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A GUIDE TO...

choosing the right manufacturing source

When you're looking for a supplier for prototyping or production, your choice can make the difference between a project's success or failure. You'll need to be certain the option you pick fits your needs exactly - whether you want someone to handle your project as a one-off, or hope to develop a long-term relationship.



**In this guide,
we look at four
ways to help you
make an informed
decision.**

- 1** The different types of manufacturing source
- 2** The pros and cons of working with each type
- 3** Questions to ask when choosing a manufacturer
- 4** Making the most of digital manufacturing

In summary, it's worth taking time to find the right purchaser-supplier match. Think of it as a partnership that needs investment and commitment from both sides. And, as the digital age progresses, it's wise to look for those extra TCO-saving benefits.

If you want to discuss any of the issues raised in the guide, please get in touch.

t 01952 683 047

e customerservice@protolabs.co.uk

w protolabs.co.uk

The different types of manufacturing source



Service broker

Brokers exist to help companies that can't, or don't want to, spend time and resources evaluating suppliers. A good service broker will match their clients with an appropriate manufacturer, with many specialising in particular industries.

Independent machine shop

This type of supplier is often quite small and specialised. Some machine shops can be skilled at working with difficult or unusual materials, but could be more expensive for basic aluminium parts. They can be among the best in their specific area of expertise, but perhaps not as proficient in others.

High-volume production house

High-volume production houses tend to focus on injection moulding and CNC machining, and keep unit prices down by manufacturing thousands or millions of parts. They excel at saving seconds and pennies through high-speed repetition, but upfront engineering expenses can be high.

In-house production

This option offers convenience, but capabilities will be limited to the equipment a company has invested in. For example, a desktop or industrial-grade 3D printer can make a concept model of a product

or parts for form and fit testing, or an industrial CNC machine or moulding press can provide engineering-grade parts that are production ready. For this option, upfront capital investment is required, plus purchase and storage of materials, and recruitment of skilled staff to operate the machines.

On-demand manufacturing service

Usually with a wide range of technologies, on-demand manufacturing services offer a suite of processes, such as injection moulding, CNC machining and 3D printing. This type of service provider also often provides automated online quoting, and design-for-manufacturability analysis. And they have the resources and expertise to work with you throughout the design and development process, and the entire life of your product. Most importantly, the good ones understand how to make the most appropriate use of their processes and materials to benefit your specific part or product.

The pros and cons of working with each service type

Service broker

Pros

- The broker's bidding process can bring savings in production costs but incurs a brokering fee.

Cons

- Consistency can be a problem, as related orders can go to different manufacturers.
- Delays can happen while the broker gathers bids for a project
- Response times can vary, depending on the size of the broker's network and the capacity of the suppliers within it.
- Quality assurance will depend on the broker's network. If their preferred manufacturers are busy, your project may go to a lesser-known supplier.

Independent machine shop

Pros

- Quality control at machine shops specialising in particular areas should be excellent.
- Turnaround times should be fast when there is capacity, but backlogs can occur during periods of high demand.
- If your project is in their specialist area, their resources for it should be better than for other jobs.

Cons

- Machine shops tend to be smaller, therefore may be affected by capacity constraints
- Shops with an industry specialism, or those working with unusual materials, can be more expensive due to the higher-end machines required.

High-volume production house

Pros

- Quality control is usually very good. Houses specialising in highly regulated industries should meet the required professional standards. For commodity style parts, standards will be lower but appropriate.
- Response & delivery times are typically good for high volume orders.
- The higher the volume, the more attractive the cost.

Cons

- If you need smaller quantities of parts, these suppliers will struggle to be competitive.
- This option is generally not cost-effective for producing prototypes.
- Upfront delays can occur if the supplier has to source equipment to produce your part.

In-house production

Pros

- Quality control is usually very good. It can be less reliable in the early development stages, increasing in quality as projects move towards production.
- Favourable cost structures (i.e. ownership of equipment) can avoid applying set-up costs to individual projects.



Cons

- In-house shops often operate at or near capacity and long lead times are common.
- Companies often need to outsource to support periods of high demand and to get parts made quickly.
- Volume capability can be lower due to limited capacity and specialisation.
- In-house shops can be more expensive when manufacturing parts outside their specialist area.

On-demand manufacturing service

Pros

- Consistent quality control, with inspection reports and processes in place to ensure repeatability and reliability.
- Fast turnaround times; response times within hours and delivery possible in as fast as one day.
- Can support the project's entire life cycle, and establish long-term supplier relationship.
- Provide range of services, with flexibility within each.

Cons

- With smaller on-demand manufacturing services, volumes can vary depending on capacity.
- Initial set-up costs can be higher than some in-house shops, but most suppliers price competitively.

Questions to ask when choosing a manufacturer

While you're considering your options, you'll need the answers to several key questions:

Does the supplier you're considering have the manufacturing processes you need?

If possible, visit their premises to see for yourself.

Can the supplier respond as quickly as you need it to?

Request reassurance the manufacturing speed and capacity is sufficient to meet your demands during product development, market launch and production.

Does the supplier have a minimum order quantity?

Some suppliers apply and require large minimum order quantity. If you need only low volumes initially, it's usually best to look for an on-demand manufacturing service with no minimum restrictions.

Will you get the right level of quality control?

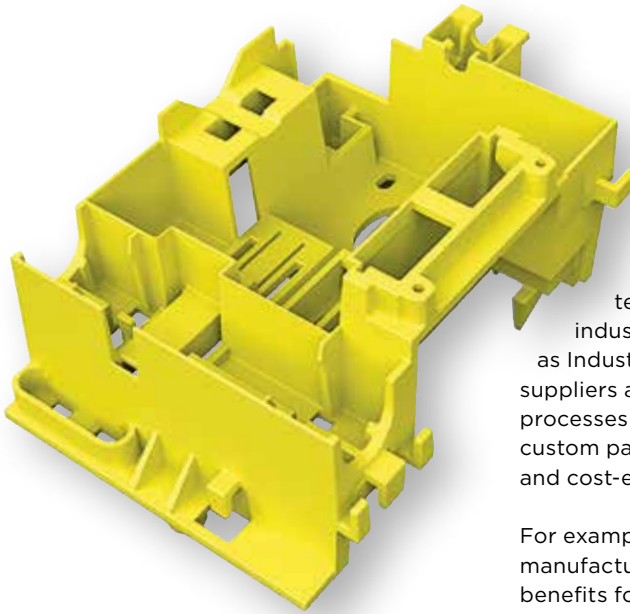
Is the standard offered appropriate to your product? For example, a medical-grade supplier's quality control should be excellent, where this is not necessary for a commercial-grade product. Pay only for the level you need.

Does the supplier work with the materials you need?

If you need a wide choice of materials, on-demand manufacturing services usually have the best range in stock, and the expertise in using them. Plus, they have the ability to work with customer-supplied materials.

Will you receive the design support you need?

If you're not a manufacturing expert, select a service that will support you you could benefit from advice on the manufacturability of your part or product.



How are suppliers reducing TCO?

As advanced production technologies drive the new industrial revolution known as Industry 4.0, more and more suppliers are using automated processes to assess, plan and produce custom parts and products quickly and cost-effectively.

For example, some on-demand manufacturing suppliers offer TCO benefits for manufacturing tooling and parts. This is achieved by:

- Offering services that can manufacture a project or design as it moves from prototyping to production, reduces the cost and complexity of working with multiple vendors.
- Availability of scale and advanced automation to support production meet delivery dates and improve on-time performance.
- Reducing inventory costs, by offering purchasers the flexibility to order the quantities they need, when they need them.
- Support demand volatility, when demand increases, parts get produced quickly, avoiding the risk of lost sales opportunities.
- Utilising guarantees for injection moulding projects. Certain suppliers offer a lifetime guarantee to your tool when you re-order the same part, with no additional tool costs.

Making the most of digital manufacturing

As well as the 'Questions to ask when choosing a manufacturer' outlined previously, consider whether your supplier can bring you the benefits of digital manufacturing, this includes reducing the total cost of ownership (TCO).

TCO takes into account the direct and indirect costs of acquiring and using a part or product throughout its life cycle. Put simply, it's the purchase price plus additional costs such as shipping and logistics, inventory, operation, maintenance, and retirement of the part. It's a better measure of value or return on investment than looking at just the purchase price. Evaluating suppliers in TCO terms means focusing on quality, consistency, and on-time performance, rather than just the initial financial outlay.

SUPPORTING YOU TO IMPROVE QUALITY, PROCESSES AND PRODUCTIVITY.

Prototyping and low-volume production of
plastic and metal parts in as fast as 1 day.



YOU DEMAND. WE SUPPLY.

Digital manufacturing supports innovators in industrial engineering to move quickly throughout the entire development process.

Get functional prototypes and components within days with **rapid 3D printing, machining, and moulding.**

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