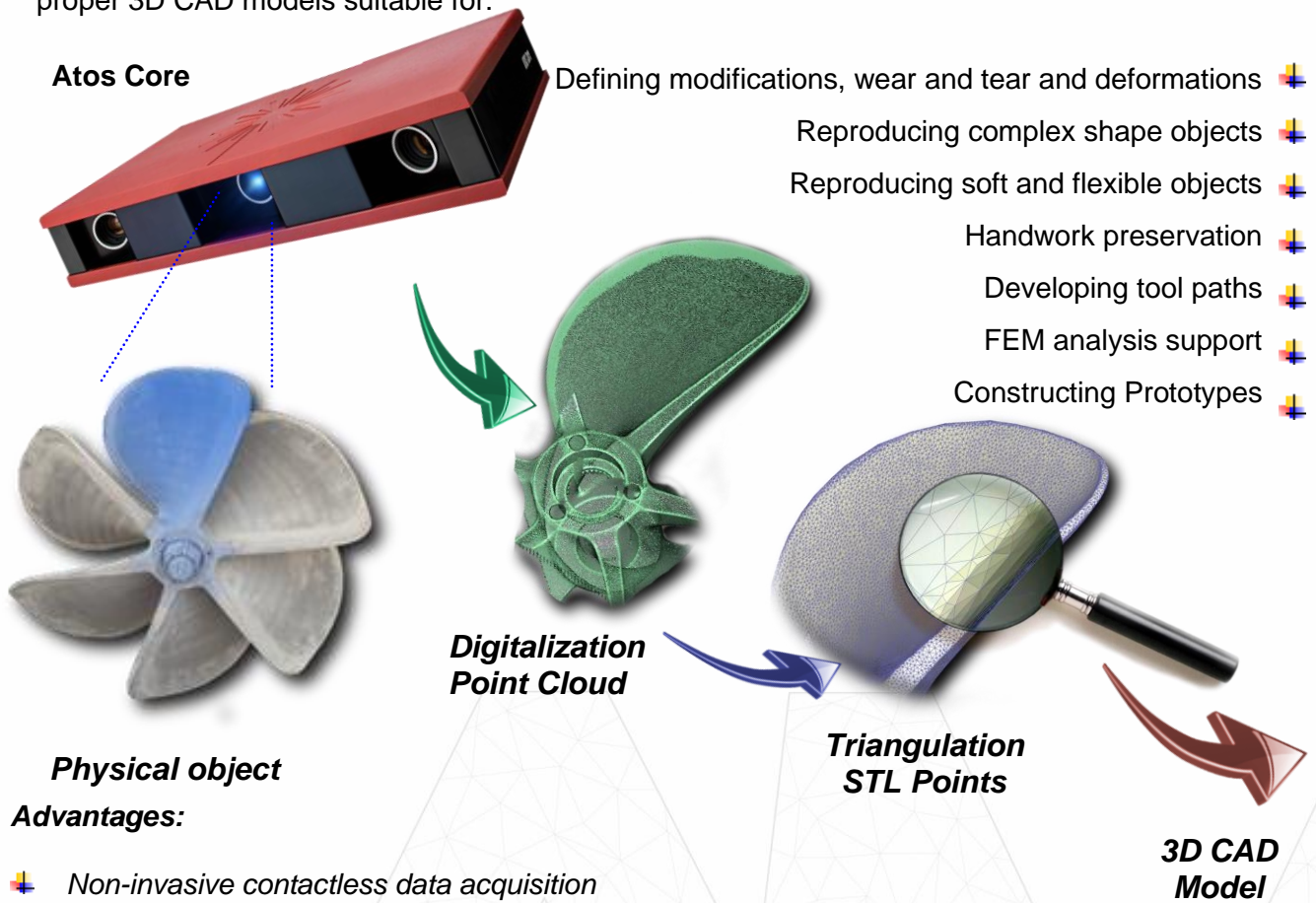# SHAPING THE FUTURE

# REVERSE ENGINEERING
## The way to Speed up the Work Flow Reducing Costs

Reverse engineering is the process used to reproduce the three dimensional geometrical forms of an object, device or piece of equipment

Agiotech has been using **Atos CORE and Atos COMPACT** optical topometric digitalisation systems for its scanning process since years.

Starting from an existing physical model, irrespective of its shape, it is possible to obtain the proper 3D CAD models suitable for:

**Atos Core**

Defining modifications, wear and tear and deformations ✚

Reproducing complex shape objects ✚

Reproducing soft and flexible objects ✚

Handwork preservation ✚

Developing tool paths ✚

FEM analysis support ✚

Constructing Prototypes ✚

**Digitalization Point Cloud**

**Triangulation STL Points**

**Physical object**

**3D CAD Model**

**Advantages:**

✚ *Non-invasive contactless data acquisition*
✚ *No part fixtures required*
✚ *Acquisitions may also be carried at customer's premises*
✚ *Fast and accurate acquisitions of 3D geometrical forms*

**Atos Scan Box**

| Specifications: | Atos Core | Atos Compact |
|---|---|---|
| Acquisition volume: | ~200 mm³ up to ~25dm³ | ~25dm³ up to ~30m³ |
| Acquistion points: | 5'000'000 | 5'000'000 |
| Acquisition time: | 6-8 seconds | 6-8 seconds |
| Accuracy: | from ±0.01 to ±0.05mm | from ±0.05 to ±0.2mm |
| Black surfaces: | ✓ | ✓ |

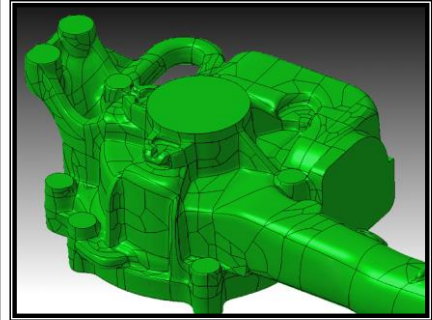# *3D CAD Models*

**Exact Surfaces modelling (Patching)**
Exact surfaces (NURBS) are applied to the scans in order to reproduce
the entire object with the maximum accuracy level.
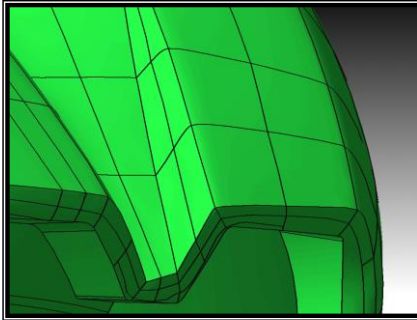


**Guided Patching**
High accuracy on
every type of surface
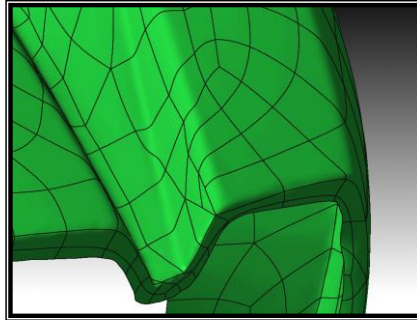


**Automatic Patching**
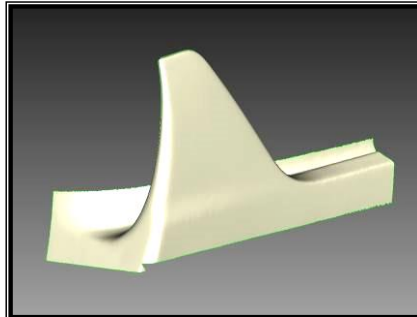Faster than Guided Patching
but less accurate



**Hybrid Modelling**
Accuracy of the autopatch on complex
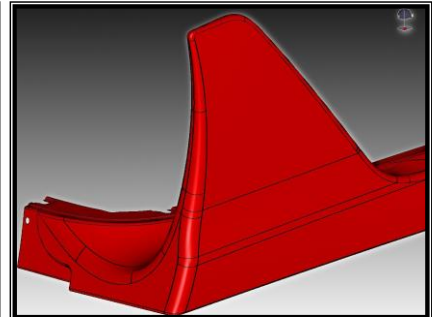surfaces and native geometrical forms on
machined areas.

## Native Reverse
## "B" Class / "A" Class
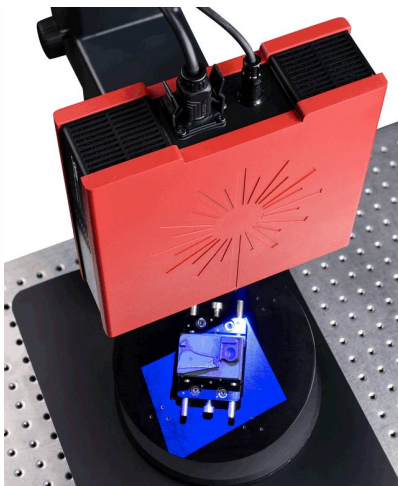


Physical Object



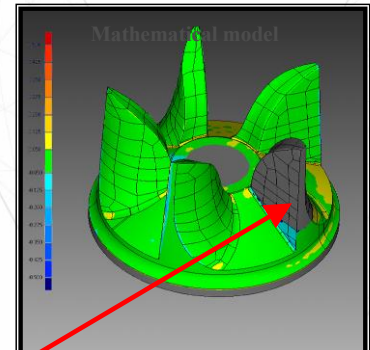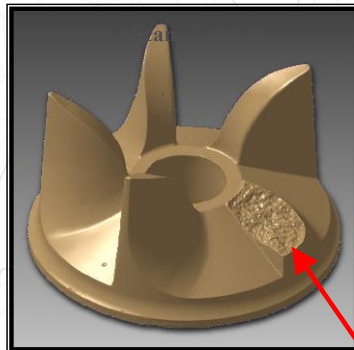Three-Dimensional Scan



Native 3D CAD model

# *Reverse Engineering Application*

**Molds Reconditioning and Repairing:**
It is possible to reconstruct worn or missing parts, regenerate the
"cavities", the closures and all damaged mechanical parts..



**Small object system**



*Reconstruction*