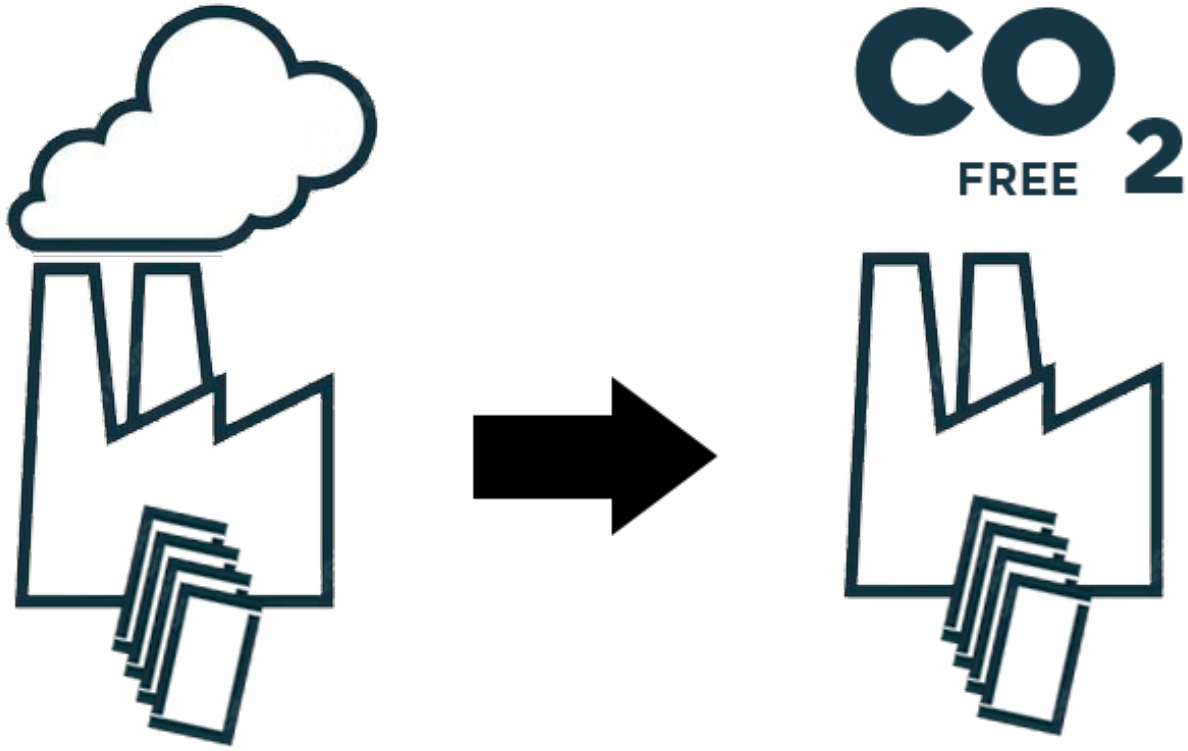
# NET ZERO $CO_2$ Plasterboard production in Norway




In addition, energy consumption is reduced by **30%** per unit, while production capacity is increased by **40%.**

After the transition production will be completely **$CO_2$-free**.

However, other parts of the process, such as logistics and the use of cardboard, will continue to produce emissions.

In sum, it is expected that the climate footprint of the plasterboard from the electrified plant will be **70 percent** better than today.

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# NET ZERO $CO_2$ Plasterboard production in Norway

The electrification is based on an investment of around **EUR 25 million**. Of this, *Enova* (a state enterprise owned by the Norwegian Ministry of Climate and Environment) is assisting with a grant of approximately **EUR 7 million**.

Technology has been developed between the local team in Gyproc, Fredrikstad and Saint-Gobain central teams .

The aim is for the Fredrikstad plant to be fully electrified by the end of 2022 / beginning of 2023.

In April 2022, the project was awarded prestigious Norwegian sustainability prize - **Fornybarprisen**.


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# The Lithium-Gypsum Project

## An example for sustainable and forward-looking alternative gypsum source

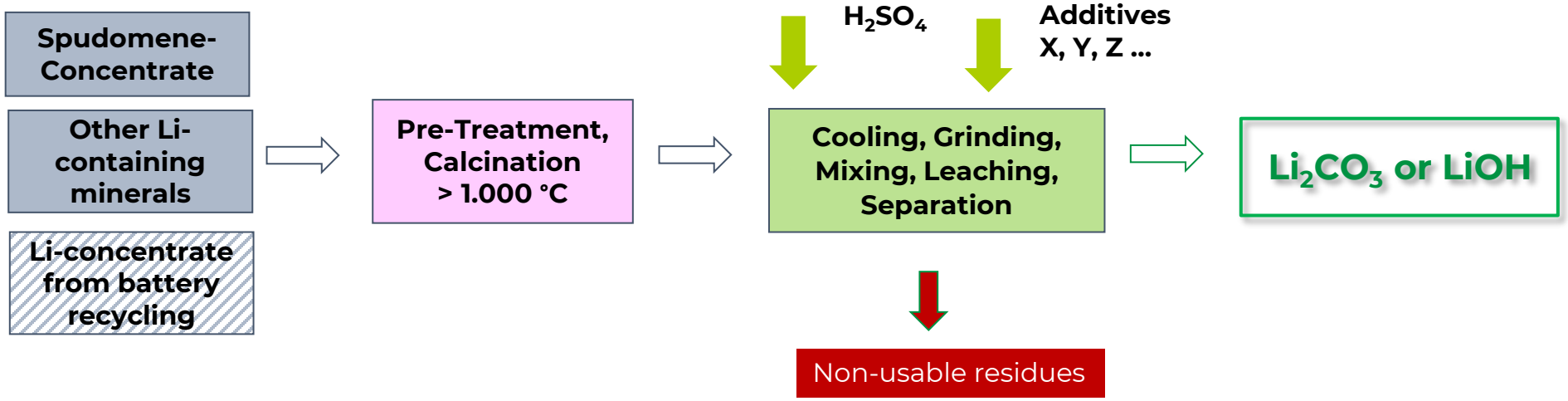
*Jörg Demmich*
Senior Consultant General Partners
at Knauf

# The Lithium-Gypsum Project

Due to the focal objective of the EU - climate neutrality until 2050 - phasing out of coal fired power plants leads to a massive decline of FGD gypsum being generated by desulphurisation of flue gases. As, besides natural gypsum, FGD gypsum is also an important gypsum raw material source it is necessary to realize or increase new alternative gypsum sources.

One idea is to use gypsum as a by-product from chemical-technical processes, such as Lithium (Li) manufacturing.

State of the art (main process steps, simplified):




Spudomene Li Al $[Si_2O_6]$

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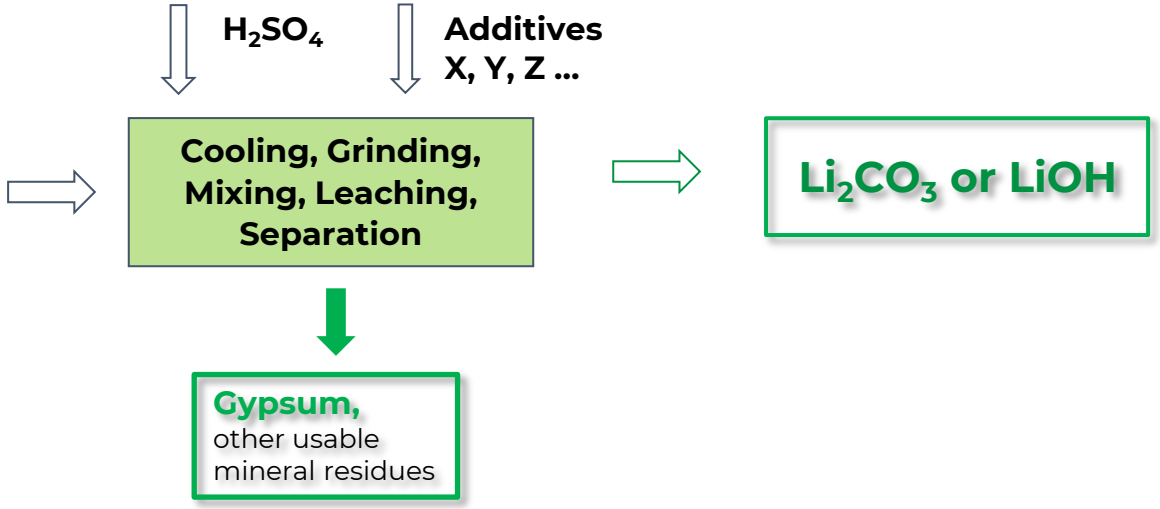
# The Lithium-Gypsum Project

In the middle of 2021, the ITEL Institute for Technologies and Economics of Lithium (Deutsches Lithium-Institut) was founded in Halle.
Declared objective of ITEL is to establish a ***$CO_2$ neutral Lithium Circular Economy*** by a techno-economic research.
Focal elements are to recover all Li-combined by-products and to enable green hydrogen technology. With this approach ITEL takes into account the increasing electromobility.

One of the three founding members is Knauf. What is the reason for Knauf's engagement?
In 2020 a patent for an innovative Li-process by producing gypsum as by-product was filed and is basis for ITEL's research work:

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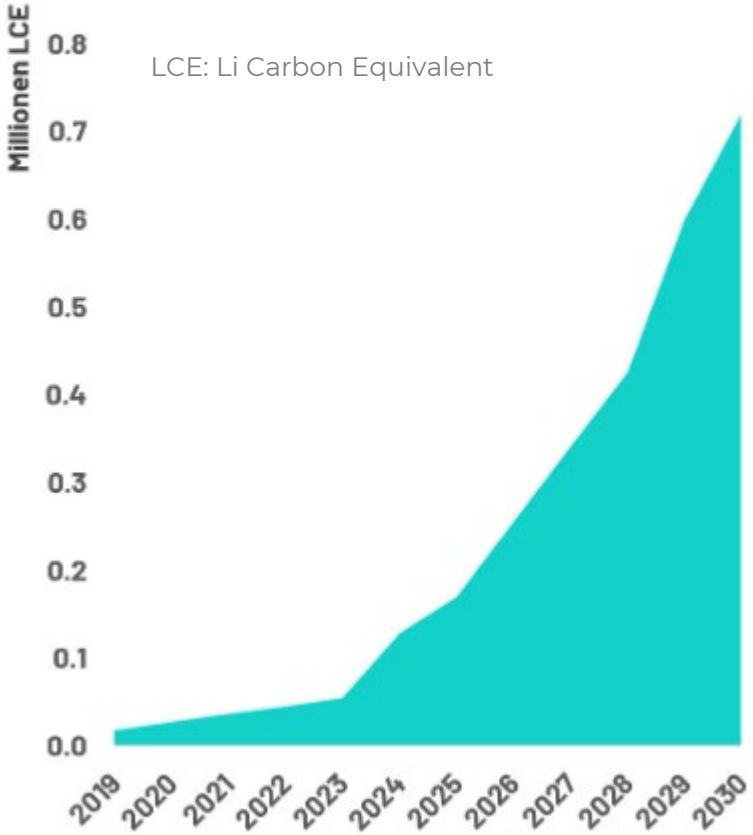
# The Lithium-Gypsum Project

Against the background of tremendously increasing electromobility associated with an exponential grow of Lithium demand this project could lead to one of the needed new alternative gypsum raw material sources in the EU.

**Lithium demand in Europe**
(millon tons)




VULCAN ENERGIE
ZERO CARBON LITHIUM™

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# Thank you for listening!

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# The plant of the future

## A Sustainable Plasterboard Plant as a pillar of local ecosystem

*Iryna Yermakova*
CSR & HSE South West Europe Manager
at Etex

# Sustainable Plasterboard Plant as a pillar of local ecosystem

## Energy Sobriety

**Inteligent equipement**

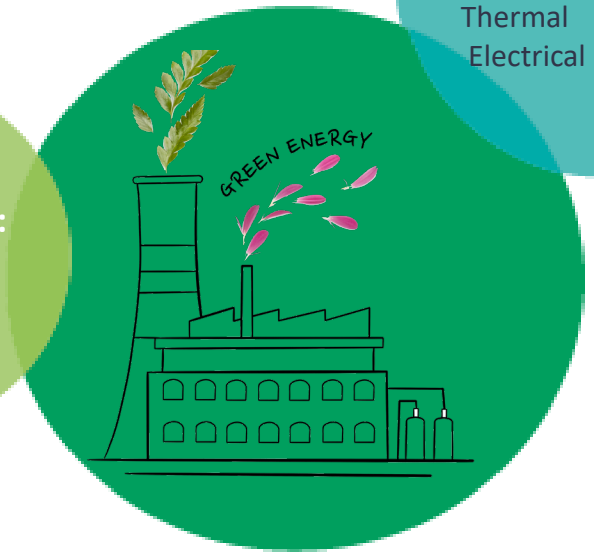
**Local renewable energy :**

Thermal
Electrical

## Ecodesign

**0 waste**
**job site solution**

**Circular economy :**
Close loop recycling
of gypsum products




## Customers

**Inspiring ways of manufacturing… by**

> being a part of an ecosystem
> preserving resources
> addressing community environmental challenges
> creating a positive impact on local economy

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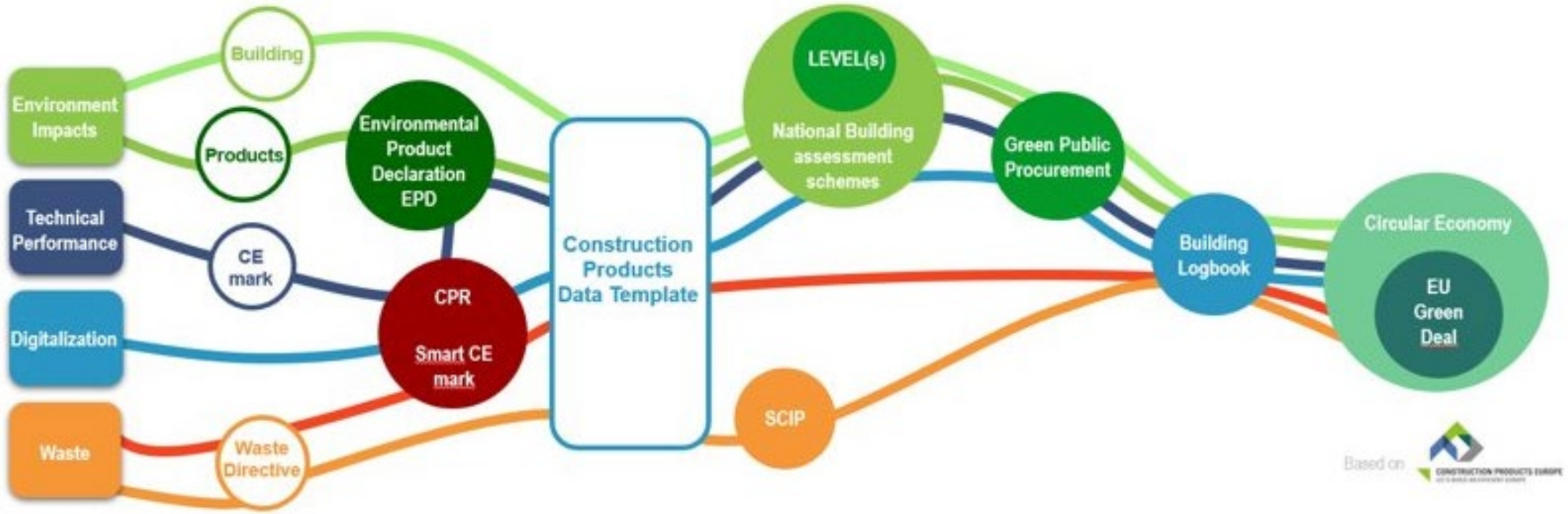
# A common language in construction

*Nikolai Halle*
Strategic Sales Manager Nordic at cobuilder

# The big picture starts with a common language

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# What is Define?

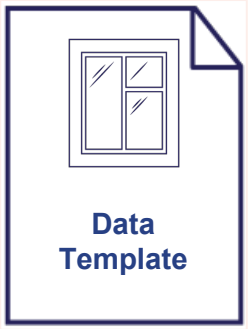
Define

Unstructured knowledge, various documents and formats, manual processes

## Data dictionary


- Structured semantics of construction objects
- Standard-based framework
- Common digital language

## Data Templates




- Specific construction object description, ex. Window
- Properties in machine and human-readable interoperable format

A solution for the industry, by the industry

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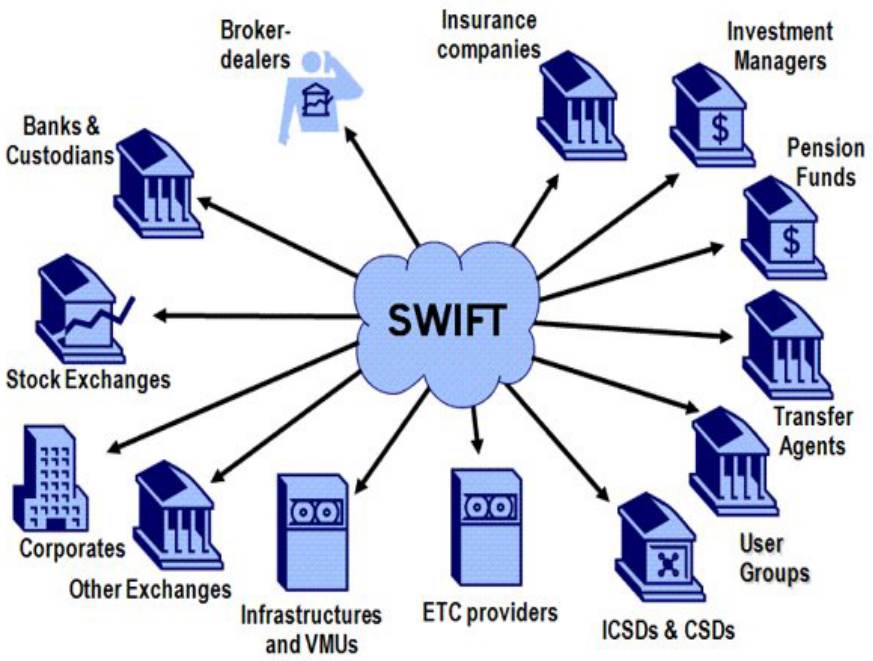
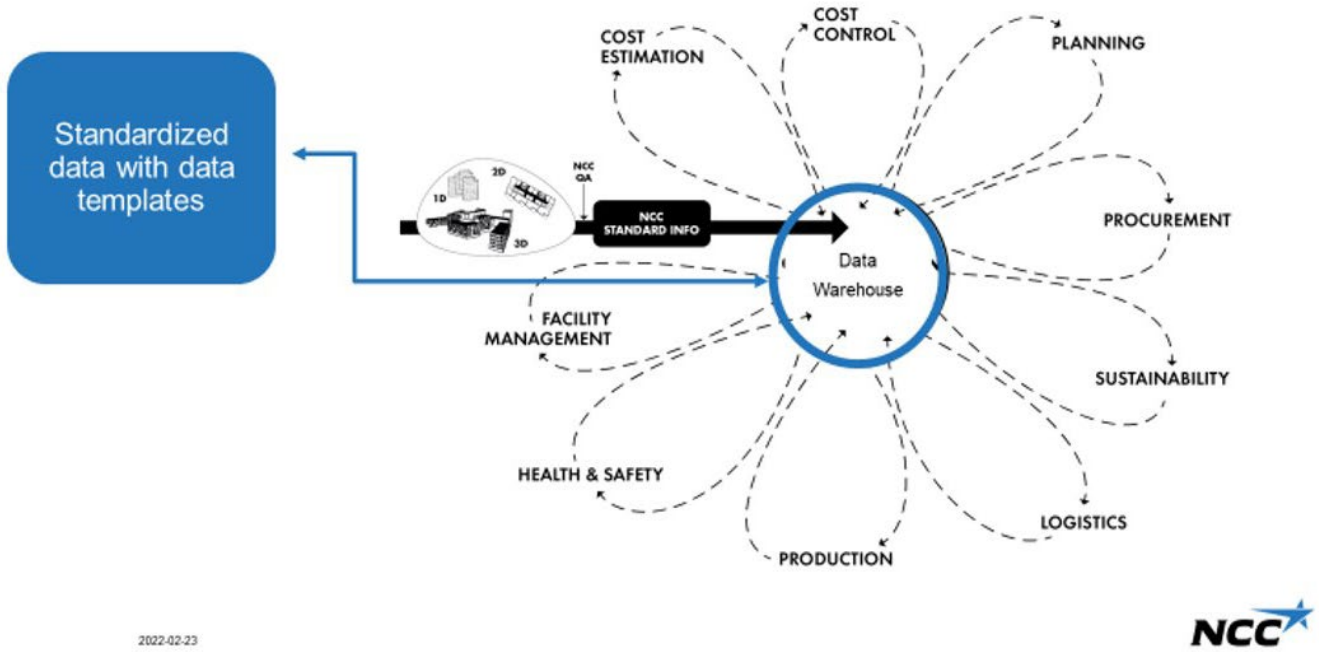
# Common digital market-language enables automation

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