Rapid vs. Traditional Manufacturing
2019

Your Presenter

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Xcentric Mold & Engineering

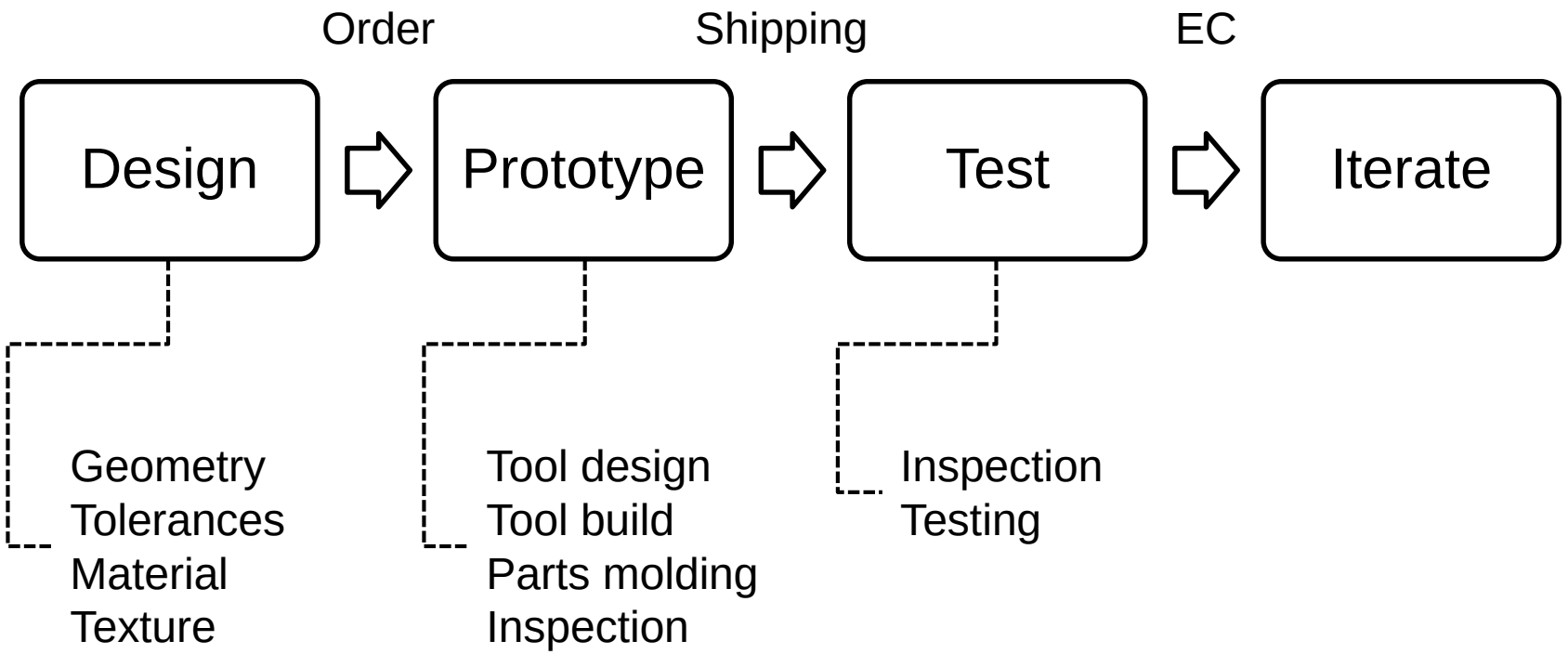
Agenda

- Rapid vs. Traditional Manufacturing
- Injection Molded Component Development Process
- Benchmarking Criteria
- Traditional Manufacturing Process
- Digital Rapid Manufacturing Process

Rapid vs. Traditional Manufacturing

- Faster process steps
- Efficiencies
- More economical from a pricing perspective
- Can lead to new market discoveries, optimized learning curves and untapped revenue streams

Injection Molded Component Development Process



Benchmarking Criteria

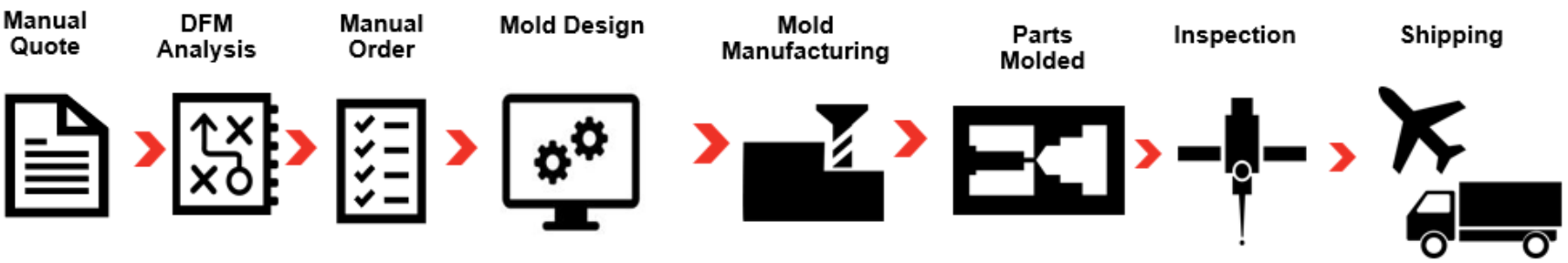
- Supplier type
  - Traditional injection molding
  - Marketplaces
  - Rapid injection molding
- Time
  - From design completion to order placement
  - From order placement to first shots
  - From first shots to next design iteration
- Cost

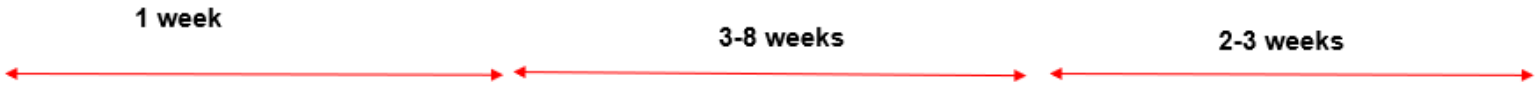
Traditional Manufacturing Process

- Many process steps in this conventional approach
- Monitor & ensure that safeguards are in place throughout the entire process
- Various steps for testing form, fit, and function to discover part flaws
- More manual than automated production
- If modification is required, the same process steps would need to be repeated again
- Typically traditional molds are made of steel
  - Durable mold material
  - Material costs can be more
  - High volume part production

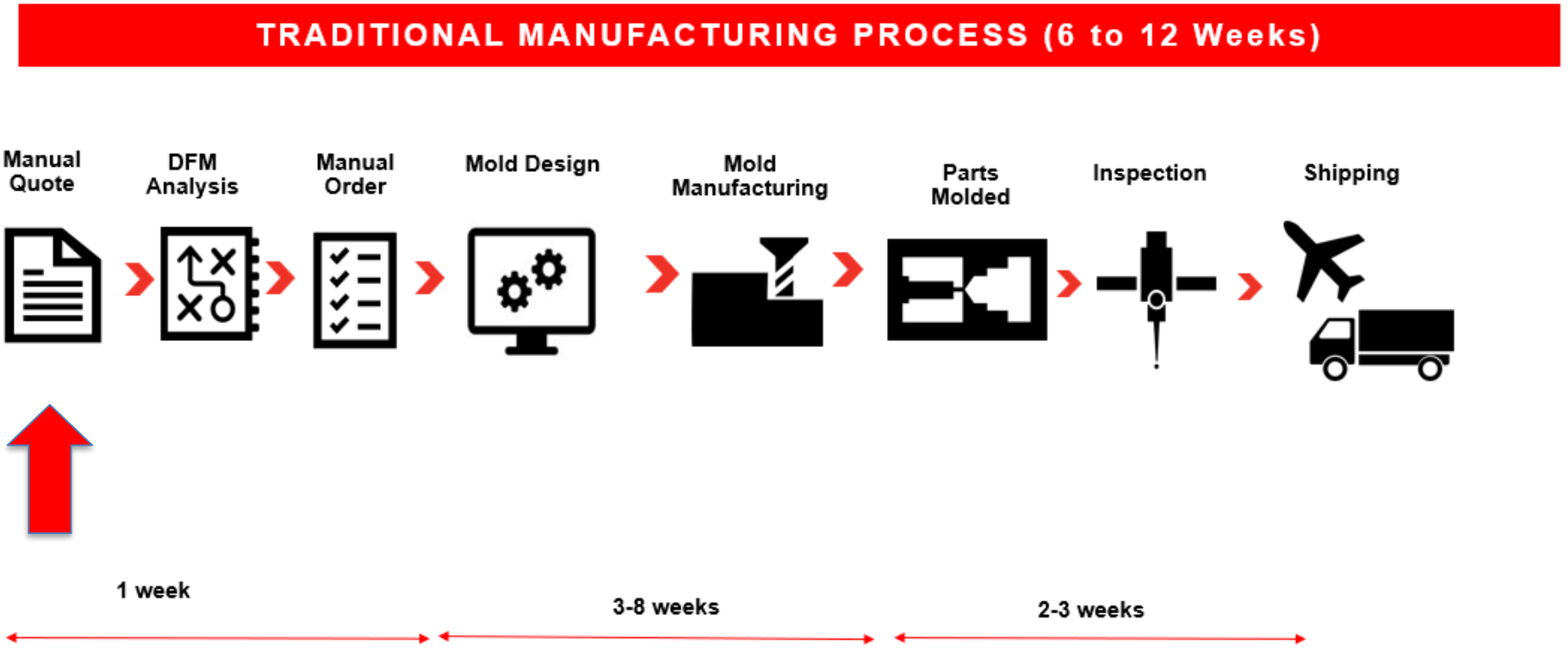
Traditional Manufacturing Process

TRADITIONAL MANUFACTURING PROCESS (6 to 12 Weeks)



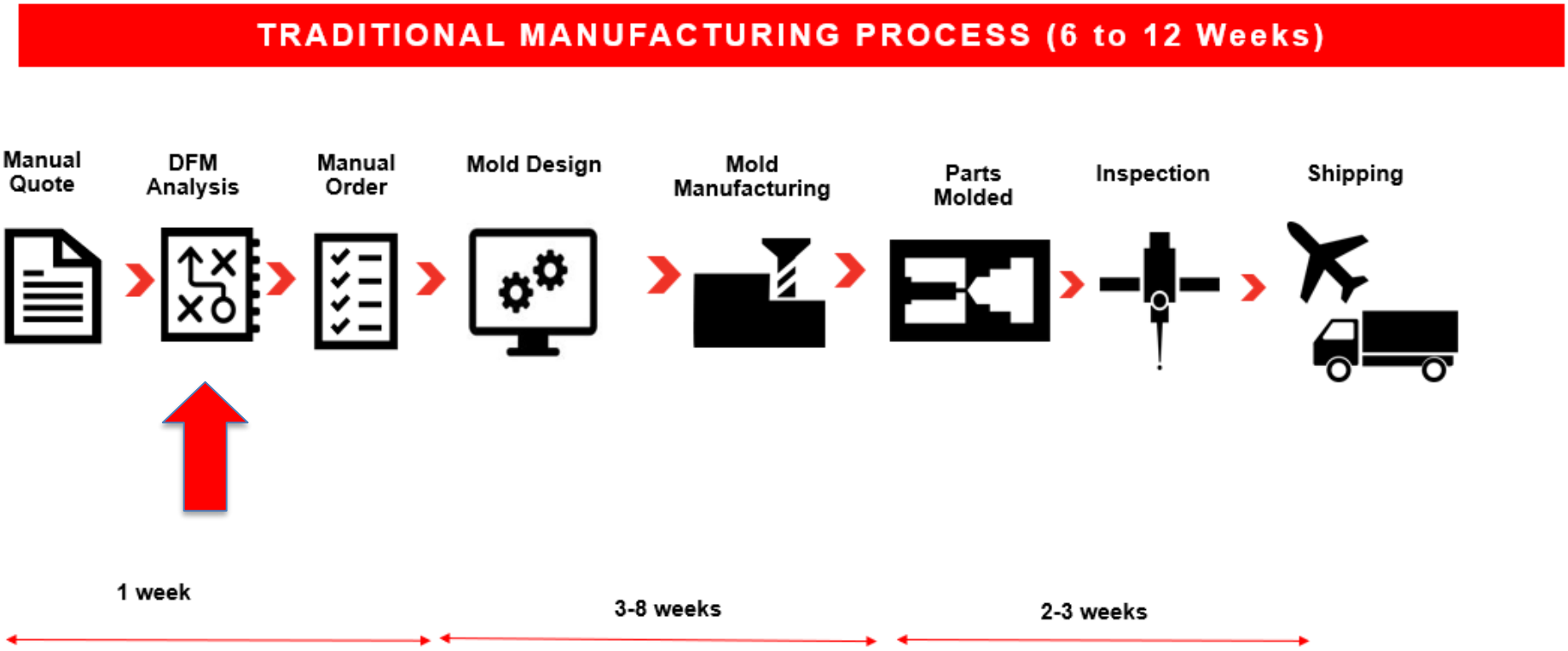


Traditional Manufacturing Process



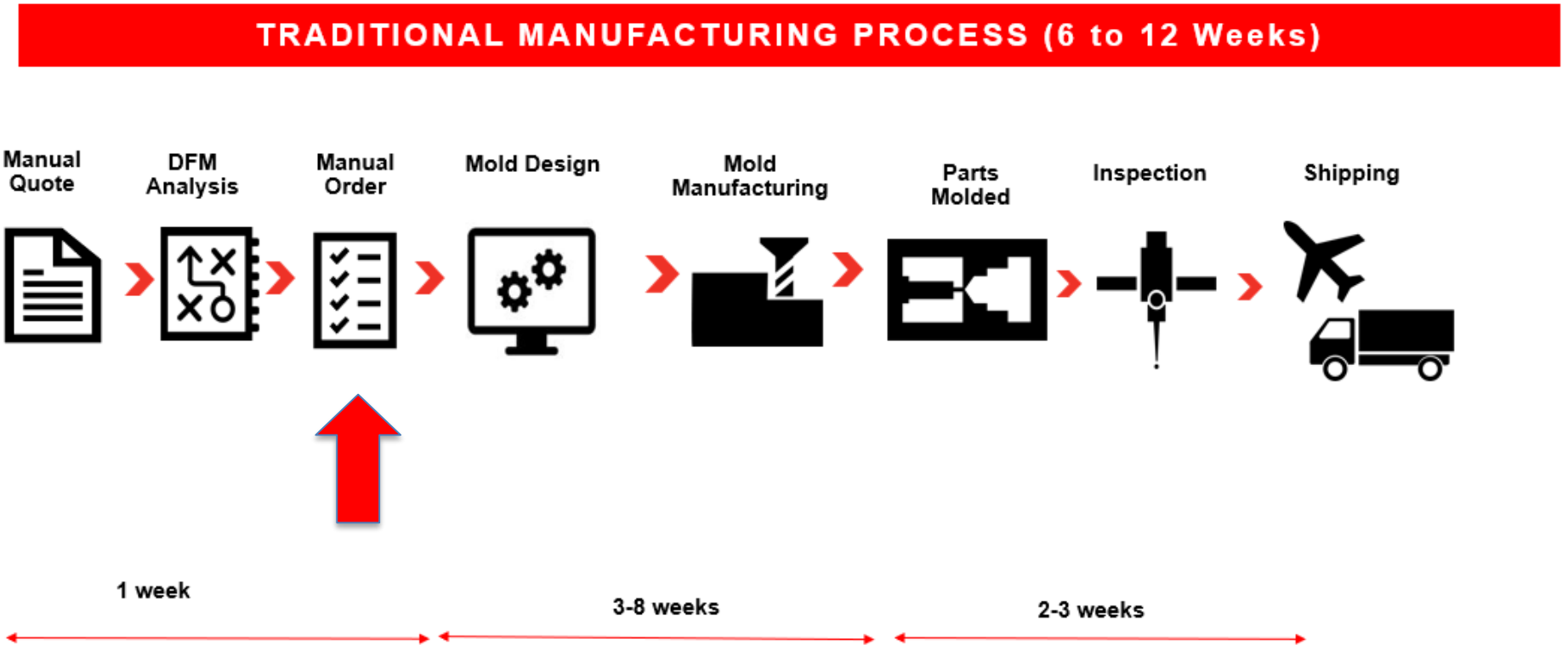
- Manual Quote

Traditional Manufacturing Process



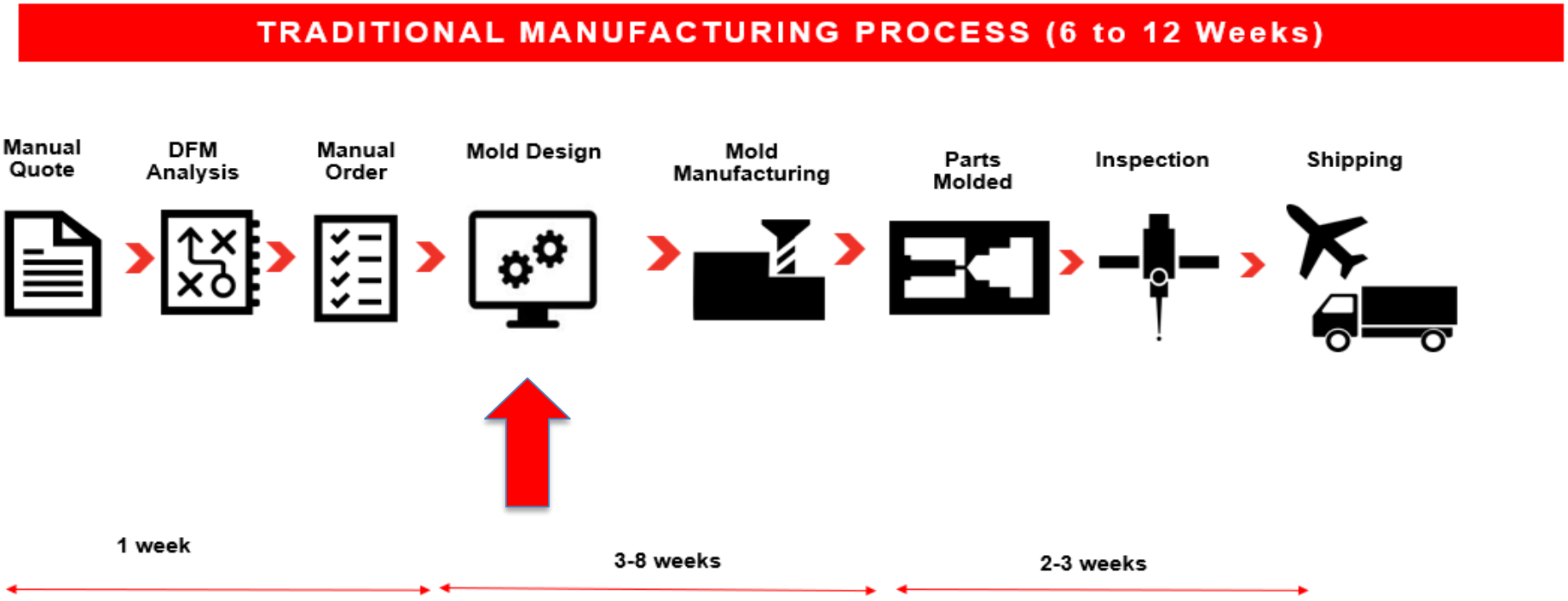
- DFM Analysis

Traditional Manufacturing Process



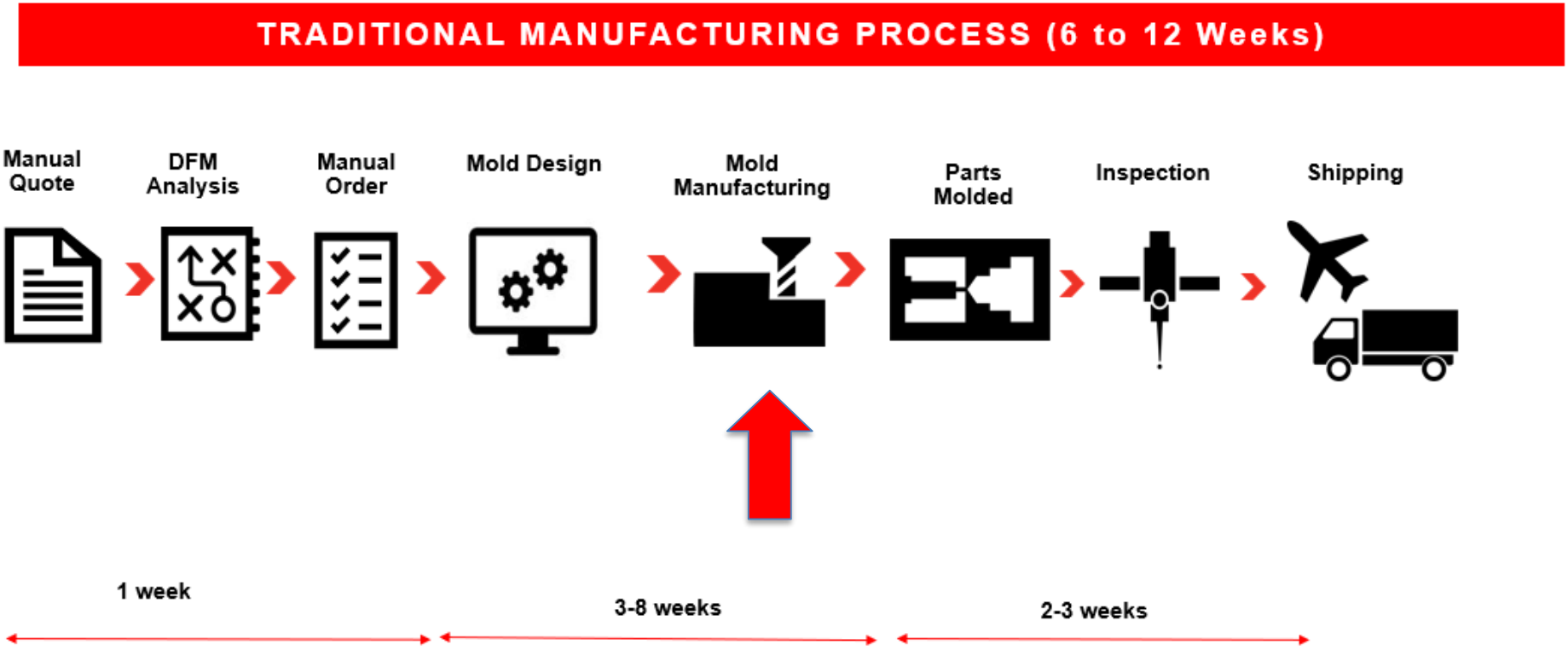
- Manual Order

Traditional Manufacturing Process



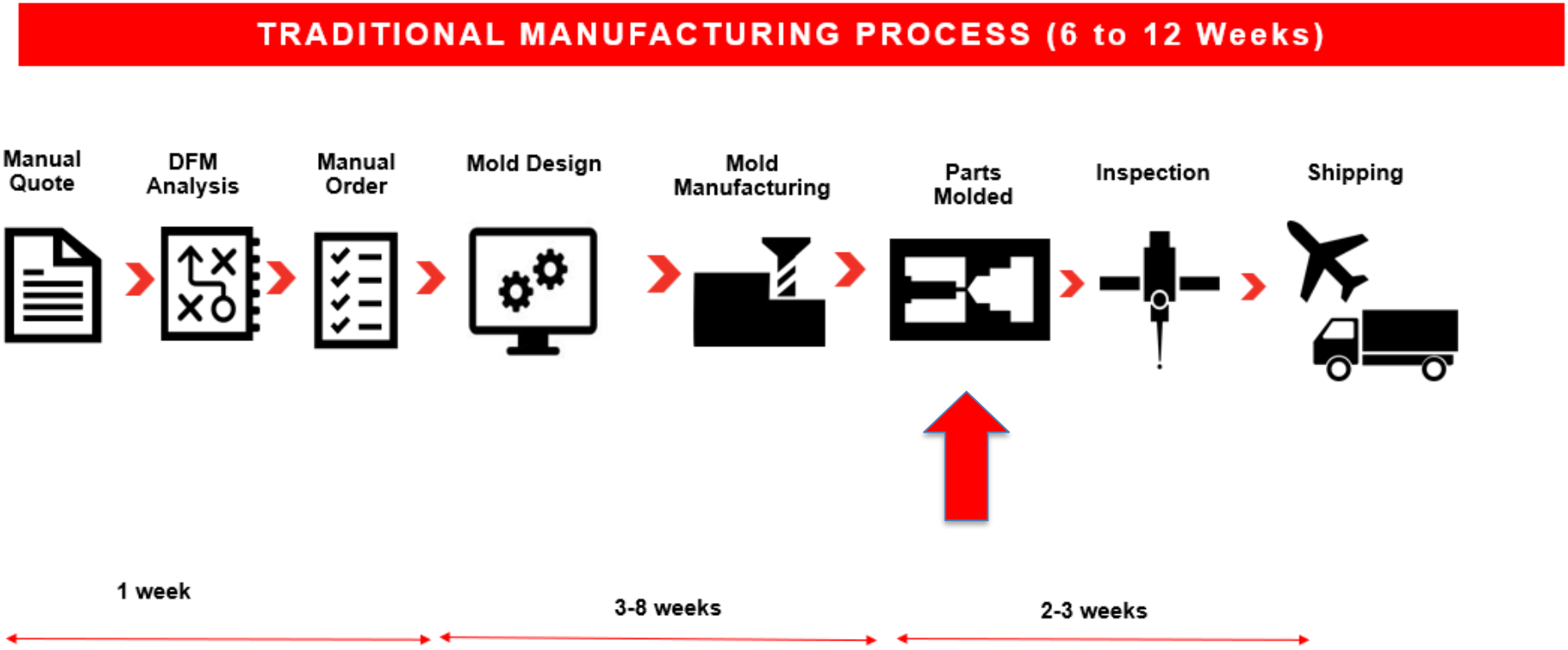
- Mold Design
  - Design reviewed for viability
  - Subject to requoting, redesign or defining the project. Any one of the 3 can cause significant delays.
  - Can be lengthy-approx. 3-8 weeks

Traditional Manufacturing Process



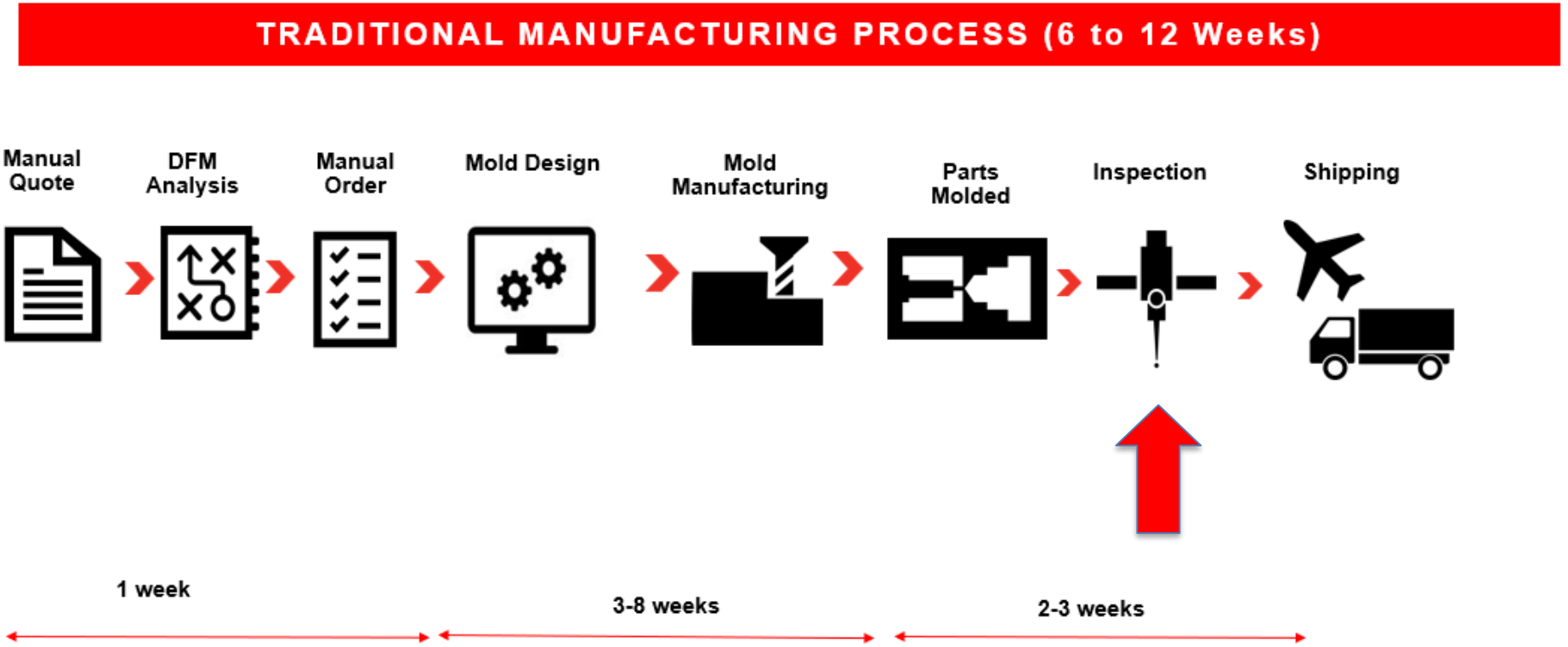
- Mold Manufacturing

Traditional Manufacturing Process



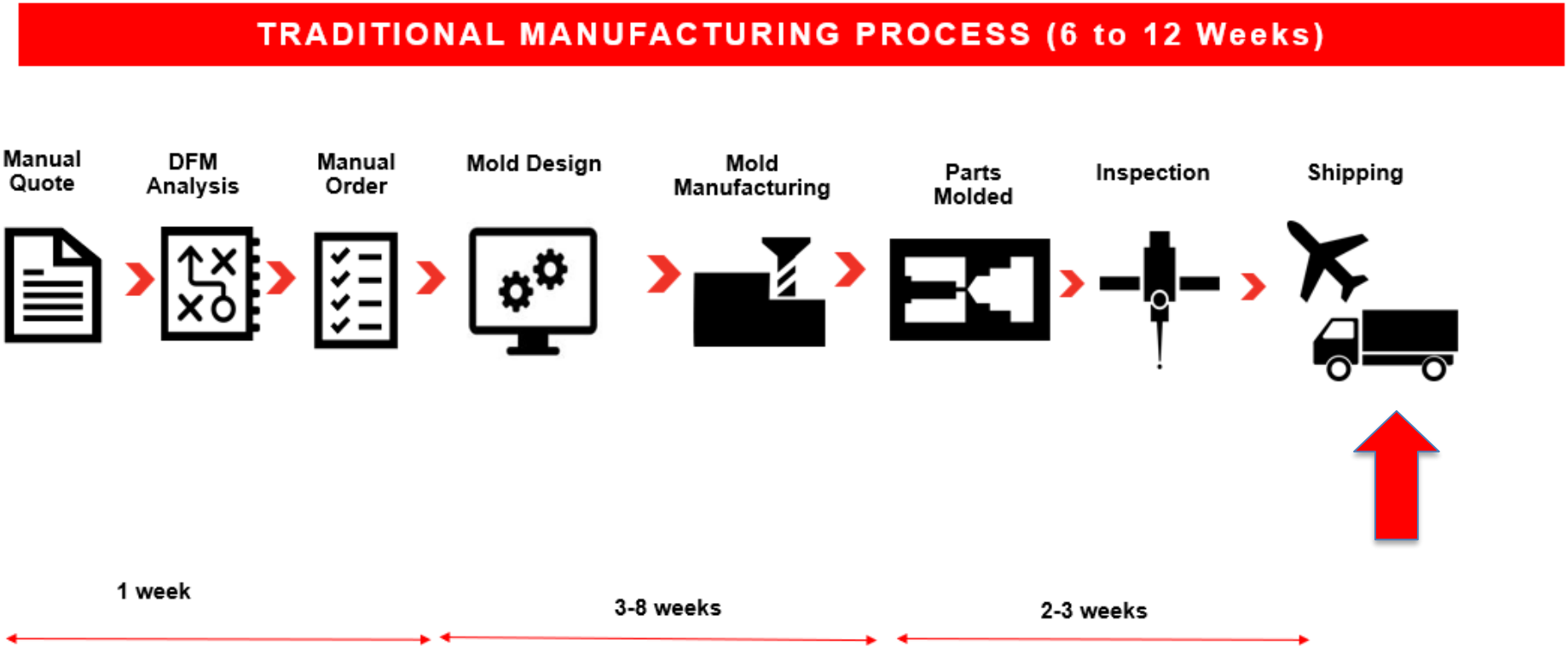
- Parts Molded

Traditional Manufacturing Process



- Inspection
  - First shots-visual and dimensional inspection
  - Customer inspection/feedback-approval or revisions
  - In the event of a non-approval, process would be modified and revised again with continual reiterations until optimal part is achieved.

Traditional Manufacturing Process



- Shipping

Digital Manufacturing Process

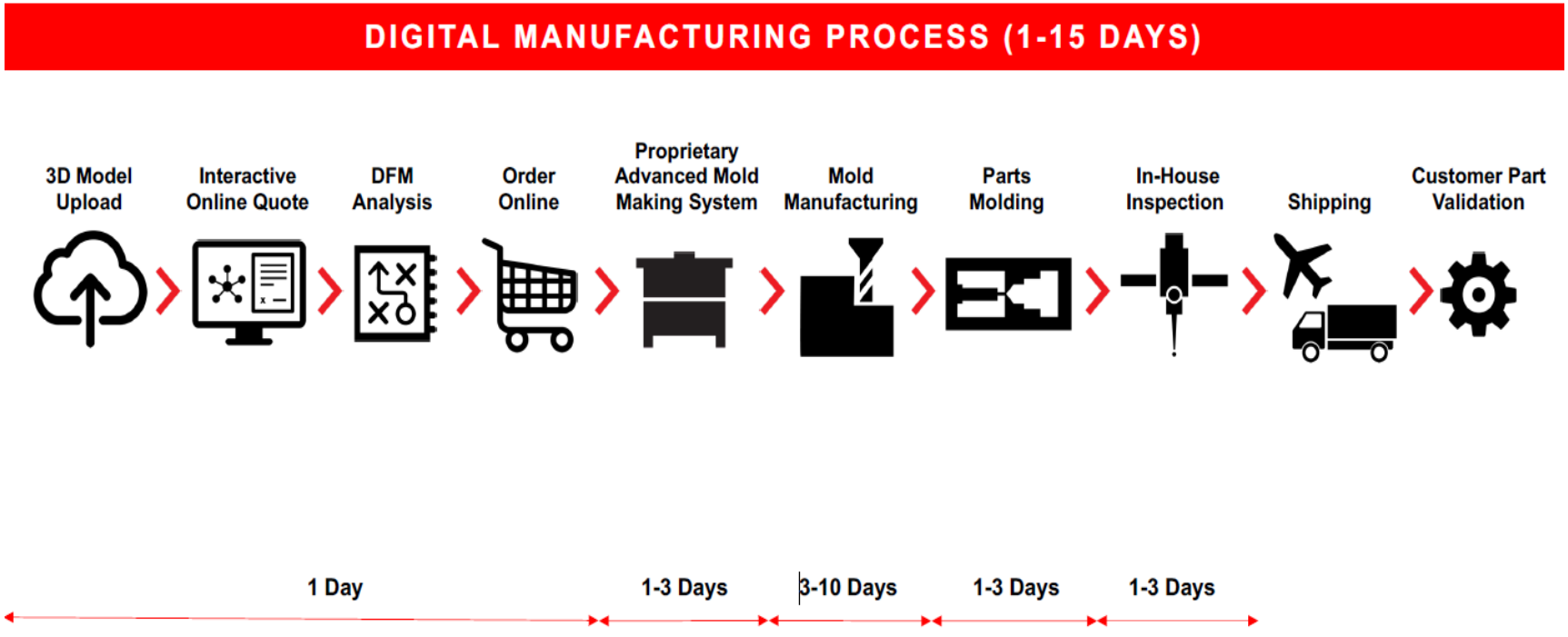
Key Process Components: Cost, Quality, Automation & Speed to Market

- Overall process-digitization, automation and data connectivity translate to reduced costs and increased efficiencies
- Numerous iterations can be handled quickly and more efficiently with quality control
- Streamlined process accommodates quicker turnaround times with lower cost automated solutions.
- Complex designs are accommodated
- Lead time can be weeks instead of months-can lead to new market discoveries, optimized learning curves and untapped revenue streams

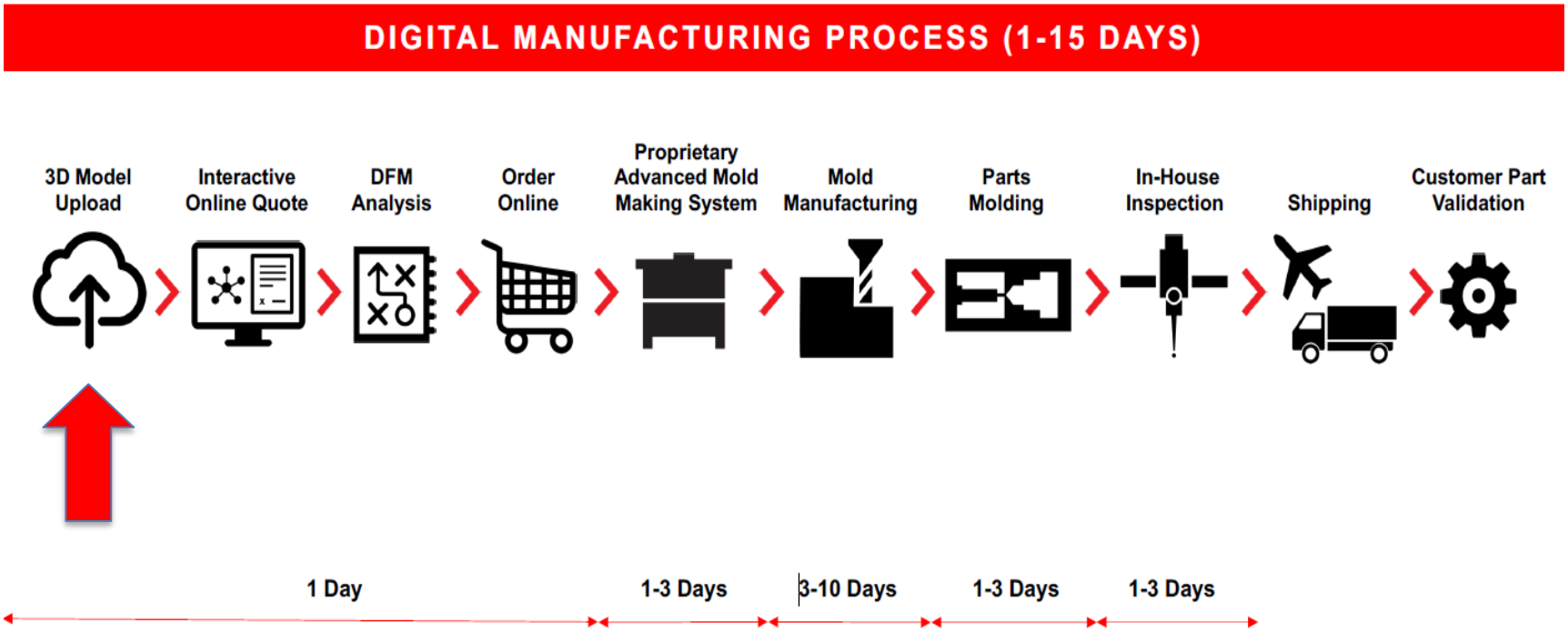
Digital Manufacturing Process (Cont.)

- Traditionally the digital manufacturing process utilizes aluminum molds
  - Works well for prototyping, bridge tooling, and low volume production
  - High grade aluminum material QC-10
  - Excellent strength to weight ratio
  - Dissipates heat quickly
  - Costs up to 75% less
  - Recyclable
  - Con-Can break down from repeated use however we offer a Lifetime Mold Guarantee

Digital Manufacturing Process

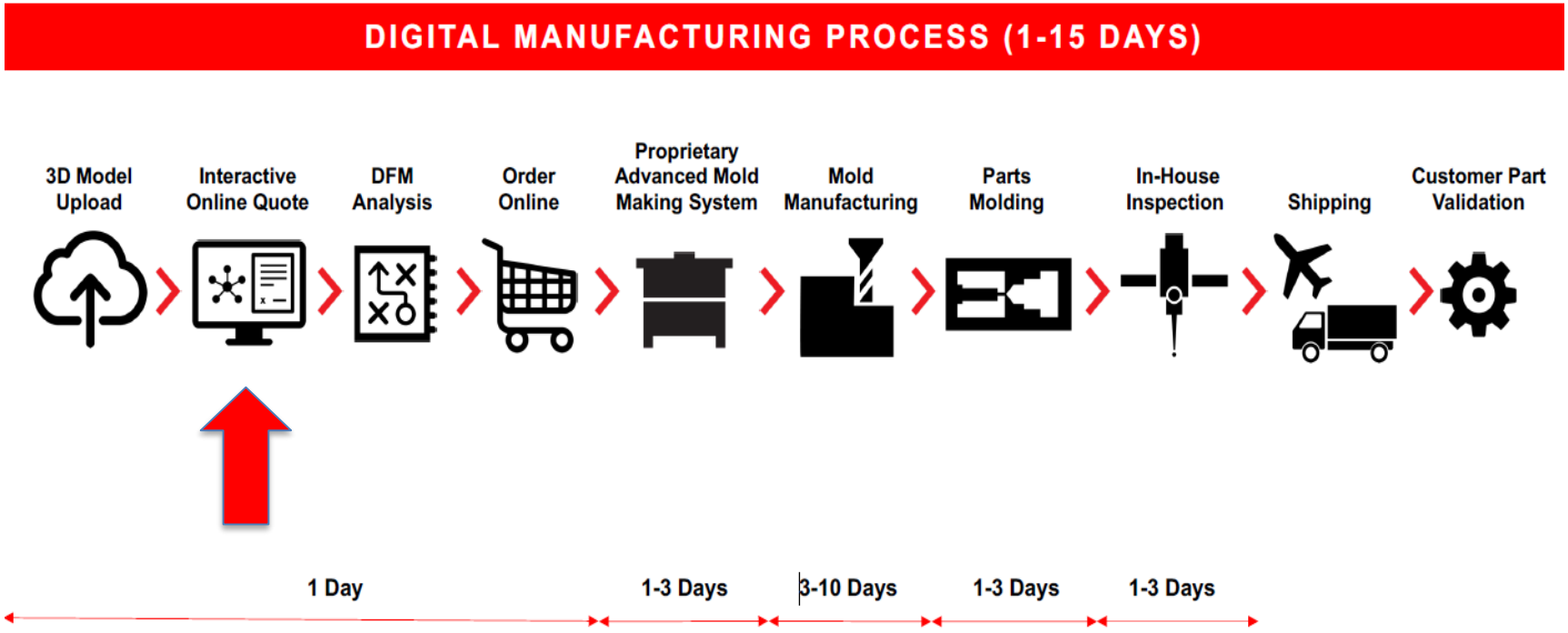


Digital Manufacturing Process



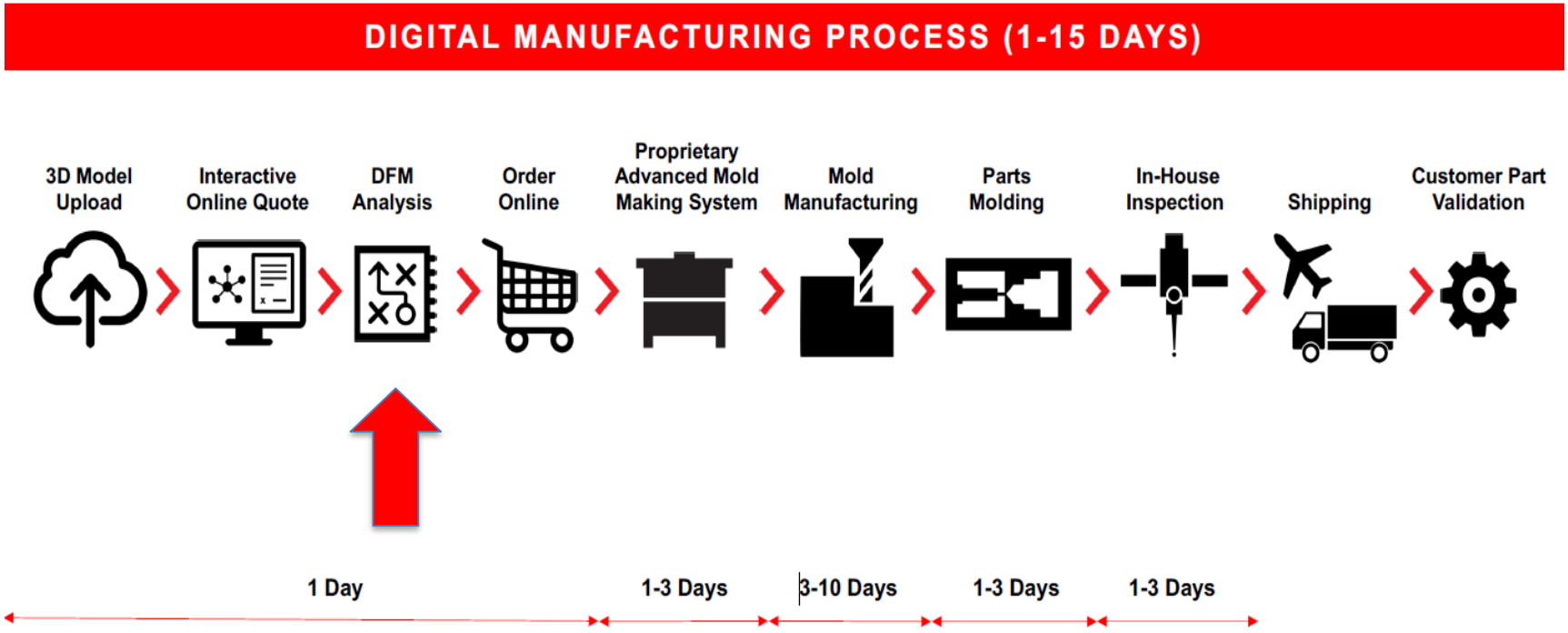
- 3D Model Uploaded
  - Digitized process accepts a 3D CAD file into our servers

Digital Manufacturing Process



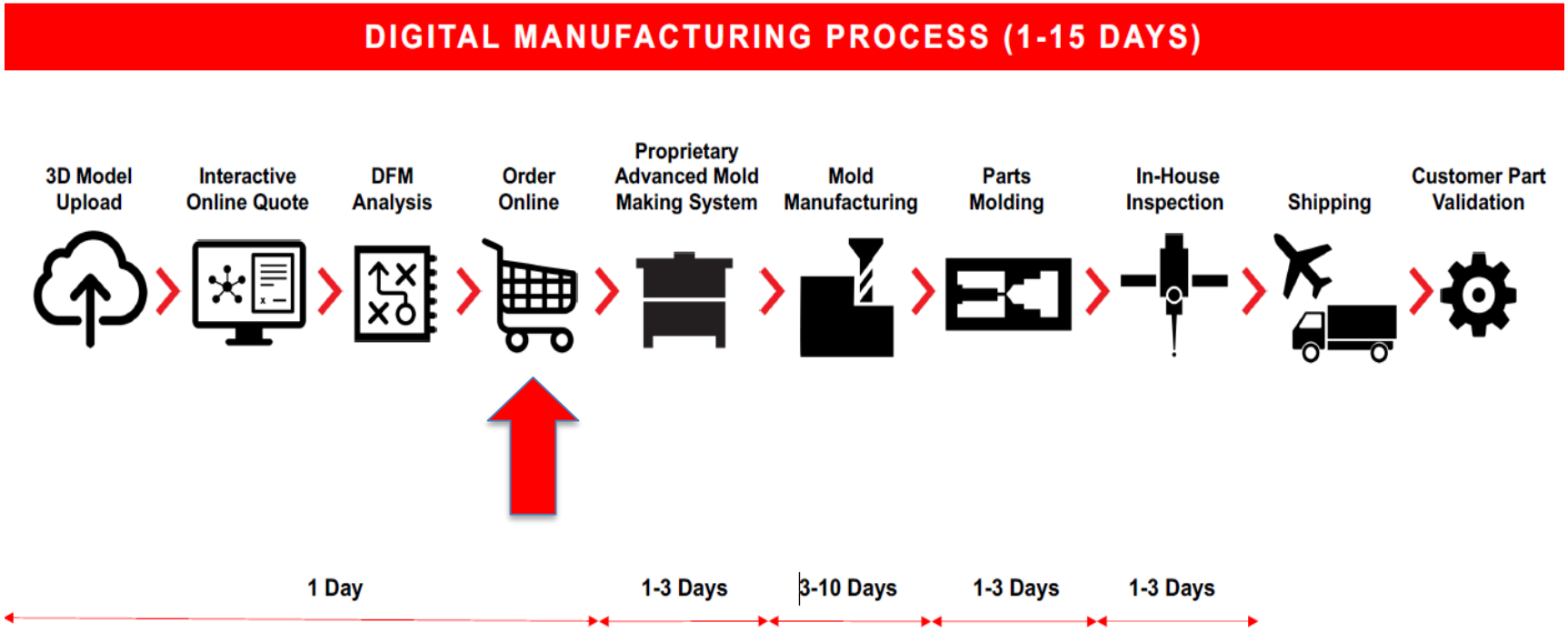
- Interactive Online Quote

Digital Manufacturing Process



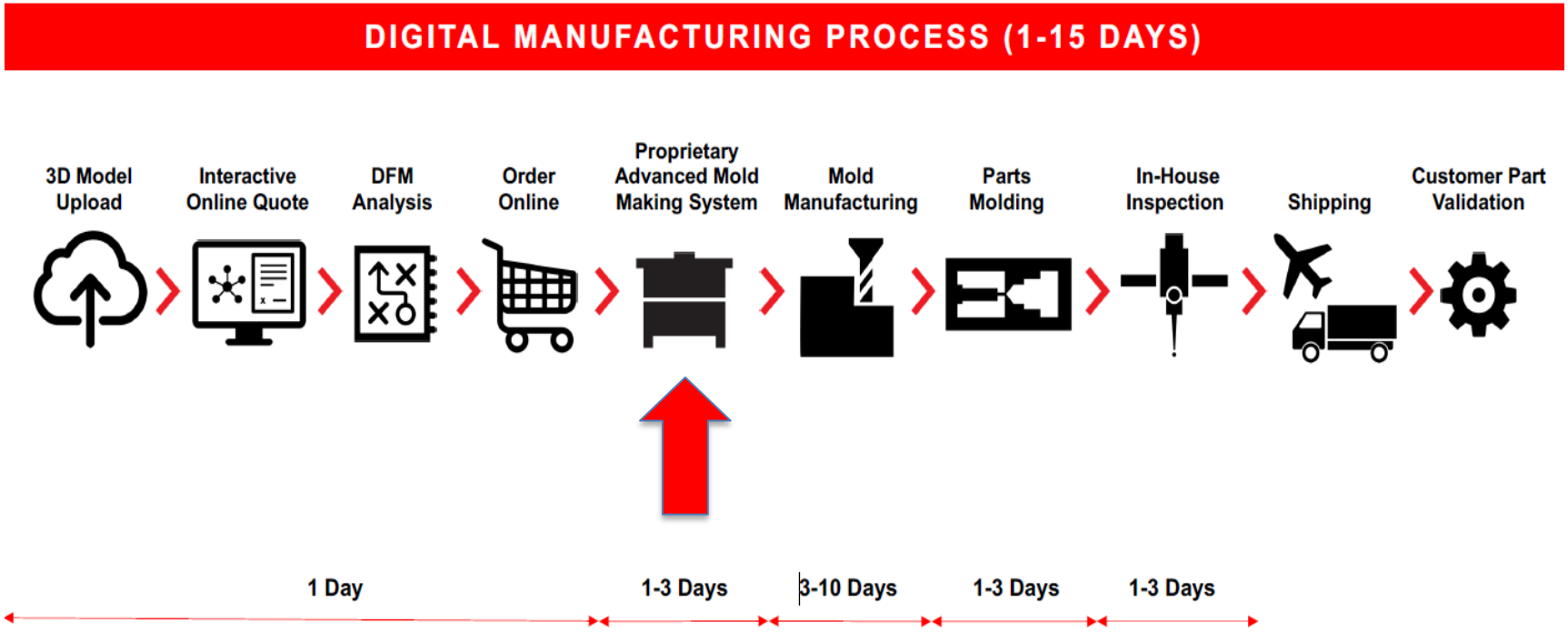
- DFM Analysis
  - Geometry and requirements are analyzed

Digital Manufacturing Process



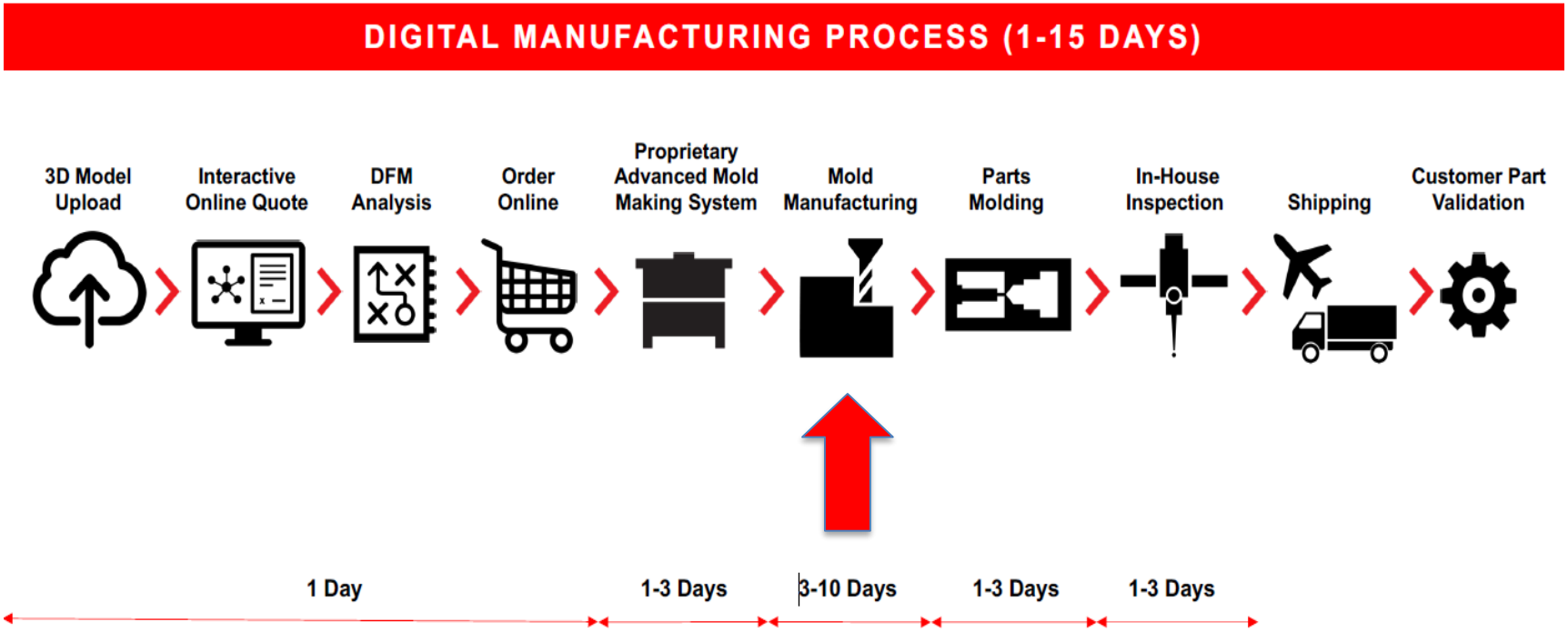
- Order Online
  - Upon order approval, mold design can be finalized within hours

Digital Manufacturing Process



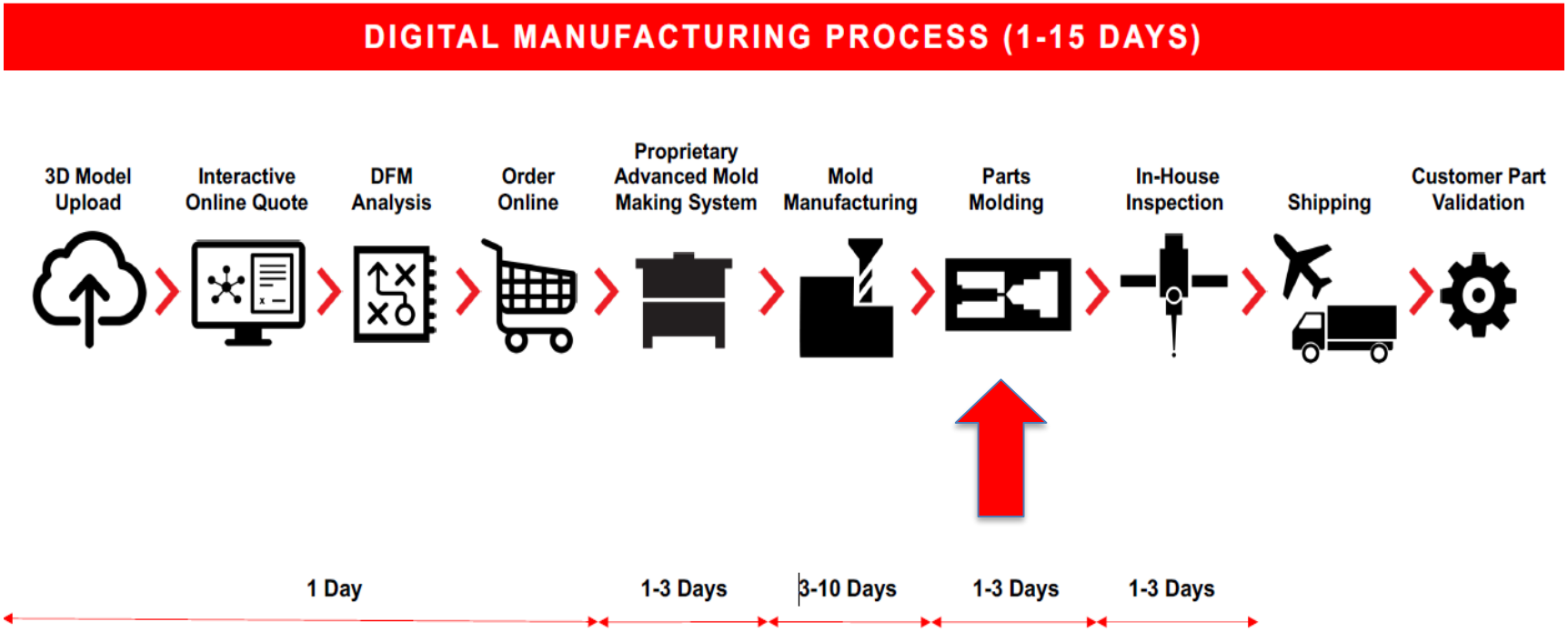
- Proprietary Advanced Mold Making System

Digital Manufacturing Process



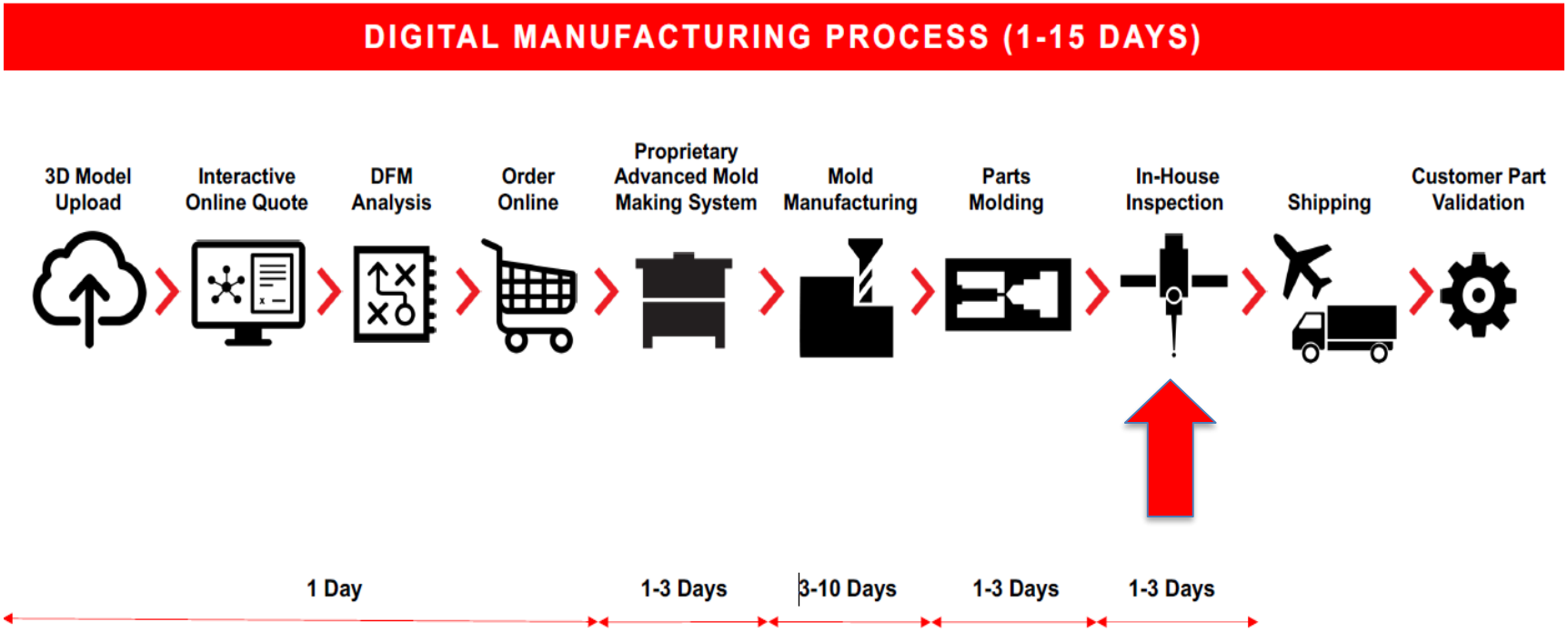
- Mold Manufacturiing

Digital Manufacturing Process



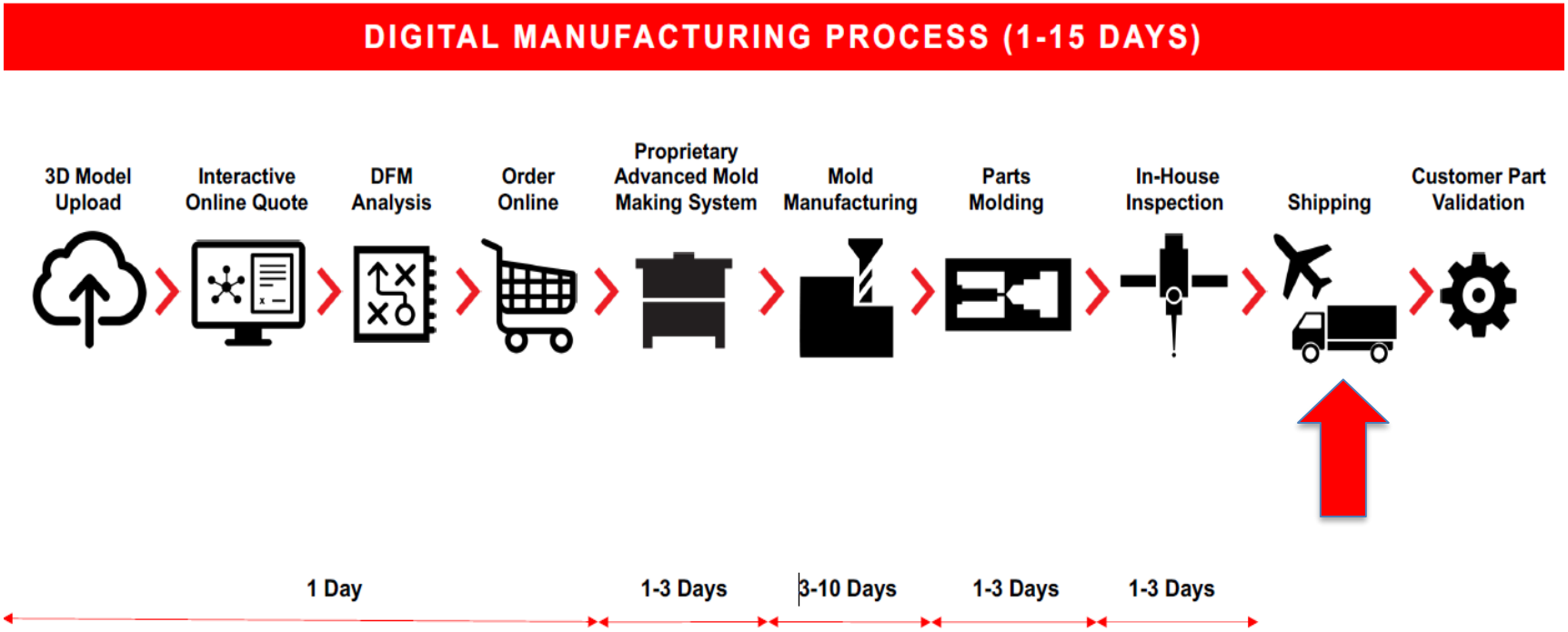
- Parts Molding
  - Usually parts within a few days

Digital Manufacturing Process



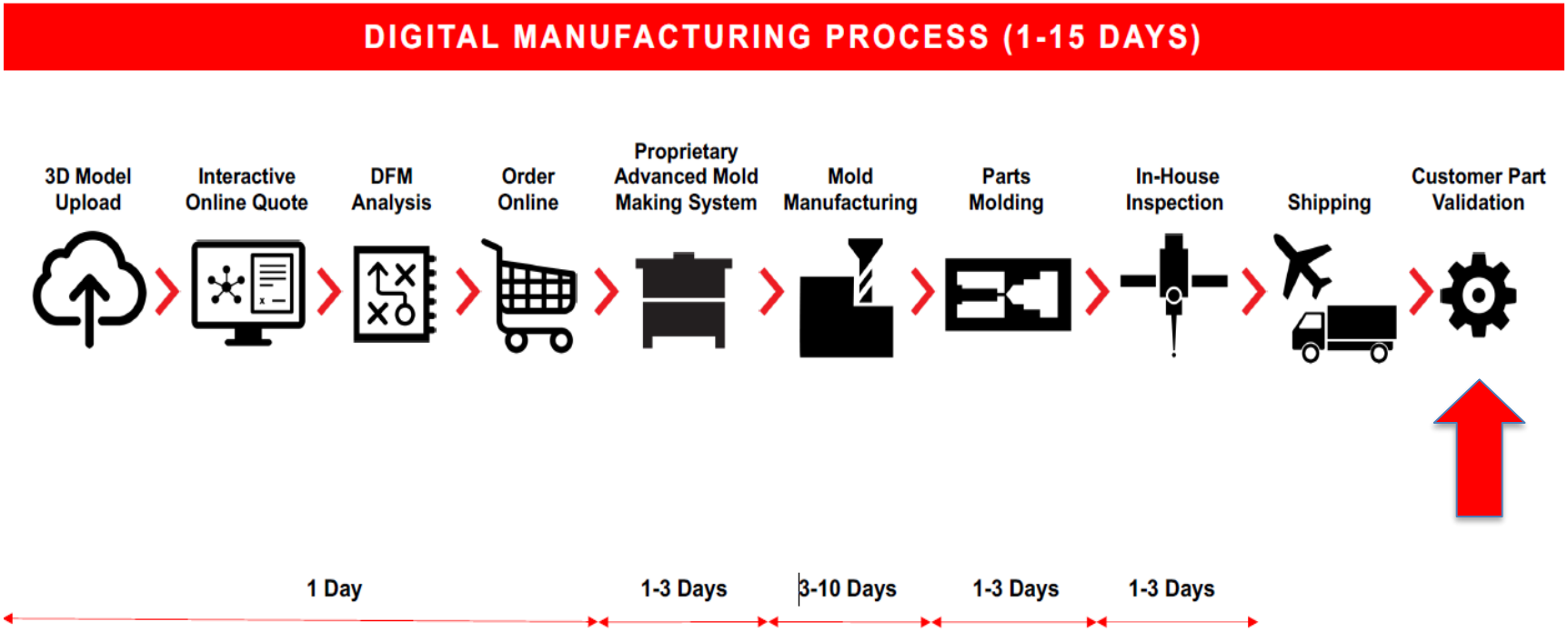
- In-house Inspection

Digital Manufacturing Process



- Shipping

Digital Manufacturing Process



- Customer Part Validation

Digital Manufacturing Optional Services

- Two Optional Services
  - Inspection
    - After molding parts, in-house inspection allows the customers and us to determine the quality of the product and discover errors immediately
    - Allows for rapid feedback and tool modifications, if necessary
  - Project Management Consulting

Summary

- The traditional manufacturing process has many process steps and is subject to additional validation steps, time to market and costs.

- The digital manufacturing process is a more efficient process. It can potentially save on inspection time, costs, and time to market.

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Thank You!