

PRODUCT DEVELOPMENT 3.0

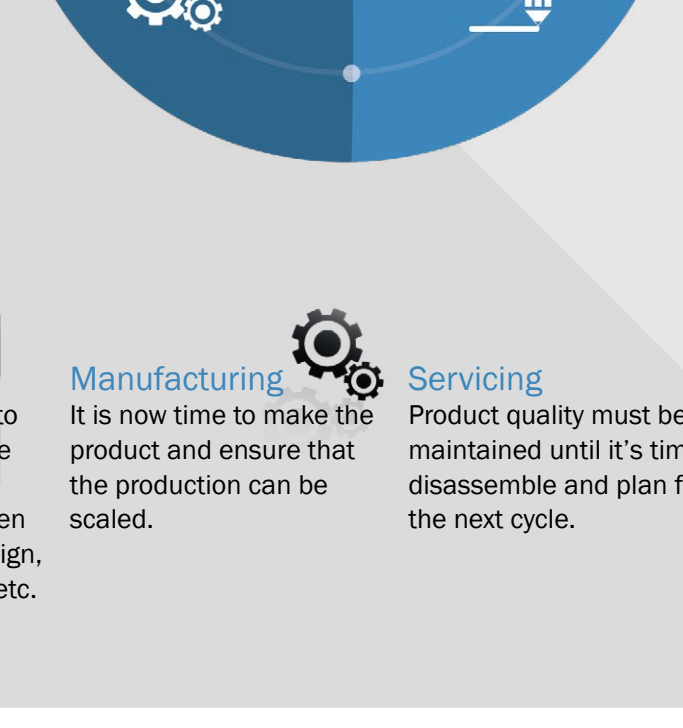
From the early prehistoric discovery of how to control fire to the printing press to the telephone to the Internet, it is our ability to think and innovate that drove us to where we are today.

Innovation is key for businesses; however, with fierce global competition, it is increasingly difficult to stay on top. Engineers and designers are faced with an immense pressure to come up with new products and innovate—faster! How can they deal with these mounting daily challenges?

Welcome to product development 3.0.

WHAT IS PRODUCT LIFECYCLE MANAGEMENT?

Product lifecycle management (PLM) is the process of managing the entire lifecycle of a product from inception, through engineering design and manufacturing, to service and disposal of finished products.



Today, there are many technologies that are available to help companies of all types to accelerate their product development processes and ensure that the products they manufacture truly meet the needs for which they were designed. 3D printing and 3D scanning are excellent examples of these technologies.

3D SCAN AND 3D PRINT APPLICATIONS FOR INDUSTRIAL PRODUCT DESIGN USING CAD

- 3D Scan
- 3D Print

Concept

Start point – Start from an existing shape or object.

Often encountered when designing accessories or replacement products, when the exact shape of the mating object or assembly is required.

Creation – The power of using hands.

Combine the power of traditional modeling with modern CAD processes.

Design

Validation – Is this what I had in mind?

There's nothing like having the product in your hands to feel it, try it out and approve the design.

Modification – Now, that's what I want!

Bring back even the slightest modification to your prototype into CAD to get the perfect design.

Simulation – I'll test in order to optimize!

Optimize designs through actual testing (i.e. wind tunnel) or finite element analysis.

Manufacturing

Production – You need to build from the ground up.

Getting custom tooling and setups faster is critical in starting the manufacturing process sooner.

Control – Making sure everything fits.

Everything must be constantly verified and monitored to ensure fit and product quality.

Servicing

Documentation – Prepare service manuals and/or other material.

Having the exact shape of an object is highly practical to prepare service manuals or other documentation.

Maintain – Is your tooling still optimal or must it be replaced?

Monitor tooling quality; repair or replace it when required.

Dismantle – Time to plan the end of this product or assembly.

Complex setups require special planning to take apart.

REVERSE ENGINEERING: THE WAY TO CAD

The process of reverse engineering implies using an existing product as a starting point and returning to its original concept. Although it can be perceived as a simple means to reproduce an object, it actually involves a lot of skills and thinking to fully understand the original design intent of an object. Only then can designers and engineers fully appreciate the purpose of a part, integrate its concept, modify it, and elevate it to the next level.

Given the potential complexity of such a process, different approaches are available. Let's figure out the best approach for you by following our Creaform subway map!



WHICH WAY TO GO?

Taking the Scan-to-CAD Bridge Software subway line

A software module acting as a bridge between 3D scan and CAD; it allows extracting valuable information from a 3D scan and export towards CAD to perform reverse engineering.

Extract features from the 3D scan data (circle, planes, holes, surfaces...) and transfer to CAD to create a model based on imported entities.

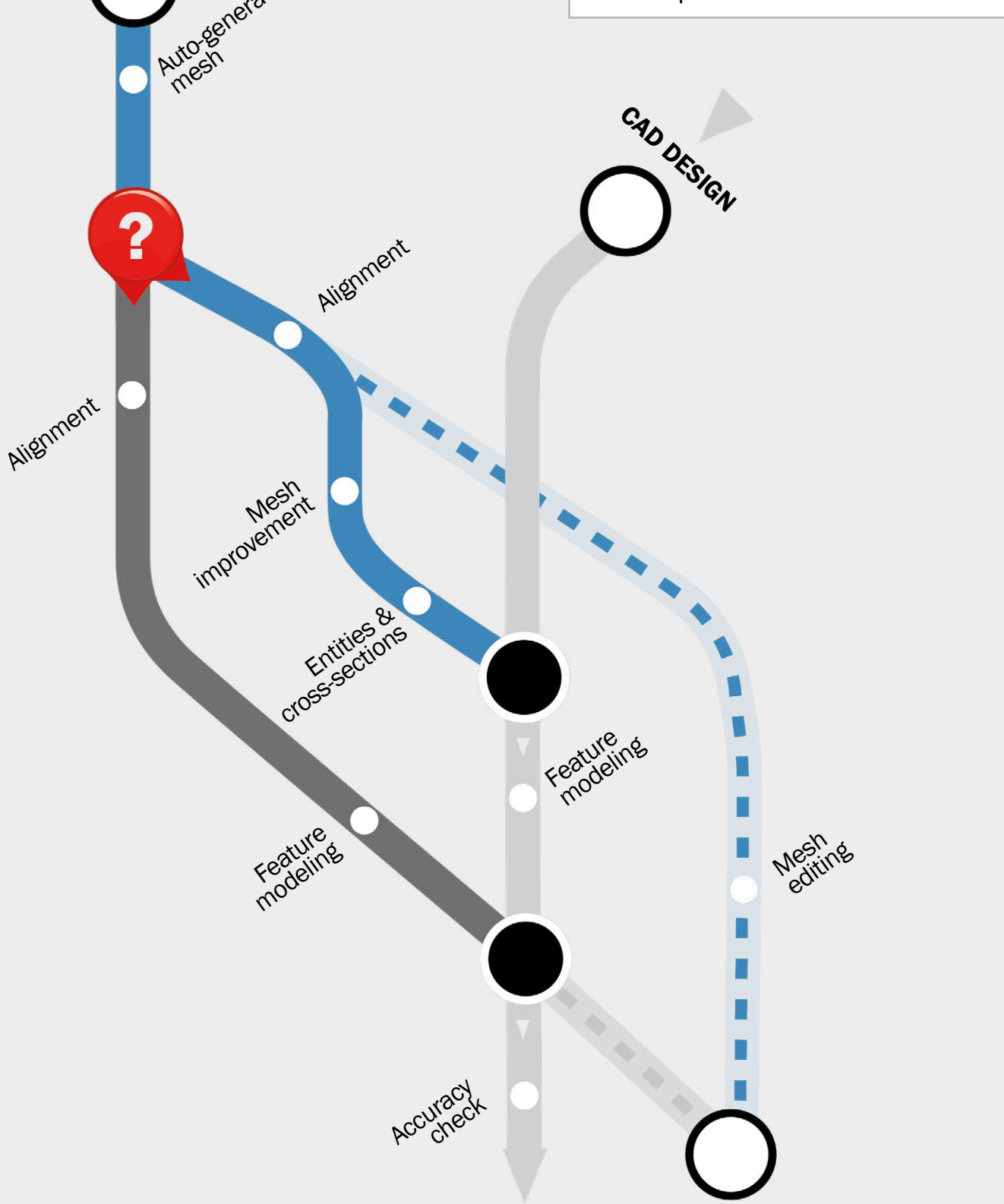
Upstream transfer to get the necessary information to perform the RE process into CAD software.

Taking the Complete RE Software subway line

A standalone third party software, dedicated to reverse engineering. It features all the tools needed to generate a complete CAD model out of a 3D scan and then send to CAD software.

Create a complete solid model using the 3D scan data and then transfer to CAD software.

Downstream transfer to perform the RE process before transferring solid model to CAD.



Scan-to-CAD Bridge Software

Ideal for occasional use or simpler projects.

- +**
 - More affordable.
 - Simple and easy to use, yet efficient; made to work with CAD software.
- - Sometimes involve hopping between applications when additional features are needed.

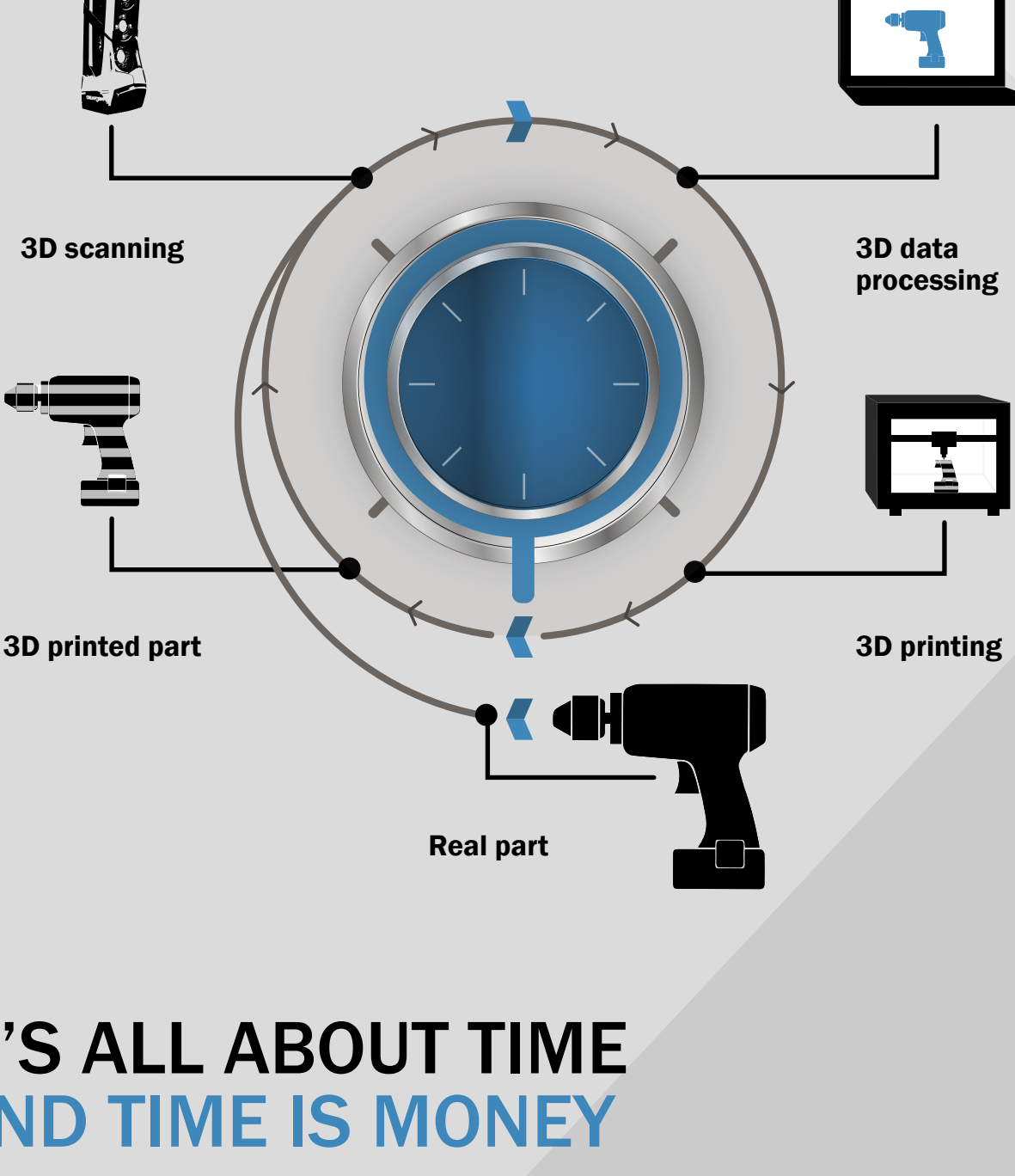
Complete RE Software

Ideal when frequently working on complex, large-scale projects.

- +**
 - Complete set of tools for more complex projects.
 - History tree transferred to CAD software.
 - Allows creation of the complete model within the context of scan data.
- - More expensive.
 - Infrequent users can forget how to use it. It is also an overkill solution for simple projects.

3D SCAN AND 3D PRINT LIKE A WASHER AND DRYER

3D scanning and additive manufacturing provide a way “in” and “out” of the digital world. Any production step can be exported, documented, modified, and “firm” and reimported into CAD. This ensures maximum quality and efficiency of the entire product design process.



IT'S ALL ABOUT TIME AND TIME IS MONEY

- Ensure faster time to market
- Improve overall quality of parts and design
- No need to store parts. Store files instead.
- Better understand product performance
- Shorten product development cycles
- Prevent defects and rejects thanks to inspections
- Reduce warehousing costs
- Leverage documentation and analyses

CONTACT US If you are looking to speed up your time-to-market and gain a competitive edge, contact Creaform today for more information on our scan-to-print and reverse engineering solutions.