

## The Next Production Revolution

### Implications for Governments and Business

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## Corrigendum

### Page 2:

Correction of the previous corrigendum text:

Revised version, ~~May~~ September 2017.

### Page 186:

● Replacement of Figure 5.6\* + insertion of a 1-line note underneath the figure:

*Note:* The black horizontal line at the end of each bar represents the error range.

● Replacement of text: In the 1<sup>st</sup> paragraph, replace the red strikethrough text with the blue one:

For example, Figures 5.6 and 5.7, derived from the aforementioned studies, show LCA comparisons of machining via a CNC mill versus several 3D printers, all producing parts 24 hours per day, seven days per week. The LCAs use the ReCiPe Endpoint H method (Goedkoop et al., 2009), which creates a single overall environmental impact score from 17 different types of impact, including climate change, acidification, eutrophication, atmospheric particulates, fossil-fuel depletion, mineral depletion, human toxicity, and others. ~~Colours show what part of the life cycle causes these impacts: shades of blue are manufacturing, transport, and disposal of the printer or CNC mill itself (not the parts created), yellow is electricity use during part creation and/or idling, dark brown is the material used in the final parts produced, light brown is any material consumed that does not end up in the final part (be it model material or support material), and grey is the mill's cutting fluid and lubricating oil.~~ These impacts can be grouped by the stage of the life cycle under which they occur: impacts relating to manufacturing, transport and disposal of the printer or CNC mill, impacts associated with electricity use during part creation and/or idling, impacts from materials use in the final parts produced, impacts arising from waste materials (be it model material or support material), and finally, impacts of the mill's fluid use.

### Page 187:

● Replacement of Figure 5.7\* + insertion of a 1-line note underneath the figure:

*Note:* The black horizontal line at the end of each bar represents the error range.

### Page 188:

● Replacement of Figure 5.8 + insertion of a 1-line note underneath the figure:

*Note:* The black horizontal line at the end of each bar represents the error range.

● Deletion of text: at the end of the 1<sup>st</sup> paragraph, delete the red strikethrough text:

Injection-moulding is the most common manufacturing method for plastic consumer product parts. The potential for major changes in environmental impact due to replacement by 3D printing could be significant if they happen on a large scale. For example, Figure 5.8 compares the environmental impact of injection-moulding (based on standard LCA data) to that of different 3D printing technologies (based on empirically measured data from Figures 5.6 and 5.7). Rather than dividing each bar into components of e.g. energy or waste, the graph displays one bar per printer and material type, ~~faded at the end to show uncertainty more intuitively than an error line.~~