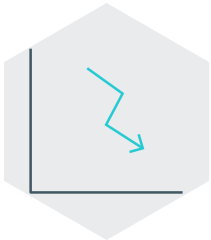# Modular Design

You would use this approach as part of the design philosophy of your business.

Projected performance gains

Reduced

- Development costs of new products
- Inventory
- Complexity of the supply chain.

Increased

- Functionality at lower cost.

Improved

- Competitive product lead times.

What investment is needed to understand the concept?

DIFFICULTY

Medium

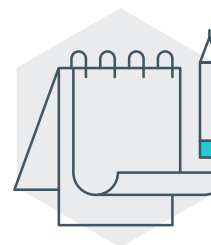Requires some reading around the subject and a structured approach.

ACTIVITY

Team

Best results come from a team of design, procurement, engineers and assembly operators.

EQUIPMENT

None

No equipment is needed.
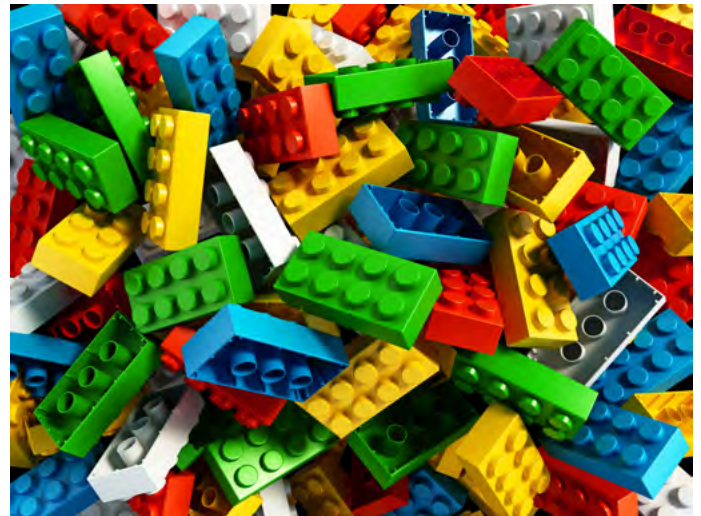
Modular Design

Explanation of the concept

The idea behind Modular Design is to be able to combine standard modules to deliver a wider range of products and functionality at a lower cost and with shorter lead time.

If you imagine the children's toy Lego, it is possible to make many different things from a limited range of bricks. Each brick serves a particular function that can be combined with others. In effect, Lego is a system of parts, linked by a few key dimensions that allows connectivity.

The key dimensions of the bricks have changed little over time, but the range of products available has grown significantly.

It is possible to apply the same thinking to product design. A limited range of modules can be designed, each with specific functionality that allows the customer to see a wide range of products through different combinations of modules. The benefits from a design, development and manufacturing perspective are potentially huge.
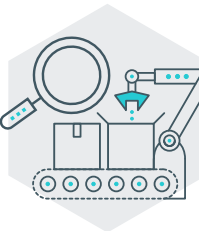
It costs a lot more and takes a longer time to design a new product from the 'ground up'. This is often a wasteful approach and risks losing the learning from existing products and processes.

What action should I take?

1.

Gather together a group of designers, procurement, engineers and assembly operators.

2.

Explain the concepts behind Modular Design.

3.

Look for opportunities to reuse elements of current designs or to design new products using a modular design approach.

For more advice, case studies and additional factsheets visit: **www.businessgrowthhub.com/manufacturing**

Recommended resources

GC Business Growth Hub Manufacturing Factsheet 45: Quality Function Deployment

Introduction to Modular Design by Bitovi UX & Design:
https://www.youtube.com/watch?v=20JP8w6_nVA

Glossary

Leadtime: The time from receiving a customer order to delivering the product / service.

Quality Function Deployment (QFD): This method helps to transform the voice of the customer into engineering characteristics for a product. QFD uses a diagram / model known as 'The House of Quality'. The centre of the model is the 'Relationship Matrix' that links together customer requirements with competitive value, product characteristics and technical aspects.