

of entrepreneurs within the scope considered is tangibly translating into statistic growth in the quality of the technologies implemented industrially, into sustainable development and into the strengthening of a knowledge- and innovation-based economy. The development directions of the most advantageous technological solutions of surface layers structure and properties formation of products and their elements produced using materials surface engineering technologies considered as critical were indicated as part of own materials science-heuristic and foresight research [20] pursued together with top-notch, internationally recognised experts. The selected critical technologies of materials surface engineering understood as the priority technologies with the best development prospects and/or of key significance in the industry over the assumed time horizon were subjected to own research [6, 18, 20] in order to evaluate their value according to objectivised criteria against the micro- and macroenvironment and to identify their development prospects over the nearest 20 years. In this chapter the state of the art as well as evaluation and development prediction methodological assumptions for materials surface technologies is presented. The next chapters of this book present the detailed results of materials science and foresight investigations in relation to the selected groups of specific technologies [9-17] forming part of the practical verification of correctness of the established computer integrated development prediction methodology in surface engineering area, presented in general in the monograph publication [21].

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