STEPS FOR PLANNING YOUR AUTOMATION PROJECT

Define Automation Needs

The first step in developing an automation plan is to determine your expectations and desired outcomes. Some important questions you'll want to answer:

- Why automate? Are you fulfilling a need, solving a problem, or is it simply that automating a process will give your business a competitive advantage?
- What are your pain points?
- Can you identify relevant inputs and outputs?

From here, you can begin to generate your user requirement specs.

Determine Processes & Rates

Next, you'll want to take a look at your production goals, with an eye on manufacturing processes and rates. Some things to consider:

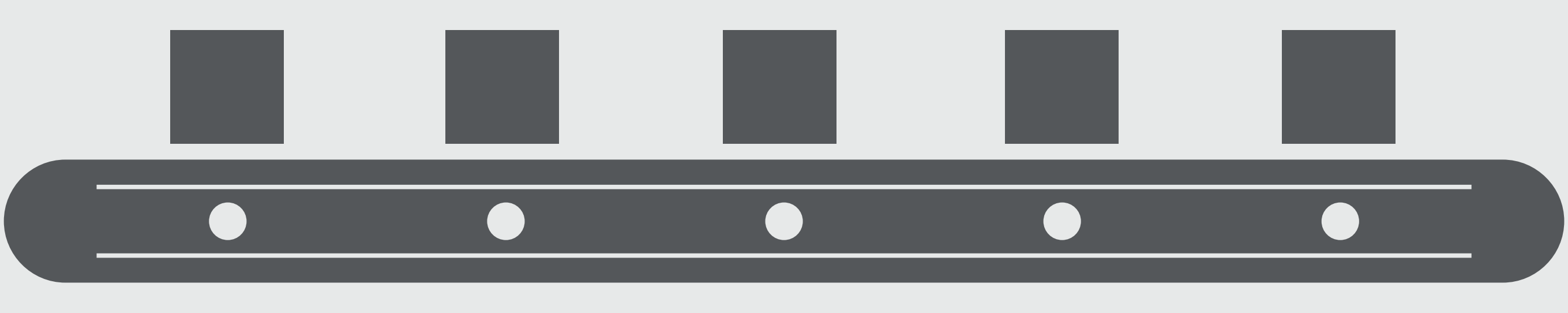
- Your output volume: how much is your facility currently producing, and what are your target goals?
- What current processes are you looking to supplement or replace with automation?
- The human factor: how will your employees train on and interface with the new automation equipment and processes? Will your production be partiallyautomated (requiring more operator interactions) or fully automated (with minimal operator interaction)?

Identify Environment

Your manufacturing floor environment will play a major part in automation design. There are some basic structural and logistical questions to consider:

- Does your facility have the floor space to accommodate new machinery? Will you need to make any modifications to the existing structure?
- Will your automated equipment supplement or replace human labor?
- Will you need to modify or increase power supplies?
- If your company manufactures medical devices, how will you align your automation requirements with your cleanroom requirements?

From there, you will want to consider the manufacturing environment. Are you running a light industrial operation? Is the work performed in a cleanroom? The requirements for automating a medical device production facility, for example, will differ from those of a woodworking shop.

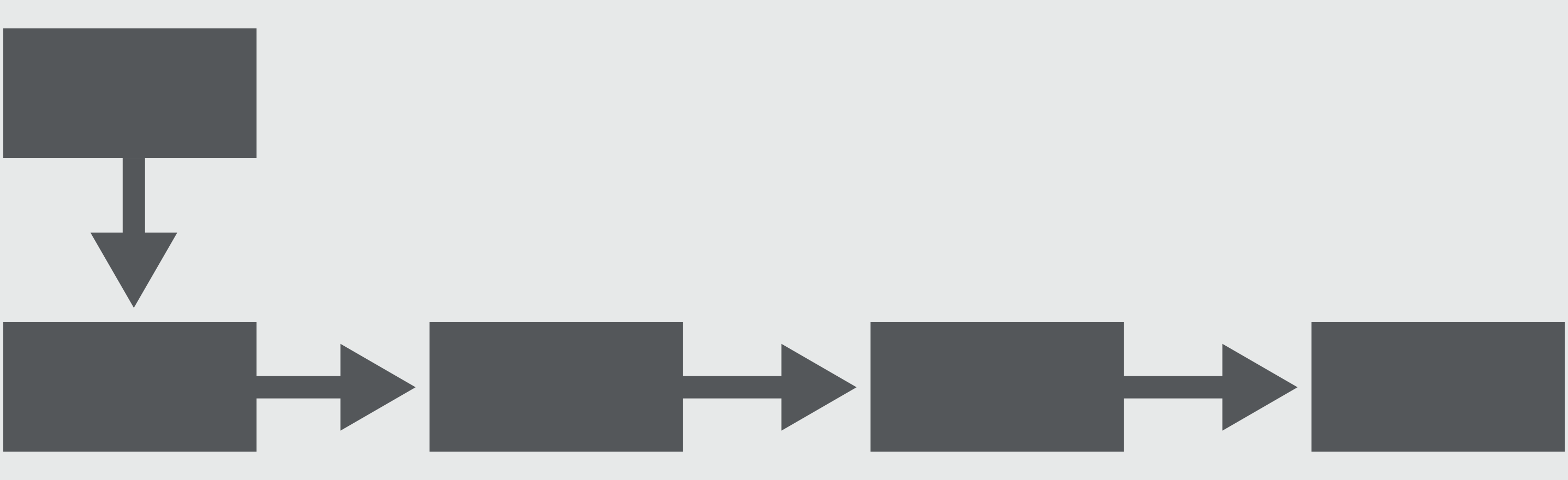


Upstream & Downstream Process

Understanding how automation will affect the upstream and downstream processes will be critical.

Upstream considerations will typically include how the materials or components are being fed into the automation cell. Will it be a bulk format, which might require those parts to be organized and oriented in a separate process prior to going into the cell? Or will the parts be sorted and oriented prior to entering?

Downstream considerations may be more complicated. Will the product be going to another process, or to packaging? Will the packaging also be automated? You'll also want to consider whether or not you'll be automating other facets of assembly, from waste disposal to product inspection and testing.



Acceptance Criteria

Often referred to as "the definition of done", acceptance criteria are the set of conditions that you'll want to ensure that your new automation process meets. These might include:

- A targeted rate of production
- The level of scrap material produced
- Uptime, or how long the machinery runs without operator intervention

Each individual process within the whole may have its own set of criteria, to ensure that every step is done correctly. The ultimate goal is to ensure that the final product is assembled correctly before it leaves the automation cell.

Review The Economics

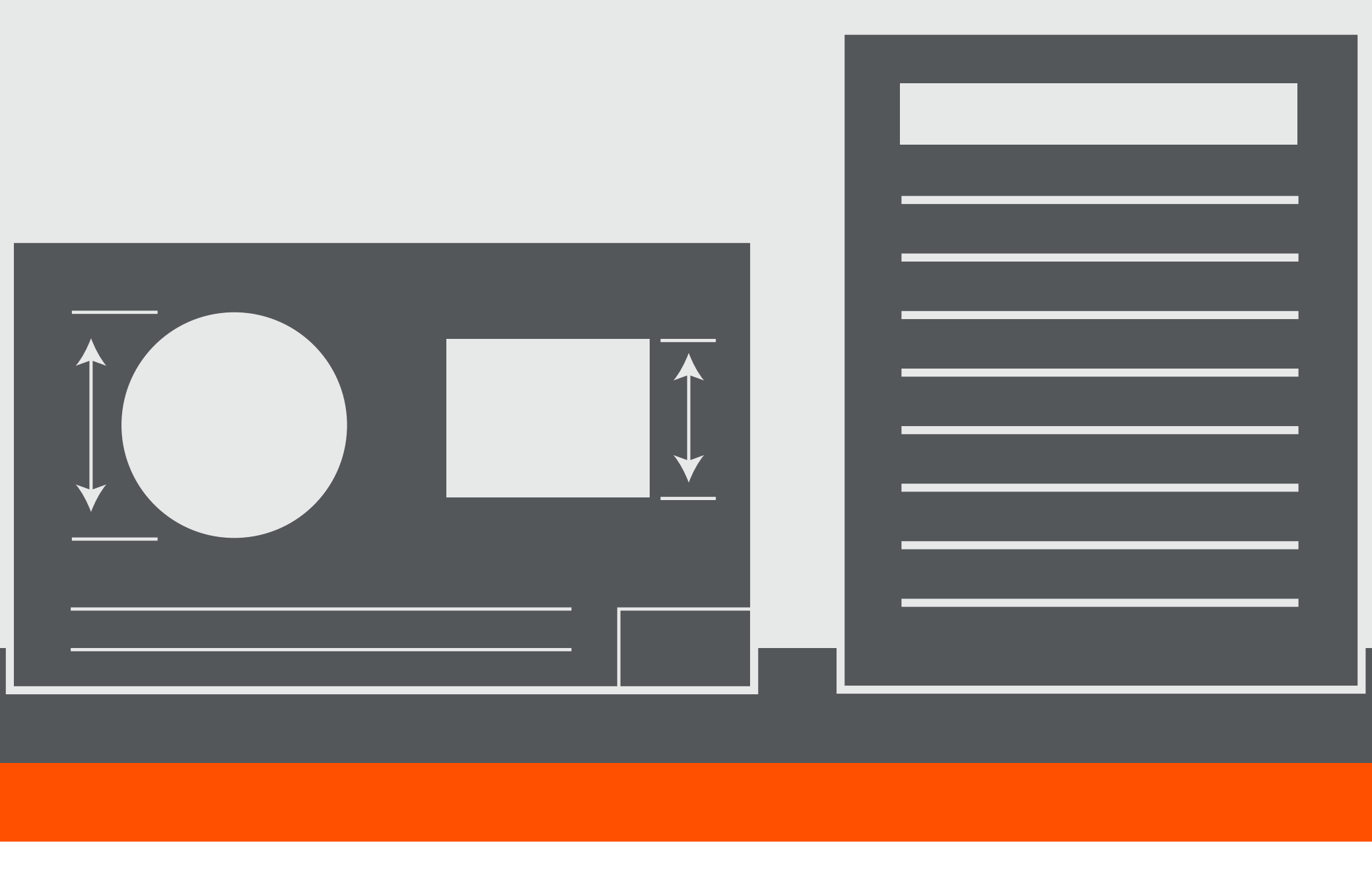
What's the ROI? Automating a manufacturing process is a major decision for any business, so you'll want to be sure that it's worth the investment. Some key indicators:

- Rate of production: Will the automation cell put together a product as fast or faster than your previous method?
- Cost of human labor: How much will you save by supplementing or replacing human workers with automation cells?
- Quality of product: Are inconsistencies being reduced or eliminated via automation?

Solicit Concepts & Proposals

Once you have a grasp on the above considerations, you'll be ready to put together a request for quotes. You'll want to include the following in your RFP:

- Provide your User Requirements Specification (URS)
- Description and drawings or samples of your product
- Desired timeline for getting quote back and getting project completed
- Specifications of current and envisioned processes
- Arrange a time to review the program with various vendors
- Any specific requirements for building the automated equipment (size, power consumption)



About Tessy Automation

Tessy Automation provides world-class, industrial automation solutions for assembly, inspection, testing, material handling & manufacturing process applications.

18114 Research Drive
Meadville, Pennsylvania 16335
814.724.6336
info@tessyautomation.com

For more information: www.tessyautomation.com

Engage with us on these social media channels!

Tessy Automation's staff of experienced professionals has been providing world-class industrial automation solutions since 1983.

Since then we have gained invaluable insight and knowledge that make us true Automation Architects. In our ongoing series of Articles, Tessy Automation Architects want to share their expertise in the areas of engineering, procurement, and quality.