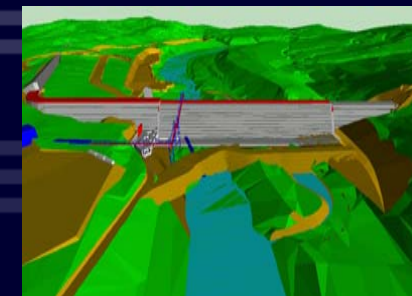
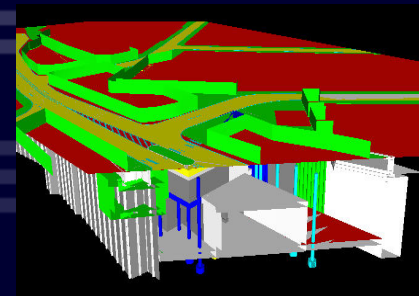


Virtual Builders Roundtable
Seattle, WA
June 13, 2005

Presenter: Micky Doner



Turner
Building the Future

Outline

- **ViCon Initiative Overview**
- **Examples**
- **Challenges / lessons learned**
- **Benefits**
- **Ongoing efforts**
- **Questions**



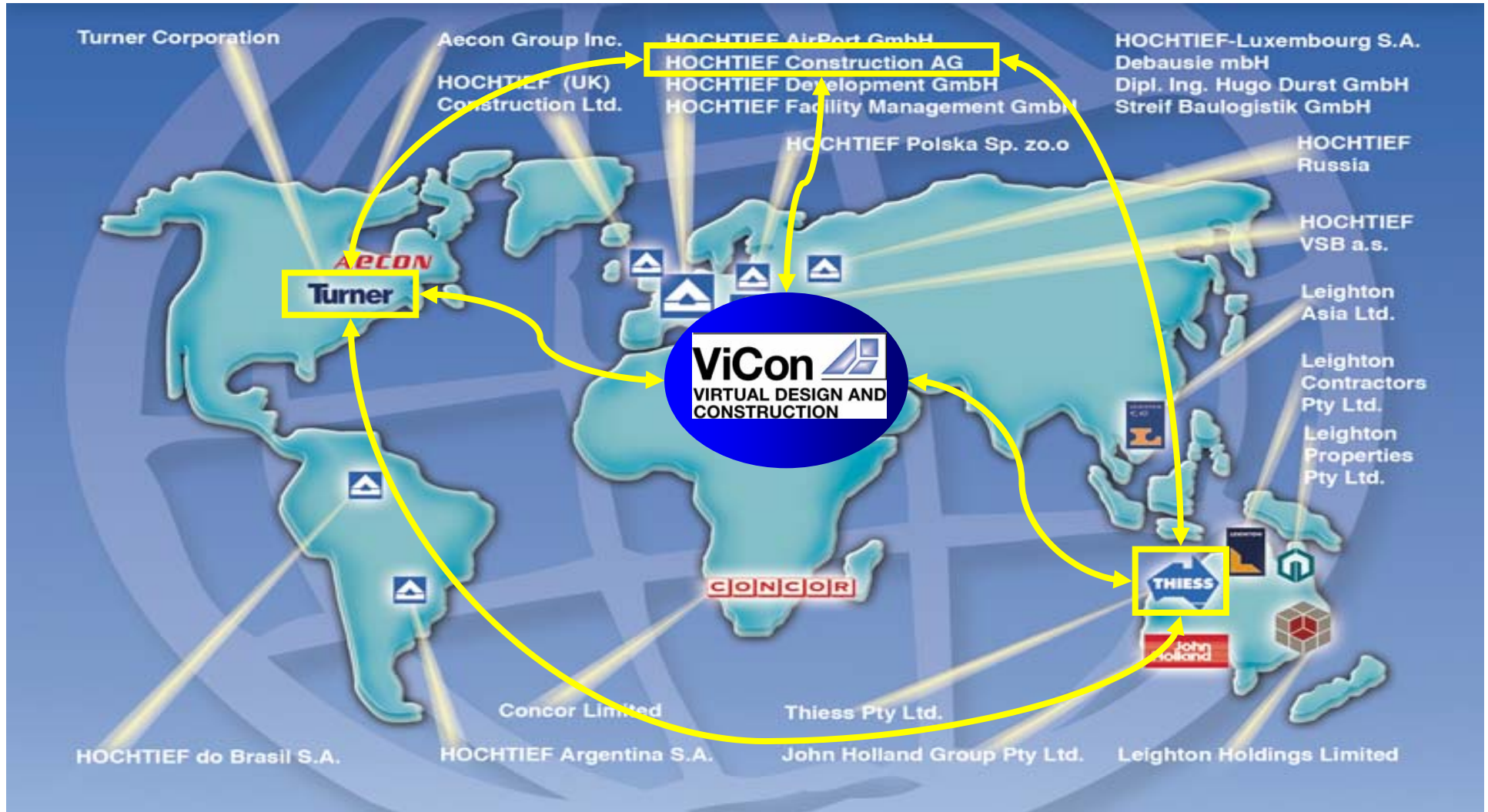
Goals for ViCon

- **Mission:**
 - **Promote and support the adoption and use of Virtual Design and Construction within the group companies**

- **Adding value to the project**
 - **Simulate design and construction method options**
 - **Coordinate and validate the design**
 - **Optimize the construction process**
 - **Visualize and communicate our core competency**
 - **Enhance risk management capabilities**

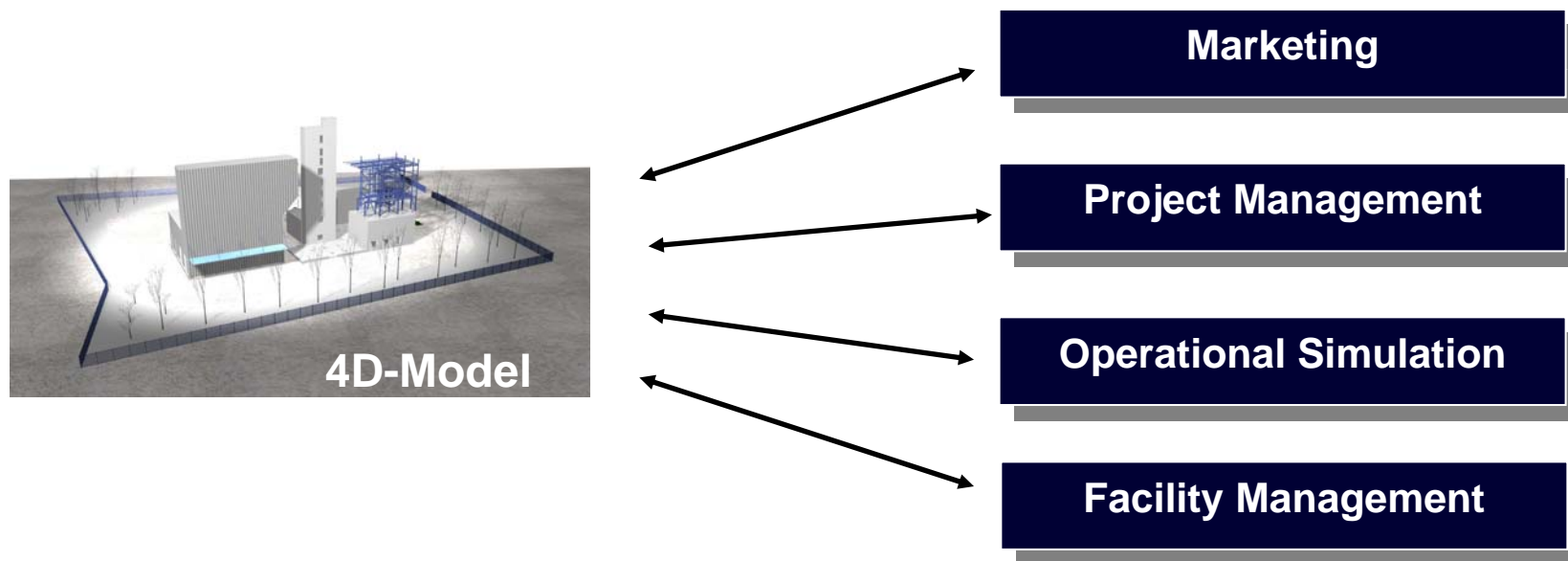


ViCon Network



Scope of Virtual Design and Construction

■ Areas of application



Sky office

- **Application:**
Marketing
- **Scope: Structure and curtain wall**
- **Project Phase:**
Preconstruction phase
- **Modeling by:**
*In-house design experts -
Germany*



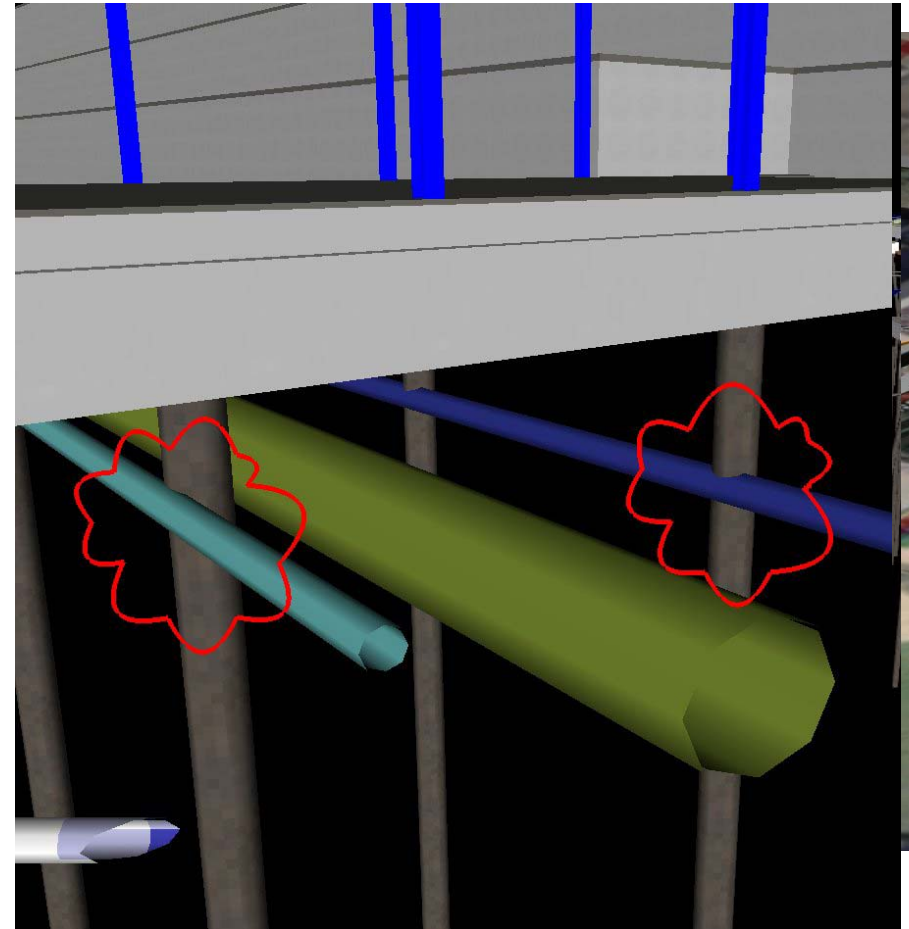
Harborview Medical Center

- **Application:**
*Project Management -
Validation and optimization of
schedule*
- **Scope:**
*Structural and architectural
design*
- **Project Phase:**
*Beginning of construction
phase*
- **Modeling by:**
*In-house design experts -
Germany and India*



AEC (design build)

- **Application:**
*Project Management -
Coordination of design
Visualization of construction
sequence*
- **Scope:**
*Piles, foundation, superstructure,
exterior wall, MEP*
- **Project Phase:**
Construction
- **Modeling by:**
In-house - Germany



Challenges / Lessons learned

- Trade offs between early and late modeling
 - Design Change Management
- Know the primary conflicts that you are trying to prevent
 - Manage the level of detail – cost vs ROI
- Understand limitations of modeling
- Actively engage designers and subcontractors



Benefits and Results

- **Excellent Communication tool**
- **Confirms Constructability Plans**
- **Risk management tool**
- **No lack of “Fans”**
- **Superintendents ask for ViCon on job sites**

What is the cost of not doing it?

- **Healthcare: 2.8% of job costs are changes to the original scope due to conditions that are identified in the construction process**



Ongoing efforts

- **Models for 17 pilot projects, 6 active projects**
- **Pursuing pilots in all four areas of application**
- **Establish infrastructure to enable field to use various tools**
- **Working with software vendors on functionality**
- **Explore integration with FM-systems**
- **Membership of CIFE Program – expand our knowledge, learn and share with others**



Summary

- **Virtual Building Models**
 - Useful tool from business development to FM phase
 - Risk management tool
 - Demand from both owners and project teams
- **Implementation strategy:**
 - Small steps – accelerated and broad based
 - Understand process and organizational implications of technology
 - ViCon – designed to support both organizational and technical ramifications.



Thank you!

Questions?

