For 100 years we have created the spaces in which we live, work and travel

- Office buildings, houses and shopping malls
- Hospitals, schools and sports facilities
- Concrete and steel bridges
- Roads and railways
- Foundations for offshore energy
We combine our practical knowledge with advanced technology and insist on early collaboration based on dialogue

- Project Development
- Design and engineering, BIM, VDC
- Construction with own machinery
- Public Private Partnerships
Geographical platform

- Thule base, USA, Greenland
- Portugal
- Qatar
- Faroe Islands
- Iceland
- Vietnam
- Angola & Mozambique
- The Maldives
- NW Europe
- Denmark
- Sweden
- Norway
- Iceland
- Greenland
- USA

Offshore & Steel bridges
A better way to efficient processes and intelligent solutions

- Building virtually before we break ground
- Providing clients with better options
- Making complicated projects buildable and delivered on time and on budget
- Finding a better way by being curious, courageous and enthusiastic
**VDC | MTHs Commitment to VDC**

**Vision**
The most productivity-enhancing group in the construction & civil works industry

**Requirements**
- At least 5% EBIT in all business areas and subsidiaries
- Positive cash flow

**Goals**
- Customer satisfaction
- Turnover share from key customers
- High employee satisfaction
- Quality of projects delivered
- Work accidents
- Productivity enhancement

**Projects from community to operation**
**Best in class VDC**
**Utilising Group synergies**

- Operations under control
- Employees, management, culture and values
- Project and price optimisation
- Market and customers
- Group strategy
The MTH Journey

Declining Danish Economy

Significant devaluations

Declining market

Market growth

Shortage of labor and increasing purchase prices

Productivity agenda


Revenue

EBIT

Declining

Danish

Economy

Revenue

EBIT

Declining market

Market growth

Shortage of labor and increasing purchase prices

Productivity agenda

DKK mio.

%
The Danish market is expected to increase 30%.

2013

- Civil Works: 58 billion
- Construction: 37 billion
- Refurbishment and maintenance: 62 billion

TOTAL
DKK 157 billion

2018

- Civil Works: 62 billion
- Construction: 52 billion
- Refurbishment and maintenance: 84 billion

TOTAL
DKK 200 billion
The Construction Industry
VDC | The Challenges – The Culture

**project manager**
[prəˈjekt ˈmænɪdʒər]

Person who thinks nine women can deliver a baby in one month.
The industry needs to change...
The industry needs to change...
We execute the project virtually - before we build in real life
VDC | From 2D til 6D with Virtual Design & Construction

3D | Models instead of drawings, so we avoid bad design, make it easier to find information and make orientation easier

4D | Sequence models and location base planning instead of charts to make better and more comprehensive plans

5D | Quick QTOs and price configuration to analyze many alternatives and their consequences

6D | TCO calculations from 3D-models and FM-models in stead of manuals

We execute the project virtually before we build in real life

- Higher productivity
- Lower Risk
- Higher Hit-rate
- Better Workdays

Best in Class VDC
VDC | How we do it at MTH...

Strategi R&D

Urban VDC

VDC 5D

BIM+

FM

White papers
Books and studies
Guidelines
phDs

50+ analysis

45+ Cases

90% Usage

3+ Cases
VDC | Cases with New VDC Process
VDC | Urban VDC to Validate the Project Idea
VDC | First loop models
VDC | Simulate solutions
VDC | VDC to Secure the Business Case
VDC | Modelbased calculations
VDC | Professional approach and client collaboration
**VDC | Reduced Risk**
**VDC | Reduced Risk**
VDC | Reduced Risk
VDC | Detailed modelling to lower the risk
VDC | Alternatives
VDC | iTWO 5D
1. Are all activities priced?

2. Are all components priced?

3. What effects the time?

4. What are the cost drivers?

5. Assumptions and prerequisites?

6. Risks?

7. Possible alternatives?
Beispiel: 100 Mio. Projekt
Wir stellen sicher, dass das Baukostenbudget eingehalten wird!
VDC | Total Cost of Ownership
VDC | Energy and VDC

Windows and doors – Area and loss

Facade - Area

Foundations - Loss

Belo | iTwo

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1841.2 m²  1724.1 m²
VDC | Visualizations
VDC | Model what you build – build what you model
VDC | Advanced onsite use
VDC | Model based Facilities Management
VDC | MTH VDC-labs
VDC | VDC-lab
The VDC-lab is an MTH concept with a manual and design guidelines...
VDC | VDC-labs provide a network of knowledge

Island
VDC6 – Reykjavik (DEC)

Danmark
VDC 1 - Søborg
VDC 2 - Odense
VDC 3 – Riskov
VDC 9 – Aalborg

Norge
VDC7 – Oslo (DEC ’15)

Mobil
VDCX – California (NOV)

VDC5 - Doha

Maldives
VDC8 – Male (JAN ’16)

Vietnam
VDC4 - HCMC
VDC strategy card
Integrated in SalesForce
Communication Strategy | Share Everything!
VDC | Conferences, classes, meetings...
VDC | Building competences

VDC med iTWO | It-modenhed i MT Højgaard – Resultat af måling

VDC kompetencer – process og metoder
Sammenligning af vikingselskab, IT- og VDC-kompetencer. Der er væsentlige forskellene på det vikingselskab, når det gjelder process og metoder.

VDC kompetencer – process og metoder
Sammenligning af vikingselskab, IT- og VDC-kompetencer. Der er væsentlige forskellene på det vikingselskab, når det gjelder process og metoder.

VDC – process og metoder
VDC, Bagrund og IT har mindre kompetencer, dog har 80% undladt at monitorre på kompetencerne.

VDC | The competence of VDC-students

We surveyed a VDC-class from a university
- They assess their competences in average higher than us in MTH
- They are good with methodology – but are weaker on tools
- They may be a bit optimistic
Man kan godt tænke ud af boksen og stadig bygge inden for rammerne

Se hvordan vi arbejder med VDC, der integrerer økonomi, tid og drift i hele processen på mth.dk/man-kan-godt
VDC Best in Class | The Script

- Udvikling af de næste fire Labs
- Automatiske mængdeudtræk og overslagspriser
- Kommunikation og involvering – leverandører,rådgivere, kunder, arkitekter, universiteter
- Modelkrav 1.0
- Objektdatabase
- Porteføljeoverblik
- Integration med Indkøb

**SPRINT**
Marts-August '14

**MOBILISERING**
September ’14 – Januar ’15

**CASES & PIONEERER**
Februar ’15 – September ’15

**VDC 5D**
Oktober ’15 – Jan. ’16

- VDC Vision
- Business case
- Udviklingsplan

- Indkøb iTWO 5D
- Rekruttering
- Etabler VDC-labs
- Kommunikation

- Anvendelse i praksis
- Masterdatabase
- Krav og samarbejde
- Kompetencer og processer
- Etablering af netværk

- VDC-pit stop
- Lancering og drift
- Roller og træning
- Nye værktøjer
VDC | What is the angle?