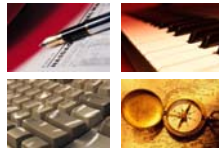


Management of Technology

B03-2. Technology Strategy



- Code: 166125-01
- Course: Management of Technology
- Period: Spring 2013
- Professor: Sync Sangwon Lee, Ph. D

Contents

- 01. Technology Strategy
- 02. Strategic Technology Management
- 03. Practices of Technology Strategy



02. Strategic Technology Management

- Scope of Technology Strategy
 - Strategy = goal + means + action



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02. Strategic Technology Management

- Core Concepts of Strategic Technology Management
 - 1) Connecting management strategy with technology strategy
 - 2) Connecting in-house technology with outsourcing technology
 - 3) Promoting creative research condition
 - 4) Establishing concrete action mechanism for technology strategy
 - 5) Managing discontinuous/epochal innovation

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02. Strategic Technology Management

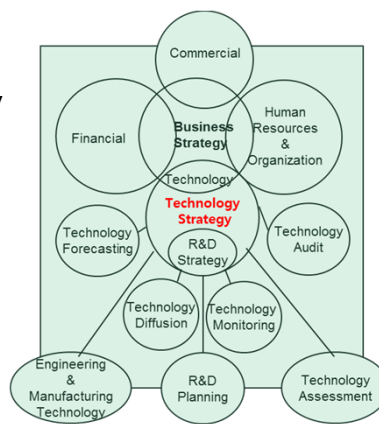
- Core Concepts of Strategic Technology Management

주요 주제	세부 이슈 (예시)	구체적인 대안 (예시)
경영전략과 기술전략의 연계	<ul style="list-style-type: none"> • 비전/기술전략의 명확화 • 기술기획/연구기획 강화 • 부서간 의사소통/협조 촉진 • 연구기능 역할 정립 및 전락화 	<ul style="list-style-type: none"> • 기술전략회의 신설, CTO 역할 강화 • 연구기획기능 강화 (Technology Roadmap) • R&D 포트폴리오 (Portfolio) 관리 • 기업 내 연구기능간 역할 조정
자체 R&D 능력 축적 및 외부기술의 효과적인 활용	<ul style="list-style-type: none"> • 연구소 핵심역량의 축적 • 외부기술정보 탐색 강화 • Open Innovation, Outsourcing • 산학협동 활성화 	<ul style="list-style-type: none"> • 핵심기술역량 파악/관리, 핵심기술 육성 • Open Innovation, 산학협동 확대 • R&D 국제화, 해외연구소 활용 • 외주개발과제의 관리
창의적인 연구여건의 조성	<ul style="list-style-type: none"> • 창의적 연구문화의 창출 • 자율적 조직운영 / 위임 • 연구원 경력관리 강화 	<ul style="list-style-type: none"> • 실패허용문화 조성 • 과제유형별 과제평가기준의 차별화 • 연구원 역할모형 정립 • 창의성 촉진 프로그램 개발
구체적인 실행시스템의 구축	<ul style="list-style-type: none"> • R&D 성과평가시스템 구축 • 연구원 인센티브 시스템 구축 • R&D 정보관리시스템 보유 	<ul style="list-style-type: none"> • 연구성과/연구원 평가 기준의 유연성/차별화 • 성과평가 및 보상체계의 설계 • 사내/외 정보시스템 및 정보흐름 관리 • Six Sigma 시스템 도입
불연속적/획기적 혁신의 관리	<ul style="list-style-type: none"> • IT, BT 등 첨단기술의 관리 • 불확실성에 대응한 투자 방식 • 유연한 조직설계 • 새로운 기회창출 및 시장개발 	<ul style="list-style-type: none"> • 제4세대 R&D 방식 도입 • High-Tech Marketing 구축 • 고객, 파트너와의 상호 학습, 사용자/고객혁신 • 첨단산업별로 특화된 기술경영

ZT Bae, KAIST

02. Strategic Technology Management

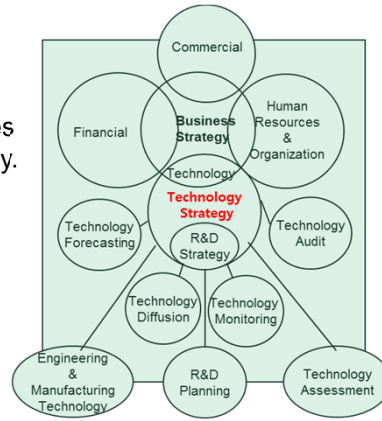
- 1) Connecting Management Strategy with Technology Strategy
 - Necessities of connecting management strategy with technology or R&D strategy
 - The importance of technology is getting higher to acquire competitive power.
 - Technology strategy becomes the first factor of management strategy. (In the old days, it was the last factor.)



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02. Strategic Technology Management

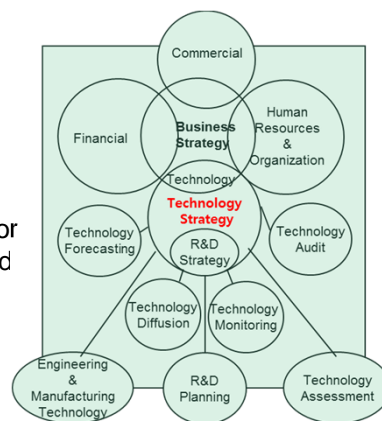
- 1) Connecting Management Strategy with Technology Strategy
 - Problems in connecting management strategy with technology strategy
 - It is difficult to choose technologies and distribute resources effectively.
 - It is difficult to link activities of technology development with enterprise performance.



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02. Strategic Technology Management

- 1) Connecting Management Strategy with Technology Strategy
 - Methods of connecting management strategy with technology strategy
 - Substantializing contents of long-term management strategy
 - Specifying technology strategy
 - Preparing institutional programs for aligning management strategy and technology strategy



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02. Strategic Technology Management

- 1) Connecting Management Strategy with Technology Strategy
 - R&D and innovation



- 4. Discontinuous Technology Innovation → Innovation Management
 - Discontinuous (Disruptive) Innovation
 - Architecture/Dominant Design 중시
 - 시장창출형 / 가치창출형 기술개발

- 3. Strategic Technology Innovation → (Strategic) MOT
 - 목표지향적 관리 (Purposeful)
 - 전략적/포트폴리오 관리 (Portfolio)
 - 전사적/부서연계 관리 (Partnership)

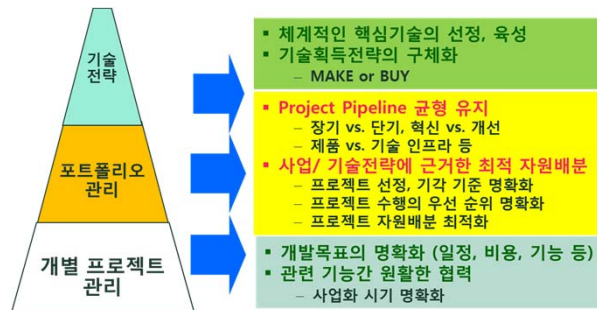
- 2. Individual Project Innovation → R&D Management
 - 개별 프로젝트 중심의 관리
 - R&D 관리 개념 도입
 - 부분적으로 전략체계 존재

- 1. Instinctive Technology Innovation → No R&D Management
 - 직관적 관리 (직관/희망에 의존)
 - R&D 활동은 관리 외 영역으로 인식
 - 장기전략체계 없음

ADL, Miller, Samsung Advanced Institute of Technology

02. Strategic Technology Management

- 1) Connecting Management Strategy with Technology Strategy
 - R&D portfolio management
 - Connecting technology/R&D strategy with implementation of individual project strategy
 - Picking the winner, maintaining balance, resource allocation, ...



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02. Strategic Technology Management

- 2) Connecting In-House Technology with Outsourcing Technology
 - Exploiting various methods to acquire technologies
 - “Make (R&D)” to secure core technologies
 - “Buy (Outsourcing)” to secure peripheral technologies
 - Mixing “Make (R&D)” and “Buy (Outsourcing)”.

기술전략의 선택

기술유형	경쟁적 위치				
	매우 강함	강함	보통	약함	매우 약함
기반기술	R&D 활동 최소화		기술구매고려		
핵심기술	주요R&D 활동영역		인수 및 기술도입 고려		공동 연구 고려
미래기술					
신생기술					

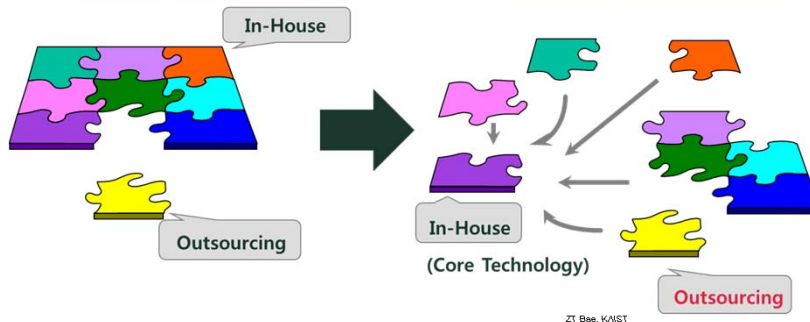
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- 2) Connecting In-House Technology with Outsourcing Technology
 - New paradigm to acquire technologies

Old Paradigm on Outsourcing

New Paradigm on Outsourcing



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02. Strategic Technology Management

- 3) Promoting Creative Research Condition
 - Creative culture
 - Failure-permission
 - Autonomy
 - Openness
 - Originality



CISCO

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02. Strategic Technology Management

- 4) Establishing Concrete Action Mechanism for Technology Strategy
 - Action process of technology strategy
 - Establishing implemented mechanism of technology strategy
 - Proposing means to evaluate/examine milestones
 - Analyzing gap with follow-up actions

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02. Strategic Technology Management

- 4) Establishing Concrete Action Mechanism for Technology Strategy
 - Considerations in designing action systems of technology strategy
 - People
 - Technology base
 - Organization
 - Environmental monitoring
 - Technology/business policies
 - Performance measurement and rewards
 - Budget

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02. Strategic Technology Management

- 4) Establishing Concrete Action Mechanism for Technology Strategy
 - Indicators to evaluate R&D performance
 - Goals of systems
 - Efficiency: Do things right! (= given output, minimize input)
 - Effectiveness: Do right things! (= given input, maximize output)
 - Distinction of evaluation
 - Result indicators: realized results during evaluation period
 - Real-time indicators: processing results in the present
 - Leading indicators: potential results in the future
 - Direction of performance
 - Direct effect: direct causal-relationship
 - Indirect effect: diffusion, connection, accumulation, derivative
 - Goals of R&D systems
 - Inputs, throughputs, outputs, outcomes
 - Qualitative or Quantitative

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