Title: 3D printing in medicine: the experience of the Italian Digital Biomanufacturing Network (IDBN)

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I. Abstract Body (up to 250 words)

With the modern developments in additive manufacturing, or 3D printing, many areas of Medicine are expected to experience revolutionary changes in the next few years. Perhaps all the competences and abilities necessary for these steps forward are ready, but it is not trivial to put all these in connection, and with the right interfaces. The value chain of these products in health-care in fact are particularly intricate, because of the critical aspects implied in any product to be used for patient treatments. These can be external (orthosis, exoskeletons, etc.) or internal (implants, prostheses, etc.) devices, or surgical guides, therefore with different levels of invasivity and risks.
Many professionals and instruments are involved: medical doctor, technicians, bioengineers, radiologists, technologies, designers and also lawyers and economists. Puzzled is also the context of the organisations in this arena. Many R&D institutions are ready to provide their clues to potential industrial actors. A number of companies can receive and develop these. However, many health-care providers and hospitals are still concerned about this technology and the personalisation of the treatments. The new EU medical device regulation published on May 2017, the issues associated to intellectual property rights, the necessary new business models etc. are other complications in this process.
Europe appears to be particularly active in this new scenario, with a number of exhibitions, conferences and initiatives. In Italy we have the Italian Digital Biomanufacturing Network born exactly to facilitate all these connections and communications; at the first Congress, May 2016, 150 were the participants and 70 the different clinical experiences reported.

II. Image:



Picture at the founding members, at the foundation event, Istituto Ortopedico Rizzoli, June 2015

III. References:

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IV. Biographies:

Claudio Belvedere has completed his PhD from University of Bologna, Biomedical Engineering. He has published about 40 papers has been serving as an editorial board member in a number of reputed international journals.
Alberto Leardini has completed his DPhil from University of Oxford, in Orthopeadic Engineering. He is the Director of the Movement Analysis Lab, Istituto Ortopedico Rizzoli, Bologna, ITALY. He is in the Steering Group of the International Foot & Ankle Biomechanics community (i-FAB), in the Executive Council of the International Society of Biomechanics (ISB), and President of the IDBN.

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