

3D Printing Business Impact Model (3DBIM)



Onno Ponfoort
Practice Leader 3D Printing

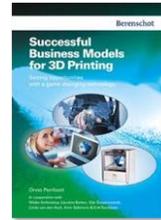
Berenschot



1. Speaker introduction

Berenschot

- Consultancy
- Founded 1938
- 350 staff
- HQ The Netherlands



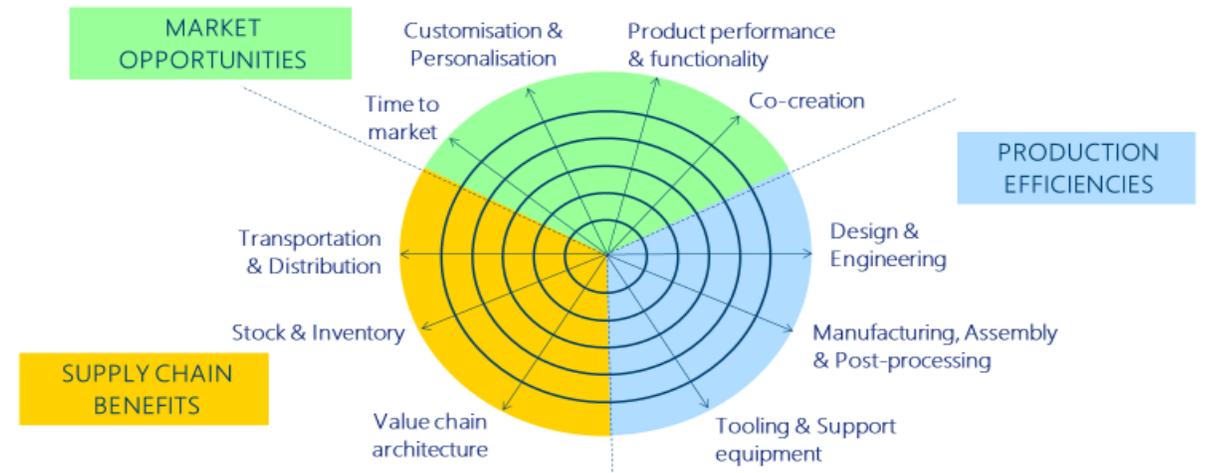
Onno Ponfoort

- Practice Leader 3D Printing
- Active in 3D Printing since 2004
- Economic & organisational aspects

Berenschot: Building on Experience



Benefits of Additive Manufacturing



Onno Ponfoort - Berenschot - EPIC Online Technology Meeting on 3D Printing 4

JIP ProGRAM Oil & Gas

“Before AM parts see service in the Oil & Gas industry, it is critical that we understand the properties of AM builds. Guidelines and standards will have to be developed to give engineers the confidence that the quality of AM components can be relied upon”



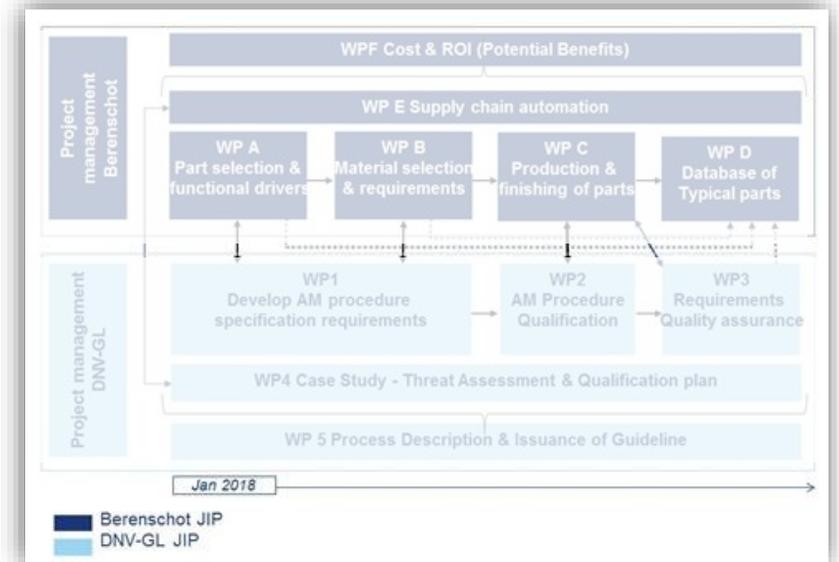
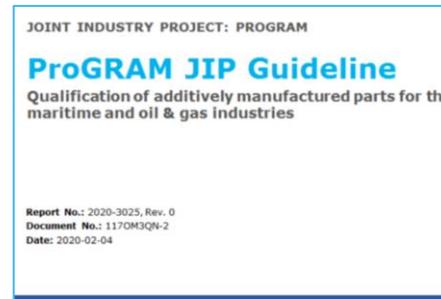
Gisle Rørvik, Advisor Metallic Materials & Welding @ equinor

Guideline ProGRAM managed by DNV GL.

- A guideline indicating requirements to introduce AM for Oil & Gas

Toolbox part managed by Berenschot.

- Part and material selection, and production of parts
- Assessment of the impact on the bottom line.



AM and the bottom line – Solution: 3DBIM

Comprehensive model covering complete value chain

Value chain stage		Include/exclude
1	Customer demand & Order intake	Exclude
2	Design & Engineering	
3	Current activities	
4	Criticality: evaluate criticality of part	hrs
5	Traditional activities, cost drivers & cost base	hrs
6	Design: prototyping & validation	hrs
7	Design: tailor design to facilitate effective manufacturing and competitiveness	hrs
8	Engineering: develop manufacturing procedure specification	hrs
9	Engineering: design shall be reviewed and verified to be in conformance with applicable standards	hrs
10	Engineering: selection of post processing	hrs
	Equipment	EUR
	Material - Traditional	EUR
	Material - Additive	kg
	Extra activities	
	Opportunity: collaborate with supply chain partners to find sweet spot for AM	hrs
	Extra activities due to AM, cost drivers & cost base	hrs
	Design: design of support structures	hrs
	Engineering: simulation for parts building process	hrs
	Skills: development of design & engineering skills needed for AM	hrs
	Redesign: continuous improvement of parts	hrs
	Partnerships: new partners for redesign of parts	hrs
	Knowledge center: keep track of knowledge developed	hrs
	Equipment	EUR

Linked to a complete database of cost drivers like:

- Labor cost for different positions and levels
- Material costs for wires & powders
- Machine costs and depreciation
- Testing costs
- Software
- Transportation
- Warehousing
- m2, etc.

- Adjustable
- Outsourcing included



Thank you
for your attention

Berenschot

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Welcome to the Business Impact Model

The Berenschot Business Impact Model (BIM) helps you assess the benefits and impact of 3D-printing for your organization. BIM is based on real life cases, and incorporates actual costs, timing and process parameters. In this online environment you can select 2 levels of detail:

Check the price of a 3D printed part. Indicate the characteristics and we will send you a price indication with detailed information.

This report requires limited information and takes only a few minutes to fill out. We will ask for your contact information so we can submit the report. You can stop and return.

This report is free of charge. The price for this report is € 449,- (ex. BTW).

[Quick Cost Assessment](#) [Benefit & Cost Insights](#)

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Online tools, now available
www.Berenschot.com/bim