IKT i projektering og udførelse

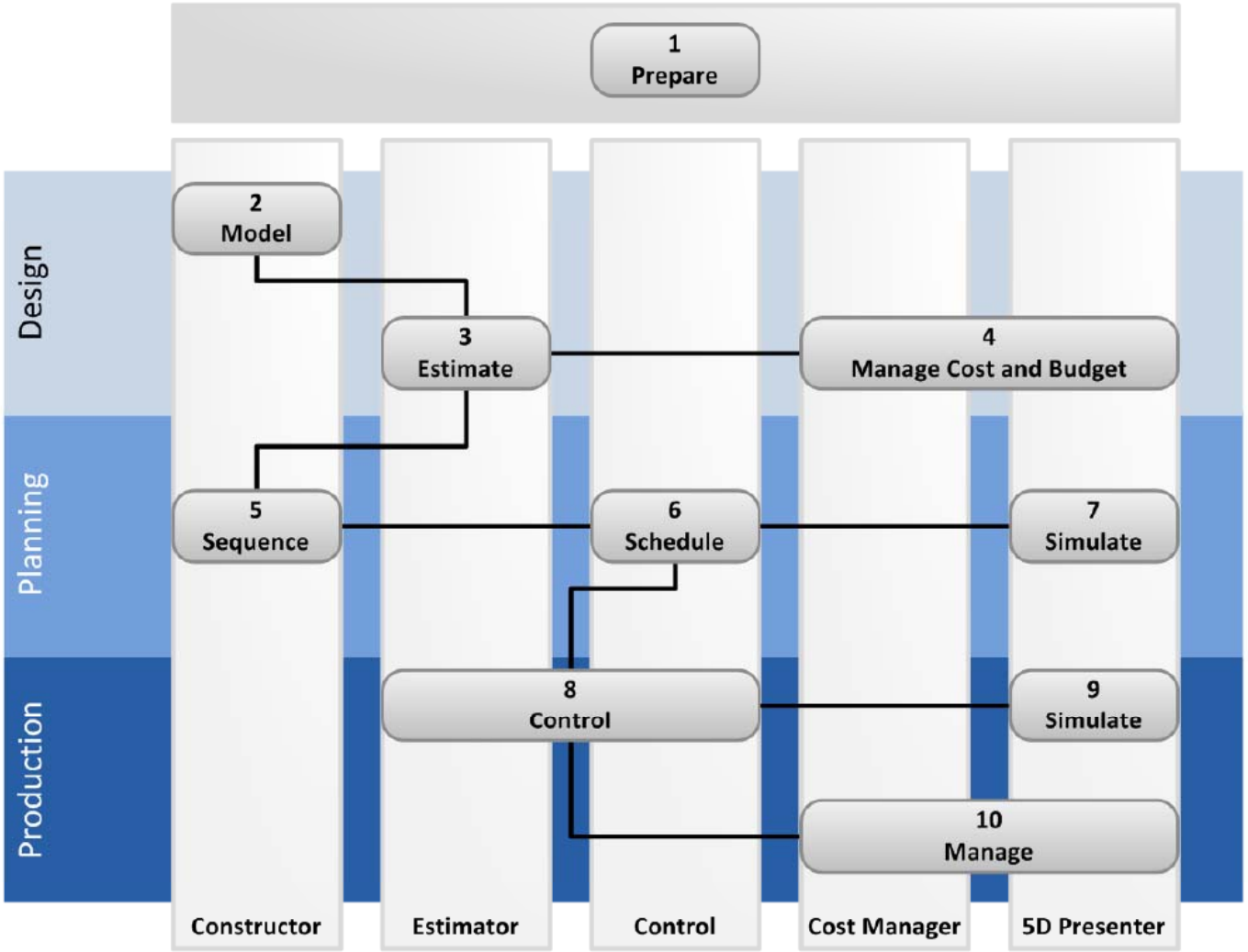
2. kursusgang

Dagens program
- Introduktion til VICO software

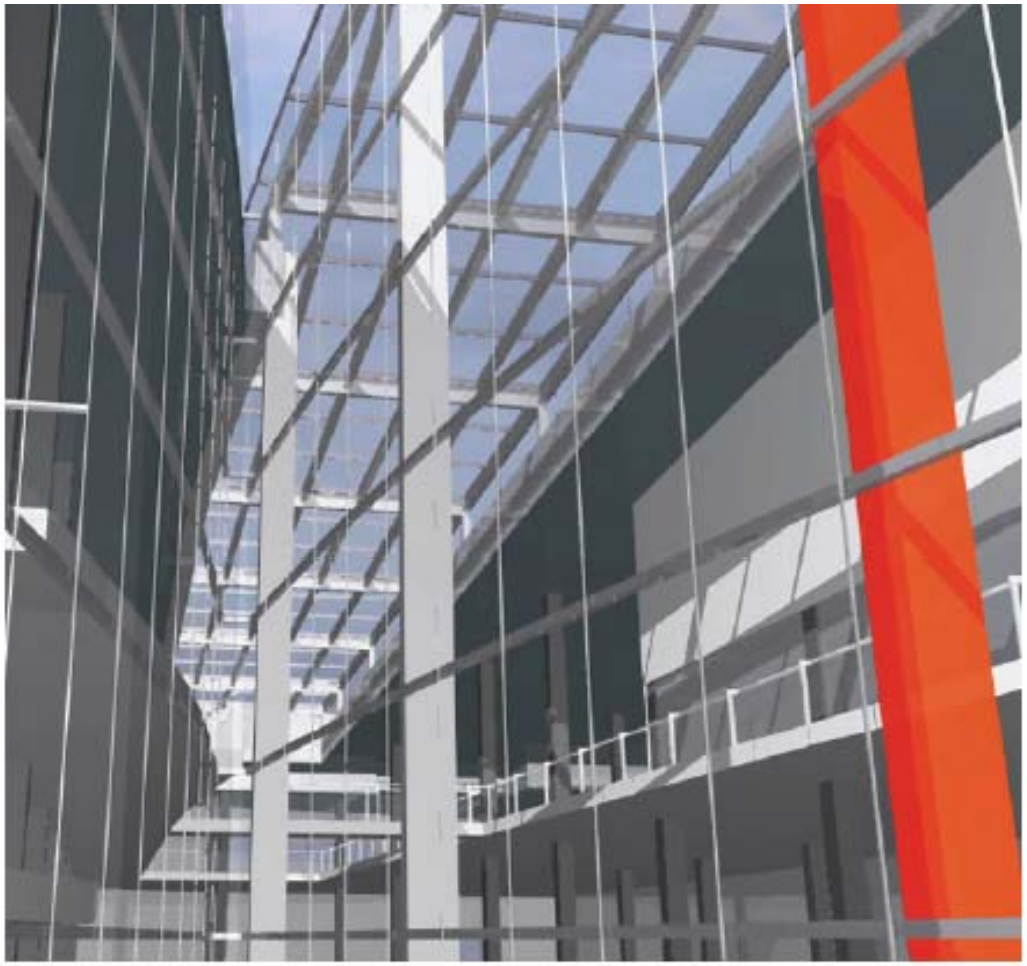
Fra studievejledningen

- Analysere tidsforbruget for et byggeprojekt og opstille tidsplaner som stavdiagrammer og netværksdiagrammer.
- Analysere omkostningerne ved opførelsen af et byggeprojekt og udforme et foreløbigt overslag.
- Analysere bygherrens og entreprenørens udbetalinger og indbetalinger og udarbejde tilsvarende finansieringsoversigt for byggeprojektet.

Vico Software arbejdsgange

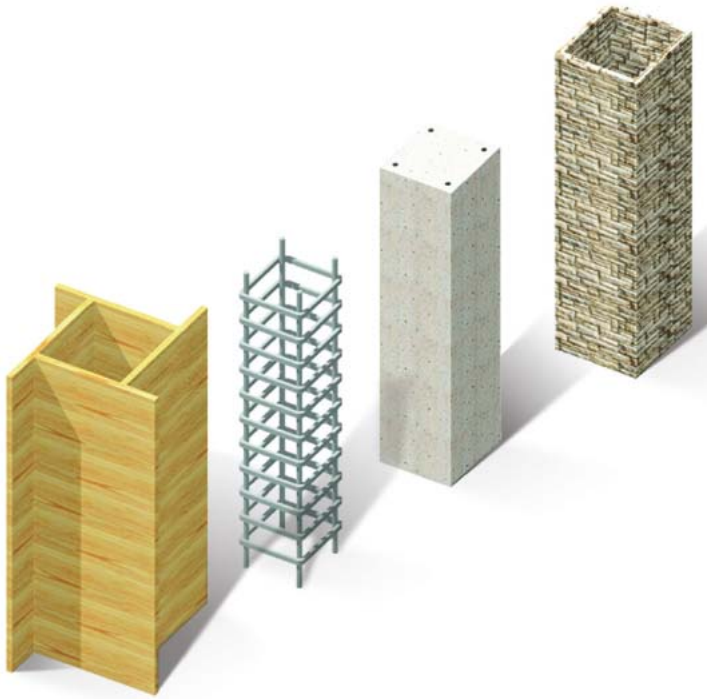


Opbygning af 3D-model



Kobling til procesbeskrivelser

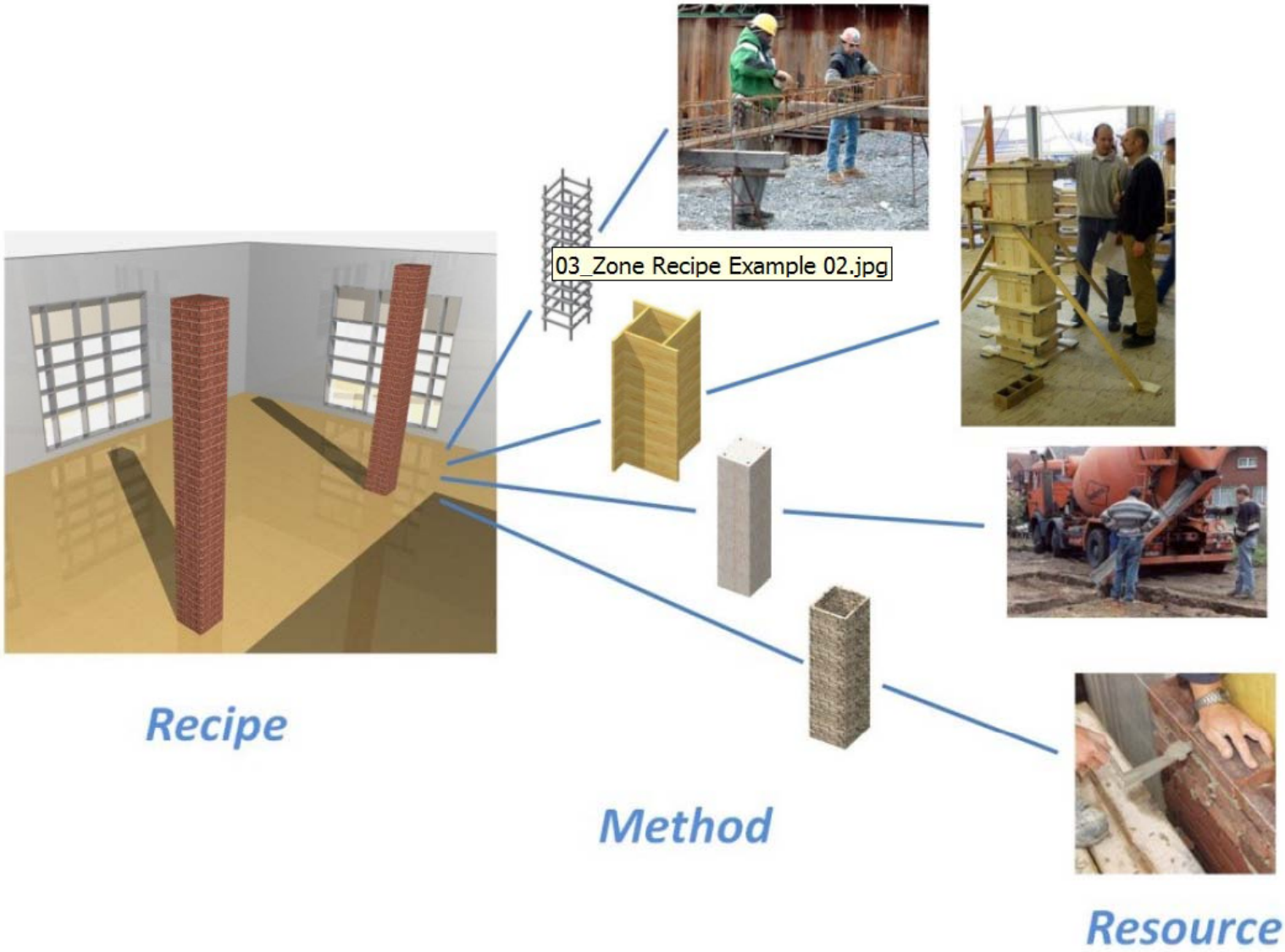
Objects in the 3D model are connected to data elements, called Recipes - a list of the steps and ingredients needed to build the object



The recipes are divided into Methods - the set of activities required to complete the object

Recipes

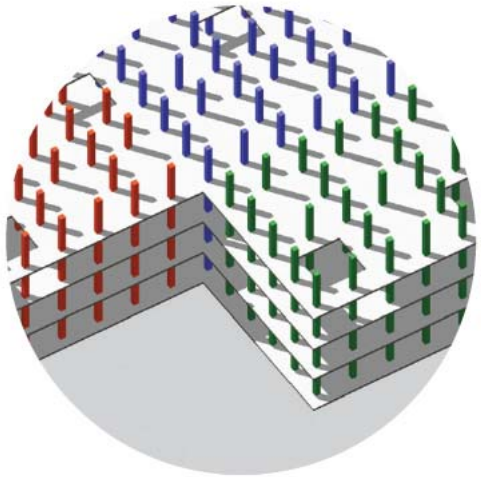
Methods


03_Zone Recipe Example 02.jpg
Recipe
Method
Resource

Tilknytning af ressourcer og tidsplaner

Construction Zones

Methods are grouped by Construction Zones and exported as a task to a Schedule management application

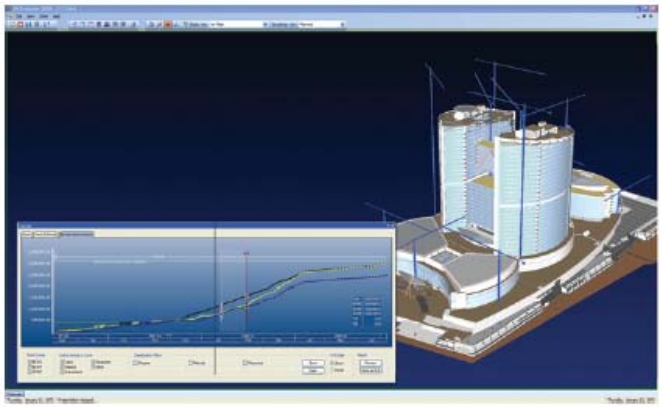


Each method is provided with its specific Resources information: Equipment, Material, Labor, Cost

Resources

Schedules

Visuelt overblik over 3D-model, tid og omkostninger



The 5D Model can then be used to derive time based procurement requirements and perform various cost analyses. The system continuously maintains Bidirectional Link between design, cost and schedule

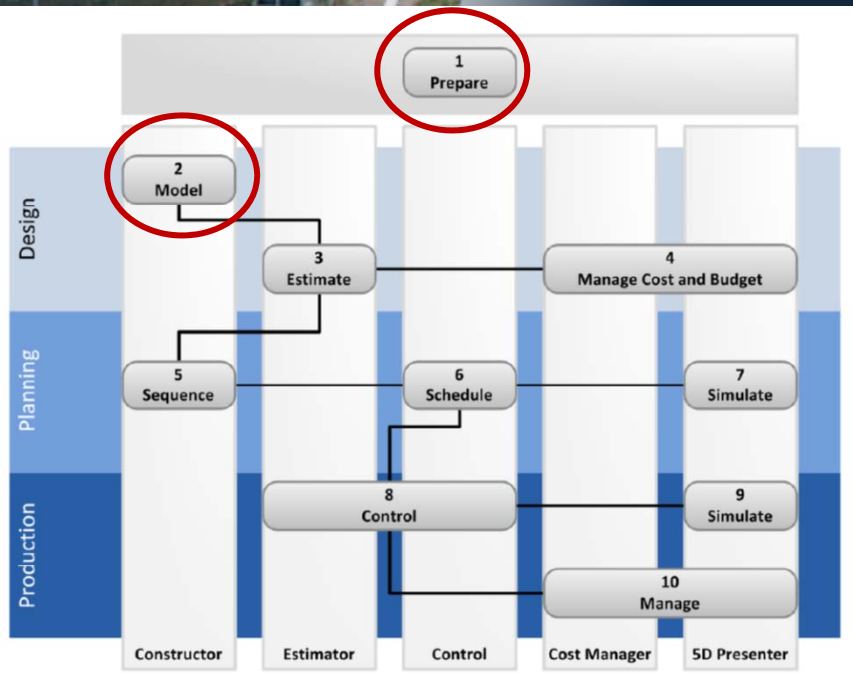
3D+Time+Cost=5D

1: Prepare

Prepare for building your Virtual Construction data model by defining a **Content Plan**, preparing a **database** and setting up your project.

2: Model

Use the prepared **Favorites** to create your building model, using **structural**, **architectural** and **building systems** modeling techniques. Manage the size of your model. **Coordinate trades** and keep track of **constructability issues**.
Assign **Recipes** to model elements to use the model for estimating and scheduling purposes.

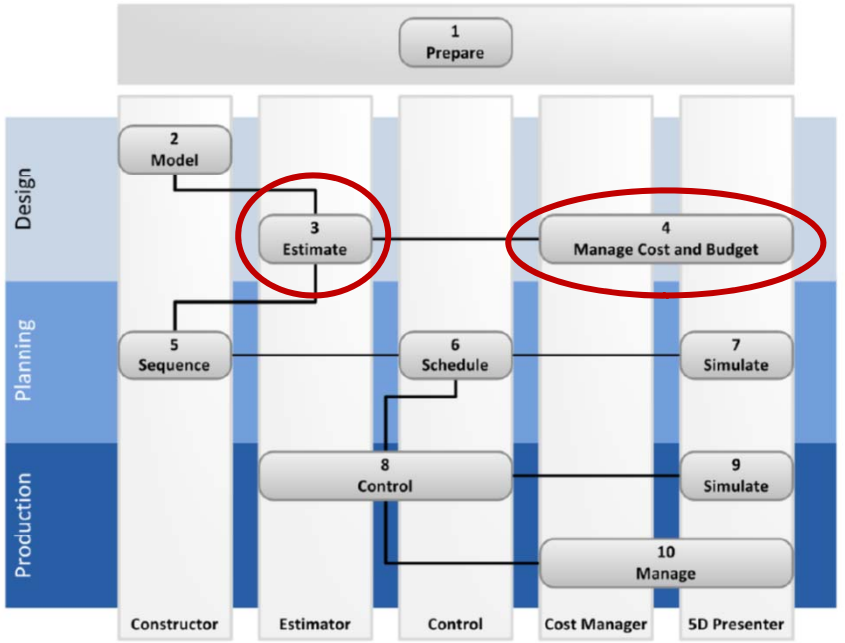


3: Estimate

Start an **estimating project**, include required project specific content and use the **Constructor model** with that content. Create **estimates** and **reports** with the defined estimating content.

4: Manage Costs and Budget

Publish **cost estimating versions** from Estimator and open them in Cost Manager to **analyze variance**.
Define **Target Costs** and how to compare your estimates against them.



5: Sequence

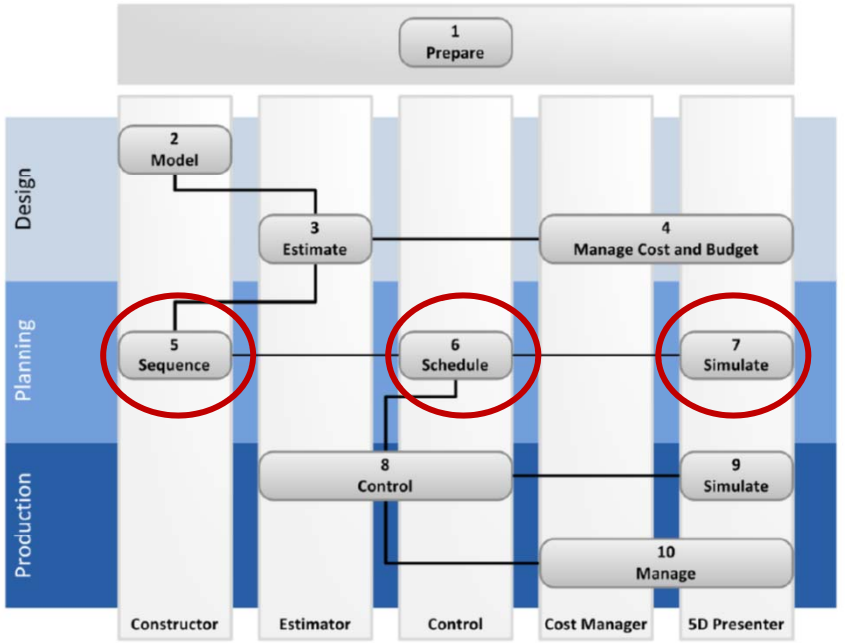
Update your set of model information from your estimate, define a **Work Breakdown Structure** for your project and how to use both to **prepare Tasks** for your scheduling work.

6: Schedule

Use **model based data** to **create schedules** and subsequently **update your model** with data from the designed schedule.

7: Simulate

Generate a **5D Presenter model**, and use it to **explore** your project and **simulate** the construction **schedule** you designed.



8: Control

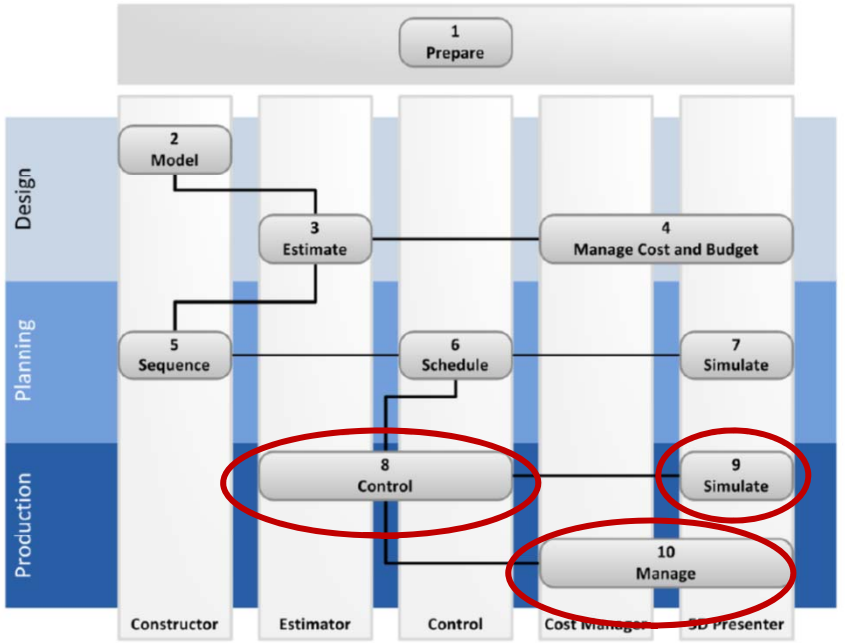
Use Control and Estimator to **track actual cost** and **project progress**.

9: Simulate

Generate a "**production phase**" **5D model**. Use this model to **simulate** and **analyze** the **status** of your project.

10: Manage

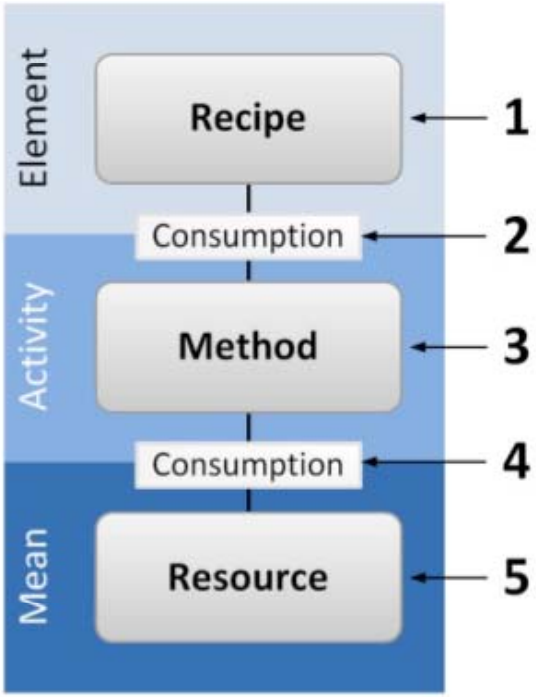
Use the **production** phase 5D Presenter model for **Earned Value Analysis**.



The Methods are a refinement that is necessary to allow the implementation of scheduling in the 5D solution. Methods are assignable to a given location.

Each Method will have one or more **Resources**: an individual, identifiable, and, more importantly, chargeable items that contain cost and consumption data.

- Labor
- Material
- Equipment
- Subcontracted Work
- Other



Instead of including Resources, cost can also be defined at the Method level by specifying cost for the process by cost type.

Figure 398 – By combining several "Boundary Filters" by setting the "Consider" option to "Any", you can specify multiple areas in your project under one Location in your WBS. A "Zone C" could, thereby, consist of three Zones in a floor plan.

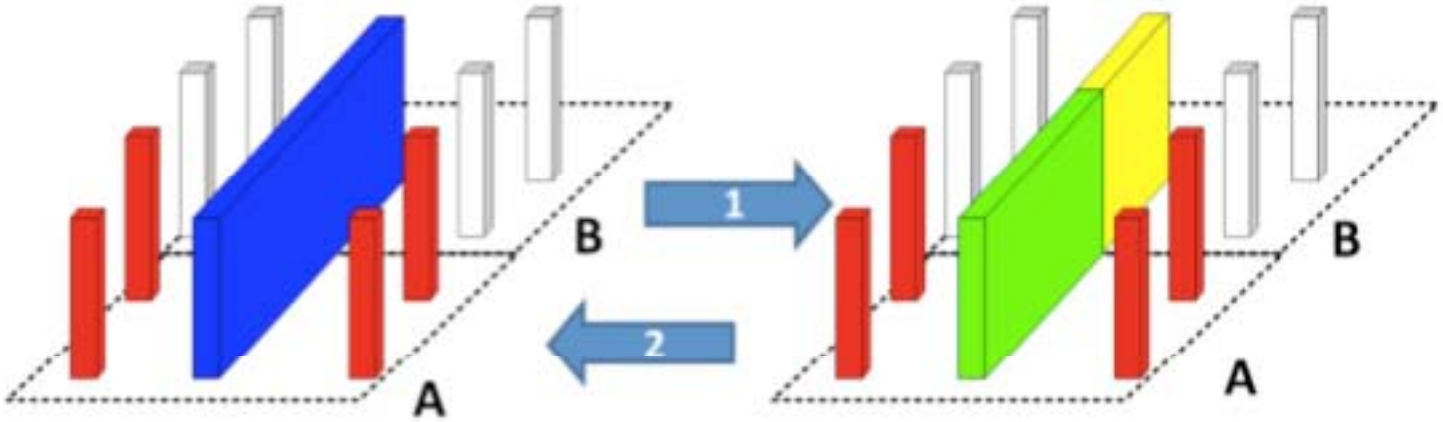


Figure 399 – Non-Destructive Element Splitting allows you to define Zone construction zone boundaries without splitting elements.

Therefore, Constructor allows you to group *similar* Methods into *Tasks*. Tasks are groups of activities (Methods) that *can* be scheduled.

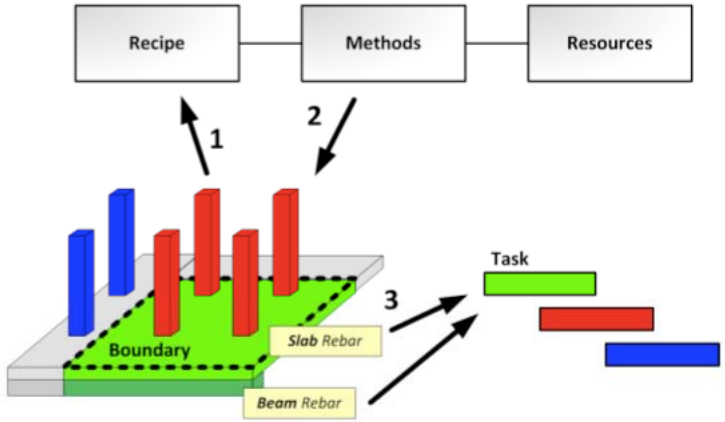


Figure 417 – Method – Task mapping concept of Constructor.

As an example, in the diagram above, both the Beam and Slab elements require "Rebar" activities, defined as Methods in the Recipe that was assigned to the elements. The quantities for both Methods have been calculated in the Estimator database; both Slab Rebar and Beam Rebar can now be mapped to one task: "Rebar".

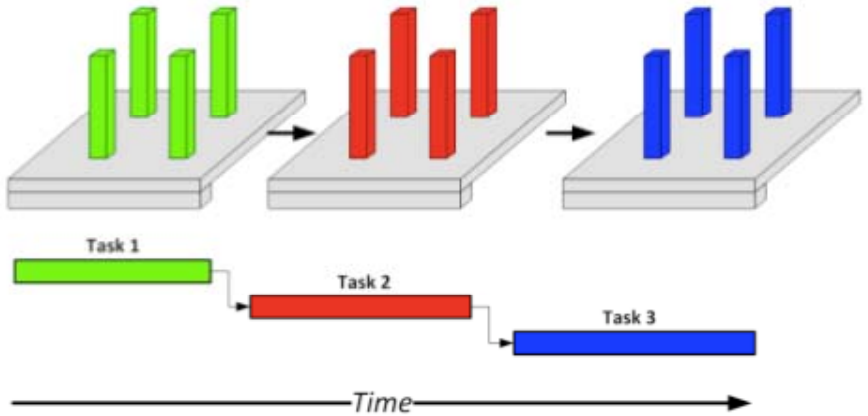
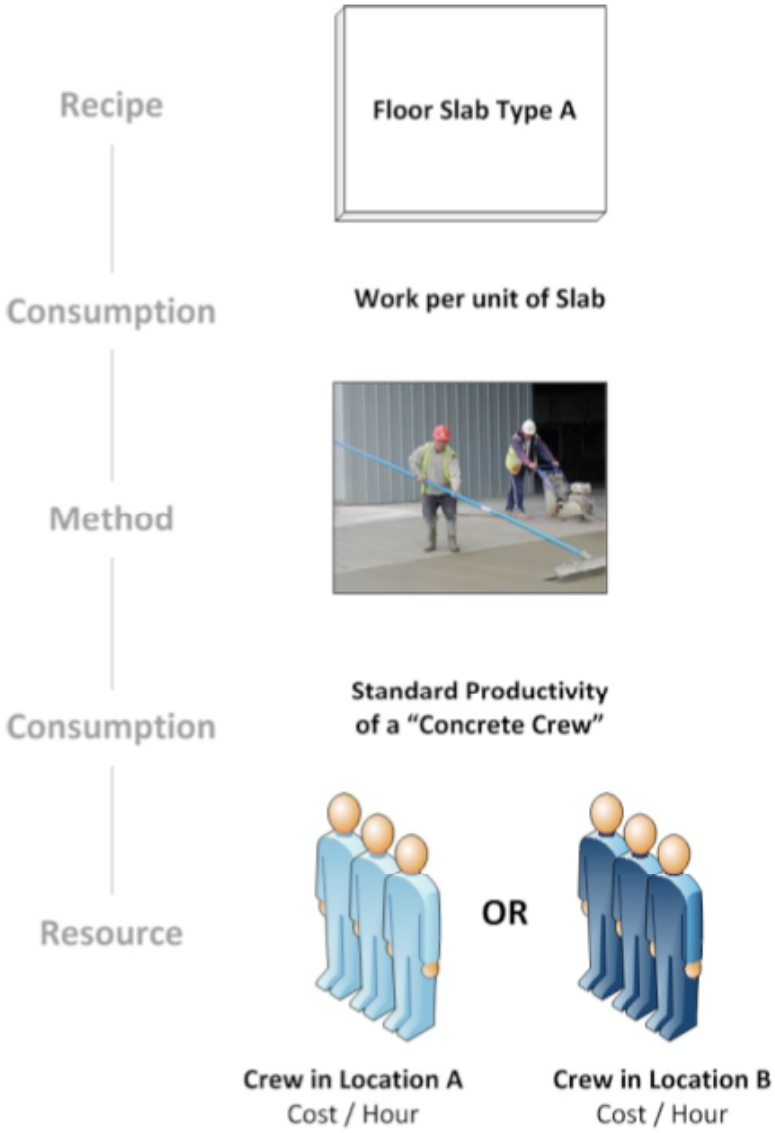


Figure 492 – The 5D Presenter Schedule Simulation concept. Each Task related to the columns in the image is included in a different representation group. When the tasks occur during the simulation, the color of the columns will change.



The Consumption factor can also be used to reflect a productivity rate.

For example: if you know that one crew can produce "x" sf or m2 of concrete floor slab per week, "x" is the consumption factor shown in the Recipe structure diagram as #4: the consumption of Resource for a unit of Method is in this example: "Casting Concrete".

By setting up the consumption this way, you can simply change Resource definitions to calculate the costs associated with this crew in different areas.

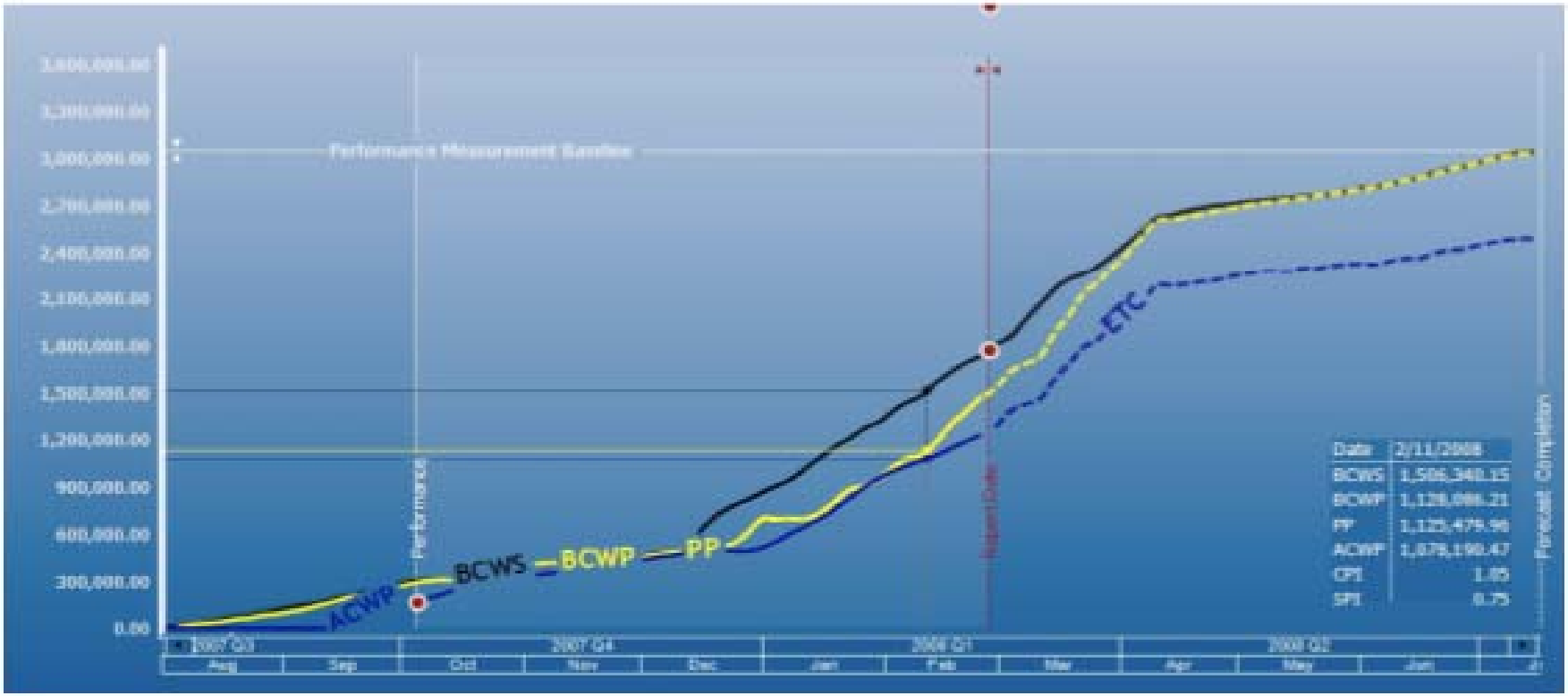


Figure 566 – EVA curves in 5D Presenter.

The curves that 5D Presenter automatically generates are:

BCWS Budgeted Cost of Work Scheduled (the *Plan*)

BCWP Budgeted Cost of Work Performed (the *Progress*)

ACWP Actual Cost of Work Performed (the *Cost*)

PP Projected Performance (the *Forecasted Progress*)

ETC Estimate to Complete (the *Forecasted Cost*)

5D Presenter automatically generates the five curves required for applying the Earned Value methodology.

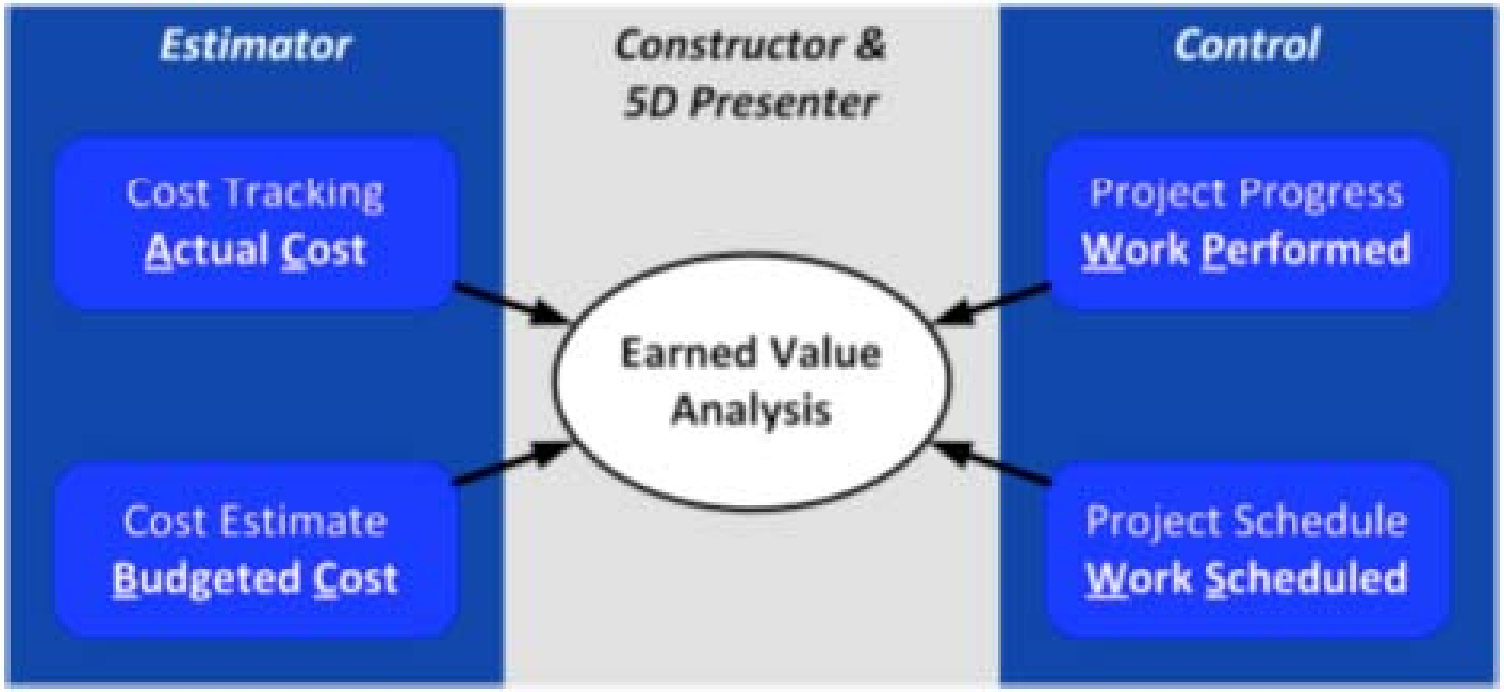


Figure 565 – Vico's applications generate the required input for Earned Value Analysis.

You define a project's **Budgeted Cost** in Estimator when doing the cost estimate. **Work Scheduled** is defined in Control, when you are designing your project's schedule.

As soon as production starts, you keep track of the actual progress in the Control Chart, which provides you with **Work Performed** information. Lastly, Cost Tracking by cost type in Estimator results in **Actual Cost** data.

5 programmer trækker på fælles database

Demo

CONSTRUCTOR 2008

Vico Software Constructor™ is a dedicated construction modeling application that enables creation and analysis of highly detailed virtual construction models

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ESTIMATOR 2008

Vico Software Estimator™ 2008 is a unique 3D model-based estimating system which generates highly accurate estimates in less time

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CONTROL 2008

Vico Software Control™ is a unique location-based construction management system. Which enable the creation of significantly compressed schedules without increasing risk.

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5D PRESENTER 2008

Vico Software 5D Presenter™ integrates on one screen the main components of a building project - actual building model, scheduling and cost - to present a full, comprehensive picture of the construction process

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COST MANAGER 2008

Vico Software Cost Manager™ grants the tightest possible control over your project's budget. With this straightforward visual monitoring system, you easily grasp and communicate project cost variances, and compare them to targeted costs

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