

VDC – INTEGRATED COLLABORATION

We at Tyréns are convinced that VDC, Virtual Design and Construction, is the key to a successful design process. VDC will help to deliver exceptional value that meets and exceeds the demands of our industry where documentation must be correct, on time, coordinated and complete. Constructability, work environment and safety are always a priority.

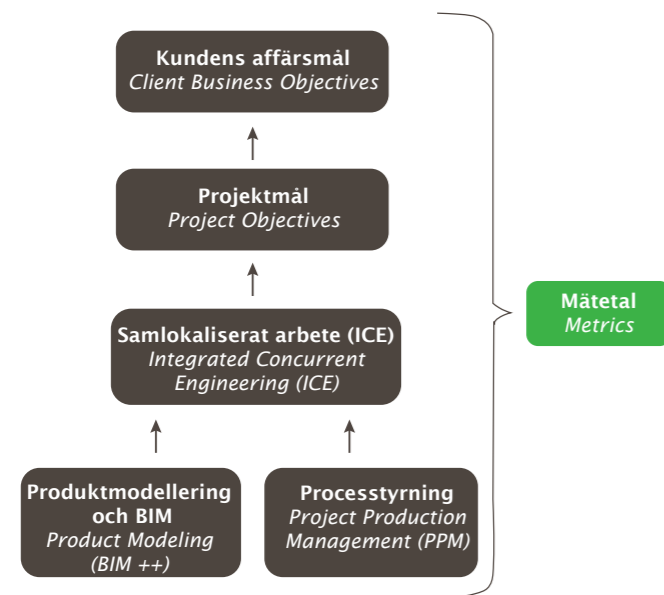
Tyréns experience of using VDC in larger projects is very good. The transparent and open collaboration between multi-disciplinary stakeholders is the foundation for common goals and objectives, where the resulting design and construction documentation is coordinated and of very high quality.

WHAT IS VDC

Virtual Design and Construction (VDC) is a methodology for project collaboration. Simply put, where project production management is combined with digitalization and BIM.

This approach was introduced by NASA in the 1990s and the VDC methodology has since been developed for the AEC-industry by Stanford University, USA. The driving force behind this development is the need to evolve the design process which is often drawn out and costly.

VDC is based on transparency and a close collaboration between client, project members and other sta-



keholders. The Project Objectives are established by the client and whole project team together, ensuring commitment through the entire process.

Collocated work sessions ensure an optimal performing team which, in turn, achieve reduced latency, efficiency of process and an increased quality of product. Our proposed VDC process will boost information exchange and collaboration, creating an environment of joint responsibility where the resulting construction documentation has been evaluated holistically.

CLIENT BUSINESS OBJECTIVES

Why is the client realizing the project? The Client Business Objectives are the basis for the entire project. They define client intentions when realizing the project.

PROJECT OBJECTIVES

What is the project team expected to deliver? The Project Objectives are established by the client and whole project team together, ensuring commitment through the entire process.

INTEGRATED CONCURRENT ENGINEERING (ICE)

How is the project team going to solve this assignment? Collocated work during ICE sessions is a foundation for VDC and can many times replace traditional design meetings. The process is transparent, and all stakeholders are engaged in the collaboration with pro-active decision-making and short response times.

Business and project goals are communicated clearly to all stakeholders and follow-up is continually visualized during the whole project. All project members get the same information and latency is reduced since decisions can be made throughout the session.

The ICE-session requires excellent leadership abilities to facilitate, plan, visualize and follow-up, and is led by Tyréns Process managers. The Process manager, Tyréns contract manager and the Client's manager should work closely together to ensure the right direction.

A typical day with ICE sessions can be compared to an accordion. The project team has some shorter parts together with the whole group throughout the day. The rest of the day the accordion is pulled out and smaller groups work in parallel sessions to solve current issues. At the end of the day the accordion is pushed together with a common gathering where all ICE-sessions are summarized with regards to issues solved, decisions made and identified needs concerning the whole project team. At the end of an ICE-day the whole team is updated on current information and aware of what tasks are currently prioritized. The leader of ICE-sessions need to plan an agenda for the session, outlining purpose, objectives and goals, as well as invite the needed participants. After an ICE-session the leader needs to make sure that the goals of the session where reached, participants are committed to next steps, and that the information is spread to all stakeholders.

VDC is particularly suitable in a project based on partnering, alliancing or similar. The contractor is also invited to the ICE sessions since it is vital with an open working environment where collaboration includes all stakeholders.

PRODUCT MODELING AND BIM++

Building Information Models (BIM) are integrated and used during ICE-sessions. BIM ensures that the whole team can see the same finished product and how design work is progressing.

BIM makes it possible to try many more potential alternatives before deciding on the solution to the final product.

Continuous, coordinated, reviews, with the help of BIM, secure quality assurance of the project.

PROJECT PRODUCTION MANAGEMENT (PPM)

The project is a production system and PPM handles work flow of both technical aspects as well as organizational behaviour (task assignment and information flow). PPM is used to create structure and enable transparent communication throughout



the whole project by letting the project team map out the tasks that need to be performed to reach project goals.

PPM is visualized which enables a collective understanding of how to reach the project's goals and objectives.

The project team must use methodology and tools continuously during ICE sessions when the collective competence and knowledge are gathered in the same location.

All decisions, questions/answers, follow-up etc are continuously documented and is made available to all stakeholders during the entire process.

METRICS

Metrics is a key component of VDC that ensures predictable outcomes and optimum performance through performance data. It is the basis for continuous improvement of the processes.

Examples of metrics in our projects are team satisfaction, Plus/Delta, latency, goal fulfillment in ICE sessions. With BIM we also measure number of collisions and redesign.

Interested to know more? Talk to your Tyréns representative or
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