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Manufacturing Smart Objects by Printing Technologies

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Printing Technologies are additive technologies which allow the deposition of functional materials exactly at positions where they are needed to assure a certain functionality. E.g. employing traditional inks, printers print the functionality color. During the development of traditional and digital printing technologies press makers and printers gained a number of very special competences which enable them to extend their scope to print inks addressing functionalities beyond color. By printing inks which represent the functionalities *insulation*, *conductivity* and *semi-conductivity* in appropriate patterns on top of each other, electrical circuitry, can be manufactured which allow introducing new functionalities into printed matter. The choice of the technology per printed functionality depends on the printability of the functional ink.
The paper will discuss opportunities, challenges and limitations of printing smart objects with functionalities beyond color.