

Reflective design of technology for human needs

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Abstract Inspired by an economic interpretation of the Faustus drama allegorically disclosing the ‘alchemical’ nature of modern economy, the paper presents a critical view on the development of technology as concomitant phenomenon of work practices with particular focus on manufacturing. It starts with a theoretical perspective on the dynamics of creating explicit propositional knowledge and its re-appropriation for practical use. This lays the ground for understanding how technical artefacts emerge from and, in turn, affect social practices. It further helps to understand the development of human reflective action competence and working capacity as most relevant forces of production in complex and dynamic market environments. These relationships are exemplified in some detail by looking at the problematic development and use of IT in manufacturing’s value creating processes. The paper finally advocates reflective attitudes and evolutionary procedures as basic principles for designing useful and useable IT systems according to human needs and for protecting oneself from the Faustian omnipotence delusion of endless and effortless wealth creation.

Keywords Technological development · Knowledge creation · Knowledge appropriation · Human reflective action competence · Forces of production · Information systems · Manufacturing

1 Introduction: Faustus as metaphorical drama

According to the classical drama by J. W. Goethe, Faustus is a figure personifying the human drive for ceaseless activity, creative dynamics and visionary acting. In his excessive striving for knowledge and perpetuated creative activity, Faustus fails, however, to recognise natural bounds he tries to ultimately transcend by applying magic forces in which Mephisto effectively assists him. This assistance is based on a bet between the two according to which Mephisto is obliged to provide any of his powerful services as long as Faustus has not yet experienced ‘the highest moment’ he wants to last, that is, the moment he has conquered time and transitoriness in his life activities (Coleridge 2007).

In his brilliant book entitled ‘Money and Magic’, the Swiss macroeconomist Binswanger (1994) presents an economic interpretation of the drama demonstrating the “alchemical” nature of modern economy. While metaphorically interpreting the original efforts of transforming lead into artificial gold as a symbol for breezingly creating unbounded value, the alchemical process is conceived of as continuation of demiurgical world creation by humans and seen as an attempt to overcome transitoriness by unlimited value creation through capital accumulation ceaselessly transforming things into money. While money as a product of the human mind thus deploys the fascination of endless and effortless proliferation, modern economy turns out to be continuing alchemy with other means. This economic interpretation of the drama is substantiated by the fact that Goethe served as a Minister of Finance to the Weimar court for more than ten years, a position in which he was well aware of the latest economic theories and practises of the time (e.g. the scene with Faustus and Mephisto at the emperor’s court is written according to the money creation

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