



Value Chain

Time to start production



Injection Moulding

Injection Moulding

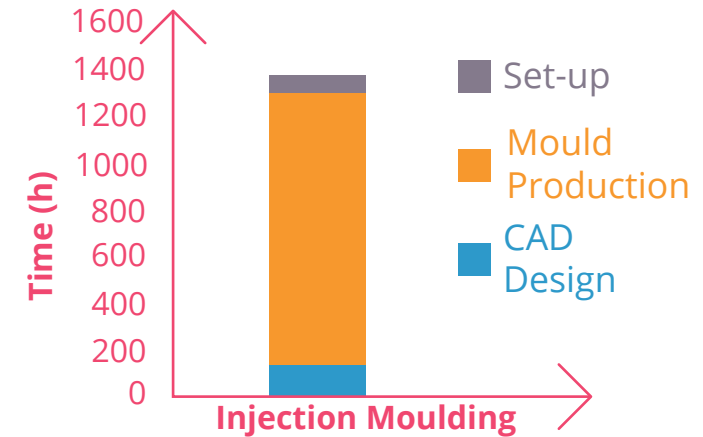
CASE STUDY AMABLE COINS

CAD Design
(2 days)

Injection Mould
Production
(8 weeks)

Production
(20 sec/batch)

Set-up
(1h)



3D Printing

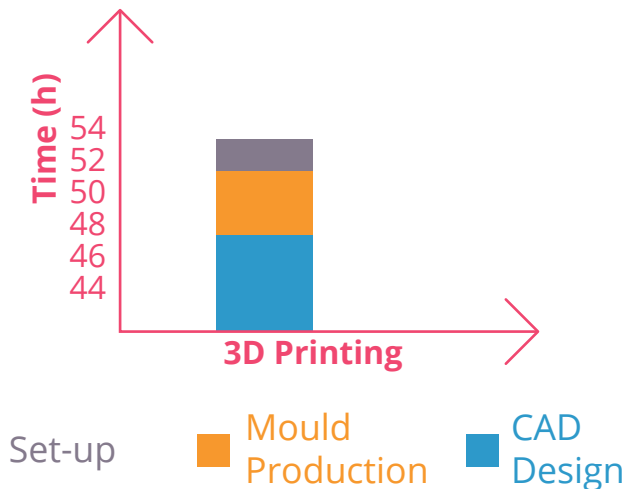
3D Printing

CAD Design
(2 days)

Slicing
(1h)

Production
(2h51min/batch)

Set-up
(30min)

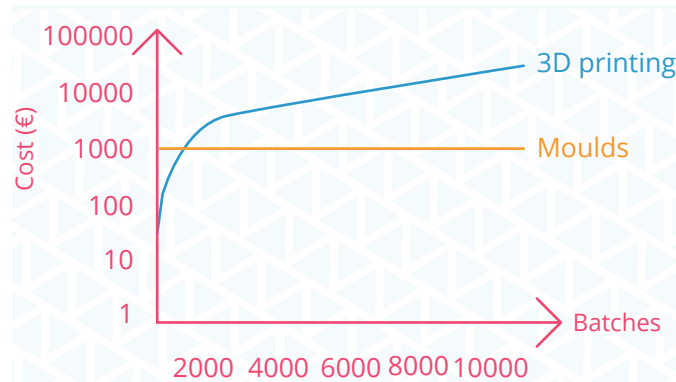


The following flyer showcases a small case study based on the AMable coin made for the purpose of this event. A comparison between 3D Printing and injection moulding is made. Nevertheless, it is important to highlight that the aim of this document is not to prove that one is better than the other, but to showcase that these technologies are used in different applications, depending on the volume of parts produced and the variation of properties.

Production time vs Number of Sets

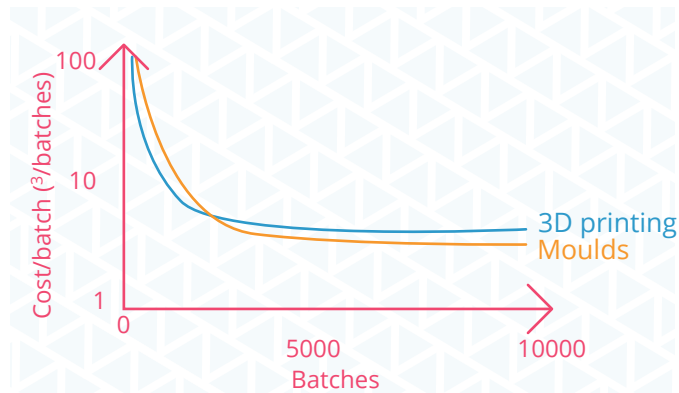
By using 3D printing the steps and time to start production reduces drastically. It takes only 52.5 hours (~2.2 days) to start production with 3D printing against 1393 hours (~58 days) of Injection Moulding.

Despite the increased time to start production by using Injection Moulding, after producing 469 sets of coins it becomes more advantageous to use this process in comparison to 3D printing.



Production Cost Assessment

The cost assessment considers: Investment (One small 3D printer and Injection Mould), Operation costs (Material, Consumables, Energy, 20ton Injection Mould Machine leasing and Labour).



Nevertheless, it is important to highlight that the production associated to inject moulding is much faster when comparing both approaches. The cycle time of Injection moulding of one set (5 coins) is only 20 seconds against the 2 hours and 51 min in 3D printing.

In terms of production costs, 3D printing is more advantageous up to 469 sets, being the cost per set of around 4.5€. As expected, the higher investment with the injection mould would require more batches to be cost effective.

Observations / Conclusions

3D printing is more advantageous time wise up to 469 batches and cost wise up to 4958 batches;

A 3D printing enables the production of other type parts/geometry (one machine multiple parts) contrary to the injection mould (one mould one part);

3D printing is ideal to produce small batches while injection moulding is undoubtedly the best process for large batch productions.



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