Skeleton Technique

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13.9.2020

Traditional Assembly

Assembly order follows mainly installation order

- Frame → Connector

Parts are referred to each other

Traditional Assembly

How to change parts "from the middle"?

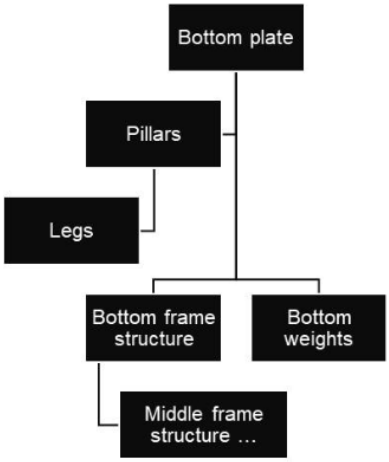
- Challenge in bigger assemblies
- *Replace Component* tool in CAD

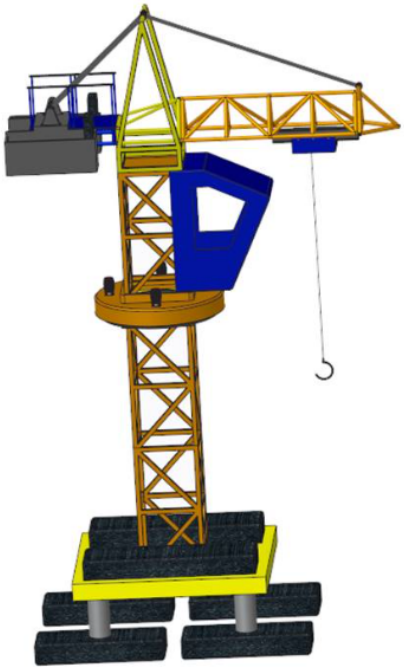
Missing information or shape flow between parts

- Shaft's diameter → bearing's inner diameter → …

Traditional Assembly

Structure

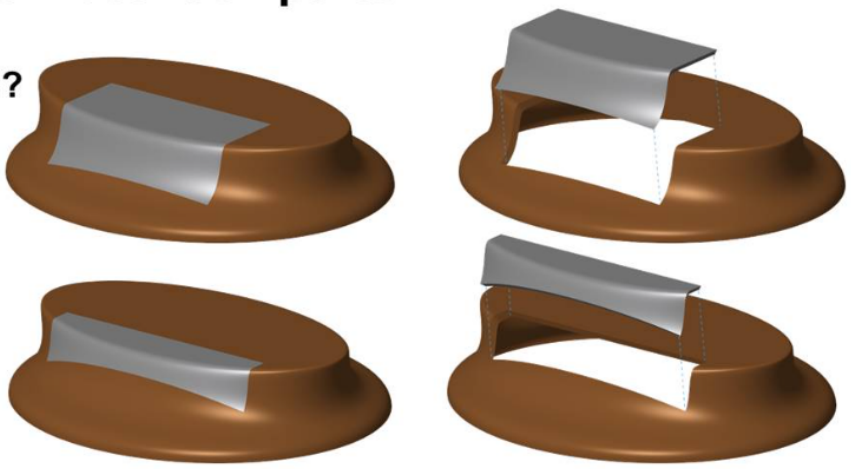




Traditional Assembly

Information flow between parts

How to enable this?



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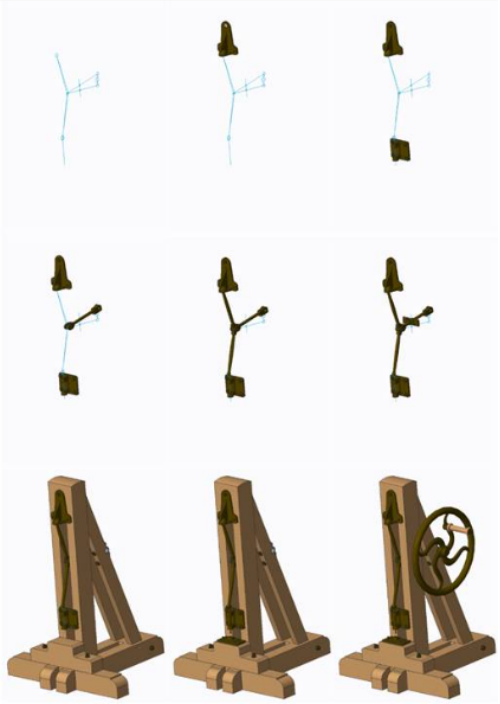
Skeleton Technique

To handle big assemblies

To transfer shape information between parts

Part's geometries are independent to eachother

- Parts can be easily change



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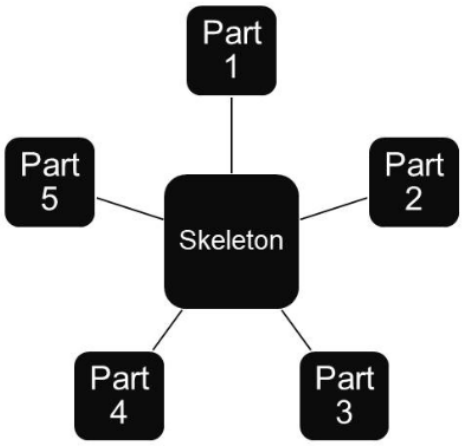
All parts (geometries) refer to skeleton

- Locations of the joints, main dimensions, interfaces

Concept design

- Space reservations for future parts

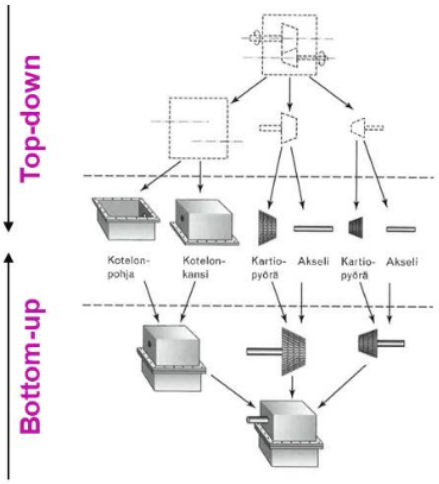
Execution mostly depends on CAD software



Skeleton Technique

Similar to method utilized in product design

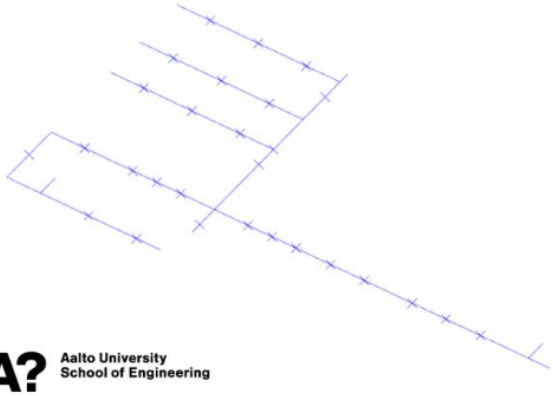
- Top-down approach
- Traditional assembly is bottom-up

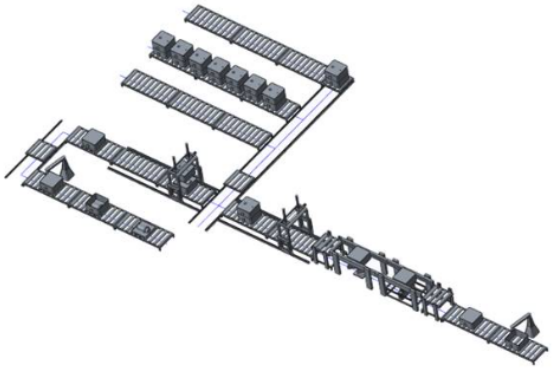


Laakko, T. et al. 1998. Tuotteen 3D-CAD-suunnittelu. WSOY.

Skeleton layout

Location of parts and subassemblies are referred to skeleton, not attached to each other





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