

# Checklist: Build Your Additive Business Case

The goal of writing your business plan is twofold: Choose parts for additive and assess if additive is going to give you a true ROI.

As you move forward, you can use the following checklist to ensure you factor in all the key criteria of your analysis.

Step  
**1**

## Build a Cost Model

Identify possible parts for additive consideration and gather information for each part based on the following:

<b>Material costs</b>	<ul style="list-style-type: none"><li>• How does this material cost compare to conventional manufacturing methods?</li><li>• Determine the type of metal powder needed for a specific component</li><li>• How much waste—solid or powder—does the process create?</li><li>• Consider costs savings for reusing unsintered powder</li></ul>
<b>Labor costs</b>	<ul style="list-style-type: none"><li>• Prepare the file to print</li><li>• Inspect and clean optics and build chamber</li><li>• Remove part from platform</li><li>• Remove platform from machine</li><li>• Conduct filter maintenance</li><li>• Inspect and test machines and powders</li><li>• Program the machine</li></ul>
<b>Capital expenses</b>	<ul style="list-style-type: none"><li>• Additive, thermal processes and inspection equipment</li><li>• Support equipment, like powder removal, sieving and hoists</li><li>• Facilities for the machines and additive production</li><li>• Power backup systems</li></ul>
<b>Operating expenses</b>	<ul style="list-style-type: none"><li>• Laser/scanner repair and replacement</li><li>• Recoater arm inspection/replacement</li><li>• Inert gas usage</li><li>• Filter and tooling maintenance</li><li>• Personal protective equipment (PPE)</li><li>• Electricity</li><li>• Build plates</li></ul>
<b>Processing costs</b>	<ul style="list-style-type: none"><li>• Feature resolution</li><li>• Surface finish</li><li>• Powder removal</li><li>• Build size and speed</li><li>• Number of parts per build</li><li>• Post-processing requirements</li></ul>
<b>Test and inspection costs</b>	<ul style="list-style-type: none"><li>• Tensile and functional testing (pressure, flow, etc.)</li><li>• Non-destructive inspections (e.g., visual, X-ray and CT scans)</li><li>• Destructive testing (e.g., cut-ups)</li></ul>



Step  
**2**

### Evaluate Performance Factors

How will additive impact product life and life cycle costs? Use the factors that apply to your business. Add others if needed.

- ☐ Freedom of design
- ☐ Weight reduction
- ☐ Improved fuel economy
- ☐ Improved efficiencies
- ☐ Enhanced reliability
- ☐ Less warpage due to faster cooling time
- ☐ Enhanced part performance
- ☐ Improved sustainability
- ☐ Supportive of body mechanics in orthopedics
- ☐ Serial production and mixed designs and sizes
- ☐ Reduced risk of delamination of trabecular structures
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

Step  
**4**

### Determine the ROI

Based on your business goals and in-depth cost, performance and supply chain data gathered, run a final ROI analysis using a spreadsheet and data for your company. Does additive make sense for this business case?

- ☐ Pull together the analysis completed for steps 1–3
- ☐ Conduct an ROI analysis to include these elements: part cost, process cost and supply chain impact
- ☐ System redesign/AM adoption factors
- ☐ Rank the parts for additive based on ROI

Step  
**3**

### Identify Supply Chain Disruption

How will additive streamline your manufacturing processes and overcome existing pain points within the business? Use the factors that apply to your business. Add others if needed.

- ☐ Part consolidation
- ☐ Inventory reduction
- ☐ Streamlined supply chain
- ☐ Waste reduction
- ☐ Freight savings
- ☐ Purchase order reduction
- ☐ Streamlined supply base
- ☐ In-housing of tooling operations
- ☐ Reduced workflow
- ☐ Lead-time reduction
- ☐ Maintenance, repair and overhaul (MRO) improvements
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_
- ☐ \_\_\_\_\_

### After the Business Case Development

Once you draft the business plan, you need to create a presentation and sell your plan to senior management. A typical plan includes the following areas:

- ☐ Business objectives
- ☐ Market obstacles
- ☐ Cost analysis (part, process, performance factors and supply chain)
- ☐ Recommendation\*

\*In some cases, you might not find a business case for additive, which is a good reason to write a business case before starting down the additive path.

