

creation of jobs, deployment of the technology in the small and medium-sized enterprises sector and its impact on enterprise competition and development opportunities in the research area.

The forecast directions of the future development of PVD technologies anticipate the use of process temperatures close to 600°C aimed at increasing the adhesion of the coating to the substrate material by obtaining a partially diffuse connection. It is anticipated that the future lies in intelligent and hybrid nanostructural coatings (including nanocomposites). Big hopes are also put on the use of modulated multilayer coatings with a large number of single layers. Special attention should be paid to coatings constructed from a small number of single layers whose concept is based on the disturbance of the column growth of crystals during their deposition in the PVD process; coatings with a large number of non-isostructural layers, as well as coatings with a large number of isostructural layers, so-called superstructures.

Summing up, it should be underlined that the foresight- materials science research described in this chapter are a fragment of broader individual actions [102-107] aimed at selecting, researching, characterizing and determining strategic development perspectives of priority innovative material surface engineering technologies in the process of technological e-foresight.

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