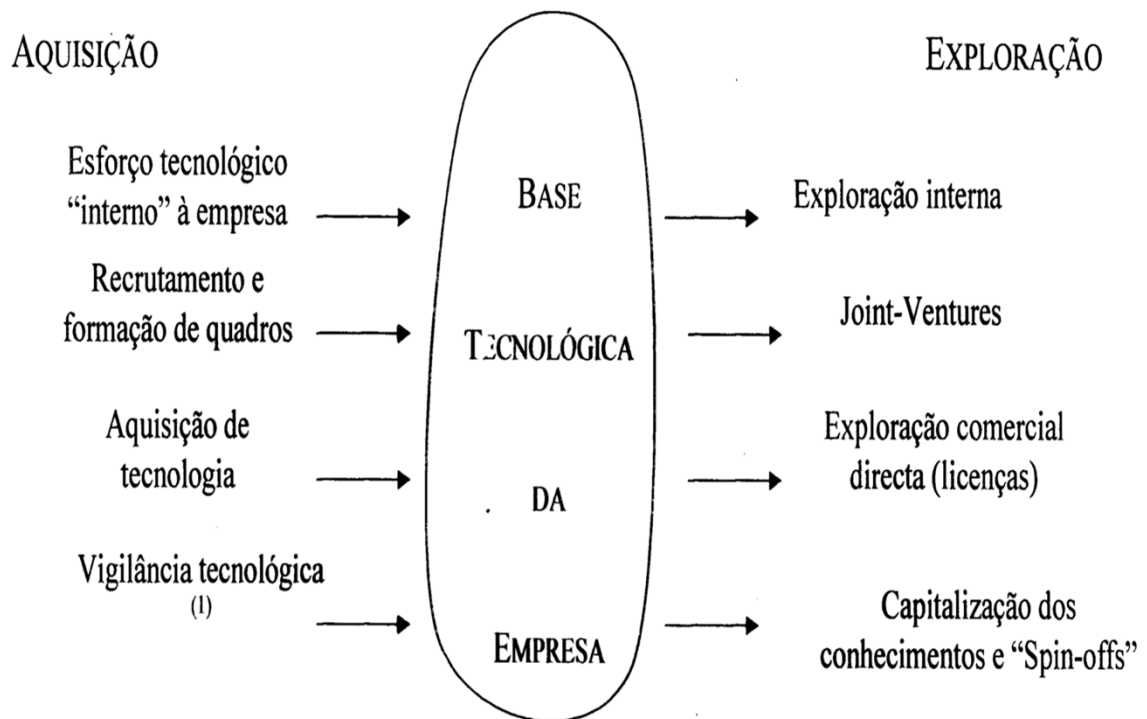


**CAPÍTULO 3**  
**INOVAÇÃO E GESTÃO**  
**NA EMPRESA**

**3.1. A EMPRESA  
COMO ESPAÇO DE  
PROCESSAMENTO DE  
SABERES**



(1) Inclui formas legais e ilegais de obtenção de conhecimentos tecnológicos do exterior, sem haver compra directa à entidade que os originou

Fonte: Adaptado de Ove Granstrand e Soren Sjolander, *Managing Innovation in Multi-Technology Corporations*, *Research Policy*, Vol. 19, 1990)

**Figura 2 – Inter-acção Aquisição/Exploração Tecnologia**

# CARACTERÍSTICAS BÁSICAS DA ACTIVIDADE INOVADORA DAS EMPRESAS

1. COLABORAÇÃO E INTERACÇÃO  
ENTRE DIFERENTES GRUPOS  
FUNCIONAIS E PROFISSIONAIS
2. INCERTEZA
3. CARÁCTER CUMULATIVO
4. DIFERENCIAÇÃO DOS CAMPOS  
TECNOLÓGICOS

**Fonte:** Pavitt (1989)

# CARATERÍSTICAS DAS ACTIVIDADES INOVADORAS

- THE INTEGRAL NATURE OF INNOVATION WORK
- THE SITUATED NATURE OF INNOVATIVE PROBLEM SETTING AND SOLVING
- THE EMERGENT NATURE OF STANDARDS THAT GUIDE THE WORK

**Fonte:** Dougherty (2001)

**Table 3**     **Contrasting Images of Differentiating and Integrating the Work of Sustained Product Innovation**

Innovative Capability	Shared Image of How Value Is Created by Organization as a Whole	Shared Image of How Value Creation Is Differentiated	Shared Image of How Value Creation Is Integrated
<p><b>More Fully Innovative Organizations</b>            innovation is part of strategy as well as of daily operations; self reports, published corroboration</p>	<p><i>value is created through practice: active working relations with customers over long term; using firm's unique skills to anticipate and solve customer' problems</i></p> <p><i>Nature of Organizational Identity: A Practice; what we can do</i></p>	<p><i>value creation differentiated into four distinct problem areas, organized as communities of practice, lateral slices of whole practice, highlights importance of all four problems; autonomous communities of practice take charge of each problem area, sets and solves problems in context</i></p>	<p><i>value creation is integrated by acting out standards, working toward standards: continually enact standards of practice across, within communities as practices evolve; visible standards for action articulated by senior managers and enacted, reenacted in practice; plus extensive mapping, remapping of connecting processes</i></p>
<p><b>Partially, or Incrementally Innovative Organizations</b>            vastly improved NPD processes, reaching for more systematic innovation strategy; self reports, corroborated by other mgrs, experts</p>	<p><i>Value is created by managing a specific product category or kind of business: focus shifts from internal functioning to specific customers</i></p> <p><i>Nature of Organizational Identity: A Status in a product category; active, concrete; based on what we do</i></p>	<p><i>Value creation differentiated into product development problems, vs. all else; PD organized as a community of practice; firms are recognizing that other problems are also unique, beginning to organize them explicitly; business and strategic work still focused on optimizing outputs in abstract</i></p>	<p><i>Value creation integrated by enacting, re-enacting specific market and product category; product standards are somewhat rigid; common standards for action developing</i></p>
<p><b>Noninnovative Organizations</b>            firms do not innovate readily or easily, according to self-reports, corroborated by other experts</p>	<p><i>value is created by maintaining status of current system; keeping it functioning at optimum: system is like a machine, job is to keep machine running;</i></p> <p><i>Nature of Organizational Identity: A Status; passive, static; based on what we are</i></p>	<p><i>Value creation differentiated into separate steps, in effect into solutions that already exist; organized as separate units; each applies own specialty solution to given problem; problem setting separated from problem solving; no distinction of different kinds of problems in innovation management</i></p>	<p><i>Value creation integrated by standardizing action; by matching activities to system; problem translated by top mgt into rules for optimizing current system;</i></p> <p><i>all innovation decisions made by top mgt to assure that they fit with current system; cannot make sense of new activities</i></p>

Fonte: Dougherty (2001)

## **3.2. BASE DE CONHECIMENTOS**

# **BASE TECNOLÓGICA DA EMPRESA**

**“ACTIVO DE COMPETÊNCIAS TECNOLÓGICAS QUE A  
EMPRESA POSSUI”**

**Granstrand e Sjollander (1990)**

**CONJUNTO DE RECURSOS E DE CAPACIDADES  
TECNOLÓGICAS QUE PENETRAM TODO O TECIDO  
EMPRESARIAL E QUE SÃO APLICADOS (OU SUSCEPTÍVEIS  
DE SER APLICADOS) NA CONCEPÇÃO, FABRICO E  
COMERCIALIZAÇÃO DE PRODUTOS E/OU NA PRESTAÇÃO  
DE SERVIÇOS.**



# BASE DE CONHECIMENTOS (ADLER& SCHENHAR)

ELEMENTOS TANGÍVEIS

ELEMENTOS INTANGÍVEIS

INDIVÍDUOS E EQUIPAS

ACTIVOS TECNOLÓGICOS

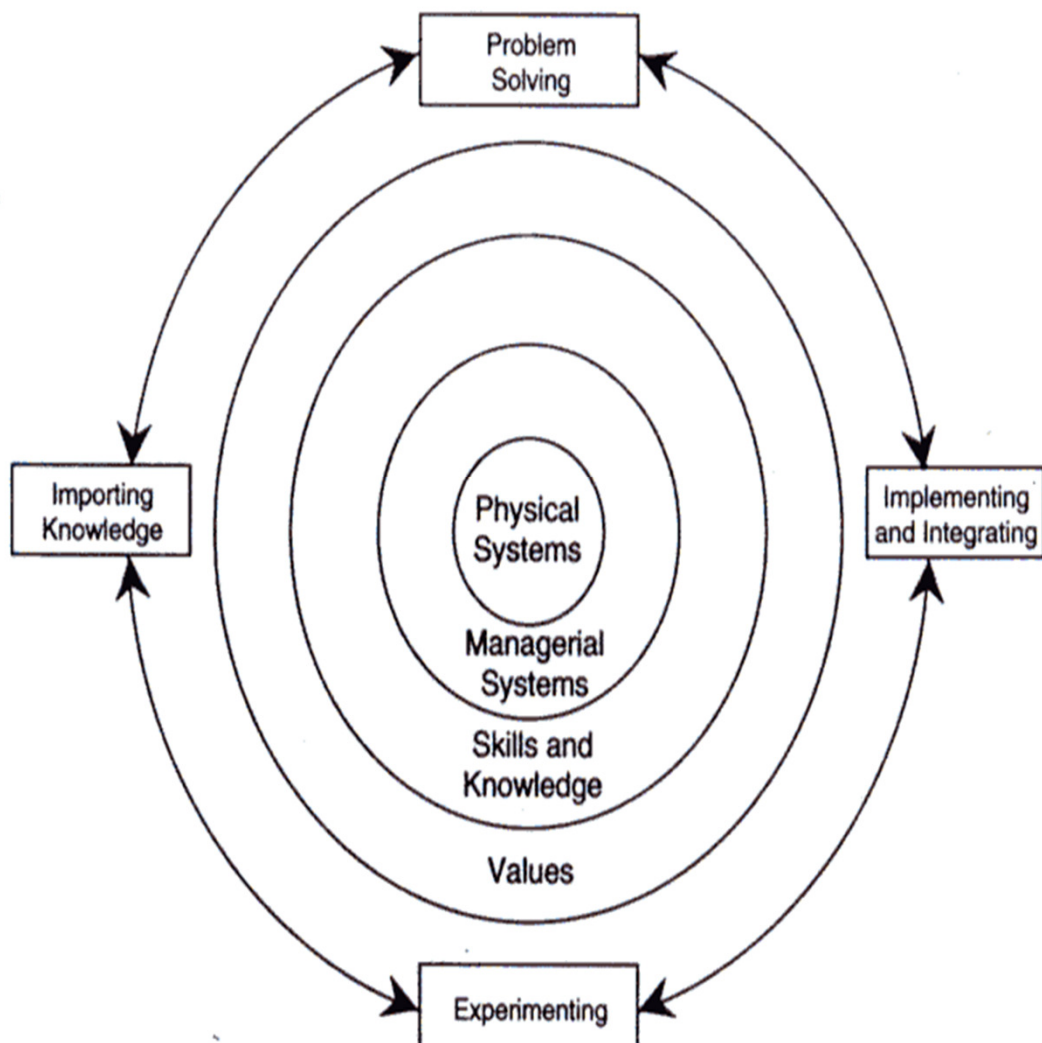
ACTIVOS ORGANIZACIONAIS

ACTIVOS EXTERNOS

PROJECTOS

Figure 1-3 Dimensions of a Core Capability

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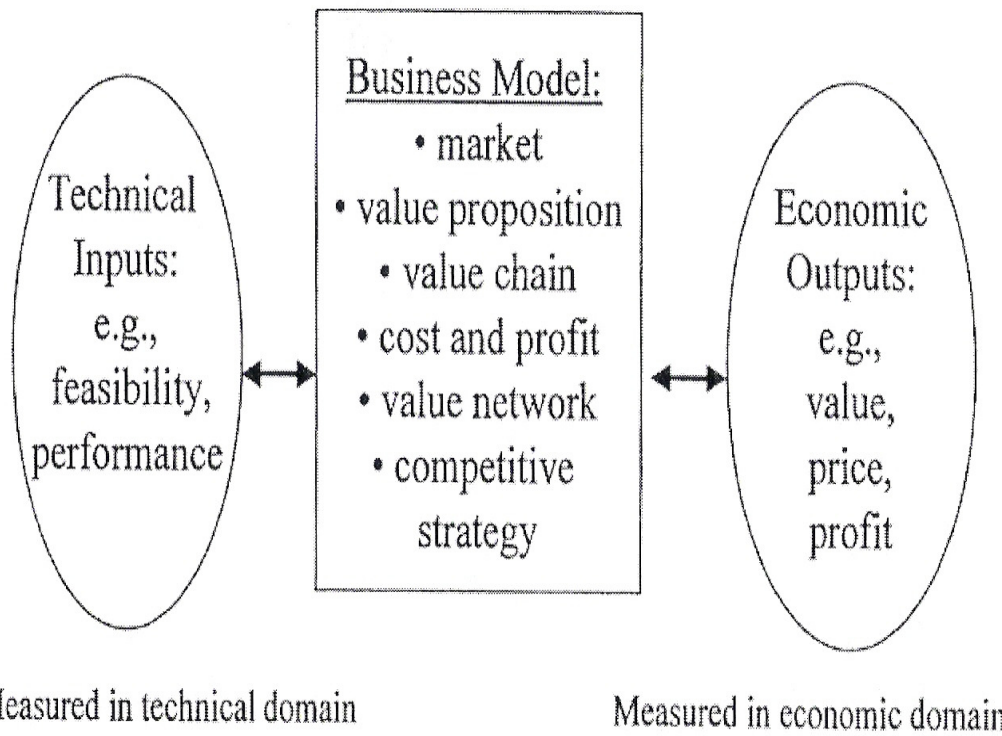


**Fonte:** Leonard-Barton (1995)

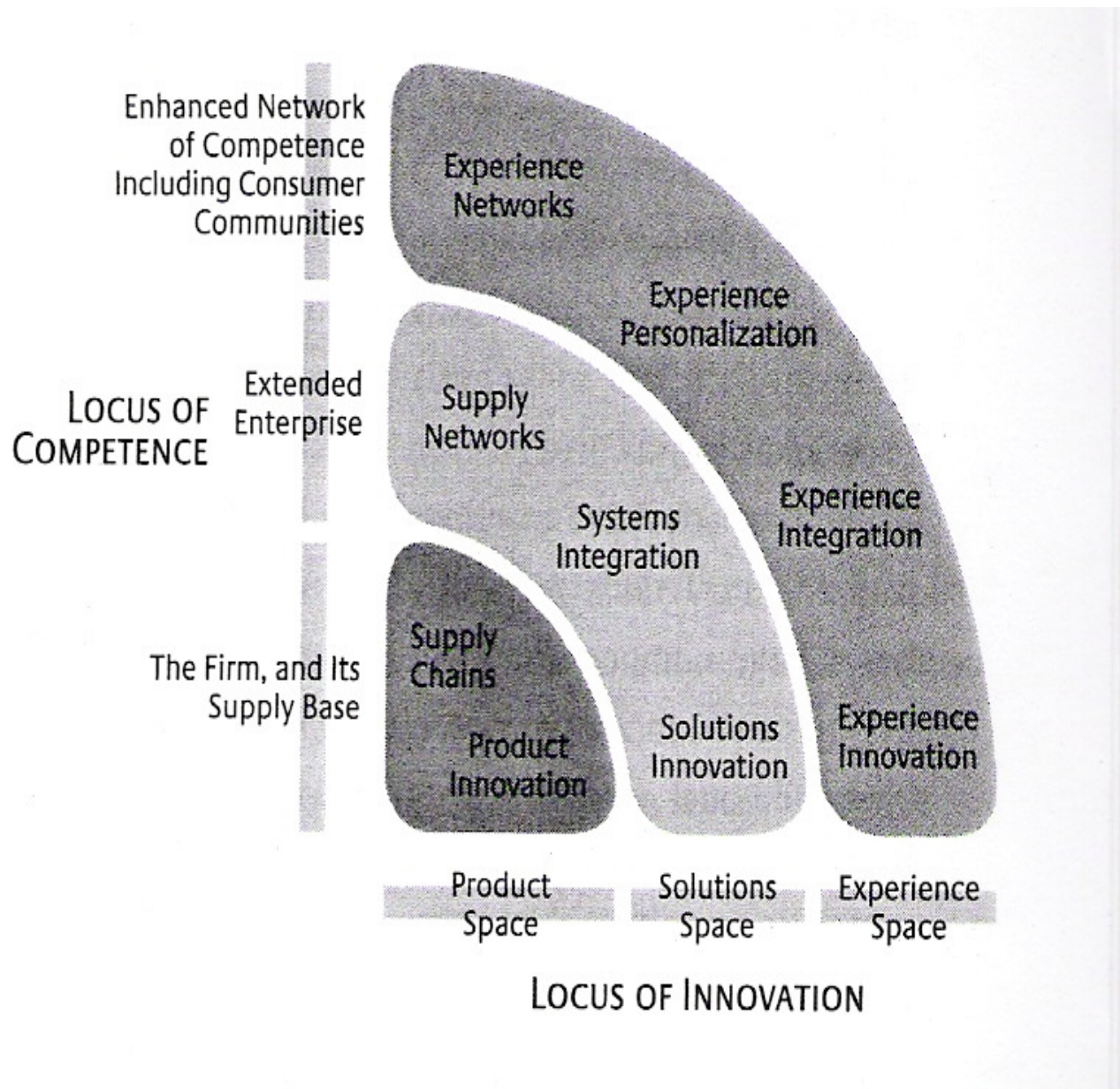


Fonte: Simões (2002)

**Figura 6.1:** Uma visão simplificada das competências da empresa



**Figure 1** The business model mediates between the technical and economic domains.



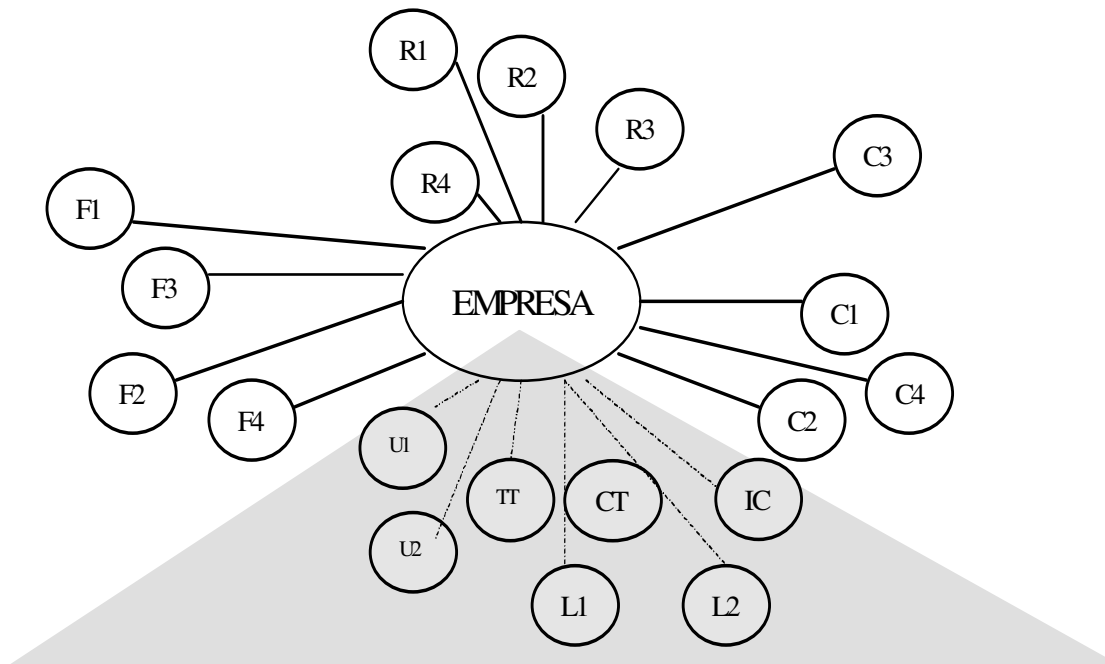
**Fonte:** Prahalad e Ramaswami (2003)

### **3.3.**

# **RELACIONAMENTOS EXTERNOS**

## RELATIONSHIPS AND KNOWLEDGE BASE

- THE KNOWLEDGE BASE OF THE FIRM AS A KEY INSTRUMENT FOR GENERATING AND SUSTAINING SIGNIFICANT RELATIONSHIPS
- KNOWLEDGE BASE AND SPATIAL SCOPE: FROM CURRENT INTER-ACTION TO COMMITTED NETWORKING
- KNOWLEDGE BASE AND LOCATION: AMBIVALENT RELATIONSHIPS



*Legenda:* F - fornecedores; R - rivais (concorrentes); C - clientes;  
 U - Universidades; L - licenciadores;  
 TT - organismo de transferência de tecnologia; CT - centro  
 tecnológico; IC - centro de investigação.  
 As linhas cheias e tracejadas indicam a intensidade das relações

## **Amplitude das Redes de Relacionamento Externo**

**Fonte:** Simões (1997)



## **3.4. FORMAS DE APROPRIAÇÃO DOS AVANÇOS TECNOLÓGICOS**

# **APROPRIAÇÃO DOS CONHECIMENTOS**

## ***PRINCIPAIS FORMAS DE APROPRIAÇÃO***

**PATENTES**

**SEGREDO**

**AVANÇO TECNOLÓGICO (LEAD TIME)**

**AVANÇO NA CURVA DE APRENDIZAGEM**

**VANTAGENS COMERCIALIZAÇÃO E SERVIÇO**

	<b>PROCESSO</b>	<b>PRODUTO</b>
<b>PAPEL</b>	<b><i>CA</i></b>	<b><i>CS</i></b>
<b>FARMACÊUTICA</b>	<b><i>P</i></b>	<b><i>P</i></b>
<b>COMPUTADORES</b>	<b><i>LT</i></b>	<b><i>LT</i></b>
<b>EQUIP. TELECOMUNIC.</b>	<b><i>LT</i></b>	<b><i>CS</i></b>
<b>SEMICONDUCTORES</b>	<b><i>CA</i></b>	<b><i>LT</i></b>
<b>COMPON. AUTOMÓVEIS</b>	<b><i>CA</i></b>	<b><i>LT</i></b>
<b>INSTRUM. MÉDICA</b>	<b><i>LT</i></b>	<b><i>CS</i></b>
<b>QUÍMICA ORGÂNICA</b>	<b><i>S</i></b>	<b><i>P</i></b>

**FONTE: WINTER (1987)**

**Table 4.13** Inter-industry differences in the effectiveness of patent protection, according to large European and US firms\*

Industry	Products		Processes	
	Europe	USA	Europe	USA
Drugs	4.8	4.6	4.3	3.5
Plastic materials	4.8	4.6	3.4	3.3
Cosmetics	4.6	2.9	3.9	2.1
Plastic products	3.9	3.5	2.9	2.3
Motor vehicle parts	3.9	3.2	3.0	2.6
Medical instruments	3.8	3.4	2.1	2.3
Semiconductors	3.8	3.2	3.7	2.3
Aircraft and parts	3.8	2.7	2.8	2.2
Communications equipment	3.6	2.6	2.4	2.2
Steel mill products	3.5	3.6	3.5	2.5
Measuring devices	3.3	2.8	2.2	2.6
Petroleum refining	3.1	3.1	3.6	3.5
Pulp and paper	2.6	2.4	3.1	1.9

\* Range: 1 = not at all effective; 5 = very effective.

Note: Some industries omitted because of lack of Europe–USA comparability.

Sources: Arundel *et al.* 1995 and Levin *et al.* (1987).<sup>33</sup> Reproduced by permission of Anthony Arundel.

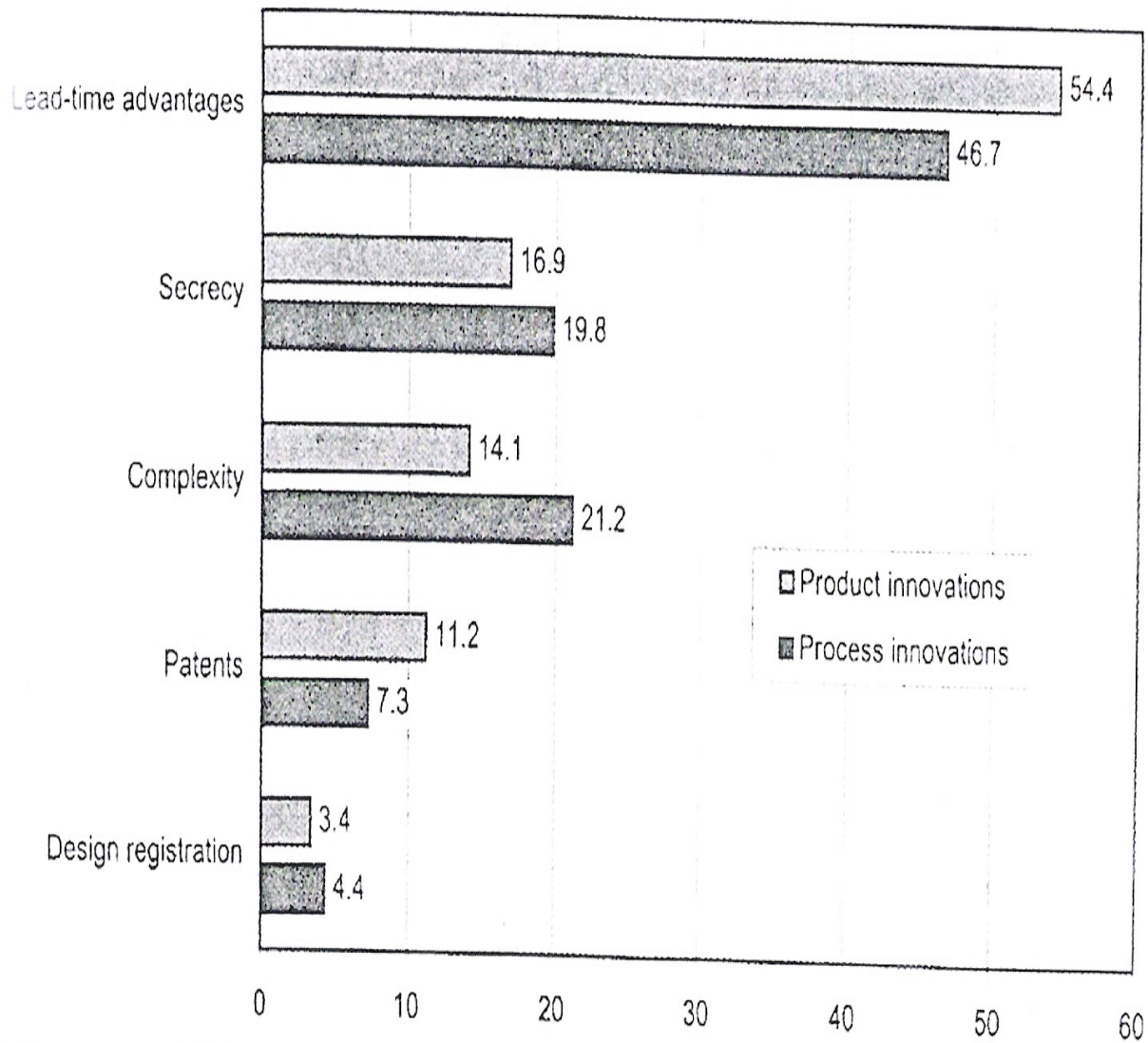


Fig. 1. Percentage of 2849 R&D-performing firms that give their highest rating to each appropriation method.

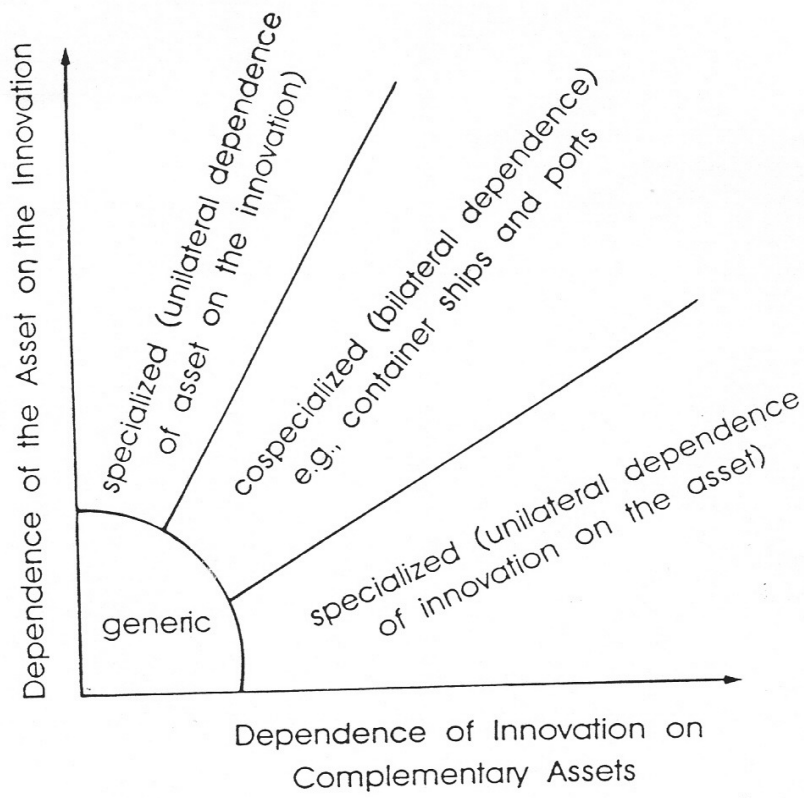


FIGURE 4 Complementary assets: generic, specialized, and cospecialized.

**Fonte:** Teece (1986)

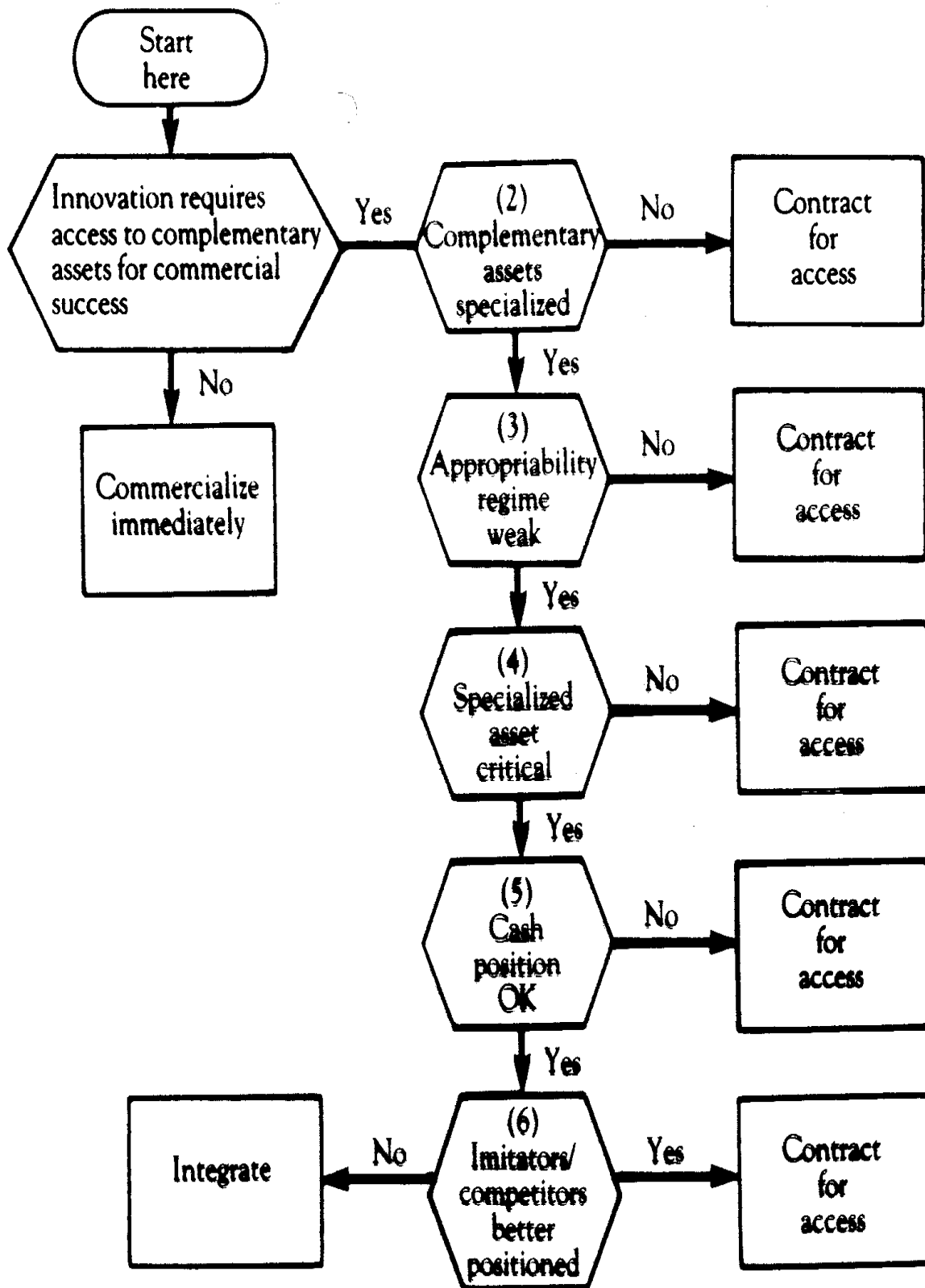


Figure 9-10. Flow Chart for Integration versus Contract Design.

Key	Strategies	Outcomes		
		Strong legal/technical appropriability	Weak legal/technical appropriability	
			Innovator excellently positioned versus imitators with respect to commissioning complementary assets	Innovator poorly positioned versus imitators with respect to commissioning complementary assets
Innovators and imitators advantageously positioned vis-à-vis independent owners of complementary assets	(1) <i>Contract</i>	Innovator will win	(2) <i>Contract</i>	Innovator should win
			(3) <i>Contract</i>	Innovator or imitator will win; asset owners won't benefit
Innovators and imitators disadvantageously positioned vis-à-vis independent owners of complementary assets	(4) <i>Contract if can do so on competitive terms; integrate if necessary</i>	Innovator should win; may have to share profits with asset holders	(5) <i>Integrate</i>	Innovator should win
			(6) <i>Contract (to limit exposure)</i>	Innovator will probably lose to imitators and/or asset holders

Figure 9-11. Contract and Integration Strategies and Outcomes for Innovators: Specialized Asset Case.

Fonte: Teece (1988)

# VALORIZAÇÃO COMERCIAL

- PRODUTOS
- SERVIÇOS
- TECNOLOGIAS

⇒ CRESCENTE SEPARAÇÃO  
ENTRE CONCEPÇÃO E  
FABRICO

⇒ O PAPEL DOS D.P.I.

⇒ ALIANÇAS E ESPECIALIZAÇÃO

⇒ O DESENVOLVIMENTO DO  
MERCADO DA TECNOLOGIA



<b>Eixo de Utilização Estratégica</b>	<b>Espaço de Aplicação</b>	<b>Modos de Regulação<sup>(1)</sup></b>	<b>Relevância da Cooperação</b>
Proteger para Explorar	Mercado dos Produtos	Hierarquia	Nula (em princípio) <sup>(2)</sup>
Proteger para Comercializar	Mercado da Tecnologia	Contratos de Licença	Variável
Proteger para Trocar	Oligopólios Tecnológicos	Licenças Cruzadas	Limitada
Proteger para Cooperar	Mercado da Inovação	Acordos de Base Tecnológica	Elevada

(1) Agradeço a sugestão desta dimensão ao Sandro Mendonça. Utilizo o termo modos de regulação como tradução da expressão inglesa "forms of governance"

(2) Relativamente à exploração das patentes em causa. Não se exclui a possibilidade de relações cooperativas em outras áreas, designadamente em termos do fabrico de certos componentes ou da distribuição de produtos.

### **Quadro 1 – Eixos de Utilização Estratégica das Patentes**

**Fonte: Simões (2002)**