The means to achieve a digital transition of manufacturing shop floor

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Abstract. The digital transition of manufacturing shop floors makes topical an empirical study of designing a cybernetic system to monitor and control the performance of smart manufacturing. This paper uses Transdisciplinary Design Science (TDS) to explore how a company producing large products designs and evaluates a cybernetic system providing the needed functionalities to monitor and control an unpaced manufacturing line. TDS involves an exploration of a solution, designing the cybernetic system, followed by an explanatory elaboration of theories. By studying the exploration and explanation through the lens of the means-end-analysis the paper shows that the means to enable a digital transition of the manufacturing shop floor have a transdisciplinary nature; the transfer of means across disciplinary boundaries is either to translate or transform.

Keywords. Transdisciplinarity, Cybernetics, Digitalisation, Smart Manufacturing

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