

Direct Manufacturing Research Center

Interdisciplinary Additive Manufacturing Research Institute

The DMRC is a proactive collaboration of key technology stakeholders who have a common interest in advancing Additive Manufacturing technologies from Rapid Prototyping towards dependable, production-ready Direct Manufacturing technologies. The aim of the DMRC is a reliable, repeatable and production capable Direct Manufacturing System. As an interdisciplinary scientific organization, the University of Paderborn is the hub of the DMRC. The DMRC's integration within a university makes it possible for students of engineering sciences to be trained on the newest generation of equipment. In addition, the DMRC relies on the skills of several experienced industrial partners who are part of the DMRC. With this approach, all important elements of the Direct Manufacturing value network are represented, allowing a holistic approach to finding technical solutions.



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Service Offer

Finding Potentials for Additive Manufacturing



Finding Potentials for Additive Manufacturing

Motivation

Additive Manufacturing is considered a technology of the future. It offers unprecedented scope for product design and inspires to think in novel dimensions. Due to the broad media coverage, Additive Manufacturing is currently closely being monitored by many companies with regard to its application potentials.

The promises are manifold: Creating unthinkable parts, leaps in lightweight design, cutting manufacturing chains, mass customization and even new business models. Companies throughout all branches are testing the water, waiting for the long-announced revolution to unfold.

In reality, technology and business analyses are cluttered with today's technological challenges – a lack of reproducibility, dimensional accuracy problems and an urgent need for online-monitoring features. While it is certainly true, that these issues keep the technology from the vision of a prosumer-society, they should not preclude companies from assessing the potential of Additive Manufacturing today. Despite its hype, Additive Manufacturing is essentially not much unlike any other manufacturing technology. That is why conventional teachings of

strategic technology planning also hold true for Additive Manufacturing. Regardless of today's drawbacks, the potentials of AM need to be planned ahead for there is too much at stake.

Our Solution

In our pursuit of potentials for Additive Manufacturing we are looking for the reasons you should or should not apply the technology in your company. More precisely, we are going to find the very business areas which are most suitable for the application of Additive Manufacturing. The foundation for our approach is both, our competence in methodological proceeding and our experience from many related industry projects. Our service offer entails the following phases:

Structuring your business

Very rarely, Additive Manufacturing qualifies for all your business areas equally. Experience has shown that due to the specific requirements posed by customers, products, processes and IT systems certain areas are more suitable than others. Therefore, we begin by structuring your business, usually by employing a market segment and product analysis. That is not to say a

company's business is usually unstructured. The truth is usually that the means of structuring seldom qualify for the purpose: We want to identify the centers of gravity for your business – the main business segments. Not rarely, companies are surprised by the results.

Foresight

On a long term scale, you would be ill advised to look for application potentials of Additive Manufacturing in your business of today. That is why, besides today's main business segments, we identify promising future business segments. Established foresight methods enable us to identify attractive levers to enrich your portfolio. Not yet fully convinced? Ask our partners about what thinking ahead the future is really worth.

Requirements Identification

After all, using Additive Manufacturing is only reasonable, if the technology either 1) solves one of your problems (i.e. "This process takes too long "), 2) alleviates a customer's pain (i.e. "This product is too heavy") or 3) helps you to create entirely new products. A product based on Additive Manufacturing is only going to be successful, if it solves a problem in a unique fashion. Therefore, knowing the requirements in main business segments is a crucial prerequisite to know which role

the technology can play in it. We guide you through this phase (e.g. applying an elaborate questionnaire).

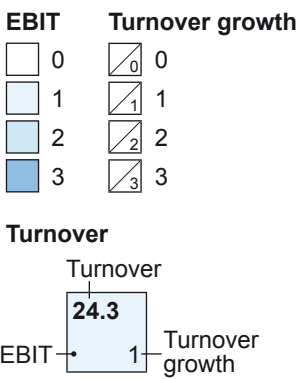
Potentials Allocation

From our yearslong experience with Additive Manufacturing we know, what the technology is capable of doing and are well aware of its limitations. Based on the identified requirements, we show you reasonable application potentials of today and tomorrow. We arrange contacts with specialists from the entire value network.

Your gains

Together with you, we embark on a visionary journey to identify application potentials for Additive Manufacturing. In doing so, we leverage our know-how along the technology's value chain and reveal diversification paths for your business. You will obtain a solid basis of decision-making in today's fuzzy world of promises. All information, generated along the way towards Additive Manufacuturings application potentials in your company will be made available to you in a concise manner.

Products and services	Market segment						
	China	Europe	Australia	Northern America	Central America	Southern America	Africa
Coupling	3.6 1	9.1 0	0 0	0.6 0	4.3 3		
Gear	5.2 3	0.5 2	11.4 3	6.7 3	26.4 1		
Motor	7.6 1	6.2 3	0.8 1	4.2 3	1.7 3		
Gas turbine		14.5 1	0.5 0	1.6 2	0.5 0	4.3 3	6.7 3
Steam turbine		8.8 3	2.1 1	0.9 3	0.6 2	0.6 3	0.3 3
Generator	13.5 0	46.5 1	0.9 0	0.4 3	2.5 0	2.5 3	0.4 0



Structuring a business using a market segment-product group matrix



Potential identification in a workshop (© Rido, Fotolia)