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How to improve operations when 3D printing is used for manufacturing of parts for end use

Title of the dissertation	Improving additive manufacturing enabled operations – A forward looking empirical study
Contents of the dissertation	Three-dimensional (3D) printing is a production technology previously used for prototyping. Recent improvements allow for new applications, such as on-demand production of final parts. This is exciting from an operations management perspective as allows for manufacturing customized parts in very low quantities anywhere in the world, without the costs of mold making or tool making. 3D printing also makes it possible to combine many parts into one part and simplify the assembly and logistics. The starting point of this research was not to compare 3D printing to conventional manufacturing, but instead to explore ways of using 3D printing to improve operations and supply chain management. The novel uses explored in the thesis are; production near the point of use, dynamic change over from 3D printing to conventional manufacturing as demand increases in a new product launch, and the use of 3D printing for directly producing parts for assembly as kits. The findings are based on the results of five articles. Real-world cases and experiments were used in this research. As the 3D printing improvement continues, it is important to show the managers of manufacturing companies, what are the requirements and also the benefits of implementing 3D printing for production.
Field of the dissertation	Industrial Engineering and Management, Operations management
Doctoral candidate	Siavash Haghighat Khajavi, M.Sc.(Tech.) Born in Tehran, Iran, 1986
Time of the defence	6.4.2018 at 12 noon
Place of the defence	Aalto University School of Science, lecture hall AS1, Maarintie 8, Espoo
Opponents	Professor Juha-Matti Lehtonen, The National Defence University, Finland, and Professor Christopher Tuck, University of Nottingham, UK
Custos	Professor Jan Holmström, Aalto University School of Science, Department of Industrial Engineering and Management
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