

# Materialise Inspector

Take control of your process  
and part quality


What do you think?

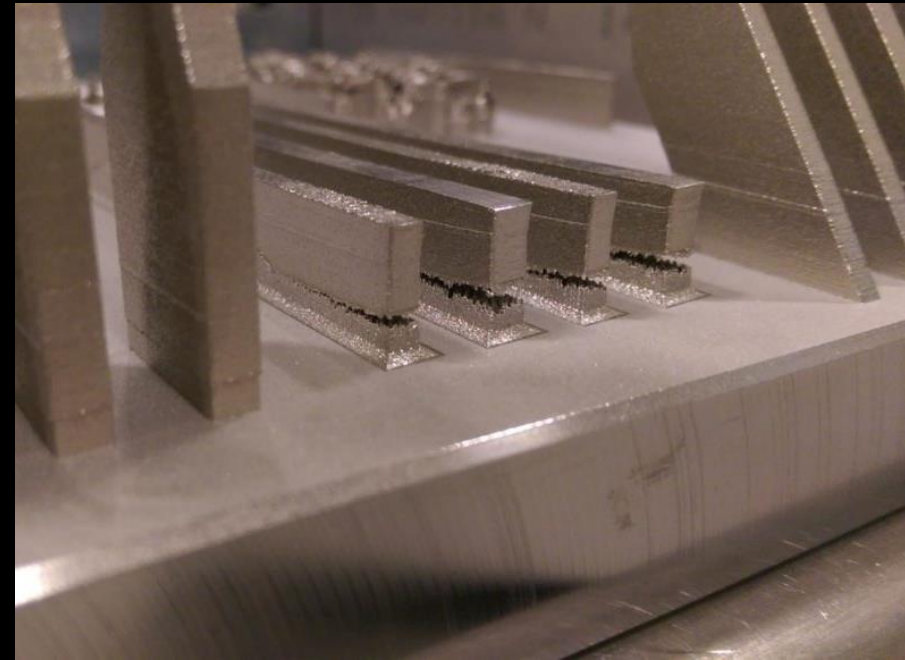






and now ...

  
**materialise**  
innovators you can count on



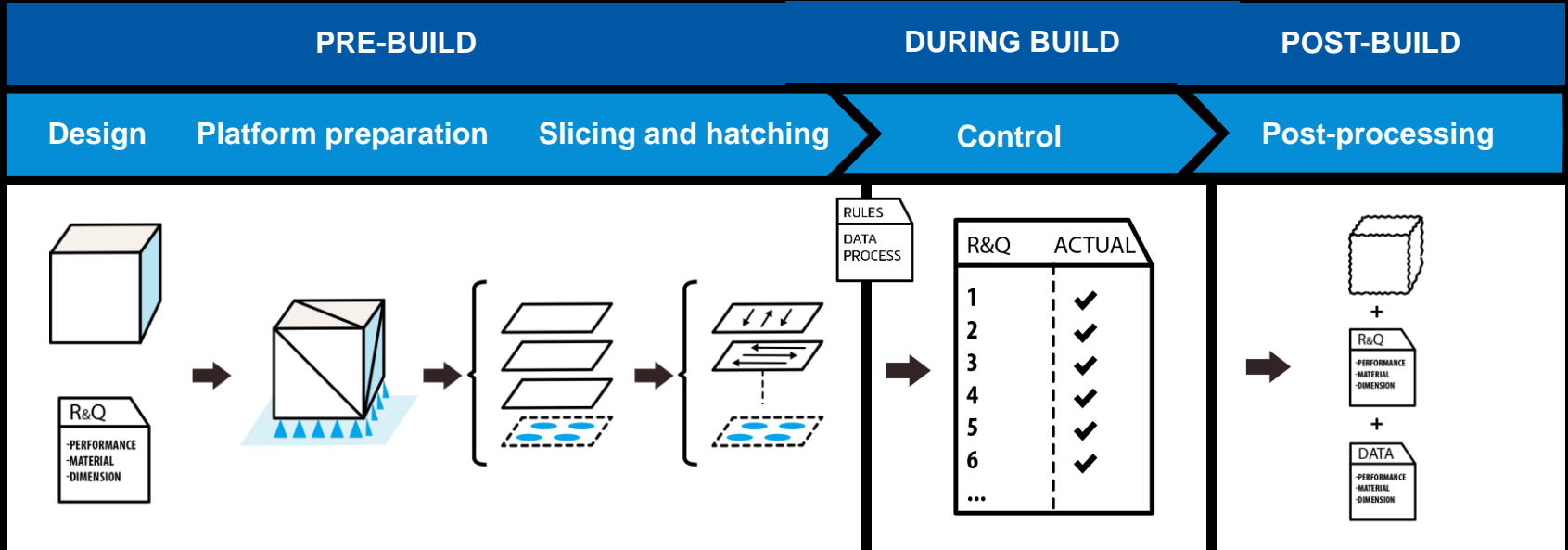
What do you see?



and now ...



# Take Control of the AM Process



Taking Control of Your AM Process

# Why Materialise Inspector?

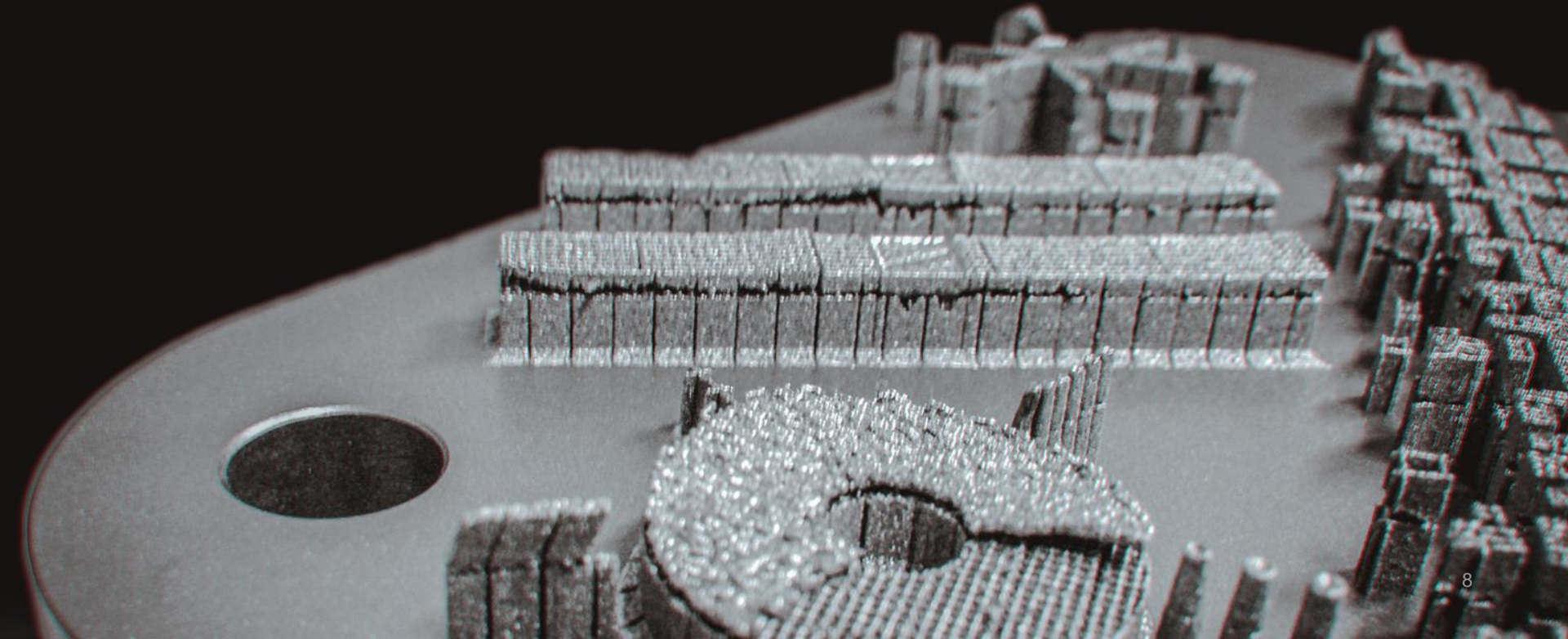
Materialise Inspector is a tool that allows you to **analyze** the data coming from all stages of the process from 3D data preparation to finished part in order to **improve and guarantee the quality**, and therefore:

- ▶ **Increase confidence** in the quality of the (to be) printed part
- ▶ **Minimize effort** to predict and detect errors and perform a root cause analysis **to save time and material**
- ▶ **Facilitate or enable research** on e.g. print styles and their effects



# The Truth about AM Is Buried in **Data!**

  
**materialise**  
innovators you can count on





# What Does Inspector Offer Now?

Materialise Inspector 2.0

## Tools Using Pre-Build Data

Intention: Find anomalies before printing

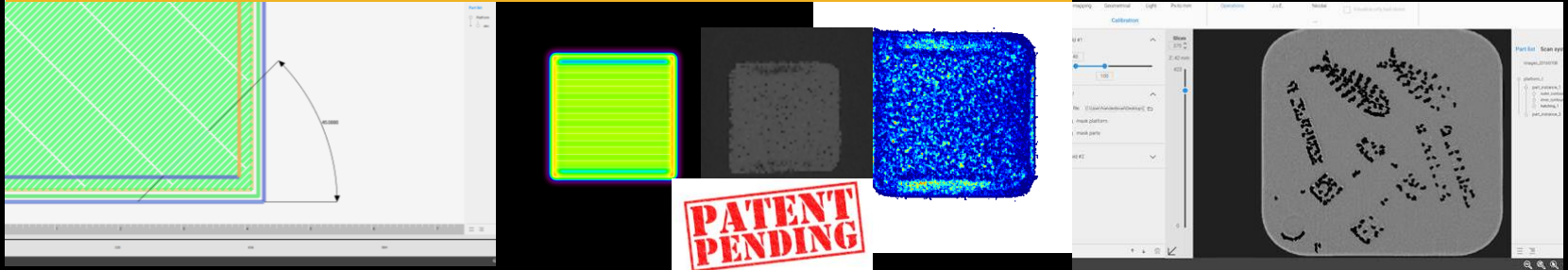
Slice Viewer

Energy Density Map

## Tools Using Post-Build Data

Intention: Find anomalies after printing

Image Processing

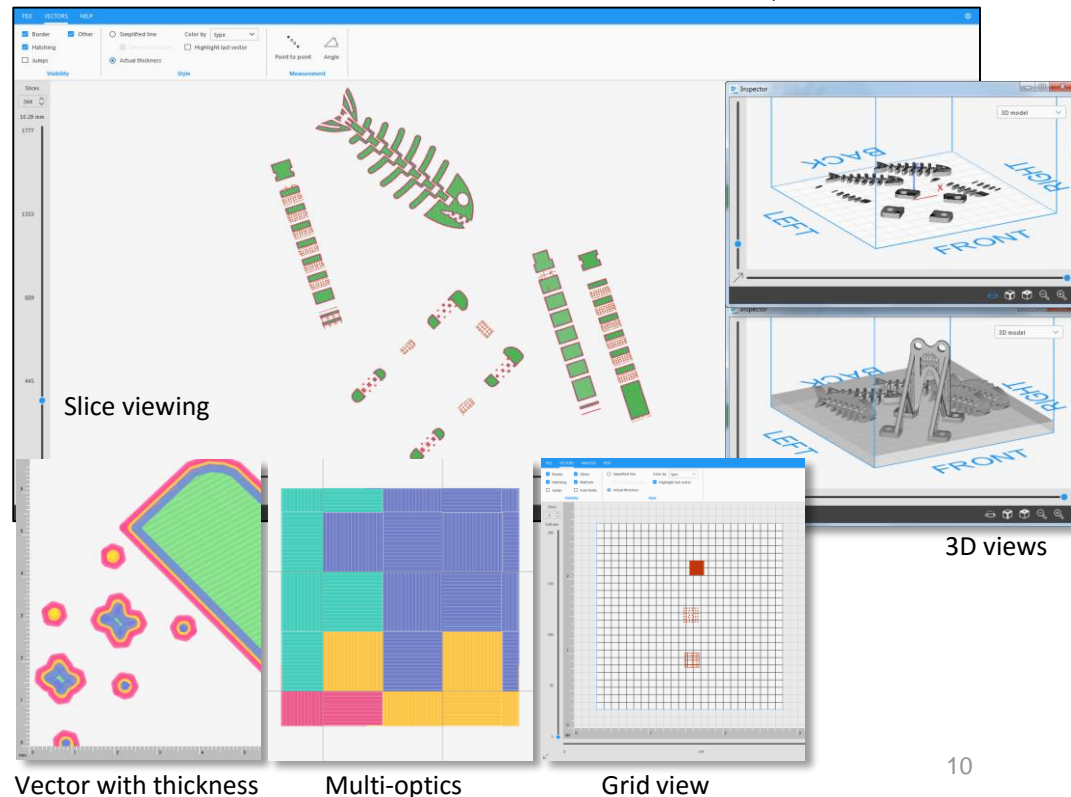


3D Model & Multi-View

Tools for Combined Analysis

# Slice Viewer

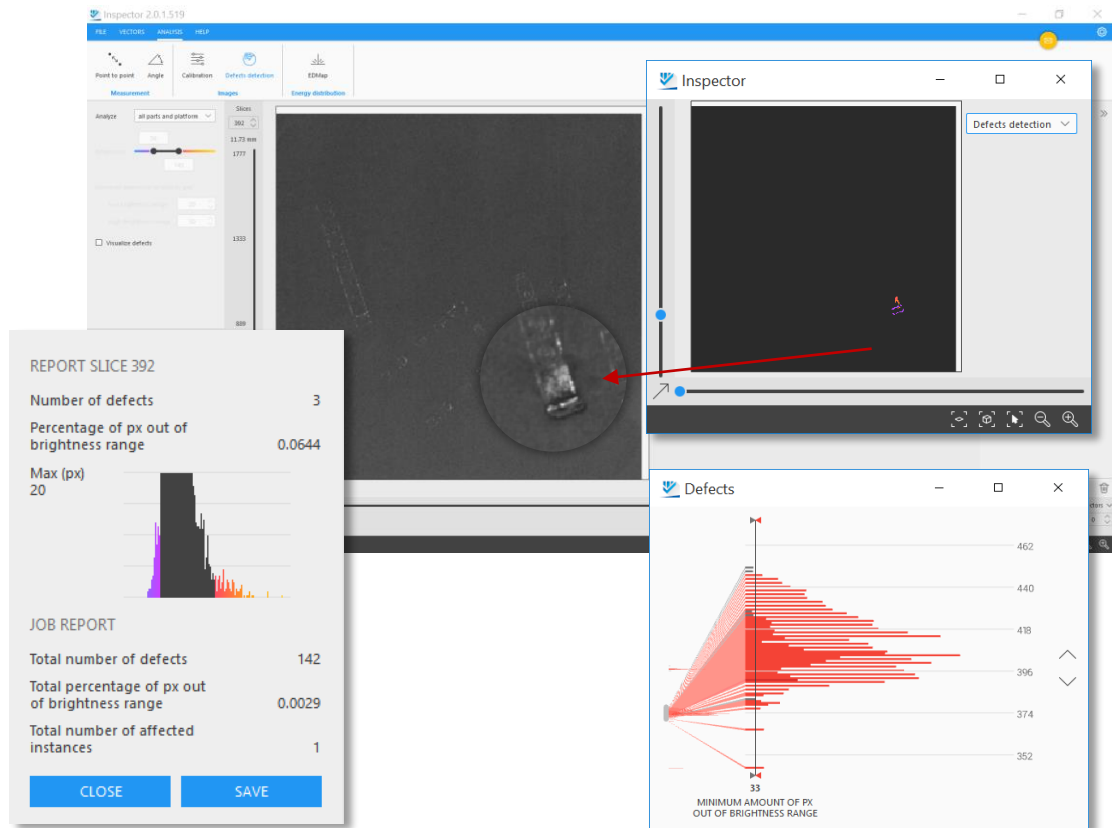
- ▶ A variety of **synchronized views**
- ▶ A variety of **color coding** of vectors to enhance visualization and comprehension
- ▶ **Multi-optics** compatibility
- ▶ Platform display with **grid view** or scan field view
- ▶ File and vector **info**
- ▶ **Measurement** tools
- ▶ Large data handling **architecture**



# Post-Build Image Analysis

## 1. Analyse big data in a time-efficient way

- Easily analyze big data
- Process 4000+ images swiftly
- Features:
  - Automatic image processing and navigation towards defects
  - Slice-by-slice report
  - Build report generation



The screenshot displays the Materialise Inspector software interface. The main window shows a 3D model of a part with a circular inset highlighting a specific slice. A 'REPORT SLICE 392' window is open, displaying the following data:

REPORT SLICE 392	
Number of defects	3
Percentage of px out of brightness range	0.0644
Max (px)	20

Below the report is a histogram showing the distribution of pixel brightness. A 'JOB REPORT' window is also open, displaying the following data:

JOB REPORT	
Total number of defects	142
Total percentage of px out of brightness range	0.0029
Total number of affected instances	1

The interface also shows a 'Defects' window with a 3D visualization of defects on the part, and a 'Defects detection' window with a dropdown menu. A red arrow points from the 'Defects detection' window to the circular inset in the main image.

# Post-Build Image Analysis

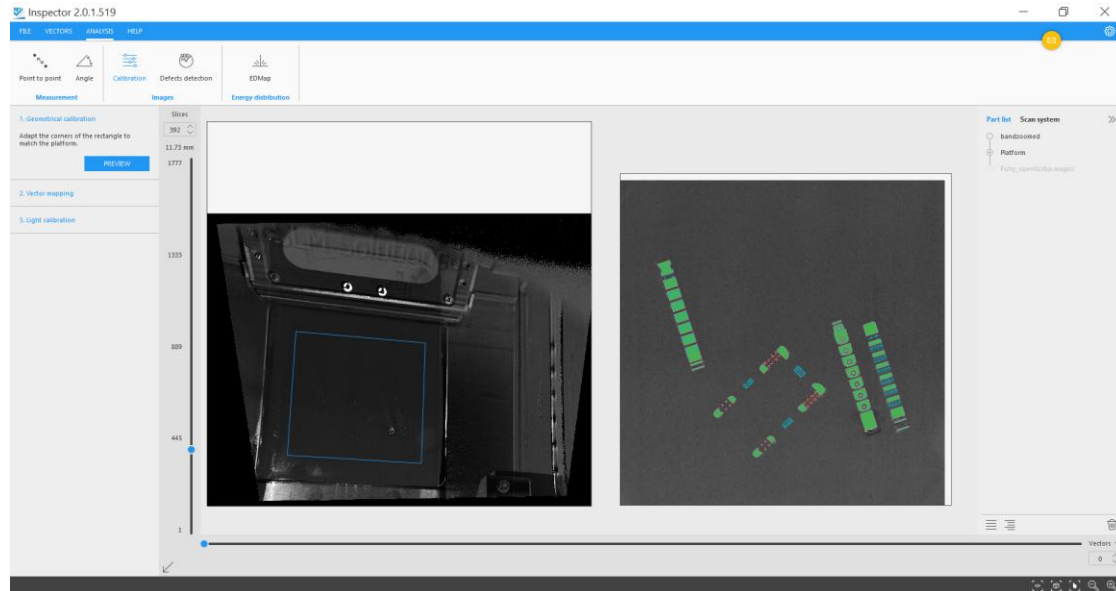
## 2. Analyse every build in a consistent and repeatable way

► Calibrate your machine once

► Features:

► Calibration per machine (type)

- Shape and size
- Gray shades

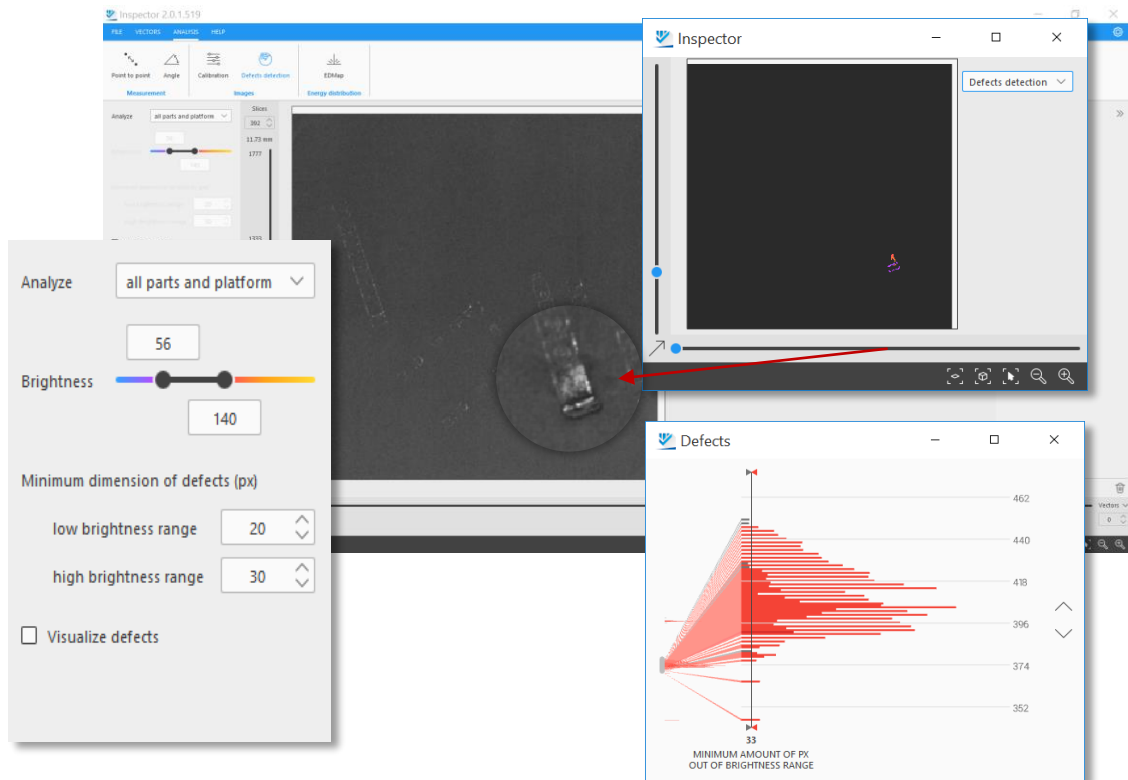




# Post-Build Image Analysis

## 2. Analyse every build in a consistent and repeatable way

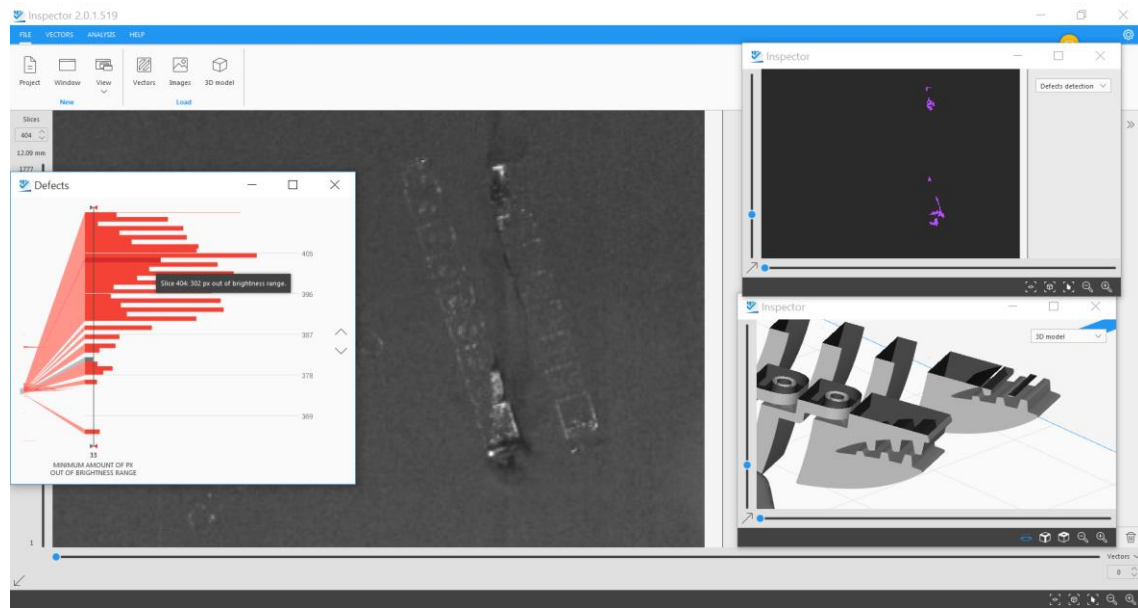
- Set threshold intervals according to defects to defects
- Features:
  - Error definition as parameters
  - Re-usable settings



# Post-Build Image Analysis

## 3. Gain process knowledge continuously

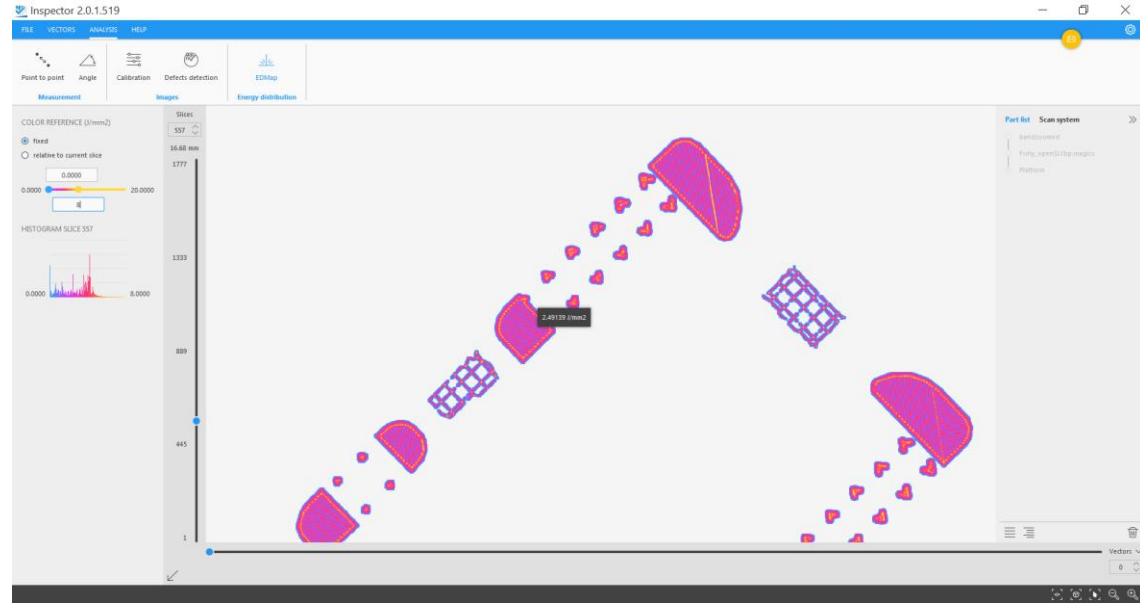
- ▶ Perform a root cause analysis using a combination of image and 3D data
- ▶ Observe error evolution patterns
- ▶ Avoid another failure in data preparation
- ▶ Features:
  - ▶ Defect Histogram
  - ▶ 3D View
  - ▶ Multi View



# Pre-Build Image Analysis

Detect possible defects before build

- ▶ More tangible way to understand the process
- ▶ Helps spotting critical areas
- ▶ Feature:
  - ▶ Energy Density Map (EDMap)



# Pre-Build Image Analysis

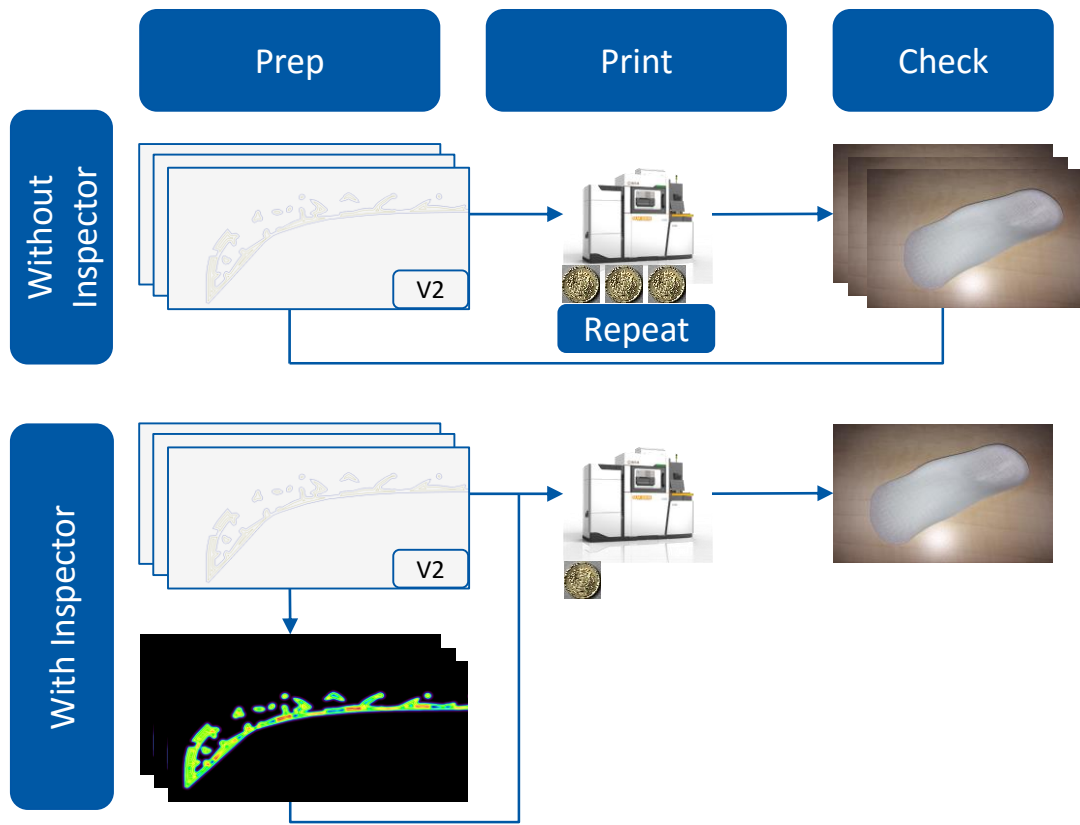
## Use cases

### Key benefits:

- ▶ Increase R&D throughput
- ▶ Iterate without printing

### For:

- ▶ R&D/Process Engineers







Thank you!