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Title	Development of Direct Write Technologies for Surface Integrated Systems
Abstract	<p>Direct Write(DW) is an additive manufacturing process that is used for the fabrication of electronics and sensors. BAE Systems is investigating DW for enhancing functionality of structural systems by printing functional elements directly onto structural surfaces. The principle benefits of this are the efficient use of space on an existing system, saving weight by reducing packaging and fasteners, and enabling novel designs in the way functional systems are integrated with the host structures. Furthermore, DW enables the fabrication of complex 3-dimensional structures via layer by layer deposition, but each layer or part of a layer can contain many different materials, enabling different functionalities to be built within each layer. This enables the application of DW to be taken further by removing the prior-structural component and using the DW functional element to provide the structure and the additional functionality. This is the subject matter of the EngD thesis; it is a novel application of DW and requires an understanding of the current processes, ascertaining the design, material and process requirements to develop it into a concept that would provide multifunctional properties from its structural shape and its materials.</p>