



Biofabrication and the medical field: which is the scenario for 2030?

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(Biofabrication and bioprinting (in general))

Abstract: Nowadays, Additive Manufacturing is more and more a frequent topic of discussion, due to its effects and causes, not only at a technological level, but also in terms of economic, social and political levels and its impact has been observed on several sectors, especially in the medical field. These technologies have created a specific technological field, namely biofabrication / biomanufacturing which is capable of producing medical devices with the combination of biomaterials, drugs and growth factors with or without the inclusion cells for the production of biomedical implants for both permanent or temporary applications. These technologies have shown to be capable of meeting the requirements demanded by the medical sector. However, the significance of these technologies can't be based only on the current context, but also need to be assessed in the future context. This study intends to develop reliable future scenarios for this technology, for a very specific and important sector, namely the medical field. Concerning this prediction, academic studies dedicated to additive manufacturing and the medical field are non-existent. In this context, the Delphi method combined with the PEST analysis was applied to world experts in the field of biomanufacturing with the goal to presenting the impacts related to this technology for the horizon of 2030, concerning four different dimensions: political, economic, social and technological. The results made it possible to obtain projections for the next decade, revealing satisfactory levels of agreement among the specialists in the four dimensions that are included in this analysis, with the highest values related towards the technological dimension. This study also provides an awareness of the needs and concerns of the usage of this technology in the medical domain.

Keywords: 3D Printing; Biofabrication; Medical Applications; Delphi Method; PEST Analysis.

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