



Intellectual Capital for Communities  
In the Knowledge Economy

# Universities as Knowledge Markets

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ITESM-CEMEX Research Chair



**CKS**  
Center for  
Knowledge  
Systems

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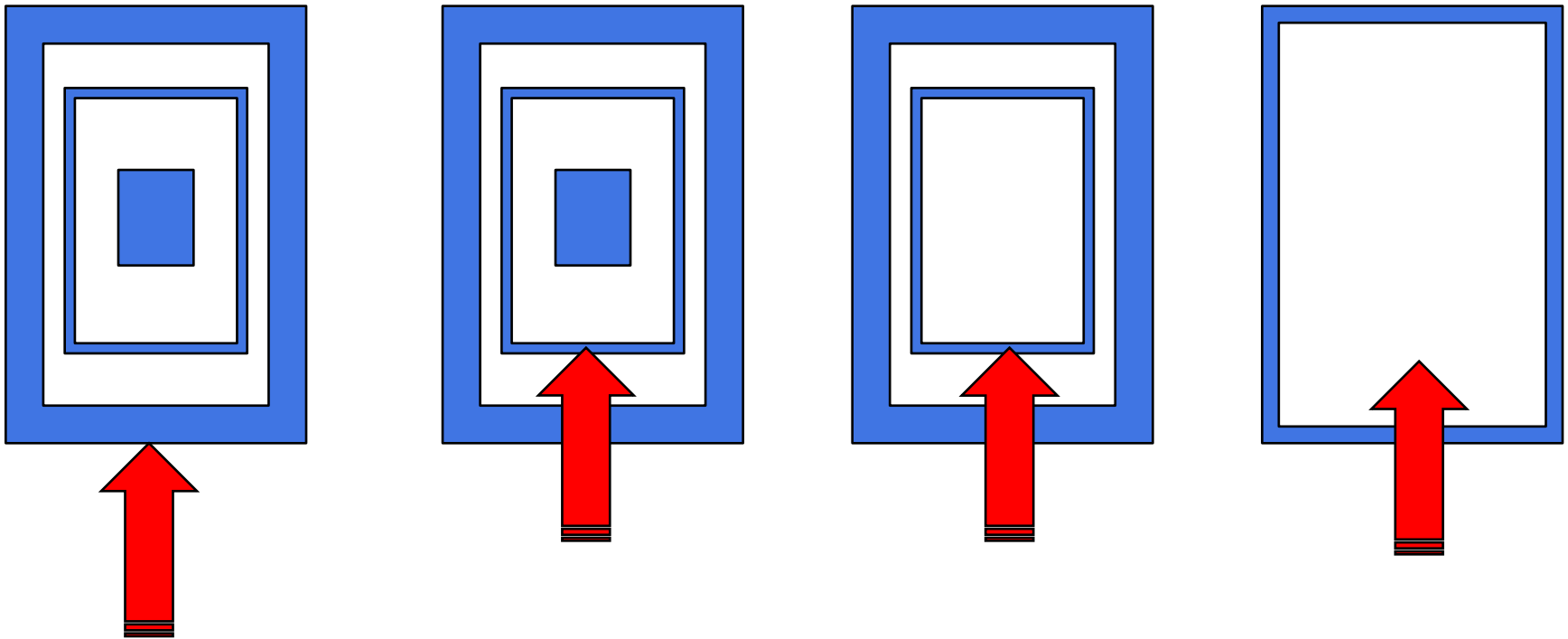
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- Emerging K-markets
- Towards knowledge value transposition and the social dissolution of universities



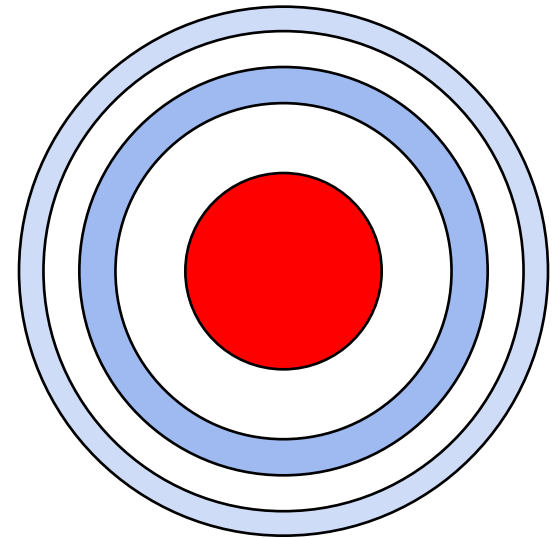
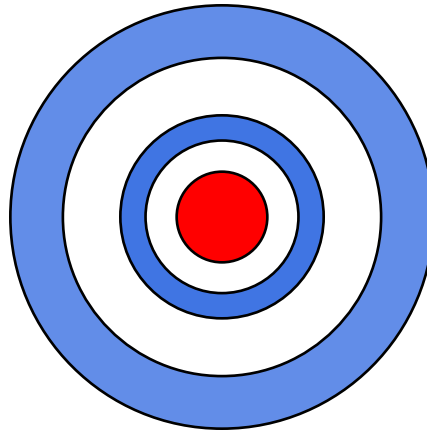
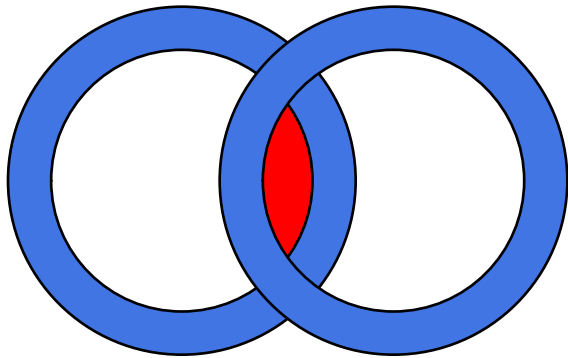
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# DECONSTRUCTING U-I RELATIONS

# I. Isolating boundaries & inner core (cloister architecture)



# V. Fusion and transcendence

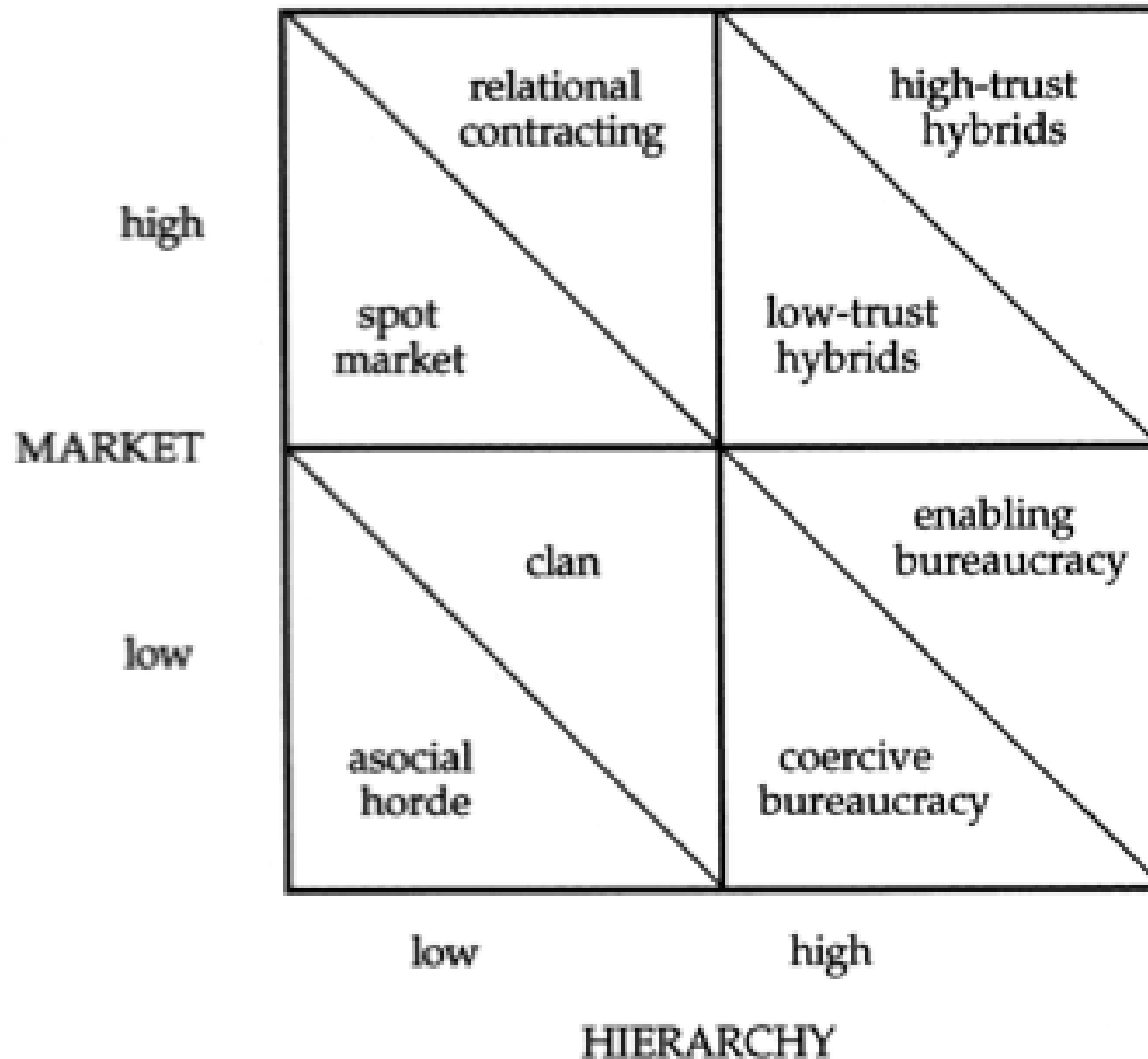




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# **TYPES AND KEY FACTORS**

# Typology of Institutional Forms (Adler, 2001)



# Knowledge goods (Brydon & Vining, 2006)

		No Externalities	Externalities
Non-Excludable		<b>PURE PUBLIC GOODS</b>	<b>OPEN ACCESS GOODS</b>
		loss of organizational surplus due to lack of supply by the internal market  example: all valuable knowledge that remains unsupplied; TeenShare [8]	loss of organizational surplus due to congestion costs  example: overburdened enterprise data warehouse, Ernst & Young KM system [35]
Excludable		<b>PRICED GOODS</b>	<b>HOARDED GOODS</b>
		loss of organizational surplus due to pricing above marginal cost, monopoly overpricing  example: any knowledge with a non-zero price within the internal market; reciprocal exchanges of knowledge at "Ditto" [32]; Knexa [19]	loss of organizational surplus due to lack of supply by the internal market  example: expertise that gives the holder status or monopoly power; troubleshooting knowledge that specialists refuse to codify; knowledge sharing at "Alpha" [28]



# Types of K-Markets (Benbya & Van Alstyne 2010)

Rationale & Application				Advantages		Platforms & Experiments	
<b>Prediction Markets</b> (Forecasting)	Prediction Markets are speculative markets for forecasting uncertain events and trading contracts that yield payments based on the outcome of those events.			1. Improve decisions: help businesses make better investments decisions, help governments make better fiscal and monetary policy decisions.		<i>Platforms:</i> Intrade, Inklng, Consensus Point, News, The Iowa Electronic Markets, Foresight Exchange, NewsFutures.com's Hollywood Stock Exchange, TradeSports	<i>Firm experiments:</i> Eli Lilly, GE, Google, France Telecom, Hewlett-Packard, IBM, Intel, Microsoft, Siemens, Yahoo, Best Buy, Masterfoods, Siemens, Arcelor Mittal, Renault
	<i>Application:</i> supply chain management, business forecasting, new product development, policy analysis, and sports betting.			2. Provide forecasts on a wide range of events, from presidential elections to printer sales.			
<b>Knowledge Markets</b> (Q&A)	Knowledge markets act as intermediaries between knowledge seekers and holders. They have been used to connect experienced, researchers and engineers with member companies for short-term assignments, or to match knowledge sources inside a firm.			1. Match knowledge sources (Consumers & Producers).		<i>Platforms:</i> YourEncore, Yet2.com, ExpertsExchange, Knee.com, Knexa.com, Google Answers, Sermo, Uclue, JustAnswer, Mahalo Answers, SDN.	<i>Firm experiments:</i> Eli Lilly, McKinsey, SAP.
	<i>Application:</i> knowledge management			2. Connect knowledge seekers to experts.			
<b>Innovation Markets</b> (Problem-solving)	Markets for R&D problem solving, they act as "brokers" who bring together a problem solution seeker with a global network of problem solvers.			1. Bring companies with specific R&D problems together with researchers and problem solvers around the world.		<i>Platforms:</i> Innocentive, NineSigma.	<i>Firm experiments:</i> Eli Lilly, SAP.
	<i>Application:</i> research and development			2. Save time and money for customers by providing them access to qualified researchers without having them on their payrolls.			
<b>Idea Markets</b> (Product development)	Markets enabling the search for outside ideas to develop products faster, without having to do everything in-house, but instead leveraging the skills and knowledge of others.			1. Involve users in idea generation; submit ideas for innovative electronic products.		<i>Platforms:</i> Crowdsprit, IdeaMagnet, IdeaConnection, Salesforce.com's Idea Exchange, IBM innovation jam.	<i>Firm experiments:</i> Threadless, GE, Peugeot, Lego, Salesforce, IBM.
	<i>Application:</i> design, new product development			2. Involve organizational members in the activities of idea generation and selection of new services, products and processes			

# Components (Desouza & Awazu, 2003)

*“A market can be defined as a collection of buyers and sellers who interact to determine the price of a product or set of products. The main components of an internal knowledge market are: the **players** (buyers and sellers), **rules** (governance of interactions), and **space** (area where buyers and sellers collect). A succinct way one can define a market is by using the analogy of games: ‘A market is the pre-defined (rules) logical space in which buyers and sellers play **to win**’”.*



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# THE RESEARCH PROGRAM

# Knowledge Markets

a research and innovation program

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Technological Innovation  
and Entrepreneurship



# Definitions and assumptions (Carrillo, 2010)

- **Knowledge Markets** are those value exchange systems where intellectual capital, besides traditional financial and physical assets are the object of transaction
- Most existing human **value systems** can be considered as largely underdeveloped markets in terms of the gap between actual and possible transactions
- **Capital systems**, insofar complete and consistent value taxonomies, provide the language to systematically understand and capitalize on the space of possibilities offered by knowledge markets

# General Objectives (Carrillo, 2010)

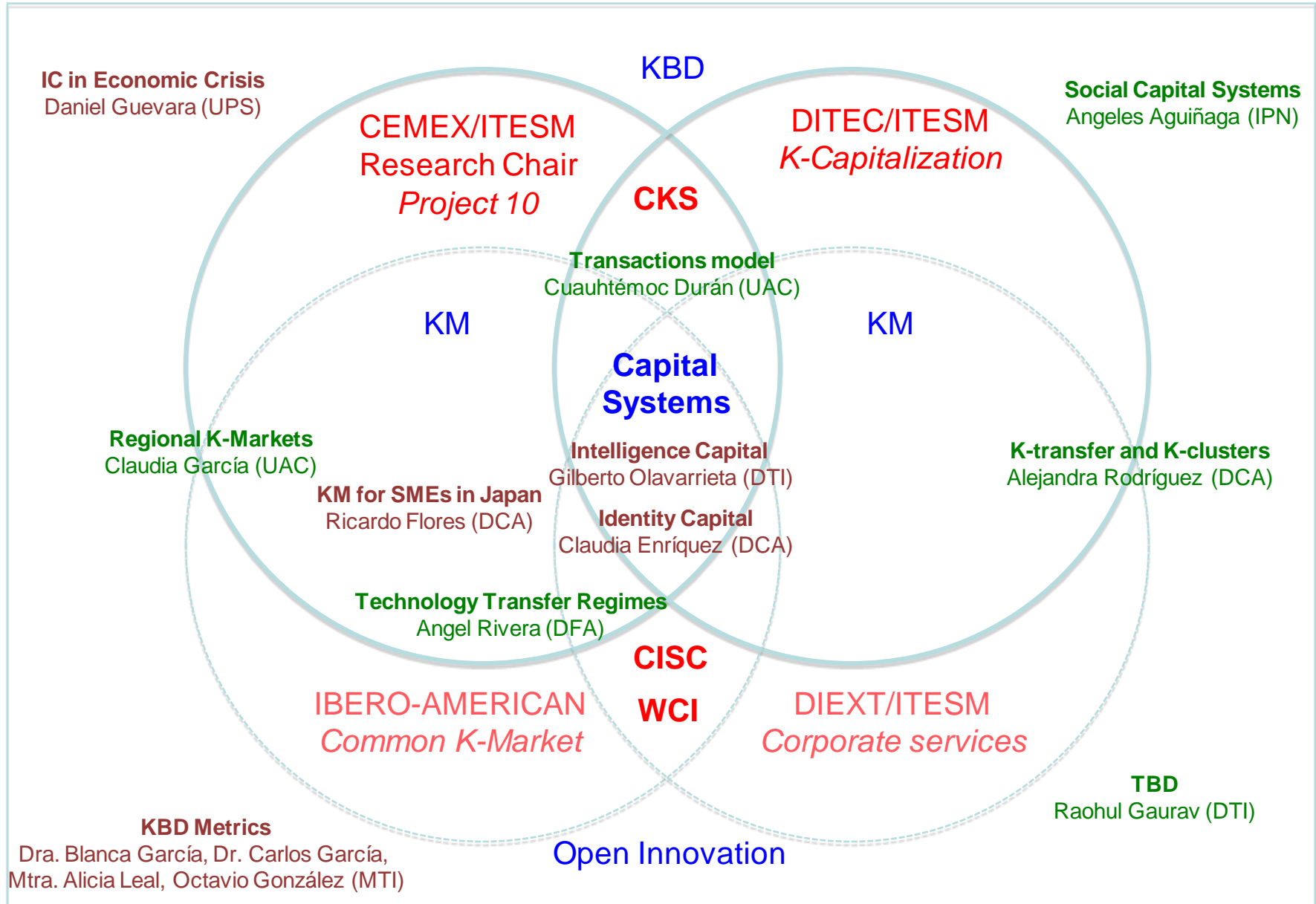
- To build a **formal system** for the representation and analysis of knowledge-based markets (KBMs)
- To apply the Capital Systems taxonomy to KBMs **typology** and **combinatory** analysis
- To develop **working models** for value capitalization in specific KBM settings
- To develop **measurement** and **reporting** schemes for specific KBM settings

# Synergies (Carrillo, 2010)

Key stakeholders and initiatives

Key concepts

Related research



# Specific U-I Objectives (Durán&Carrillo, 2010)

- To describe knowledge markets as **formal systems**
- To build a **typology** and **combinatory** of U-I K-markets
- To identify **inteorganizational value creation processes** between a company and a university
- To design a **transactions regime** for a U-I k-market

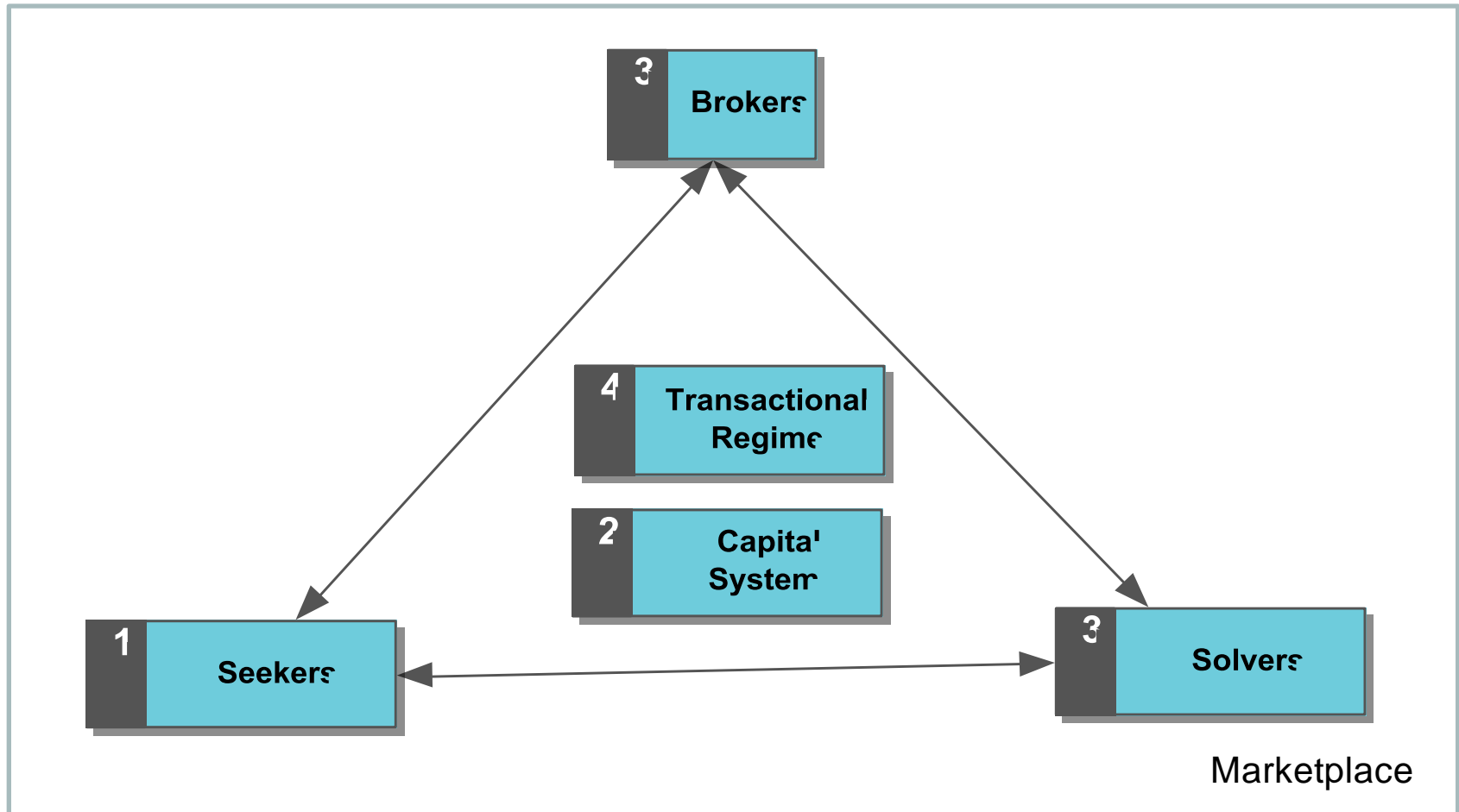




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# ANALYSIS FRAMEWORK

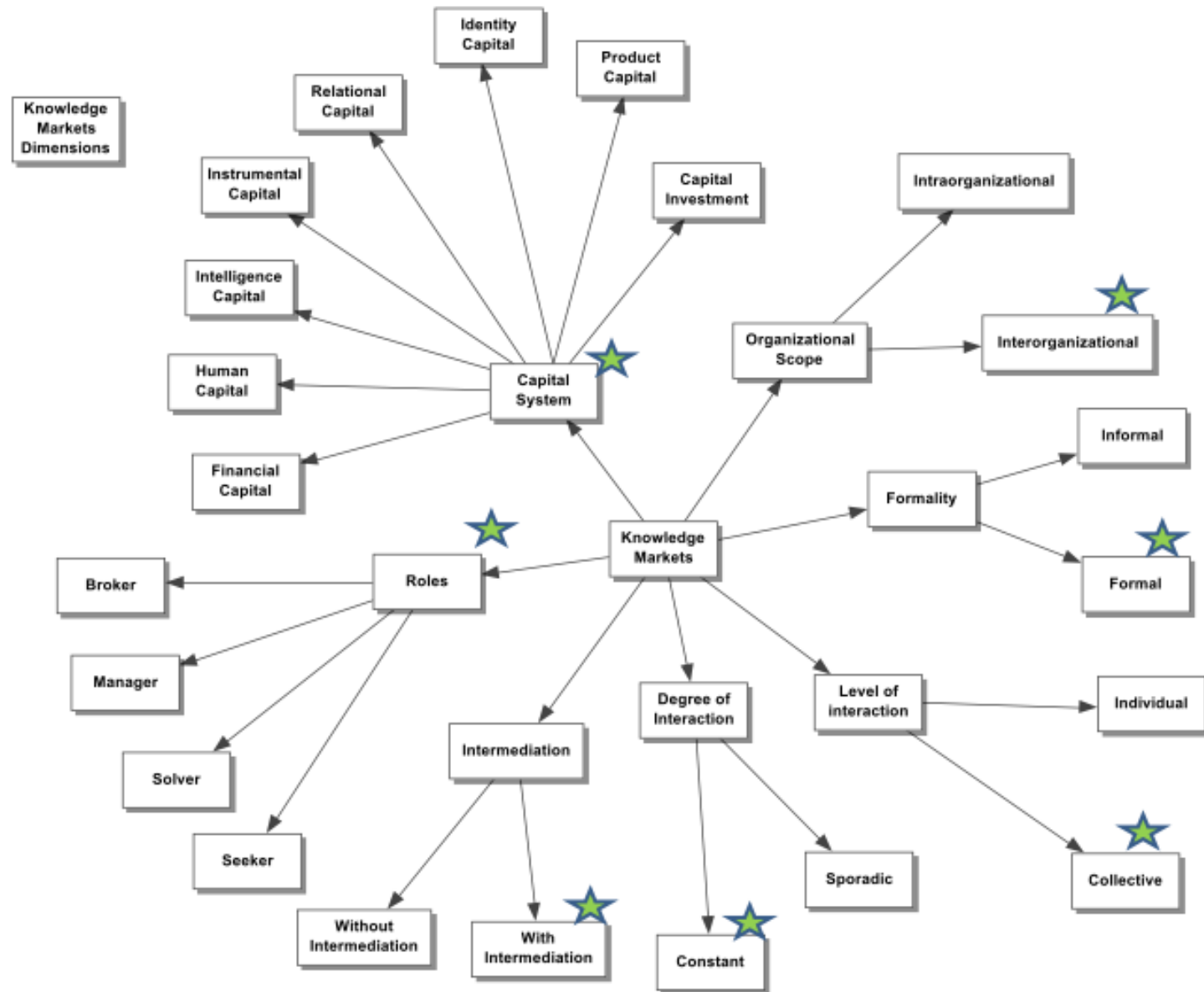
# Internal model (Durán y Carrillo, 2010)



# Capital systems combinatory (*Ibid*, 2010)

Agent A Agent B	Financial Capital	Relational Capital	Intelligence Capital	Agent Capital	Identity Capital	Instrumental Capital
Financial Capital	\$ \$	\$ R	\$ I	\$ G	\$ O	\$ A
Relational Capital	R \$	R R	R I	R G	R O	R A
Intelligence Capital	I \$	I R	I I	I G	I O	I A
Agent Capital	G \$	G R	G I	G G	G O	G A
Identity Capital	O \$	O R	O I	O G	O O	O A
Instrumental Capital	A \$	A R	A I	A G	A O	A A

# U-I K-markets dimensions (*Ibid*, 2010)





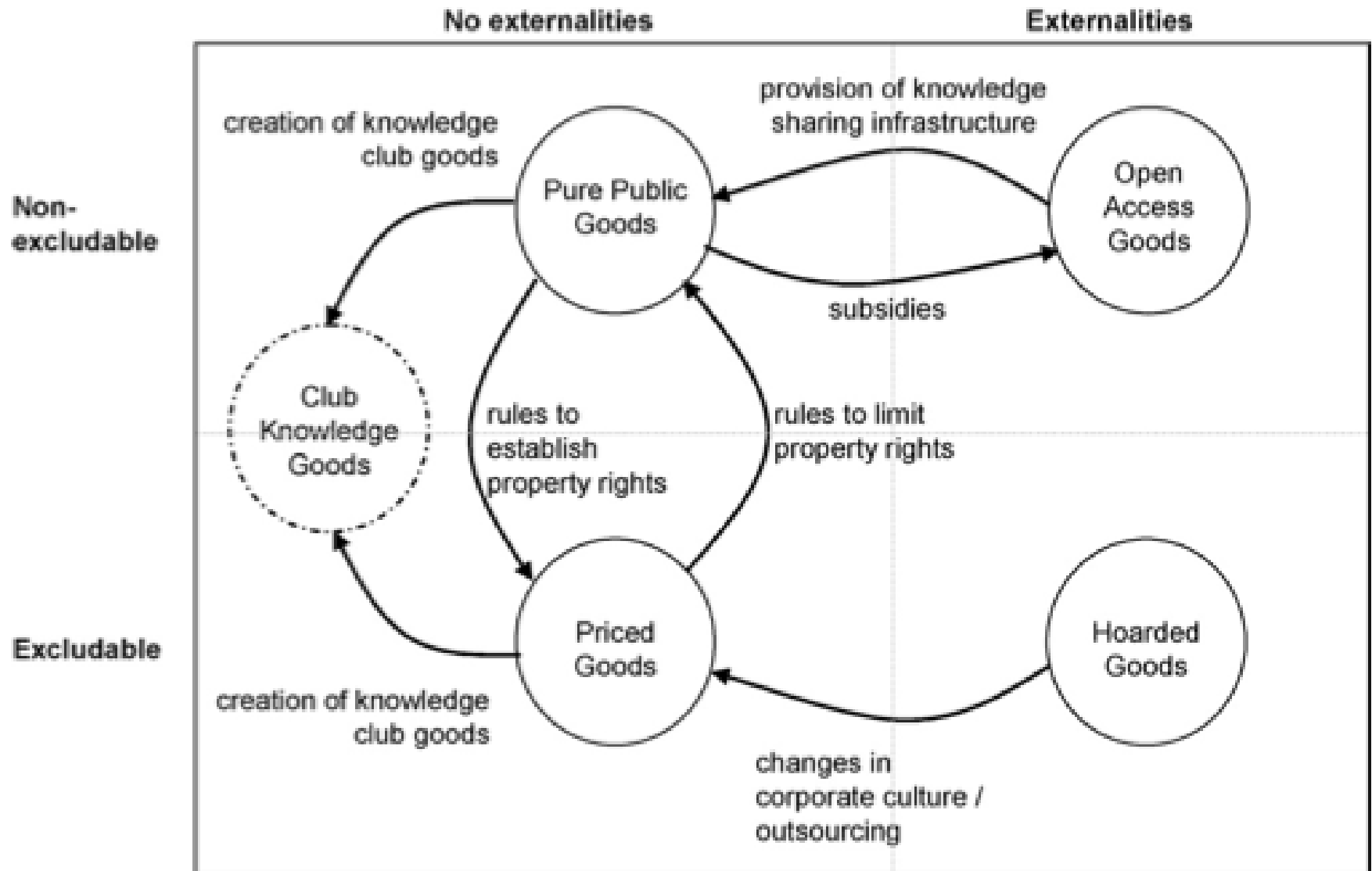
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# MANAGEMENT SPACE

# Design framework (Benbya&Van Alstyne, 2010)

- Phase 1: Market Launch.
  - Seed and subsidize to match content providers with content consumers
  - Introduce transferable and culturally appropriate incentives
- Phase 2: Market Development
  - Manage inflows for growth
  - Manage outflows for stability
- Phase 3: Market evolution
  - Design for self-design
  - Quantify value

# Effects of management on k- type (Brydon & Vinning, 2006)



# Revisiting Value Systems (after Chesbrough, 2010, Allee, 2002 and Carrillo, 1998)

- Articulate the **value proposition**
- Identify a **market segment**
- Define the structure of the **value chain**
- Specify the revenue generating mechanism for the system agent and estimate the **cost structure** and **profit potential**
- Describe the position of the stakeholders within the **value network**, linking all agents
- Formulate a **value transposition strategy**



# Key attributes (Carrillo, 2011)

- Trust
- Symmetry
- *Interpreneurship*
- Democracy
- Transparency
- Openness
- Intelligent agents
- Floating prices
- Ad-hoc currencies



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# The Monterrey Tech – CEMEX K-MARKET



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TEC DE MONTERREY-CEMEX RESEARCH CHAIR

# Meta K-market

- Inter-organizational (U-I) K-markets
- Deliberate strategy
  - Research collaboration management
  - Action Research project
- From traditional customer-supplier R&D relationship to innovation partnership
- Open CfP to both company and university
- Teams bid for available matching funds
- Joint investment, management and capitalization

# Research Chair ITESM – CEMEX

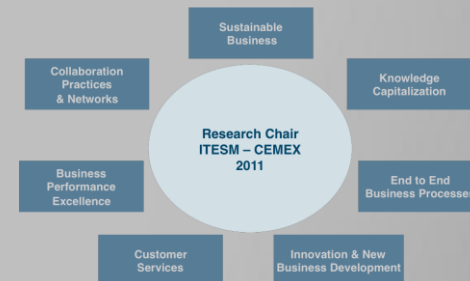
## Call for Proposals 2011

### Research Chair ITESM - CEMEX objective:

Founded on 2004, it provides a research collaboration space between ITESM and CEMEX for developing new processes & practices aligned to CEMEX's business processes challenges and to ITESM's strategic research agenda.

Every year, this research chair sponsors a portfolio of collaborative research initiatives. To develop the 2011 portfolio, both the ITESM and CEMEX communities are welcome to submit research intentions under the following

### Research Topics Framework



If you are a CEMEX employee or ITESM faculty, you are welcome to submit any new ideas for joint research that you feel are somehow related to these topics. Simply post an email with your name, research topic and up to 200 words description to the corresponding address, by September 24, 2010:

CEMEX: [research\\_tec.cemex\\_2011@cemex.com](mailto:research_tec.cemex_2011@cemex.com)

ITESM: [research\\_tec.cemex\\_2011.mty@itesm.mx](mailto:research_tec.cemex_2011.mty@itesm.mx)

Matching CEMEX-ITESM research intentions will be invited to jointly formulate and submit collaborative research proposals by October 15. Selected projects will be announced by November 15. The grounds of proposal selection are:

1. Mid-term research projects (≥12 months)
2. Collaborative team CEMEX - ITESM
3. Alignment to CEMEX - ITESM Research Framework

Proposals to be included in the 2011 project portfolio will be selected by the CEMEX - ITESM Research Chair Board.

For further information you may contact any of the organizers.

### Organizers:

#### CEMEX – Processes - Research and Networking

Martín Herrera <[martinadolfo.herrera@cemex.com](mailto:martinadolfo.herrera@cemex.com)>

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# Micro-KMarkets

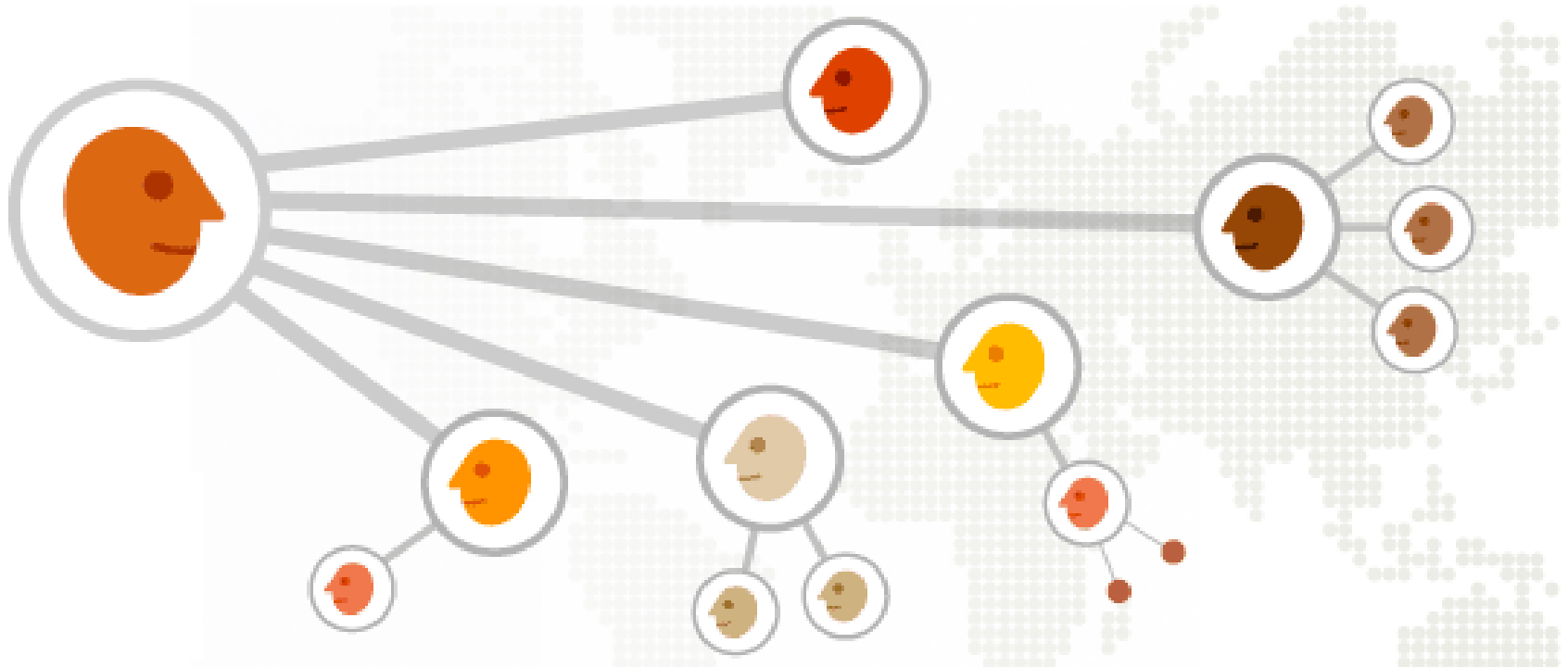
- Portfolio of student assignments to company activities
- Value Practices Consortium
- Business processes integration into curricula
- Faculty internships



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# EMERGING K-MARKETS

# InnoCentive



*“... (connects) **Seekers**...to internal and external communities of problem **Solvers** to find **Solutions** to their most pressing **Challenges**”.*

# Q&A Markets (Chen et al, 2008)

**Table 1: Features of Internet Knowledge Markets**

Site	No. questions	Who answers	Price & Tip	Reputation system
Google Answers	53,087	Researchers selected by Google	\$2 to \$200	1 to 5 stars
Yahoo! Answers	10 million+	All registered users	No	Points, levels
Answerbag	365,000+	All registered users	No	Points, levels
Internet Public Library	50,000+	Librarians and LIS students	No	None

*“... we study the effects of **price**, **tips** and **reputation** systems on the quality of answers and the effort of the answerers... We find that posting a higher price leads to a significantly longer, but not better, answer, while an answerer with higher reputation provides significantly better answers.”.*



# P2P Economy



[http://www.masternewmedia.org/news/2007/11/03/the\\_peer\\_to\\_peer\\_manifesto.htm](http://www.masternewmedia.org/news/2007/11/03/the_peer_to_peer_manifesto.htm)

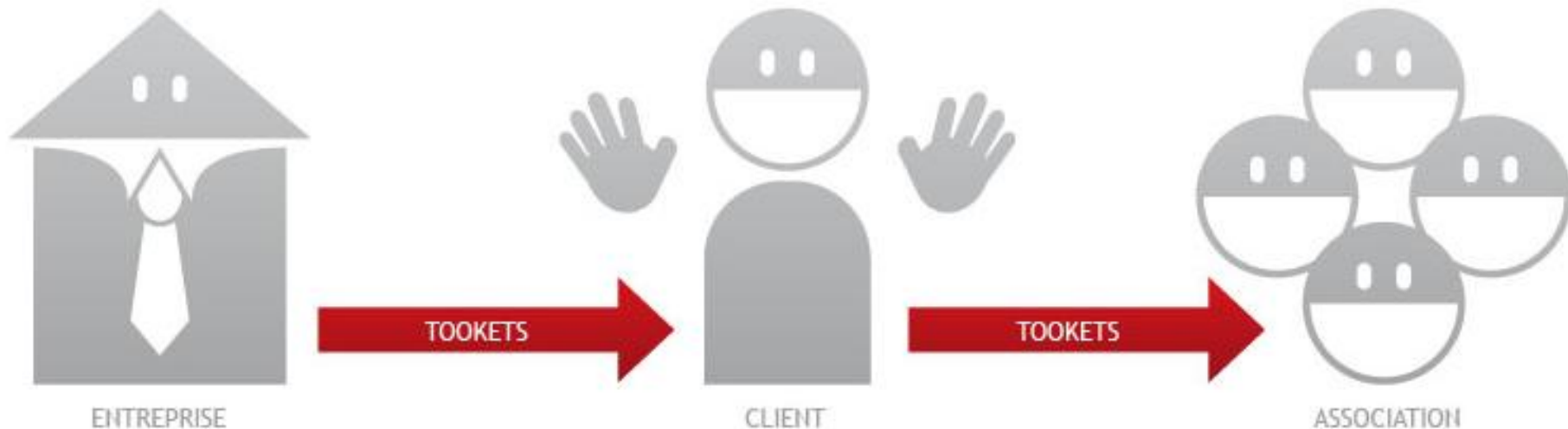
# Future of Money: Tookets

VOS CLIENTS ET VOS SALARIÉS  
ACTEURS DE LA SOLIDARITÉ

CREEZ VOTRE PROGRAMME

<http://lebleu.org/blog/>

VOTRE ENTREPRISE FIDÉLISE SON CLIENT EN LUI OFFRANT DES TOOKETS QU'IL REDISTRIBUE A L'ASSOCIATION (OU AUX ASSOCIATIONS) DE SON CHOIX PARMİ CELLES QUE VOUS SOUTENEZ.



# Openworld

## Seeds of Change

*Online resources from global allies can help poor communities prosper*



# Collective Intelligence

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**xigi.net**

*discover the capital market that invests in good*

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<http://www.xigi.net/#>



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# Intel LEO



Intelligent Learning Extended Organisation

*“An Intelligent learning extended organization (IntelLEO) constitutes a temporal alliance among different organisations (industrial, research, educational etc.) in order to share knowledge and competences through cross-border learning and knowledge building (LKB) activities”.*

# Symbionomics



symbionomics

“Whether we are talking about fundamental notions of property or that which motivates us to work in the first place, today new social patterns are emerging that better serve our networked world.”

<http://www.symbionomics.com/>

# The Ingenesist Project



THE INGENESIST PROJECT  
the next economic paradigm



*The Future Of Money  
And Technology;  
Monetizing Intangible  
Capital*

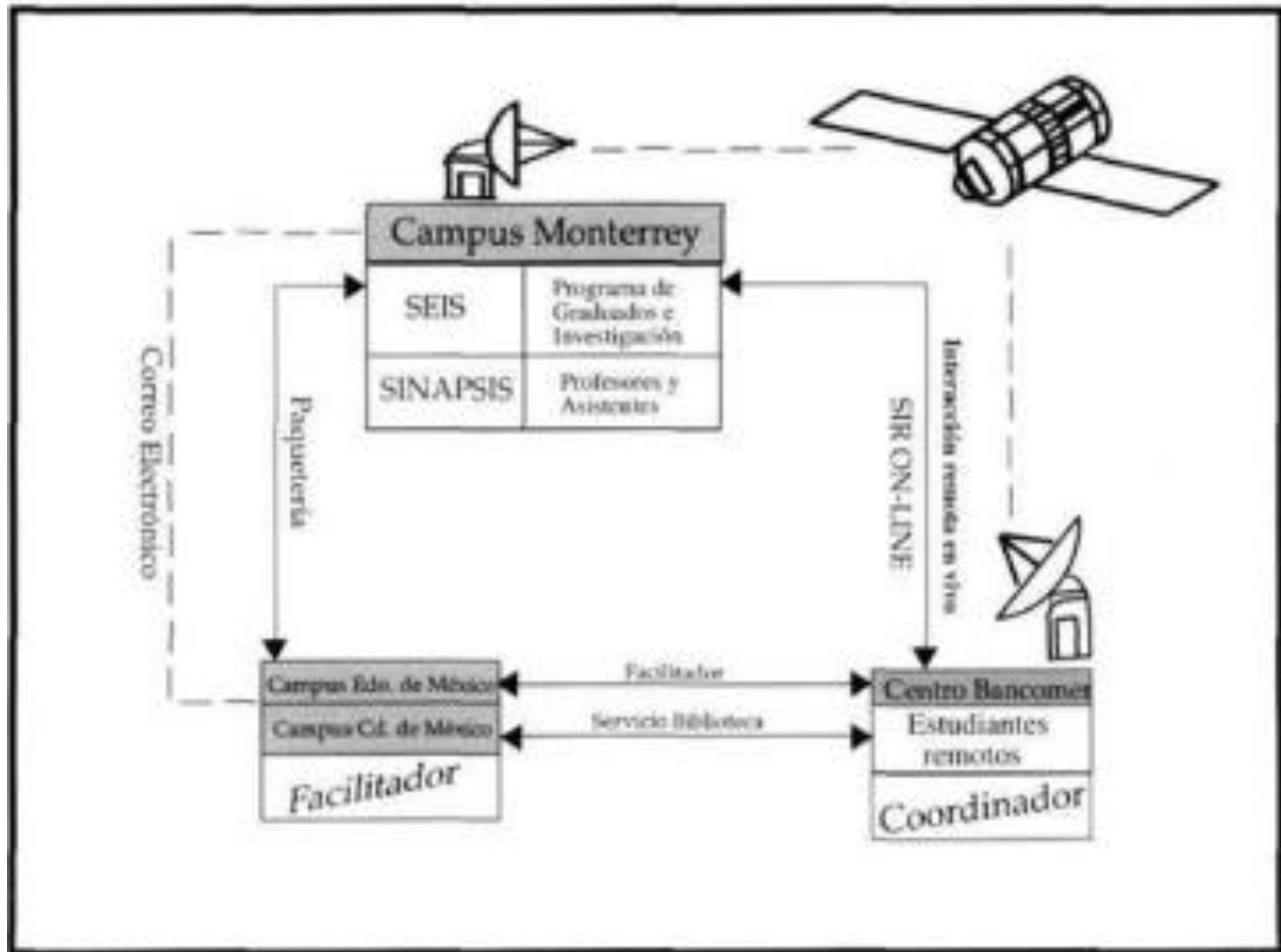




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# **TOWARDS KNOWLEDGE VALUE TRANSPOSITION AND THE SOCIAL DISSOLUTION OF UNIVERSITIES**

# *Sinapsis Program (Carrillo, 1989)*



# Mutually interpenetrating structures (Vedres & Stark, 2010)

## Structural Folds

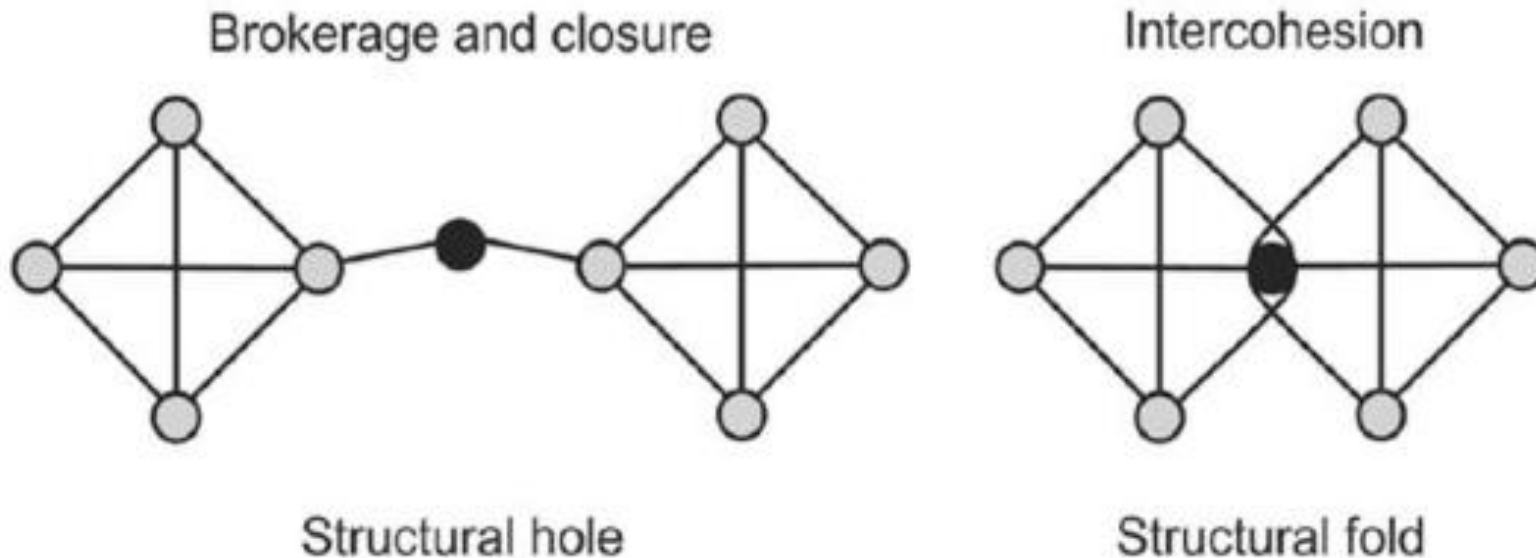
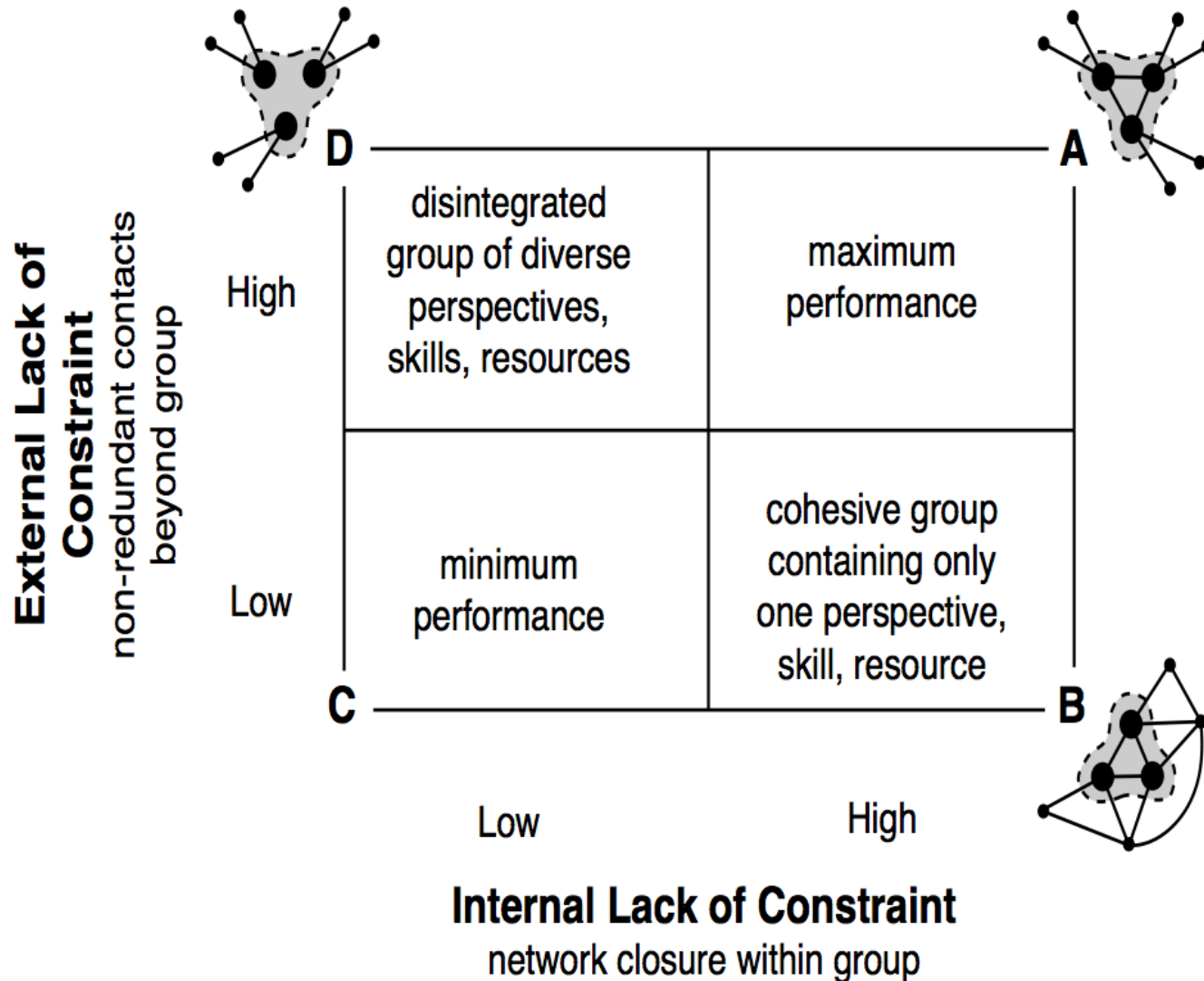
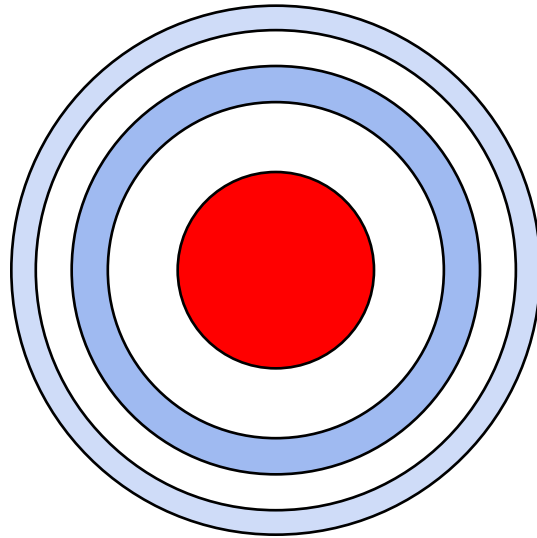


FIG. 1.—The structure of intercohesion in contrast to brokerage and closure

# Structural holes vs. Network closure (Burt, 2001)



# Fusion and transcendence





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