

THESIS PROPOSAL

Reference: S. Cacace, Professor Q. Semeraro

Subject: Cost models for L-PBF technologies

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With the recent evolution of additive manufacturing (AM), accurate cost prediction models are of increasing importance to assist decision making during product development and process selection activities. Cost estimation is a complex task that requires a large amount of manufacturing data that must be synchronized with many different aspects. As a result, various AM cost models have been developed in the literature. In general, the role of a cost model is to predict the overall costs that may be incurred during the product development and manufacturing phases. The ability to accurately predict the cost structure allows the company to achieve its business objectives and, therefore, it is considered a key component to assist in the strategic planning of production and the development of the control system.

The objective of the thesis is to develop a cost model for L-PBF processes considering different aspects (for example build failure probability, security costs, maintenance costs, part removal, part design and powder recycling). Models will be implemented in Matlab using information from literature and knowledge from our activities in the lab.

Starting date: Any moment.

Required Knowledge: Basics of Matlab coding, Design and Analysis of the experiments course, Advanced Manufacturing processes course