

# Technology Assessment (TA): A Complete Set of Tools

## Group of Technology Assessment

### By General approach

Awareness TA, Strategic TA, Constructive TA, Backcasting

### By Institutional perspective

Academic TA, Industrial TA, Executive TA, laboratory TA

#### Economic Analysis

Cost/Benefit Analysis, Cost/Effective Analysis, Life-cycle Cost Assessment, ROI, NPV, IRR, Breakeven Point Analysis, Payback Period Analysis, Residual Income, Total Saving, Increasing Returns analysis, Technology Value Pyramid, Real Option, Technology Balance Sheet

#### Decision Analysis

Multicriteria Decision Making, Multicriteria Utility Theory Scoring, Group Decision Support System, Delphi/Group Delphi, Analytic Hierarchy Process, Qsort, Decision Tree, Fuzzy Logic

#### Systems Engineering / Systems Analysis

Technology System Studies, System Dynamics, Simulation, Modeling, and Analysis, Interpretive Structural Model, Bimodal System Dynamic Approach, Project Management Techniques, System Optimization Techniques, Linear integer and Non-linear Programming, Technology Portfolio Analysis

#### Technological Forecasting

S-Curve Analysis, Delphi/ AHP/ Q-Sort, R&D Researcher Hazard Rate Analysis, Trend Extrapolation, Correlation and Causal Methods, Probabilistic Methods, Monte Carlo Simulation, Roadmapping

#### Information Monitoring

Electronic database, Internet, Technical/Scientific Literature Reviews, Patent Search, IP Asset Valuation

#### Risk Assessment

Simulation Modeling and Analysis, Probabilistic Risk Assessment, Environmental Health and Safety Studies, Risk-Based Decision Tree, Litigation Risk Assessment

#### Technical Performance Assessment

Statistical Analysis, Bayesian Confidence Profile Analysis, Surveys/ Questionnaires, Trial use periods, Beta Testing, Technology decomposition theory, S-Curve Analysis, Human Factor Analysis, Ergonomics studies, Ease-of-Use studies, Outcome Research Techniques,

#### Market Analysis

Fusion Methods, Market Push/Pull Analysis, Surveys/ Questionnaires, S-Curve Analysis, Scenario Analysis, Multigeneration Technology Diffusion

#### Externalities / Impact Analysis

Externalities Analysis, Social Impact Analysis, Political Impact Analysis, Environmental Impact Analysis, Ethical Analysis, Cultural Impact Analysis, Integrated Impact Analysis, Life Cycle Analysis

#### Others

Techniques for Order Preference by Similarity to Ideal Solution, Strategic Technology Assessment Review, System Wide Benefits/Value Analysis, Scenario-based Assessment Model, Internet-Accessible Technology Risk, Assessment, Computer System (TRACS), Mathematical TA Model, Multigenerational Approach for Resource and Industry Allocation (MARIA)

#### Expert Judgment Based Decision Tools

#### Methods Based on Financial Metrics

#### Comprehensive Models

From Qualitative to quantitative methods  
From sophisticated mathematical models to broad perspective conceptual frameworks