

THEORETICAL and APPLIED

TECHNO-ECONOMICS

A COMPREHENSIVE TREATISE

Volumes 1, 2 & 3.

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*THEORETICAL and APPLIED
TECHNO-ECONOMICS
A COMPREHENSIVE TREATISE*

*Volumes 1 & 2
(Chapters 1-17)*

*TECHNOLOGY, TECHNO - ECONOMICS
and
TECHNOLOGICAL EXCELLENCE*

The first two Laws of Techno-Economics:

"Technology is the dominant engine of economic growth, with human capital investment in second place", Professor Robert Solow, MIT, Winner of the Nobel Prize in Economic Science, 1987.

"The roots of major industrial change lie in economics and technology", Professor Wickham Skinner, Harvard Business School, 1988.

These Laws of Techno-Economics, and many others, apply to practically every business.

Techno-Economics Volumes 1, 2 & 3 ... feature ...

THEORETICAL & APPLIED TECHNO-ECONOMICS: the Analytical Discipline.

- TECHNOLOGY – THE FUNDAMENTALS.
- TECHNO-ECONOMICS -- What is it?
- THE *LAWS OF TECHNO-ECONOMICS*.
- TEN COMMON DENOMINATORS OF TECHNOLOGICAL EVOLUTION.
- TECHNOLOGICAL EXCELLENCE – What is it?
- THE '*PRODUCTIVITY / PROFITABILITY PARADOX*' UNRAVELED.
- TECHNO-ECONOMIC VECTORS FOR SUCCESSFUL INNOVATION.
- THE ANALYTICAL DISCIPLINE OF TECHNO-ECONOMICS.
- THE KEY FUNCTIONS of TECHNOLOGICAL RESOURCES MANAGEMENT.
- GETTING THE RIGHT TECHNOLOGIES and GETTING THEM RIGHT.
- THE '*TCME*' MATRIX' – A POWERFUL ANALYTICAL TOOL.
- TECHNO-ECONOMICS of TECHNOLOGICAL EVOLUTION UNRAVELED.
- NUMEROUS ANALYTICAL CONCEPTS, TOOLS & TECHNIQUES for ...
- STRATEGIC & OPERATIONAL MANAGEMENT of TECHNO-BUSINESSES.
- OPTIMIZING PRICES, PRODUCTION, COSTS AND PROFITS.
- OPTIMIZING CAPACITY PRODUCTION AND CAPACITY CONSUMPTION.
- PRICES, COSTS, PROFITS per CRITICAL SCARCE RESOURCE ANALYSIS.
- THE ANALYST's AND DECISION-MAKER's TOOL-KITS.
- THE SIX MOST COMMON TECHNO-BUSINESS CASES.
- THE GENERIC TECHNO-STRATEGIC VISION FOR TECHNO-BUSINESSES.
- TEACH YOURSELF ... '*TECHNOLOGICAL EXCELLENCE*'.
- DECISION-MAKING FOR INNOVATION, NEW TECHNOLOGY DEVELOPMENT AND UPTAKE ... and more ... and, yes, you can do it too!

TECHNO-ECONOMICS (T-E) ... new disciplines for Business & Economics!

- *Theoretical and Applied Techno-Economics (T-E), for the real world.*
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- *T-E 101, 201 & 202: Quantitative Linear Techno-Economics (Vol. 3).*
- *T-E 301 & 302: Quantitative Non-Linear Techno-Economics (Vol. 3).*
- Quantitative examples in software (Microsoft® EXCEL® Programs).

ADVANCED APPLIED QUANTITATIVE TECHNO-ECONOMICS (T-E):

- Seminars for Business Schools & Professionals in Techno-Businesses.
- *Teach-Yourself Techno-Economics (TYT-E) Course modules.*
- *TYT-E 101: 'Starter Kit', simple, linear Cost-Volume-Profit, & Cost Curves.*
- *TYT-E 201 & 202: real world, from linear to advanced non-linear.*
- *TYT-E 301, 302: real world, more-complex non-linear; strategic responses.*

**'Techno-Economics' -- Table of Contents Volumes 1, 2, 3.
(Techno-Book (PDF))**

Sharing the know-how of 'Theoretical and Applied Techno-Economics: A Comprehensive Treatise' :

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KEYWORDS:

Theoretical techno-economics; applied techno-economics; scientific discovery; innovation; technological evolution; new technology evaluation; techno-economic analysis; manufacturing techno-economics; business strategy; technology strategy; innovation strategy; manufacturing strategy; competitive strategy; marketing strategy; technology analysis; technology management; technological resources management; the six key functions of technological resources management; combined technology, competitiveness, production-sales-market and economic analysis, *TCME analysis*; the *TCME matrix*; linear and non-linear production and cost phenomena; know your real life production functions; linear and non-linear production function(s); know your real life cost functions; linear and non-linear cost functions; cost curve(s), hyperbolic and U-shaped; phenomenon of complexity; costs of complexity; non-linear variable costs; long run average cost curves; hyperbolic unit cost curves; U-shaped unit cost curves; U-shaped production, cost, operating income and payback curves; linear cost-volume-profit model; non-linear cost-volume-profit model; techno-economic analysis and decision-making; break-even and reverse break-even; techno-vectors for technology and innovation strategy; environmental, 'clean / renewable energy' and 'climate change' technology analyses; alternative technologies; productivity analysis; time use accounting; capacity and capacity consumption accounting; contribution margin per critical scarce resource ($\$/cm/CSR$) accounting and analysis; contribution margin per *critical unit of installed capacity* ($\$/cm/CUIC$) accounting and analysis; gross contribution per critical scarce resource ($\$/gc/CSR$) analysis and accounting; gross contribution per *critical unit of installed capacity* ($\$/gc/CUIC$) accounting and analysis; lost time opportunity cost accounting; unused capacity opportunity cost accounting and analysis; un-exploited contribution margin per *critical scarce resource* or *critical unit of installed capacity* accounting and analysis; linear and non-linear programming; techno-vectors and techno-economic vectors; price, cost and contribution margin drivers; complexity, constraints, limits and bottlenecks; complexity, constraint, limit and bottleneck analysis and busting; '*productivity paradox*'; *productivity / profitability paradox*; *productivity / profitability paradox* unraveled; law of diminishing returns; dis-economies of scale; analyst's and decision-maker's tool-kits; common techno-business cases: '*rainbow*', '*embryo*', '*fledgling*', '*winner*', '*workhorse*', '*millstone*'; generic techno-strategic vision; *common denominators of technological evolution*; *laws of technological evolution*; *laws of techno-economics* ...

Theoretical & Applied Techno-Economics

Volume 1

(Chapters 1-5)

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Theoretical and Applied Techno-Economics

Volume 3

Quantitative Applied Techno-Economics, Linear and Non-Linear.

**TECHNOLOGY, TECHNO-ECONOMICS
&
TECHNOLOGICAL EXCELLENCE**

Techno-Economics (T-E) for Universities, Business Schools and Professional Seminars:

- *T-E 101, 201 & 202: Linear, the basics, from simple to advanced.*
- *T-E 301 & 302: Non-Linear, from advanced to complex, for the real world.*

Teach Yourself Techno-Economics (TYT-E) for DIY Students and Professionals:

- *TYT-E 101, 201 & 202: Linear, the basics, from simple to advanced.*
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(8 *T-E / TYT-E* case examples, 27 pages of Microsoft® Excel® program printouts)

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