Supported by:

Federal Ministry
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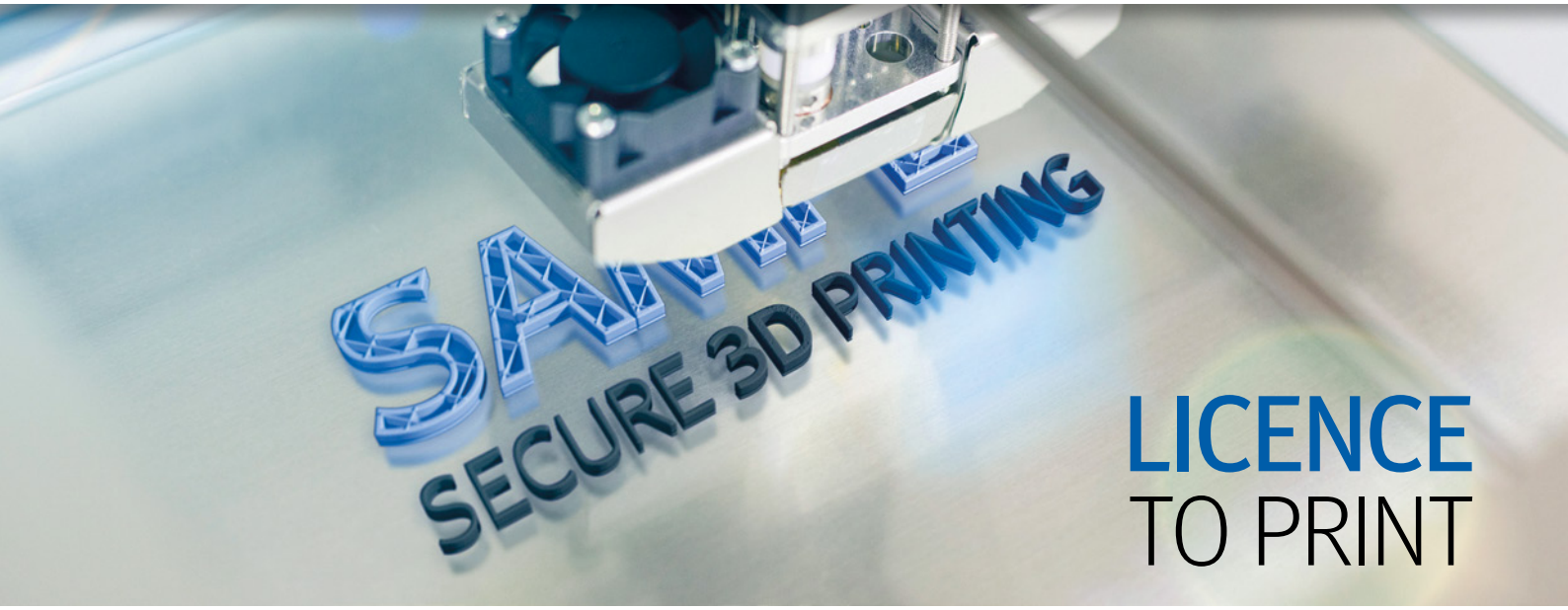
by the German Bundestag

SAMPL

SECURE **3D** PRINTING



LICENCE TO PRINT

Are you a printer manufacturer, manufacturing company or print service provider?

Become a partner in the SAMPL testbed and implement your 3D printing processes in a secure and protected environment.

- ☑ Are you a manufacturer of 3D printers and want to make your products more secure and provide your customers with a competitive advantage?
- ☑ Are you a manufacturing company that uses or wants to use additive manufacturing processes? Do you also want to protect your products against counterfeiting and reliably document the manufacturing process and part usage?
- ☑ Are you a print service provider and want to offer your customers additional security?
- ☑ Do you want to quickly and easily test or implement SAMPL technology for your specific use cases?

You can participate in the following ways, depending on the nature of your business:

Printer manufacturers:

- ✚ You can integrate your printer control units in the SAMPL testbed. An easy-to-use software interface to the SAMPL testbed's Secure Printing Bridge is available for this purpose. The Secure Printing Bridge provides all the functions required for blockchain integration and file decryption.
- ✚ You can invite existing and prospective customers to participate in the testbed and evaluate the secure exchange of print data.
- ✚ You decide when you want to implement SAMPL technology as fully-featured product functionality in your printer control units.

Manufacturing companies:

- ✚ You and whoever will be performing your 3D printing – your current or potential print service provider, partner or your own company site – register as users with the OpenDXM GlobalX SAMPL testbed. All you need is a web browser. Your print service provider or company site also needs a SAMPL-capable 3D printer.
- ✚ You can then send print files to your print service provider or company site securely for printing. Printing is then performed on the basis of the number of print licenses you granted per print job.
- ✚ You can also offer your customers product traceability.

Print service providers:

- ✚ You register as a print service provider with the OpenDXM GlobalX SAMPL testbed. You can, of course, also invite your customers to participate.
- ✚ You need at least one SAMPL-capable 3D printer. Feel free to contact us and ask about the SAMPL capability of your printer models. We are also happy to join you in approaching your printer supplier about making their printers SAMPL-capable.
- ✚ As a participant in the testbed, you can use the secure SAMPL technology to receive print files from the participating manufacturing companies and present yourself as a trusted service provider.

Regardless of whether you are a printer manufacturer, manufacturing company or service provider,
all you have to do is contact the SAMPL coordinator about participating in the testbed.

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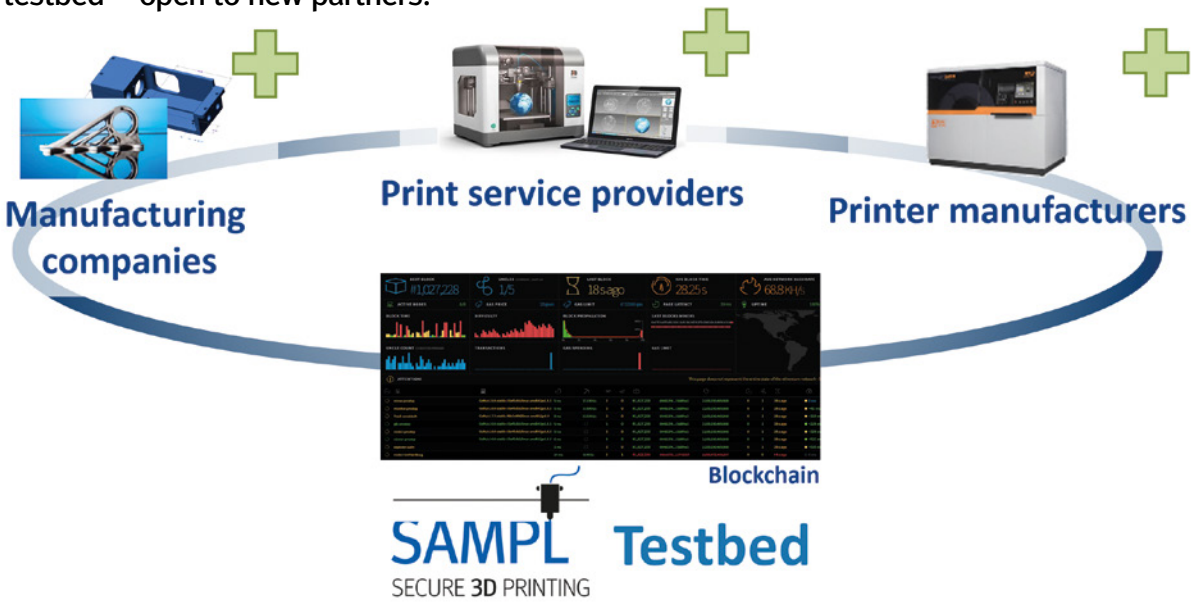
SAMPL testbed – open to new partners!



SAMPL – chain of trust for additive manufacturing

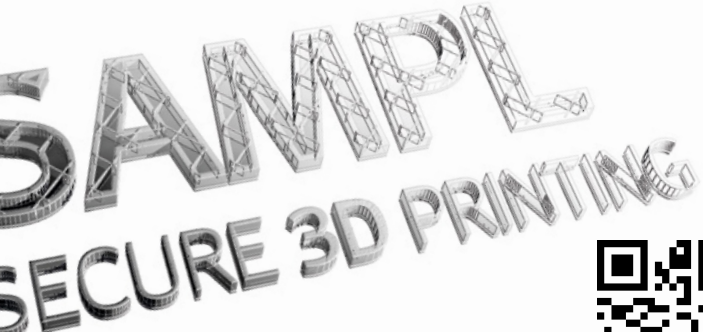
SAMPL is a project funded by the German Federal Ministry for Economic Affairs and Energy (BMWi) within the framework of the PAiCE program. SAMPL develops an end-to-end security solution for additive manufacturing processes like 3D printing. The solution secures the entire process, from creating the digital 3D print data to exchanging the data and printing it on specially protected 3D printers. Traceability of the manufactured products is supported by RFID chips or other means of unique product identification and additional information in the Blockchain.

SAMPL is based on the data exchange solution OpenDXM GlobalX from PROSTEP, which, in addition to the existing encryption mechanisms, has been expanded to include a digital license management based on blockchain technology.

Blockchain technology comprises methods for verifying the authenticity of transactions and is used for digital payment transactions involving Bitcoins for example. However it can also be used for issuing licences for printing a defined number of parts. The required transactions are executed by “smart contracts“ which are developed within the framework of the SAMPL project.

Implementation of the blockchain technology is being performed by the company Consider IT GmbH and the University of Ulm. NXP Semiconductors provides the secure elements for connecting the 3D printers to the blockchain and the RFID chips for tagging the printed components.

The EOS subsidiary 3D MicroPrint, a competent provider of industrial 3D printers, is also a partner in the project and ensures the integrity of the chain of trust, from the rights holders to the 3D printers.



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