Abstract

Additive manufacturing is a revolutionary process technology. While it has yet to bring about a dramatic transformation of the manufacturing system, there are early signs of how the characteristics of this novel production process can improve resource efficiency and other sustainability aspects as well. Besides sustainability perspectives, AM is also offering a lot of opportunities for local business. AM is unique manufacturing than traditional so researchers and engineers have improved the developments in this unconventional manufacturing process. This paper is a collection of works in the field of manufacturing technology, business, sustainability and developments. In this paper, experiment has explored the savings of time, energy, cost and usage of materials during additive manufacturing process of products.

References

1. Zhenbin Liu, Min Zhang, Bhesh Bhandari, Yuchuan Wang 3D printing: Printing precision and application in food
2. Dr Richard Collins and Dr Bryony Core Additive Manufacturing and Lightweight Materials for Aerospace and Defense 2018-2028
3. Sanjay Kumar, Aleksander Czekanski Roadmap to sustainable plastic additive manufacturing
4. T.S Srivatsan, T.S Sudarshan Additive Manufacturing Innovations, Advances, and Applications [2-3]
5. Marcel Bogers, Ronen Hadar, Arne Bilberg Additive manufacturing for consumer-centric business models.
6. I. Gibson, I D. W. Rosen, I B. Stucker Additive Manufacturing Technologies Rapid Prototyping to Direct Digital Manufacturing[3-5]
7. D. Manfredi, F. Calignano Laser powder bed fusion of aluminum, titanium and nickel based alloys: Materials and design investigations.
8. S.L. Lin, C.C. Lin, D.Y. Lin, C.S. Chuang Laser Additive Manufacturing Technology in Titanium 64 Implant of Microstructure Fabrication and Analysis.
9. Olivier Kerbrat, Florent Le Bourhis, Pascal Mognol and Jean-Yves Hascoët Environmental Impact Assessment Studies in Additive Manufacturing.
10. Dr Richard Collins and Dr Bryony Core Additive Manufacturing and Lightweight Materials for Aerospace and Defense 2018-2028.
11. F. Singer ; D. C. Deisenroth ; D. M. Hymas ; M. M. Ohadi Additively manufactured copper components and composite structures for thermal management applications.
12. Tong WU, Andrew A. Wereszczak , Hsin Wang, Burak Ozpineci, Curt W. Ayers Thermal Response of Additive Manufactured Aluminum
13. Qiang Xue ; Xing Ai ; Jun Zhao ; Yuanyuan Liu ; Yonghui Zhou Analysis of microstructure and mechanical properties of graded nano-composite Si3N4-based ceramic cutting tool material
14. Z. Zhu ; V. Dhokia ; S. T. Newman A novel process planning approach for hybrid manufacturing consisting of additive, subtractive and inspection processes
15. V. Brøtan, K. M. Bovie The Hybrid Manufacturing Cell: Determining Key Parameters in the Integration of Powder Bed Fusion with High Speed milling
16. John O. Milewski Additive Manufacturing of Metals From Fundamental Technology to Rocket Nozzles, Medical Implants, and Custom Jewelry[pp31-31]
17. Ashwini Kale, Abhijit Joshi A Predictive Business Ranking System: For Local Businesses
18. Dazhong Wu, David W. Rosen and Dirk Schaefer Cloud-Based Design and Manufacturing
19. Frank T. Piller, Christian Weller and Robin Kleer Business Models with Additive Manufacturing—Opportunities
20. Harm-Jan Steenhuis, Xin Fang and Tolga Ulusemre Strategy in 3D Printing of Food
21. nestle 3d printing https://3dprint.com/tag/nestle-3d-printing/
22. PepsiCo Built a Better Potato Chip with 3D Printing https://all3dp.com/pepsico-built-a-better-potato-chip/ (accessed November 2018)
23. Emily E. Petersen 1, Romain W. Kidd 2 and Joshua M. Pearce Impact of DIY Home Manufacturing with 3D Printing
24. Lifestyle Products: Cooksongold - EOS developes Additive Manufacturing technology capable of series production for gold https://www.eos.info/press/customer_case_studies/glittering_prospects (accessed October
Developments of Additive Manufacturing: Local Business and Sustainability

25. M.K. Thompson, G. Moroni T. Vaneker Design for Additive Manufacturing: Trends, Opportunities, Considerations and Constraints
26. Konstantinos Salonitis, Saeed Al Zarban Redesign Optimization for Manufacturing Using Additive Layer
27. Sebastian Häggren, Lars Pejryd Jens Ekengren (Re)Design for Additive Manufacturing
28. Simon Ford*, Mélanie Despeisse Additive manufacturing and sustainability: an exploratory study of the advantages and challenges
29. Liang Hao, David Raymond, Giovanni Strano, Sasan Dadbakhsh Enhancing the Sustainability of Additive
30. PT Freeport Indonesia (PTFI) currently employs two mining methods https://ptfi.co.id/en/how-do-we-operate
31. Aubrey L. Woern, Dennis J. Byard 1, Robert B. Oakley, Matthew J. Fiedler Samantha L. Snabes and Joshua M. Pearce Fused Particle Fabrication 3-D Printing: Recycled Materials’ Optimization and Mechanical Properties
32. 3D Printing: The Future of Remanufacturing http://www.duxes.cn/eNewsletter/RIF12/en/articles_2/ (accessed November 2018)
33. Remanufacturing by 3D Printing of Metals? A Great Potential but Big Challenge http://www.sme.org/MEMagazine/Article.aspx?id=8589937035&taxid=1433 (accessed October 2018)
34. Maija Leino, Joonas Pekkarinen, Risto Soukka, The role of laser additive manufacturing methods of metals in repair, refurbishment and remanufacturing-enabling circular economy
35. Simon Ford, Mélanie Despeisse Additive manufacturing and sustainability: an exploratory study of the advantages and challenges.
36. Siavash H. Khajavi, Jouni Partanen, Jan Holmström Additive manufacturing in the spare parts supply chain
37.

**Index Terms**

Computer Science
Information Sciences

**Keywords**

Additive manufacturing (AM), local business, sustainability