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Forge - moving from product sales to more solution based sales

Speaker
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Co-Speaker
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Co-Speaker and Q&A moderator
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Learning Objectives

- Understand the possibilities with Autodesk Forge and Design Automation
- How to increase customer service with digital offerings
- The advantages with Standardize workflows
- Automated BIM content

Description

HAKI produces and delivers modular scaffolding systems and tailored temporary access solutions to clients and contractors worldwide. The customers achieve ultimate efficiency and safety when assembling and working at height during temporary works, in a variety of challenging industry sectors.

The challenge for HAKI was how to go from a product-based business to a more service-based solution business. How to create more value for customers and be ahead of the competition? HAKI decided to fully invest in digitalization and to offer the customers more value by increasing their digital service offerings.

The result is the "HAKI Design Tool" which among other consists of HAKI Configurator and HAKI BIM. The response from the market has been tremendously good.

Speaker(s)

Daniel Marcus, Key Account Manager, Cadcraft AB (Autodesk reseller)
I am driven to help our customer be more competitive with technology from Autodesk and together with our long and broad experencie. Working to help our customer get the most out of their investment in Autodesk technology and discover new possiblitities is what I like most. When I am not working I like to stay in motion with trailrunning, mountbiking, windsurfing etc

Mattias Kuduk, VDC Manager, HAKI AB
Helping company on the journey with Digital Transformation. Besides work and family Mattias has a passion for football (soccer).

Rikard Nilsson, Solution Architect - Product Configuration, Cadcraft AB
Golf Player who is passionate about helping customers become more automated

Introduction

HAKI was founded in 1956 in Sweden and already from the start an innovation leader.
They have been manufacturing and developing advanced scaffolding systems for over 60 years.
HAKI offer solutions for safe working conditions in complex and challenging environments, e.g. industry, energy, infrastructure and construction.
HAKI is driven by change, with the aim of working harder than their competitors every day and improve the business.
Read more about HAKI: https://www.haki.com/

Challenges

HAKI products are often copied since each standard item by itself is rather simple. The knowhow and value adding lays in offering. To offer customers the right support in how to build the most accurate scaffolding according to the need.
The right safety, right amount of material, the correct strength calculatation, the right delivery and the right cost. The larger the project the more complex.

Everything mentioned is timeconsuming work that both customers and HAKI were putting a lot of resources into. The R&D department was already using Inventor 3D but the projects were still handled in 2D AutoCAD.

The demand of BIM was also a topic that bigger customers requested. This requirement needed a new way of handle the CAD models.

The support engineers were spending a lot of time to do layouts in AutoCAD 2D and doing calculations. A lot of changes and a mix of small and big projects made this job a bottle neck in the process.
The data was transferred in to different formats a long the workflow with high risk of losing important data.

To be on the safe side HAKI and partners often delveried to much scaffolding material to the building site. A waste with both energy and material.

HAKI faced multiple challenges that demaned for a bigger change otherwise the leadtime and profit margin would go the wrong direction.

Solution

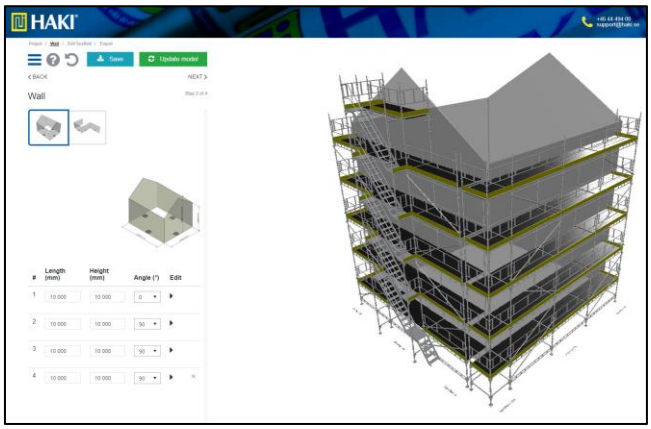
Digitization Strategy

The board took a decision to launch a digitization strategy.

“HAKI’s ambition is to become a digital data front runner of our industry.
To be a front runner we need to change the way we Work, Think, Share and Innovate .
Together with our clients & strategic partners we will understand what we need to Offer”

One important part of this was to move from product sales, to a more solution based selling.

How to add more value to the customer and in the same time be more cost efficient.
Making it easier for both their customers but also be more efficient internally.



The Journey

The first thing was to understand the customer and the markets need. HAKI engaged with their key customers to understand their challenges. They needed a solution on how to faster, more cost-effective and in a more secure way, serve their end customers, and it needed to fully support BIM.
This was essentially the same challenges that HAKI experienced internally. A solution that both customers and HAKIs internal support could use would be ideal.

The wide range of customers and their experiences demanded a solution that supported both standard and more complex projects. It needed to be easy to access and easy to use, some of the customers were not used to CAD software at all.

The support of BIM was also a requirement

Mattias Kuduk had experience from product configuration and it was naturally something that he saw as an important part of the solution.

HAKI started the project to develop a smart set of digital tools to bring more value to the customers, create a both safer and more cost effective scaffolding solution.

HAKIs ambition, to be a front runner demanded an agile and adaptive implementation. Both the sponsor and the team needed to be prepared to re-think and re-do.
It is very important to have a full “buy-in” from the board especially when encountering major challenges and tricky obstacles.

The project meant to look for new resources and technology. Finding new resources to recruit the right external partners and the right new technology platform.
Key customers needed to be involved to constantly evaluate the solution.

HAKI Design Tools – smart set of digital tools

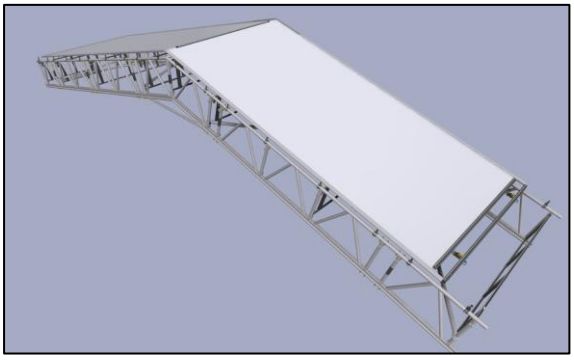
What would be the right technology for the solution?
Since HAKI already was using Autodesk software for R&D they started to look into the Autodesk technology and the vision from Autodesk. They also looked in other directions like Tacton & Dassult Systems.

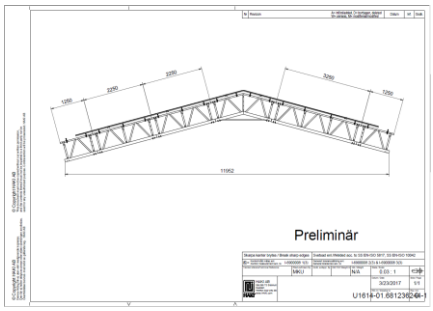
Autodesks clear message about the power and benefits of a cloud based technology platform was something that HAKI really liked. Another important fact was that Autodesk had solutions for both the Manufacturing and the AEC industry.

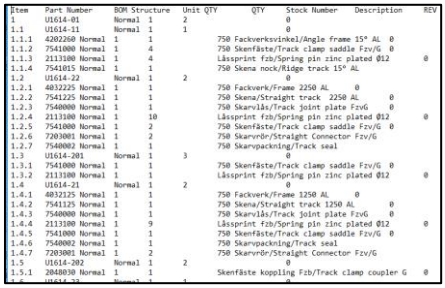
This made HAKI choose the Autodesk platform.

Mattias and the team earliy recognized that product configuration was an important part of the solution. It was also clear that it need to be a web based solution to meet the customers need. It would also demand some kind of connection to a desktop solution to handle the more complex solutions. This gave the idea and concept for HAKI Design Tools, where the first part became HAKI Configurator.

HAKI was already using Inventor & Vault for their R&D. This lead to explore Inventor iLogic and the possibilities with the rule based engine within Inventor. The team started with the development of simpler configurators and expanded to basic scaffolding solutions for weather protection, shelters.With Autodesk Configurator 360, HAKI could move the configurator to the cloud. It was a good start.
End users could without any CAD experience, configurate basic scaffolding solutions directly on the web. It saved time both for the customer and for HAKI internal support engineers.







Item	Part Number	BOM Structure	Unit QTY	QTY	Stock Number	Description	REV
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1.1	U1614-11	Normal 1	1		0		
1.1.1	4202260	Normal 1	1		750 Fackverksvinkel/Angle frame 15° AL	0	
1.1.2	7541000	Normal 1	4		750 Skenfäste/Track clamp saddle Fzv/G	0	
1.1.3	2113100	Normal 1	4		Låssprint fzb/Spring pin zinc plated Ø12		0
1.1.4	7541015	Normal 1	1		750 Skena nock/Ridge track 15° AL		
1.2	U1614-22	Normal 1	2		0		
1.2.1	4032225	Normal 1	1		750 Fackverk/Frame 2250 AL	0	
1.2.2	7541225	Normal 1	1		750 Skena/Straight track 2250 AL	0	
1.2.3	7540000	Normal 1	1		750 Skarvlås/Track joint plate FzvG	0	
1.2.4	2113100	Normal 1	10		Låssprint fzb/Spring pin zinc plated Ø12		0
1.2.5	7541000	Normal 1	2		750 Skenfäste/Track clamp saddle Fzv/G	0	
1.2.6	7203001	Normal 1	2		750 Skarvrör/Straight Connector Fzv/G		
1.2.7	7540002	Normal 1	1		750 Skarvpackning/Track seal		
1.3	U1614-201	Normal 1	3		0		
1.3.1	7541000	Normal 1	1		750 Skenfäste/Track clamp saddle Fzv/G	0	
1.3.2	2113100	Normal 1	1		Låssprint fzb/Spring pin zinc plated Ø12		0
1.4	U1614-21	Normal 1	2		0		
1.4.1	4032125	Normal 1	1		750 Fackverk/Frame 1250 AL	0	
1.4.2	7541125	Normal 1	1		750 Skena/Straight track 1250 AL	0	
1.4.3	7540000	Normal 1	1		750 Skarvlås/Track joint plate FzvG	0	
1.4.4	2113100	Normal 1	9		Låssprint fzb/Spring pin zinc plated Ø12		0
1.4.5	7541000	Normal 1	1		750 Skenfäste/Track clamp saddle Fzv/G	0	
1.4.6	7540002	Normal 1	1		750 Skarvpackning/Track seal		
1.4.7	7203001	Normal 1	2		750 Skarvrör/Straight Connector Fzv/G		
1.5	U1614-202	Normal 1	2		0		
1.5.1	2048030	Normal 1	1		Skenfäste koppling Fzb/Track clamp coupler G	0	

Images from the first generation of HAKI Configurator, based on Autodesk Configurator 360.
Example of a HAKI Shelter.

The solution had although some limitations that quite soon became challenging:

- Not fully supporting BIM, just a “dumb” IFC export.
- No possiblity to optimize the front end experience.
  - To long wating time for updating the 3D grapichs
- Could only handle standard projects

When Autodesk launced Forge this was a very interesting path for HAKI, they decided to move to a Forge based solution as soon as possible
It gave them more flexibility to build up the front-end solution and with Design Automation for Revit they could generate true BIM models.

Moving to DA4R also made a more seamless connection to the desktop version of Revit.
https://forge.autodesk.com/api/design-automation-cover-page/

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This gave the idea to make a smart add-in for the desktop version of Revit, called HAKI BIM. The concept HAKI Design Tools expanded to include also HAKI BIM.

The HAKI BIM is a Revit add-in that makes the designing of a scaffolding solution fast and accurate. It is a set of power tools to make it very easy for the scaffolding designer to build scaffolding solution direct in Revit and reference the building.

The HAKI Design Tools makes it possible to handle both standard and more complex projects. The more complex projects could start with the HAKI Configurator and then easily be imported to Revit via HAKI BIM to continue refining the solution.
The heavy users could also start direct in Revit using the power functions in HAKI BIM designing the solution,

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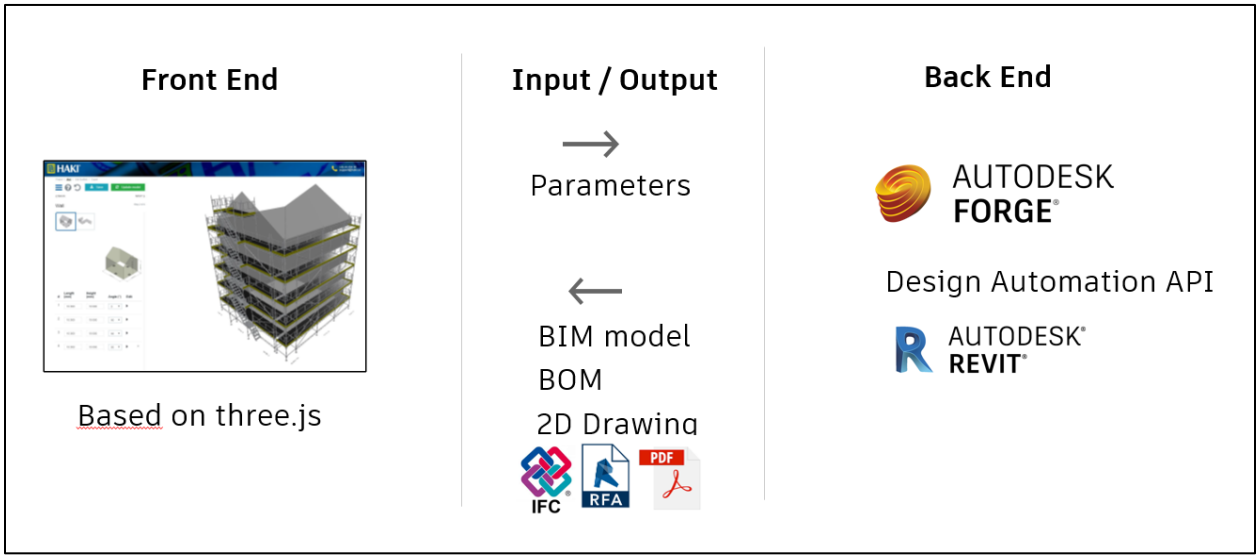
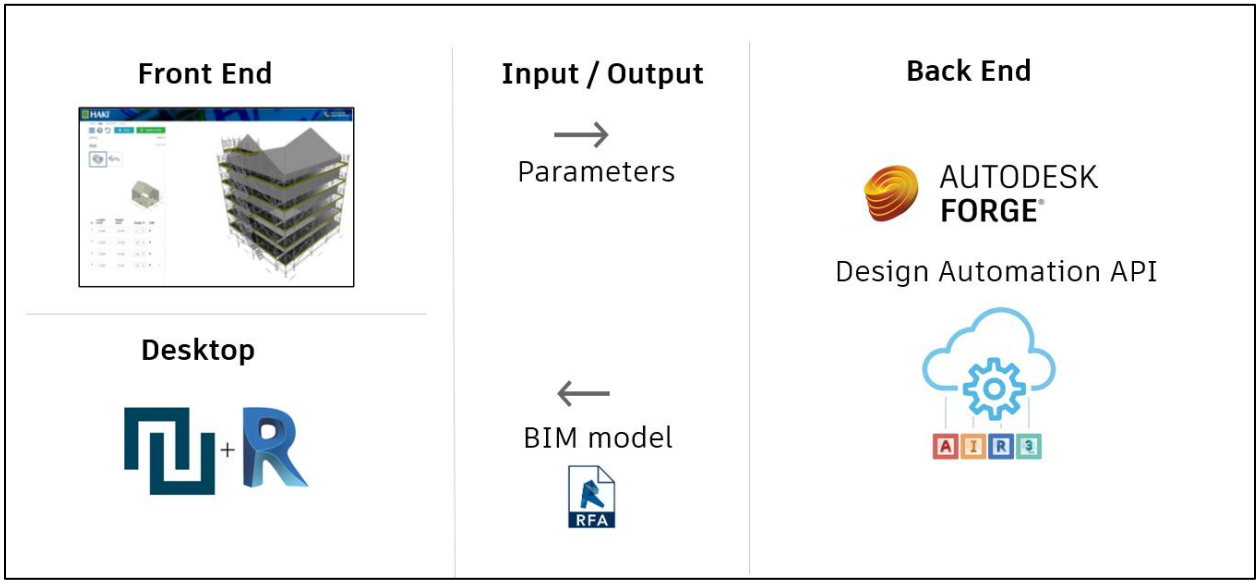
Workflow – standard projects

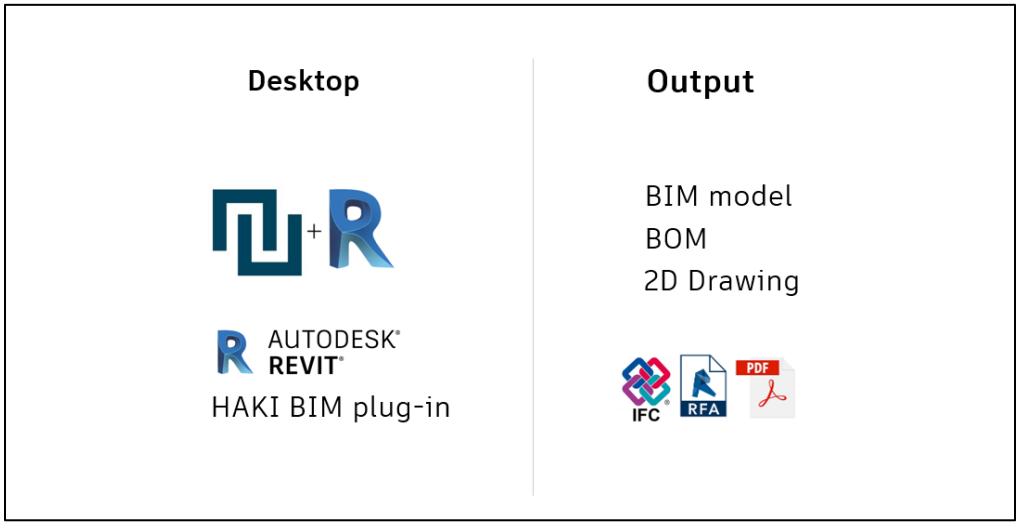


Workflow – complex projects

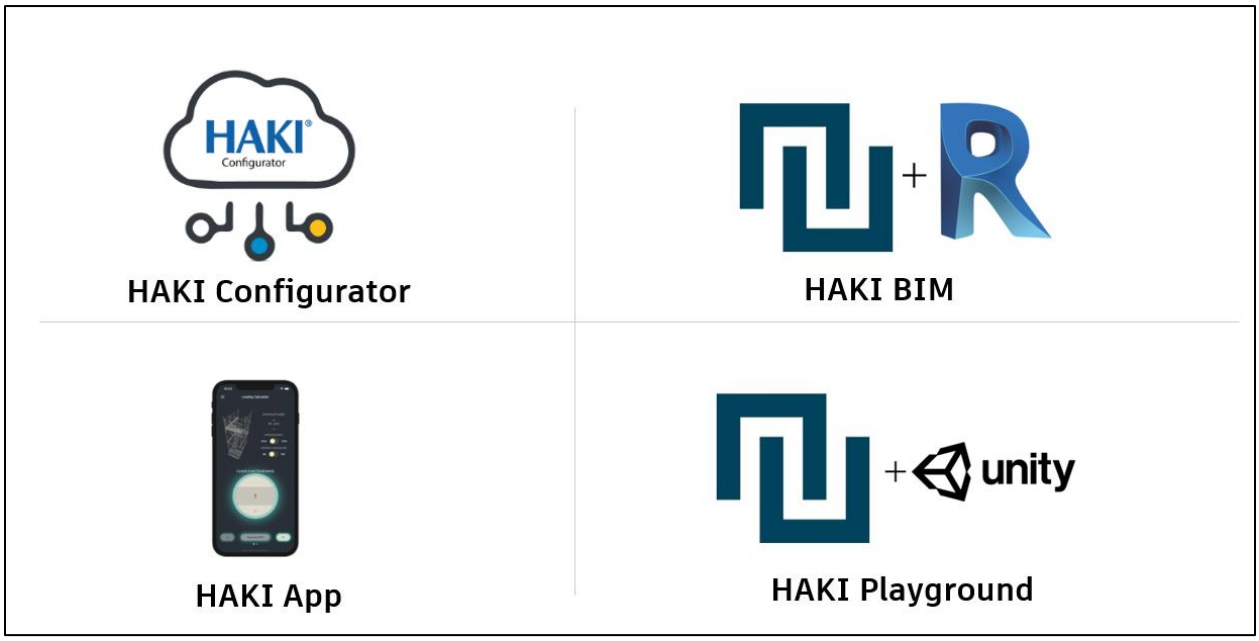
Alternative 1



Alternative 2



HAKI Design Tools today also consist of HAKI Playground and HAKI App. HAKI Playground is a type of digital showroom based on Unity. It makes it easy to showcase different scaffolding solutions.
HAKI App is used to easy access technical documents, make calculations and use AR.



Results

The response from the cutomers has been tremendously good.

Overall savings and gains

The customer can by them self build scaffolding solutions directly on the web with HAKI Configurator when ever they want. More demanding and complex projects can be refined in Revit with HAKI BIM. This makes the process from proposal to delivery much faster, the data is kept digital and gives better profit and cost control. The solution fully supports BIM.

HAKI has now the right information the whole process, it gives them the possibility focus more on complex projects since standard projects are more or less automated.
HAKI is saving time and has a better cost and profit control.

Case Study ”Storkyrkan, Stockholm”

One really good example of the profit and gains with the HAKI Design Tools is the renovating project of Storkyrkan (“The Big Church”) in the old town of Stockholm. HAKI was one of the scaffolding companies that were invited to a RFQ process in this prestige project.
HAKI could in the quotation phase use the Google Earth to get a rough 3D model from the church. They could with the Design Tools generate a visual proposal in 3D with accurate data over cost and material needed. HAKI won the order and the next phase they used a drone to

laser scan the church for a more accurate 3D model. This made it possible to refine and get more accurate data for the delivery and planning. The church is situated in the old town of Stockholm near the Swedisgh Royal Castle. The material needs to be delivered just in tine since it very limited space available around the church. Since every part was kept in the digital 3D modell they had full control over the BOM and could plan the project in detail.

With this new technology and workflow HAKI reduced their time by 60%, a fantastic number.

Next steps

HAKI continues to work with and expand their digital offerings to a head of the competition, They want to add more load calculations in to the models and prepare for BIM 4D & 5D. For the more advanced FEM calculations they want to use Autodesk Robot Structural to be able simulate wind load on shelters.
HAKI wants to continue develop the scanning solution and offer this as a service, HAKI Scanning.

Summary

We have learn about how HAKI moved from product to more solution based sales. The clear Digitazion Strategy and the technology from Autodesk has made HAKI much more competitive by adding more value to their customer with digital offerings.

Learning Objectives

1. Understand the possibilities with Autodesk Forge and Design Automation
2. How to increase customer service with digital offerings
3. The advantages with Standardize workflows
4. Automated BIM content