

Is Additive Manufacturing a Mature Technology

<http://dx.doi.org/10.3991/ijes.v3i1.4505>

In 2011 3D printing became a hot topic in many journals and almost every decent journalist tried to cover the topic of Additive Manufacturing in their journals.

Although public interest has mostly been triggered by the potential possibilities of using these technologies in medicine for printing »spare parts« for humans such kidneys, liver, etc or even for printing everything imaginable at home, this new interest has pushed many new applications into more conventional environments.

Industry has been using these technologies for almost 30 years to overcome obstacles during the design and development processes. However, with the developments of new materials and machines the products of Additive Manufacturing became useful in everyday life although average humans were unaware of the existence of 3D printers.

Spawned by the new interest of journalists, Additive Manufacturing soon moved into the agendas of many politicians and decision makers, thus enabling Additive Manufacturing to reach third place amongst the top ten Strategic Technology Trends for 2015.

Following published research in both RPJ as well as at the Proceedings of iCAT, we can clearly see the shift of interest from pure application-driven prototyping towards more production-driven demands. For many years experts have been trying to push the additive technologies where applicable into industrial environments in order to replace some conventional manufacturing processes. Unfortunately many attempts failed because of the extremely low reliability and efficiency levels of the available AM machines. It was soon clear that the AM industry was immature as yet and that it still struggled with very basic problems of running the machines. Fortunately with the recent popularity of AM, investors have started to support the industry's efforts toward a more reliable machine base.

The scientific papers also show this significant shift, which is highly obvious in the collated papers for conferences and journals. The majority of papers nowadays deal with problems that prevent the AM technologies from being used for industrial manufacturing. The described problems and solutions range from definitions of materials' behaviour in regard to age-related complications and from working parameters to the accuracies of end-parts. The knowledge included within the presented solutions is very broad and interdisciplinary, thus making the solutions reliable and versatile.

I can conclude by stating that we are facing Additive Manufacturing's coming of age and the moment when many of the journalists' prognoses and our secret wishes will come true.

Prof. Dr. **Igor Drstvenšek**

President of the organizing committee for iCAT 2014

