

## 3D PRINTING/ADDITIVE MANUFACTURING FOR INDUSTRY 4.0

**Keywords:** 3D printing, additive manufacturing, Industry 4.0

### Background to Case Study

*Industry 4.0 is an industrial revolution that is driven by the development of new technologies. One of these technologies is 3D printing/additive manufacturing, which is considered a key competence in the fourth industrial revolution. Entrepreneurs who bring this technology into their business expect increased productivity and lower costs. 3DP is a very dynamic industry with rapid developments in many different areas: materials, applications, equipment, legislation, software, jobs, etc. It will significantly affect the future of peoples and companies.*

*To sum up, 3D printing has become extremely popular in recent years, the main reason being that it is used in almost every company and household, regardless of the purpose of the print or industry*

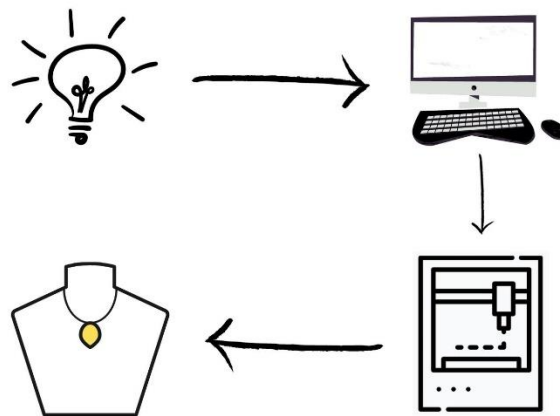
### Introduction to the Case Study and it's growth within Industry 4.0.

*The application of 3D Design and 3D Printing offers many advantages in the company. Industry 4.0 gives us many opportunities. One of the most important in the examined case is the possibility of 3D design according to individual needs, thanks to which the project is personalized and unique.*

*Thanks to this technology, the printouts are extremely precise without the need for time-consuming processing. Another important element that supports the development of the company is the cost of 3D printing, which is incomparably low compared to traditional production methods, because it does not require so many specialized workers to operate the machines. In this technology it is possible to use many materials with a wide range of applications and properties, e.g. plastics, resins, glass, metals, rope or ceramics.*

## The Case Study and Industry 4.0 Elements: A Pictorial Overview

*In the following picture we can see simplified 3D printing steps. It all starts with an idea. An idea is usually created by the customer, it is original and unique. Then we start to create the project, at this stage we have to take a lot of time to take care of the details. Once we have the final version of our project, we can print it, so we can get the final product.*



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### The Element Explored within Industry 4.0 Application.



*Kohha has existed since 2015 and was founded by two brothers who have always been involved in this sector. The Kohha company has in its offer original jewellery, which is created according to individual projects using software and 3D printers. The offer includes both delicate gold-plated jewellery and extremely durable rhodium silver jewellery.*

*3D projects in the jewellery industry make it easier and more efficient to work on a new collection and personalised jewellery. Thanks to this technology we can make full size rings, scale the necklace to an earring and have full control over the weight of the target product. The 3D model allows us to prepare patterns with a high level of detail in a faster time than with a traditional workshop. If we don't like something in the design, we can easily go back to an earlier version and do another design.*

	<p>3D printing is a tool that streamlines work, saves time and helps in the implementation of projects. For example, some projects made with this technology would not be possible to do normally and would not be profitable.</p> <p><i>“We want our jewellery to make you stand out from the crowd: the beauty of design, craftsmanship, detail. The harder the better.</i></p> <p><i>Sometimes we have to give up something because what is created does not meet our expectations, but well, when it comes to jewellery, we do not accept compromises.”</i></p>
<b>Application Target Audience</b>	<i>The results of the case-study are intended for use by SMEs, Enterprises and Entrepreneurs.</i>
<b>Resources Used:</b>	<p><a href="https://stasiewicz-jewelry.com/blog/bizuteria-drukowana-3d/">https://stasiewicz-jewelry.com/blog/bizuteria-drukowana-3d/</a>  <a href="https://www.kohha.com/O-nas-Bizuteria-autorska-Kohha-com-cabout-pol-29.html">https://www.kohha.com/O-nas-Bizuteria-autorska-Kohha-com-cabout-pol-29.html</a>  <a href="https://www.kohha.com/Jak-powstala-autorska-bizuteria-srebrna-Kohha-blog-pol-1502036463.html">https://www.kohha.com/Jak-powstala-autorska-bizuteria-srebrna-Kohha-blog-pol-1502036463.html</a></p>
<b>Further Reading:</b>	<p><a href="https://www.kohha.com/Kohha-na-targach-Kijow-Fashion-blog-pol-1582395185.html">https://www.kohha.com/Kohha-na-targach-Kijow-Fashion-blog-pol-1582395185.html</a>  <a href="https://www.kohha.com/Ekskluzywna-bizuteria-inspirowana-architektura-i-swiatlem-blog-pol-1540646248.html">https://www.kohha.com/Ekskluzywna-bizuteria-inspirowana-architektura-i-swiatlem-blog-pol-1540646248.html</a></p>