# Article information:

Direct Ink Writing Based 4D Printing of Materials and Their Applications - Wan - 2020 - Advanced Science - Wiley Online Library  
<https://onlinelibrary.wiley.com/doi/10.1002/advs.202001000>

# Article summary:

1. 4D printing is a technique that endows static printed structures with dynamic properties over time.

2. Direct ink writing (DIW) is a superior fabrication technique for 4D printing due to its open source for various types of materials.

3. DIW has been used to print various types of materials, such as shape memory polymers, hydrogels, and liquid crystal elastomers, with potential applications in the biomedical field, electronics, soft robotics, and smart actuators.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article provides an overview of the current state-of-the-art achievements about 4D printing through direct ink writing (DIW). The article is well written and provides a comprehensive overview of the topic. It covers the types of materials used in DIW-based 4D printing, the printing strategies employed, actuated methods available, and potential applications in various fields. The article also discusses the advantages of DIW compared to other 3D printing techniques such as stereolithography (SLA), digital light processing (DLP), fused deposition modeling (FDM), and PolyJet.

The article does not appear to be biased or one-sided in its reporting; it presents both sides equally by discussing both the advantages and disadvantages of each 3D printing technique mentioned above. Furthermore, it does not contain any promotional content or partiality towards any particular technique or material type. The article also mentions some possible risks associated with DIW-based 4D printing such as viscosity adjustment being required for successful printing and degradation of temperature-sensitive components when using FDM printers.

In conclusion, this article appears to be reliable and trustworthy in its reporting on 4D printing through direct ink writing (DIW). It provides an unbiased overview of the topic without promoting any particular technique or material type while also noting some possible risks associated with DIW-based 4D printing.

# Topics for further research:

* DIW-based 4D printing applications
* DIW-based 4D printing materials
* DIW-based 4D printing strategies
* DIW-based 4D printing actuation methods
* DIW-based 4D printing advantages and disadvantages
* DIW-based 4D printing risks and safety considerations

# Report location:

<https://www.fullpicture.app/item/6c389fcca7346d8bb43843f465de8b0a>