

# Conclusions

In this book, an integrated set of models describing the design, adoption and use of complex activity technologies has been presented.

Despite the rigorous considerations at the activity level only (see the Introduction), the results of this book can be efficiently used at other levels of technology modeling. For example, the overwhelming majority of the diffusion-of-innovations models postulate the logistic (S-curve) or bell-shaped dynamics of technology spread, while both curves are a consequence of the corresponding lower-level assumptions; the details have been discussed in Chap. 2. Another example: the results obtained within the framework of technology optimization models (including technological networks) can be used at the subject-matter level for modernizing concrete technologies, etc.

Note that many of the established results allow for a wider range of application, both in terms of their formal models and practical interpretations.

First, historically the learning models have been used for various purposes, not just for technology adoption. A rather simple and general learning model with classical learning curves (exponential, hyperbolic, logistic, and others) as well-interpretable special cases has been successfully constructed in Chap. 2. This fact seems of high epistemological potential for educational, psychological and other studies.

Second, the procedure and results of solving the control problems (see Chap. 3) can be used for other controlled probabilistic processes. The unexpected outcome that the initial uniform probability distribution of system states is minimizing its “asymptotic” entropy requires further comprehension and development.

Third, the results on the analytical complexity and errors of solving some classes of optimization problems (see Chap. 4) are applicable not only to technology design and modernization but also to control design in hierarchical organizational and technical systems. However, the decreasing complexity of multilevel hierarchical systems—an effect that has been discovered in Chap. 4—seems somewhat surprising.

In addition to further theoretical study of the above-mentioned classes of models, a promising line of future investigations is to accumulate typical “technological solutions” with sectoral specifics using the unified general approach suggested in Chap. 2. And possible endeavors to formalize the creative components of technology design are perhaps even more fruitful.