

# ENCOMPASS

DIGITAL INTEGRATED DESIGN DECISION SUPPORT SYSTEM

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## Table of Contents

1	Introduction .....	3
1.1	Project Kick Off Presentation .....	3


# 1 Introduction

The purpose of *Deliverable 7.13 – Project Kick Off Presentation* is to describe the ENCOMPASS project aims and the kick off proceedings to the public.

The presentation addresses nine main topics and they are:

- Background;
- Consortium;
- Overall objectives;
- Key features;
- Challenges;
- Concept;
- Requirements from industry;
- Plan for communication activities;
- Key deliverables.

## 1.1 Project Kick Off Presentation






**ENCOMPASS**  
DIGITAL INTEGRATED DESIGN DECISION SUPPORT SYSTEM

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[www.encompass-am.eu](http://www.encompass-am.eu)

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# Introduction to the Project

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**CHALLENGES**

## Laser Powder Based Fusion

**AVAILABLE > 20 YEARS  
NOT WIDELY USED**

**SLOW AND EXPENSIVE  
LOW OVERALL EFFICIENCY  
TOO MANY BUILD-EVALUATE-REDESIGN ITERATIONS  
HIGH LIKELIHOOD OF DEFECTS DUE TO PROCESS INSTABILITY  
HIGH AMOUNT OF INSPECTION AND DESTRUCTIVE TESTING**

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# BACKGROUND OF THE PROPOSAL

## Manufacturing

- 3 trillion € (21%) of the EU's GDP
- 20% of EU's employment ⇒ 30 million jobs in 230 000 enterprises (SME mostly) (Eurostat, 2016)
- EU market share of laser based manufacturing declined (39% in 2008 → 33% in 2012) ⇒ due to competition from Asia (Helmroth, 2015)



## AM market

- Threatened by lower wage economies and high tech rivals
- Grew at a GAGR ≈ 35% to 35 bn € ⇒ will grow to over 90 bn € by 2020 if key technological challenges can be overcome (Wohlers Report 2015)
- Industrial machinery and consumer goods account for > 36% of the industries using (AM Valles, 2014)
- Automotive, Aerospace and Medical: focus end-users for ENCOMPASS – 43% of the industries using AM

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## ENCOMPASS CALL



H2020-IND-CE-2016-17-  
FOF-13-2016 call



4 040 371.25 €



Factories of the Future:  
From "Design to piece"



36 months



Rapid individualised laser-  
based production



1<sup>st</sup> October 2016

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# CONSORTIUM



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# OVERALL OBJECTIVES



Integrated Design Decision Support (IDDS) system — slide 10



The integration at digital level enables numerous synergies between the steps in the process chain and in addition, the steps themselves (design, build and post-build processes) are being optimised by ENCOMPASS to improve the capability and efficiency of the overall manufacturing chain



Allow Europe to achieve global leadership in this important field of net-shape AM

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## KEY FEATURES

The successful implementation of the ENCOMPASS project through our consortium will optimise AM post processing, enabling an average 42% reduction in time from 'design to piece', and an average 27% increase in process chain productivity. The associated cost of production will be reduced by 26%. This is achieved by:

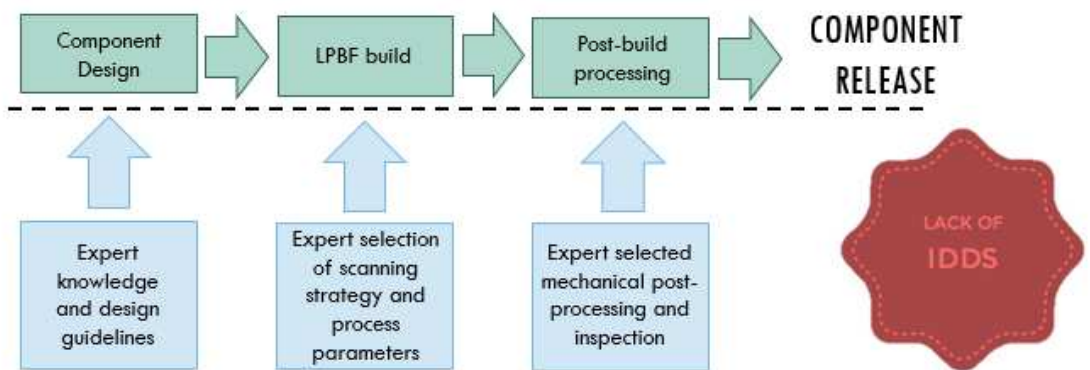


Calculation procedure validated using EU AMAZE project methodology

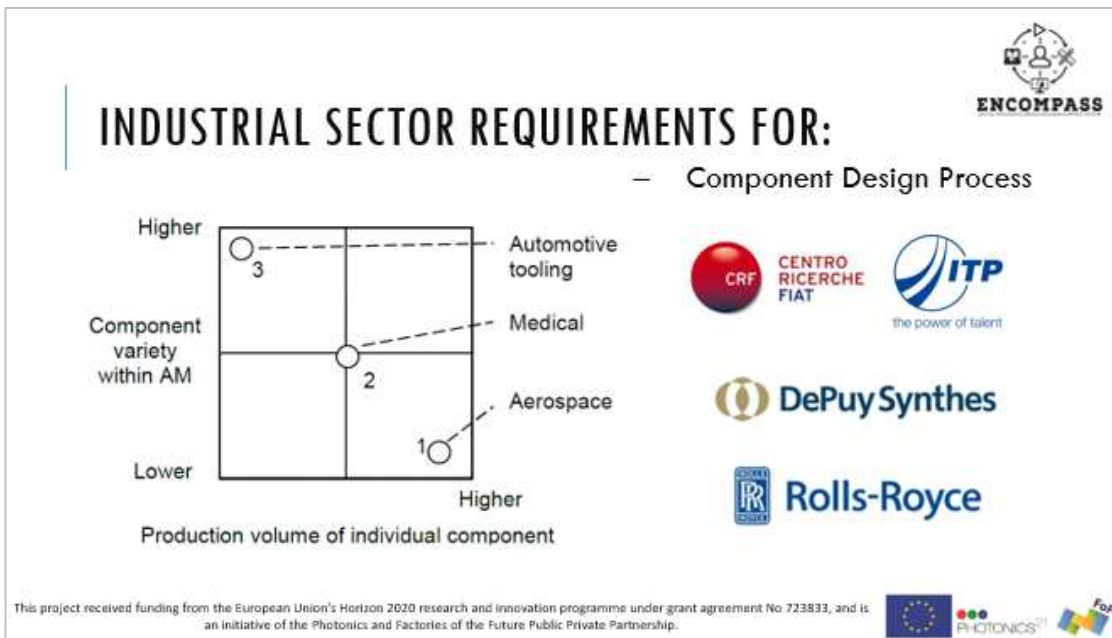
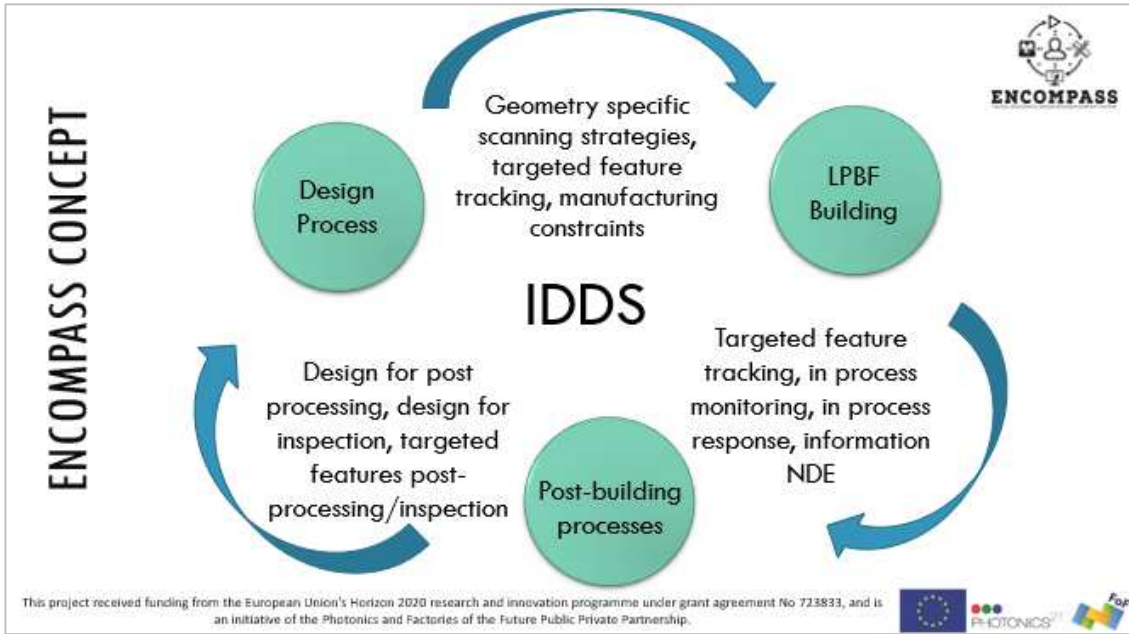
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## CHALLENGES OF MULTI STEPPED PROCESS FOR:

– LASER POWDER BASED FUSION (LPBF)

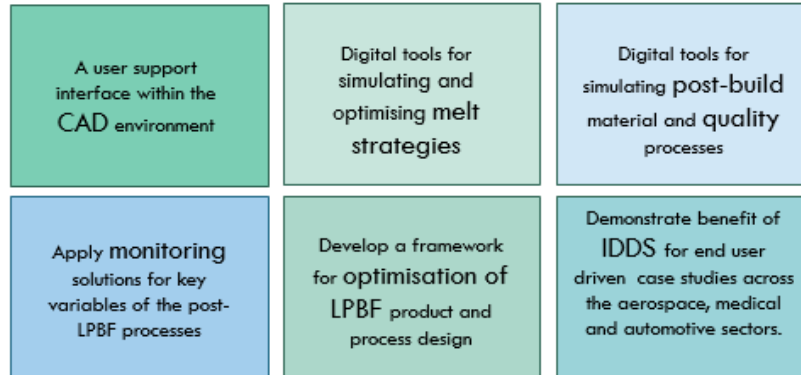


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## ENCOMPASS FOCAL POINTS



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## OVERALL PLAN FOR COMMUNICATION ACTIVITIES



- Website: [www.encompass-am.eu](http://www.encompass-am.eu) – under construction
- Marketing Material
- Conferences, events and trade fairs
- Publications
- Electronic Newsletter



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