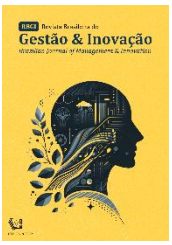
RBGI - Revista Brasileira de
Gestão & Inovação
Brazilian Journal of Management & Innovation
journal homepage: https://sou.ucs.br/etc/revistas/index.php/RBGI/index



Knowledge Systems: From Latin America to the World

Sistemas de Conhecimento: Da América Latina para o Mundo

ISSN: 2319-0639
OPEN ACCESS

Francisco Javier Carillo [1]
https://orcid.org/0000-0001-7669-2005

Ana Cristina Fachinelli [2]
https://orcid.org/0000-0003-4136-6933

Rafael de Lucena Perini [2]
https://orcid.org/0000-0002-3638-8778

[1] World Capital Institute
[2] Universidade de Caxias do Sul – UCS

Received on:
July/2024

Approved on:
August/2024

Editor:
Mateus Panizzon, Dr.
PPGA UCS

Assistant Editors:
Catiane Borsatto Ma.
PPGA UCS
Bianca Libardi Ma.
PPGA UCS

Evaluation Process:
Double blind peer review

Reviewers:
Reviewer 1
Reviewer 2

HIGHLIGHTS

- The article documents the origins, evolution, and global impact of the Knowledge Systems Movement (KSM) in Ibero-America, highlighting its institutional bases, theoretical contributions, and practical applications in knowledge management and knowledge-based development.
- The study reveals how the Center for Knowledge Systems (CKS), the Comunidad Iberoamericana de Sistemas de Conocimiento (CISC), and the World Capital Institute (WCI) fostered international collaborations and created innovative frameworks like Knowledge Cities and Capital Systems.
- Survey and documentary analyses demonstrate that KSM members significantly contributed to research, education, consultancy, and international collaboration, reinforcing Latin America's role in shaping global knowledge management and knowledge-based development practices.
- The Triadic Knowledge Management Model and Capital Systems Framework, developed under KSM, are presented as theoretical milestones that advance the understanding of knowledge events, value alignment, and strategic knowledge management for sustainable development.
- Through extensive consultancy, research, and educational initiatives, the Knowledge Systems Movement has promoted transformative changes in Latin America, leveraging local contexts to strengthen global practices in knowledge management, innovation, and knowledge-based economic development.

Este artigo não possui nenhum arquivo associado
This article does not have any associated files.

HOW TO CITE:

Carillo, F. J., Perini, R. L., & Fachinelli, A. C. (2024). Knowledge Systems: From Latin America to the World. *Brazilian Journal of Management and Innovation (Revista Brasileira de Gestão e Inovação)*, 11(3), 65-83. https://doi.org/10.18226/23190639.v11n3.07

KEYORDS

Knowledge systems movement

Comunidad Ibero-Americana de Sistemas de Conocimiento

Triadic KM model

Capital systems

Knowledge-based development

Center for Knowledge Systems

World Capital Institute

ABSTRACT

Objective: the study aims to provide an overview of the origins, development, and prospects of the Knowledge Systems Movement (KSM) in Ibero-America, as well as its international impact. It seeks to document the institutional trajectory, theoretical foundations, and practical applications of the movement, mapping its regional and global contributions.

Design/Method/Approach: this is a documentary analysis combined with an empirical exercise. A bibliographic review, documentary analysis of the institutional, theoretical, and applied bases of KSM, and a survey of senior members of the movement across the Ibero-American region were conducted.

Originality/Relevance: the study presents an original overview of KSM, composed of (a) a knowledge management (KM) and knowledge-based development (KBD) approach, (b) a professional network in the Ibero-American region, and (c) a global theoretical and applied domain. It highlights the institutional and theoretical trajectory of the Center for Knowledge Systems (CKS), the Comunidad Iberoamericana de Sistemas de Conocimiento (CISC), and the World Capital Institute.

Main Results/Findings: the results highlight KSM's contributions to research, education, consultancy, and international collaboration, both within Ibero-America and globally. E-Learning practices are supported through educational programs identified via the survey and documentary analysis. The vitality of the movement is evidenced by extensive publications and the consolidated performance of its organizations.

Theoretical/Methodological Contributions/Implications: the study contributes to the historical and conceptual systematization of KSM, presenting key shared theoretical elements and practical applications with governments and public and private companies. It reinforces KSM's role as a platform for knowledge-based development and innovation.

Social/Managerial Contributions: the research emphasizes KSM's role in strengthening education, knowledge management, and international collaboration in the Ibero-American region, while also highlighting its global impact on academic and consultancy practices.

PALAVRAS-CHAVE

Movimento de Sistemas de Conhecimento

Comunidad Ibero-Americana de Sistemas de Conocimiento

Modelo Triádico de Gestão do Conhecimento

Sistemas de Capital

Desenvolvimento Baseado no Conhecimento

Centro de Sistemas de Conhecimento

World Capital Institute

RESUMO

Objetivo: o estudo tem como objetivo analisar as etapas de institucionalização da Economia Circular (EC) das embalagens no Brasil, com base nos pressupostos da Teoria Institucional, que permite a internalização de valores e legitimação de práticas sociais. Objetivo: o estudo tem como objetivo apresentar uma visão geral das origens, desenvolvimento e perspectivas do Movimento de Sistemas de Conhecimento (KSM) na Ibero-América, bem como seu impacto internacional. Busca-se documentar a trajetória institucional, as bases teóricas e as aplicações práticas do movimento, assim como mapear sua contribuição regional e global.

Design/Metodologia/Abordagem: trata-se de uma análise documental combinada com um exercício empírico. Foram realizados levantamento bibliográfico, análise documental sobre as bases institucionais, teóricas e aplicadas do KSM, e uma pesquisa com membros seniores do movimento na região ibero-americana.

Originalidade/Relevância: o estudo apresenta um panorama inédito do KSM, composto por (a) uma abordagem de gestão do conhecimento (KM) e desenvolvimento baseado no conhecimento (KBD), (b) uma rede profissional na Ibero-América e (c) um domínio teórico e aplicado de alcance global. Destaca a trajetória institucional e teórica do Centro de Sistemas de Conhecimento (CKS), da Comunidad Iberoamericana de Sistemas de Conocimiento (CISC) e do World Capital Institute.

Principais Resultados/Constatações: os resultados evidenciam a contribuição do KSM para a pesquisa, a educação, a consultoria e a colaboração internacional, tanto na Ibero-América quanto no cenário global. A prática de E-Learning é destacada por meio dos programas educacionais mapeados na pesquisa e na análise documental. A vitalidade do movimento é comprovada pelas publicações extensas e pela atuação consolidada de suas organizações.

Contribuições Teóricas/Metodológicas/Implicações: o estudo contribui para a sistematização histórica e conceitual do KSM, apresentando seus principais elementos teóricos compartilhados e suas aplicações práticas em governos e empresas públicas e privadas. Reforça a importância do KSM como plataforma de desenvolvimento e inovação baseada no conhecimento.

Contribuições Sociais/Gerenciais: a pesquisa aponta o papel do KSM no fortalecimento da educação, da gestão do conhecimento e da colaboração internacional na região ibero-americana, além de destacar seu impacto global em práticas acadêmicas e de consultoria.

1. Institucional base

1.1 Center for Knowledge Systems (CKS)

Was created in 1990 at Tecnológico de Monterrey main Campus. It operated until 2015, when research and graduate activities were syndicated in national schools and CKS became the National Research Group on Knowledge Societies. Over its 25 years of existence, CKS maintained a synergistic research, graduate, and consultancy agenda (García, 2012; Ortiz, 2012).

1.1.1 Research and Development

The CKS has been credited as the first KM-dedicated R&D center worldwide (Skyrme & Amidon, 1997). It developed its own models and techniques, based on distinctive epistemic, behavioral, economic, and social grounds (Amidon, 2003: 228-230; Bennet & Bennet, 2014: 22-23; Bennet and Baisya, 2023: 316-322; Grau et al., 2017: 283-285; Carrillo, 1998, 2001a, 2021a, 2022a). Table 1 lists CKS proprietary models and methods achieving international resonance. Table 2 contains a list of books published jointly by CKS staff. In a bibliometric exercise for the Journal of Knowledge Management 20th anniversary, CKS ranked second amongst the 50 "most productive and influential universities and institutions publishing in the JKM" (Gaviria-Marín et al., 2018: 1666).

Table 1. CKS proprietary models and methods having international reach

Model / method	Paper section / reference call
Triadic KM Model	Section 3 on the paper
Capital Systems Framework	
Knowledge Cities Paradigm	
Competencies Development Framework	Buendía et al, 2005; Delgado, 2005; González et al., 2012; Kayakutlu, 2010; Manrique, 2008; Martínez, 2006, 2010; Martínez & Buendía, 2009
Value Practices Method	Carrillo, 2005a; Martínez & Carrillo, 2011; Icaza, 2021
360° External Intelligence Framework	Carrillo & Olavarrieta, 2009; Carrillo et al., 2022; Olavarrieta and Carrillo, 2011a, b & 2012a, b; 2014; Olavarrieta et al, 2013
Knowledge Markets Taxonomy	Carrillo, 2010; 2012, 2014a, c, 2016, 2017a, 2019, 2021b; Carrillo & Villa, 2014; Duran, 2014; Duran et al., 2011
Knowledge Based Development field of study	Bennet & Bennet, 2008; Carrillo, 1996b, 2001a, 2004, 2008, 2014b, 2015; Carrillo & Batra, 2012, Carrillo & Flores, 2012; Cheng et al., 2004; Chou & Passerini, 2009; Dang & Umemoto, 2009; Flores & Carrillo, 2010a, 2012; Escriba-Esteve & Urra-Urbieta, 2002; Malone & Yohe, 2002; Mansell, 2002; Martinus, K. 2010; McElroy et al., 2006; Millar & Choi, 2010; Passerini, 2007; Raza et al, 2006, 2007; Sharma et al., 2009; Spender, 2010; Wiig, 2007

Table 2. Books published jointly by CKS staff and faculty

Title	Reference call
Aprendizaje Organizacional, 1ª & 2ª Ed.	Zapata, 2008, 2011 (Ed.)
Administración de Conocimiento y Desarrollo Basado en Conocimiento	Martínez & Corrales, 2010 (Eds.)
Prácticas de Valor de Gestión Tecnológica en México	Carrillo, 2005 (Coord.)
Desarrollo Basado en Conocimiento	Carrillo, 2008 (Ed.)
Sistemas de Capitales y Mercados de Conocimiento	Carrillo, 2014 (Ed.)

1.1.2 Education

CKS developed early KM curricula. Since 1998 it offered the KM Specialization within an M.Sc. Program and since 2004 the KM Concentration Program for B.Sc. Students. CKS was invited in 2000 to develop the curriculum for the Knowledge Management Consortium International and participated on KM curriculum design for Universidad de Deusto and Pontificia Universidad Católica del Peru. CKS participated in 8 doctoral programs from Mexico and abroad, its faculty directed over 25 doctoral and 40 master's dissertations. CKS offered a Diploma Course plus executive training programs in Mexico and abroad (García, 2012; Ortiz, 2012). Prominent KM practitioners from Ibero-America are CKS alumni.

1.1.3 Consultancy

CKS carried out over 100 national and international contracts with government, companies, NGOs, and international agencies (section 4.2 below). Table 3 contains a sample of consultancy clients. CKS was always financially self-sufficient, applying itself a capital system (CSC, 2004).

Table 3. Sample of CKS corporate and government consultancy clients

Government	Corporate
CFE (Mex)	Aeromexico (Mex)
CONOCER (Mex)	AHMSA (Mex)
Federal Ministry of Economy (Mex)	Arca (Mex)
Federal Ministry of Education (Mex)	Banorte (Mex)
Nuevo León State Government (Mex)	BBVA-Bancomer (Mex)
Pemex (Mex)	Alfa (Mex)
Department of Caldas Government (Col)	Cerveceria Cuauhtemoc (Mex)
Municipality of Manizales (Col)	CocaCola-FEMSA (Mex)
Municipality of Medellín (Col)	CYDSA (Mex)
SENA (Col)	DSI (USA)
Ciudad del Saber (Pan)	EDS (USA/Mex)
National Ministry of Culture (Spn)	Enexor (Mex)
	Gamesa (Mex)
	Geotex (USA/Mex)
	IBM (USA/Mex)
	IMSA (Mex)
	LALA (Mex)
	Lamosa (Mex)
	Liverpool MX (Mex)
	MABE (Mex)
	Maseca (Mex)
	Microsoft (USA/Mex)
	Mondragon Group (Spn)
	Motorola (USA)
	Museo de Monterrey (Mex)
	Polar (Ven)
	Prolec (Mex)
	Sycsa (Mex)
	TV Azteca (Mex)
	Vitro (Mex)
	Xignux (Mex)

1.1.4 Networking

Since its inception, CKS engaged in alliances with pioneer KM and IC organizations (Table 4) International networking in Latin America is documented next.

Table 4. Sample of CKS Alliances with KM and IC associations

Country	Association
USA	Knowledge Management Consortium International, George Washington University, the Knowledge Sciences Center at Kent State University, The

	World Bank Institute, the Global Development Learning Network (GDLN), the Mountain Quest Institute and Entovation International
UK	GKR network at Leeds University; Journal of Knowledge Management and Pascal Observatory
Spain	Basque Country Knowledge Cluster, Knowledge Society Research Center at the Autonomus University of Madrid, as well as the National University of Distant Education, The University of Deusto, the Mondragon University and The University of Extremadura
France	Sorbonne University, Poitiers LABCIS , INTACK network, and Arenotech
European Community	European Association of Living Labs

1.2 Comunidad Iberoamericana de Sistemas de Conocimiento (CISC)

CISC emerged from CKS in 2000 (Carvajal, 2009; Rodriguez et al., 2014; Scheel, 2002; Carrillo et al., 2000; Carrillo, 2017b, 2023). CISC developed strong ties with international organizations (Table 5). This relational context proved fertile for CISC consolidation.

Table 5. Sample of ICKS Collaborations with KM and KBD associations

Country	Association
Brazil	University of Caxias do Sul, Federal University of Santa Catarina and Institute of Applied Economic Research
Canada	International Development Research Centre –IRDC
Colombia	The National University, and Del Rosario University at Bogotá, Universidad of Valle at Cali, University of the North at Barranquilla
Chile	Comisión Económica para América Latina y el Caribe –CEPAL
Uruguay	Organización Internacional del Trabajo/CINTERFOR
Mexico	Asociación de Directivos en Investigación Aplicada y Desarrollo Tecnológico, Consejo Nacional de Ciencia y Tecnología, Instituto Politécnico Nacional, Universidad Nacional Autónoma de México, and Centro de Investigación y Docencia Económica
Spain	Mondragon Innovation and Knowledge, Intellectus Madrid and Universidad Politécnica de Cataluña, Barcelona
Perú	Pontificia Universidad Católica del Perú and Universidad Nacional de San Agustín

CISC mission is "To foster knowledge-based development of people, organization and societies from the Ibero-American Region". From 2003 through 2018, CISC operated as federation of about 30 semi-autonomous cells, each a local KM-KBD community of practitioners, academics, entrepreneurs, or government officers. Cells clusters formed a region (Table 6). A Technical Secretariat was hosted by CKS.

Table 6. CISC regions, cells, and hosts

Region	Cell	Host
Argentina	Buenos Aires -Consultores	Red de Consultores Independientes
	Buenos Aires – UADE	Universidad Argentina de la Empresa
	Cuyo	Universidad Nacional de Cuyo
Brazil	Bento Gonçalves	Universidade de Caxias do Sul
	Brasilia	Centro Universitário de Brasília
	Caxias do Sul	Universidade de Caxias do Sul
	Florianópolis	Universidade Federal de Santa Catarina
Central America	Costa Rica	Consultores Independientes, San José
	Guatemala	Consultores Independientes, Cd. Guatemala
	Panama	Ciudad del Saber
	San Salvador	Centro Nacional de Registros
Chile	Santiago	FACEA Universidad Central de Chile
	Talca	Consultores Independientes, Talca
	Valparaíso	Universidad de Talca
	Barranquilla	Universidad del Norte
	Bogotá	U. del Rosario, U. Nacional, U. Central
	Bucaramanga	Universidad de Bucaramanga
Colombia	Cali	Universidad de Valle
	Caribe Colombiano	Universidad del Atlántico
	Eje Cafetalero -Caldas	Gobierno de Caldas
	Manizales	Universidad de Manizales, Incubar
	Medellín	Alcaldía de Medellín, Incubadora Antioquía
	Valledupar	Fundación Puerto Digital
Ecuador	Guayaquil	Universidad Católica de Guayaquil
España	Alicante	Cámara de Comercio e Industria de Alicante
	Barcelona	Universitat Politécnica de Catalunya
	Extremadura	Universidad de Extremadura
	Madrid -UAM	IADE, Universidad Autónoma de Madrid
	Madrid -UNED	Universidad Nacional de Ed. A Distancia
	San Sebastián	Universidad de Deusto -San Sebastián
	Tenerife	Universidad de La Laguna
	Valencia	Universidad Politécnica de Valencia
Mexico	Ciudad del Carmen	Pemex Exploración y Producción -PEP
	Ciudad de México	Asoc. Mex. Adm. Del Conocim. - ADDCOIN
	Central de Veracruz	Marketing Soft Solutions
	Culiacán	Universidad de Occidente
	Monterrey	Tecnológico de Monterrey
	Pachuca	Centro de Des. Tec. Romualdo Tellería A.
	Puebla y Tlaxcala	BUAP y consultores asociados
	Quintana Roo	U. Riviera Cancún, ULSA, U. De Caribe
Peru	Arequipa	Universidad Nacional de San Agustín
	Lima	Pontificia U. Católica del Perú
	Trujillo	Universidad Privada del Norte
Portugal	Lisboa	Consultores Independientes, Lisboa
Uruguay	Montevideo	FCEA- Universidad de la República
Venezuela	Caracas	Consultores en Gestión de Capital Humano
	Valencia	Industrias Polar

CISC held an itinerant annual conference, shifting to videoconferencing since the COVID-19 pandemic. After CKS reconfiguration, it was no longer possible to host the Technical Secretariat. CISC evolved into its current structure: an online regional network sustained by three interdependent nodes: Mexico, Brazil, and Peru. Table 7 lists books published under CISC auspices, while Table 8 lists regional KBD programs CISC partnered with.

Table 7. Some CISC regional program partnerships

Country	Program collaboration partnership
Mexico	ADIAT *KM & Innovation Program*, CONACyT-ADIAT *Best Technological Innovation Practices*, and the Ministry of Economy PYMES Development Program
Colombia	*PFANGCTI* with Del Rosario University,
Peru	*Arequipa Ciudad de Conocimiento* with UNSA
Brazil	*RGDS Major's Development Program* and *Observatorio Brasileiro de Desenvolvimento Baseado em Conhecimento* with UCS,
USA	*Politicas de Innovacion y Gestion Tecnologica* training program

Table 8. Books published under CISC auspices

Title	Reference call
Conocimiento para el Desarrollo	Mujika, 2005 (Ed.)
Conocimiento para Innovar: Cómo evitar la miopía en la Gestión del Conocimiento	Arbonies, 2006
Regiones Iberoamericanas del Conocimiento	Mujika, 2007 (Ed.)
Construyendo una Ciudad del Conocimiento en Bogotá	Chaparro, 2007

Sistemas de Capitales y Mercados de Conocimiento	Carrillo, 2014 (Ed.)
Desarrollo Basado en Conocimiento	Carrillo, 2008 (Ed.)
Desarrollo Basado en el Conocimiento: Transferencia del Conocimiento	Casado, 2009
Cumbre Mundial de Ciudades de Conocimiento	Arce, 2017

1.3 World Capital Institute (WCI)

CKS early entrance in the KM and IC world, then led by consultancy firms (Carrillo, 1996a, 1998, 2001b, 2006f; Skyrme & Amidon, 1997), placed it in a privileged position. WCI was created in 2004 as an independent think-tank focused on KBD through today. WCI programs are: i) events including the annual conference (Knowledge Cities World Summit –KCWS), ii) awards: Most Admired Knowledge Cities –MAKCi, iii) R&D and editorial program. WCI promotes knowledge as the main leverage to development (Carrillo, 2001a; Von Mutius, 2005; Van Wezemael, 2012; Nesello et al., 2020). Its core topics are KBD, Knowledge Cities, and Alternative Economics. WCI programs have been studied, e.g., KCWS (Arce, 2017; Michelam et al., 2021) and MAKCi (Carrillo & Chase, 2007; Garcia, 2008, 2021).

The R&D and editorial program includes books and special issues. The worldwide inception of KBD and Knowledge Cities as R&D topics was leveraged through WCI guest edition of 7 special issues for the Journal of Knowledge Management: 4(6), 2002; 5(8), 2004; 5(10), 2006; 5(11), 2007; 5(12), 2008; 5(13), 2009 and 14(5), 2010. WCI created in 2010 the International Journal of Knowledge-Based Development, Scopus and WOS indexed. All editors have been WCI associates. Table 9 lists WCI editorial program books. WCI remains the KSM flagship, rooted in Latin American, with headquarters in Queretaro.

Table 9. Books published under WCI Editorial Program

Title	Reference call
Knowledge Cities	Carrillo, 2006a (Ed.)
Knowledge Management and Intellectual Capital: Emerging Perspectives	Batra and Carrillo, 2009 (Eds.)
Knowledge-Based Development for Cities and Societies	Metaxiotis et al., 2010 (Eds.)
Building Prosperous Knowledge Cities	Yigitcanlar et al., 2012 (Eds.)
Knowledge and the City	Carrillo et al., 2014 (Eds.)
Knowledge for the Anthropocene	Carrillo & Koch, 2021 (Eds.)
City Preparedness for the Climate Crisis	Carrillo & Garner, 2021 (Eds.)
A Modern Guide to Knowledge: From Knowledge Economies to Knowledge in the Anthropocene	Carrillo, 2022

2. Theoretical base

2.1 Triadic KM model

Studies on KM evolution reveal 'generations' (Table 10). The KSM approach is based on Third-generation KM (Batra, 2012; Carrillo, 2001b, c; Fachinelli et al., 2017; Garcia, 2008; Laszlo & Laszlo, 2002; Martínez, 2010; Yigitcanlar & Inkinen, 2019). A knowledge event is defined as a discrete phenomenon resulting from the alignment of three necessary and sufficient conditions: a k-object, a k-agent, and a k-context (Figure 1). The alignment of relevant parameters becomes a fourth, integrative concept. Alignment is the degree of correspondence among the relevant attributes of knowledge objects, agents, and contexts.

Table 10. Three KM generations

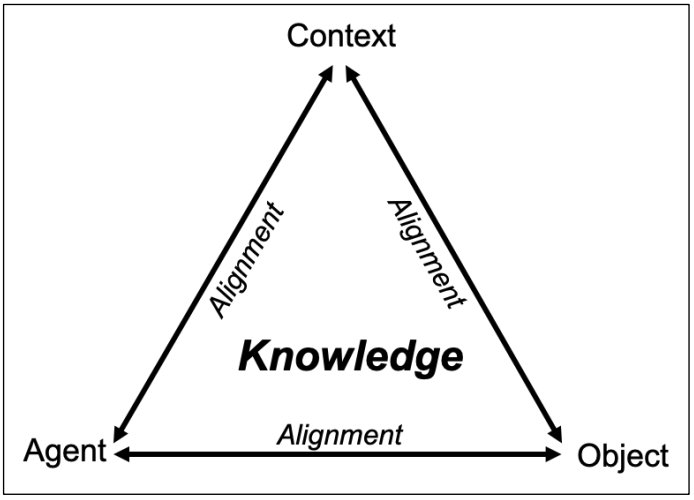
	Generation		
Concept	1st Generation: Object-centred	2nd Generation: Agent-centred	3rd Generation: Context-centred
Knowledge	Information content	Flow capacity	Value alignment
Management	Accumulate and retain stock	Facilitate and increase circulation	Dynamically adjust for sustainable balance
KM	A *technique* to secure possession	A *platform* to maximize knowledge flow	A *strategy* to facilitate value alignment and balance

2.1.1 Knowledge event

Knowledge can be understood as content to be acted upon or a value-creating event (Bennet & Bennet, 2014; Carrillo, 1998). A knowledge event emerges when object, agent, and context attributes dimensionally correspond with each other. KM seeks to effectively and mutually align these (Carrillo, 1998; Carrillo & Galvis-Lista, 2014; Carrillo et al., 2019; Fachinelli, Giacomello, et al., 2014, 2017; Van Wezemael, 2012; Von Mutius, 2005; Martinez, 2001; Martensson, 2000).

Fire (chemical chain reaction) requires a convergence of heat, oxygen, and flammable material (reactants) in appropriate proportion, just as knowledge requires its three elements to converge parametrically. Aggregating objects, agents, and contexts increases the likelihood of knowledge, but is not sufficient, just as non-insulated storage of combustible materials increases the risk of fire but does not start it. For intentional fire, flammable materials, oxygen, and heat must concur in adequate combination. By appropriately adjusting temperatures, oxygenation, and flammability, fire can be managed. Fire prevention and suppression is obtained by removing any of these factors. Likewise, KM facilitates alignment among knowledge objects, agents, and contexts by identifying their relevant dimensions and enabling their correspondence (Figure 1).

Figure 1. Elements of a knowledge event



2.1.2 Knowledge object

In first-generation KM, knowledge objects are understood as in instructional design: units of subject matter content. In the composite term 'KM', knowledge is associated with content and management with content-handling structures, such as databases, repositories, taxonomies, etc. Object-centered KM is based on variations of the knowledge lifecycle: operations on knowledge reifications corresponding to inventory management in industry (identify, categorize, store, retrieve, distribute and use). First-generation KM evokes an industrial mindset by objectifying knowledge. Instead of assuming that the known can be separated from the knower, KSM asserts that knowledge is constructed by an agent, so these can only be interdependently managed. Accordingly, a knowledge object implies a knowledge agent.

2.1.3 Knowledge agent

KM agency is expressed through categories including knower, k-agent, and human capital, veering to express situated and social action. Just as k-

objects are defined as functions of agents, agency implies separation neither between individual and social knowledge, nor between knowledge and action. Repository design must consider motivation, user-friendliness, and collaboration as much as content structure and consistency; otherwise, intended users will not engage. Agent management is characterized by exchange-intensive processes such as organizational learning, value practices, and competency development. Second-generation KM places a strong emphasis on flow and transfer. Agent actions are determined by situational variables and by each other: no agency without context.

2.1.4 Knowledge context

Given that k-objects are constructed through situated practice, k-context acquires relevance. Insofar meanings depend on worldviews, knowledge is context dependent. An important challenge in KM is creating an environment conducive to k-sharing. As individuals and groups interact, and organizations clarify context, identity arises through sensemaking. Identity management facilitates knowledge-sharing. The context in which content is embedded has semantic and economic significance. K-context is the set of circumstances that provide direction and choice capacity for matching meaningful agent-object transactions among infinite possibilities. This strategic level enables third-generation KM (Carrillo & Galvis-Vista, 2014; Fachinelli et al., 2017). Once relevant objects are aligned by capable agents in meaningful contexts, knowledge is generated, and value created.

2.1.5 Alignment

Knowledge cannot be managed merely through processes and technologies. Strategic alignment becomes essential. In essence, KM is alignment of knowledge object, agent, and context (Carrillo, 1998). This is accomplished by identifying, measuring, and designing the correspondence between their attributes, so objects become relevant, agents capable and contexts meaningful (Table 11).

Table 11. Definition and alignment of key KM concepts

KM concept	Definition	Process capacity	Alignment
k-object	Explicit or tacit associations abducted from real objects by knowledge agents	Perceivable and accessible	No object without agent
k-agent	Individuals or groups carrying out the knowledge act	Competent and engaged	No agency without context
k-context	Contingencies providing semantic and economic significance to object-agent associations	Meaningful and valuable	No context without alignment

2.2 Capital Systems

Conventional Intellectual Capital (IC) models comprise three categories: human, structural, and relational. These convey an inductive taxonomy (Carrillo, 2002). The Capital Systems Model aims at capturing a complete and consistent set of value dimensions. The taxonomy should consist of few proto categories, with empirically documented subcategories hierarchically nestled (Table 12). Capital systems reflect actual communities, as 'an economy of what matters' (Carrillo, 2022).

Table 12. Capital taxonomy

Capital System Universe of value orders of collective preference	**Metacapital** *Multiplicative (divisive)*	**Referential** *Structure:* rules of belonging	**Identity** Auto-significance	Capacity to differentiate value elements belonging into the system and to consequently adjusting action
			Intelligence Alo-significance	Capacity to identify significant agents and events in the system and responding accordingly
		Articulating *Function:* rules of relationship	*Monetary* Exchange	Capacity to represent and exchange value elements
			Relational Bonding	Capacity to establish and develop bonds with significant others
	Productive *Additive (subtractive)*		**Input**	Natural services, cultural heritage, and exogenous value
			Agential	Capacity to perform value-increasing actions
			Instrumental	Capacity to leverage the performance of value-increasing actions
			Output	Cumulative addition to or subtraction from a system

A capital system can be defined as a universe of collective preference orders within a human activity structure. Includes all elements stakeholders recognize as valuable at level individual, organizational, social, and global level. Each category is subdivided into value functions. According to their value operation, each holds a negative (liability) or positive (asset) sign. Any entity's value blueprint is rendered by capturing its capital system. Ideally, each value element occurs in just the right proportion to achieve full balance, continuously adjusting it. Value systems are unique, like personalities and cultures. No capital has primacy: the equilibrium of all value elements approaches an ideal value system. Capital systems research has been conducted and published globally (Table 13).

Table 13. Some Capital Systems publications on international sources

Batra et al., (2013)
Carrillo (2002, 2004, 2006 b, c, 2014a)
Carrillo & Guajardo, 2014
Carrillo et al., (2014, 2022)
Correa & Guevara, (2014)
Fachinelli et al., 2014, 2015, 2016, 2017
Flores (2014)
Garcia, B. (2007, 2010)
Garcia C. (2014)
Gil & Carrillo, 2013, 2014a, b
Gil et al., 2018
Leal (2005, 2014)
Olavarrieta (2011)
Olavarrieta & Carrillo, 2014
Olavarrieta & Rodríguez, 2014
Passerini & Wu (2008)
Rivera & Carrillo, 2014, 2016
Rivera et al., 2021
Schiuma & Lerro (2018)
Sharma et al., 2008
Valerio (2014)

Waltzer et al., 2022
Webb, (2008)

3. Application base

3.1 Third-generation KM processes

Operationalizing KM into measurement-driven definitions renders it actionable. Extant KM literature documents the diversity of processes, according to KM generations (Carrillo, 1996a, 1998; Chavez & Garza, 2014; Firestone & McElroy, 2002; López et al., 2008; Rowley, 2003; Vazquez, 2014; Vasquez & Gabalan, 2009). The KSM approach is particularly amenable to process operationalization. It comprises three blocks, dealing with objects (instrumental capital), agents (human capital) and context (metacapitals). Each of the three major processes can be described in terms of expected outcomes (Carrillo, 2023; Martinez, 2001). Operationalization is key to KM process instrumentation, whether for software development (Carrillo & Galvis-Vista, 2014; Carrillo, 1998) or knowledge cities benchmarking (Carrillo & Chase, 2007; García & Chávez, 2014).

3.2 Consultancy and applied programs

3.2.1 International consultancy

KSM entities have executed over 70 national and 30 international contracts. Table 3 above lists CKS corporate and government clients. The CKS public sector portfolio includes Pemex (22 contracts), and CFE. Table 14 lists international consultancy projects through KSM collaborations. A testimony of the vitality of KM public sector consultancy in Latin-America is provided by Ferreira (2016) volume, including CKS experiences (Carrillo, 2016b). The most prominent area of KSM consultancy has been knowledge cities.

Table 14. Sample of international consultancy projects through KSM collaborations.

Recipient country	Sponsor
Belgium	European Commission
Mexico	Inter-American Development Bank
Uruguay / Mexico	International Development Research Center
Switzerland	International Telecommunications Union
Switzerland	Cemex
USA	Kellogg Foundation
USA	World Bank
Spain	National Ministry of Culture
Spain	Legazpi Municipality
Spain	Ibi Municipality
Colombia	Bogota Chamber of Commerce
Colombia	Caldas Department
Colombia	Manizales Municipality
Colombia	Medellin Municipality
Brazil	Bento Gonçalves Municipality
Brazil	Florianopolis Chamber of Commerce
Palestine	Bethlehem Municipality

3.2.2 Knowledge cities

This model has been applied globally, as a strategic framework for urban KBD: (see Table 15).

Table 15. Sample of Knowledge Cities publications on international sources

Asheim (2012)
Carrillo (2004, 2005b, 2006 a, d, 2007, 2009, 2010b, 2022b, 2024)
Carrillo et al. (2014)
Donnet et al., (2010)
Dvir and Pasher (2004)
Edvardsson et al., (2016)
(Edvinsson (2006a, b)
Ergazakis et al., (2002, 2006a, b, 2010)
Garcia, (2004, 2006, 2014)
Gonzalez et al., 2004
Gonzalez & Carrillo (2012)
Lambooy (2006)
Martínez (2006)
Martins & Viedma (2006)
Matthiessen et al. (2006)
Metaxiotis & Ergazakis (2008)
Metaxiotis et al., (2010)
Powell (2012)
Rogerson & Tremblay (2008)
Rubalcaba & Garrido (2006)
Sarimin & Yigitcanlar (2012)
Tresman et al (2007)
Yigitcanlar, (2009, 2012)
Yigitcanlar & Inkinen (2019)
Yigitcanlar et al., (2007, 2012).

This model is the basis for the MAKCi Awards, held since 2007 at the annual KCWS conference (Carrillo, 2006a; World Capital Institute & Teleos, 2007; Leal & Garcia, 2008, 2012, 2021). Over 100 cities have used this model worldwide (Figure 2). A variety of direct applications to regional development and policy analysis have been documented at the city, regional and municipal levels.

Figure 2. Knowledge City/region cases (relative circle size) by country, from primary KSM authors. (Table 16)

4. Transformational impacts in Latin America

To assess the transformational impacts in Latin America, a mixed methods approach was employed. This involved conducting a consultation with CISC members who have actively participated for at least a decade across various countries. The consultation aimed to gather evidence of their actions in research, education, and consultancy in KM and KBD and their connections with other CISC cells internationally. Additionally, a documentary analysis of annual assembly minutes and foundational documents, such as principles and statutes, was carried out. This dual approach contributes to reliability and validity by triangulating data from experienced members and official records, thereby providing a qualitative

study that captures both the depth and breadth of CISC's impact in the region. By analyzing both the data from research and development projects and the comprehensive documentation of CISC's events and assemblies, we aim to provide a holistic view of CISC's impact. Together, these analyses highlight the role of CISC in promoting KBD and driving transformative changes in the region.

4.1 Analysis of the Survey Conducted with CISC Researchers

This section delves into details of a survey conducted with CISC researchers. Results reveal the extensive involvement of CISC members in research and development, education, consultancy projects and international collaboration. These professionals have made significant contributions to the advancement of KM and KBD in Ibero-America. By examining the roles and impacts of individual members this section highlights the diverse expertise and practical applications of their work. The data showcases how CISC members have led large-scale initiatives, conducted qualitative and quantitative analyses, and collaborated on international projects, demonstrating the breadth and depth of their contributions to KM and KBD in the region.

4.1.1 Research and Development

Data analysis reveals the profound participation of the members of Comunidad Iberoamericana de Sistemas de Conocimiento (CISC) in R&D projects. This involvement is evidenced by their participation in projects focused on KM, KBD, capital systems, knowledge cities and regions, innovation, and public health initiatives in complex contexts, showcasing their interdisciplinary approach.

Table 16. Some knowledge city/region applications by country

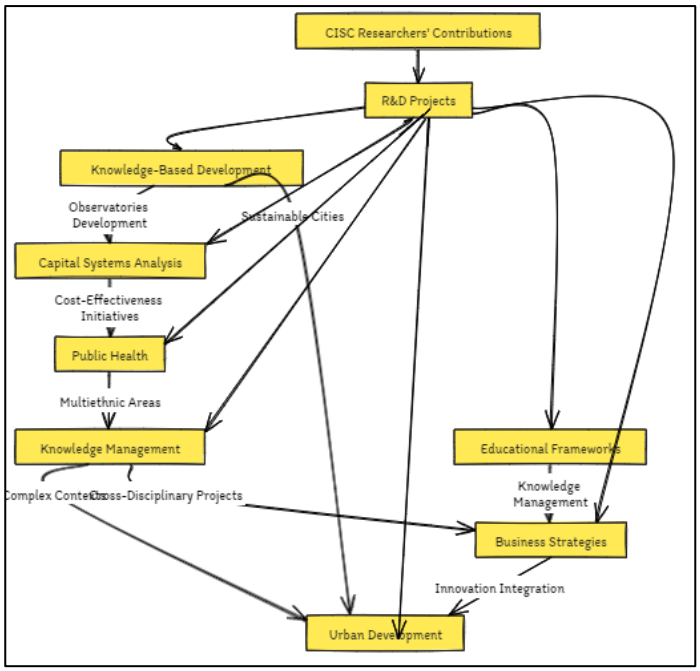
Country	Knowledge City / Region Case
Arab Countries	Mohamed et al., 2008
Australia	Alizadeh, 2010; Hu, 2012; Imukuka et al., 2012; Jerome, 2010; Johnson, 2012; Searle & O'Connor, 2012; Yigitcanlar & Martinez-Fernandez, 2010; Yigitcanlar et al., 2008
Austria	Schneider, 2007
Bahrain	Mohamed, 2009
Brazil	D'Arisbo, 2014; Fachinelli, Carrillo et al., 2014; Fachinelli and Macke, 2012; Fachinelli, Giacomello et al., 2014; Fachinelli et al., 2018; Nespolo et al., 2017; Waltzer et al., 2022
Canada	Darchen & Tremblay, 2010
Chile	Ramírez, 2007
China	Chen, 2004, 2006
Colombia	Chaparro, 2007; Lopez & Jollanes, 2008; Vasquez & Gabalan, 2009; Zuluaga, 2013
Croatia	Jelcic, 2006
Denmark	Bidault-Waddington, 2006; Lorenzen et al., 2012
El Salvador	Pleitez & Flamenco, 2009
Ethiopia	Mohamed et al., 2010
Finland	Inkinen & Vaattovaara, 2010
France	Petruzelli et al., 2009
Germany	Mugellesi & Pallaschke, 2010; Simmie & Strambach, 2006; Wesselman et al., 2012
Greece	Ergazakis et al., 2007; Metaxiotis & Ergazakis, 2012
India	Batra, 2012; Batra et al., 2013; Chawla, & Joshi, 2010; Sharma & Goswami, 2009
Israel	Dvir et al., 2006; Goldberg et al., 2006; Levin-Sagi et al., 2006; Pasher & Shachar, 2010
Japan	Martinus, 2012
Italy	Lerro & Schiuma, 2009; Petruzelli, 2008, 2010
Malaysia	Rahman et al, 2010; Yigitcanlar & Sarimin, 2010
Mexico	Carrillo, 2005b, 2006c; Flores, 2006; Flores et al., 2018; Garcia & Chavez, 2014; Garcia et al., 2009; Morales, 2007
Netherlands	Fernandez-Maldonado, 2012
Peru	Carrillo & Arce, 2020; Carrillo et al., 2022; Lara, 2000
Puerto Rico	Rivera-Vazquez et al., 2009
Saudi Arabia	Reffat, 2010
Spain	Arbonies, 2006; Arbonies & Mosso, 2002; Azua, 2006; Bañegil & Sanguino, 2006; Casado, 2009; Lasheras, 2006, 2007; Zapata et al., 2009
Singapore	Evers et al., 2010; Wong et al., 2006a, b; Wong, 2010
South Africa	Buckley and Giannakopoulos, 2010
Taiwan	Chen & Choi, 2004
Turkey	Cevikayak & Velibeypglu, 2012
United Kindom	García, 2004, 2006a, b; Garner & Dornan, 2012; Petruzzelli, et al, 2010
United States	Bennet & Bennet, 2010; Chatzkel, 2004, 2006; Lopez-Saez et al., 2010

Projects reported by respondents instantiate this involvement. These include the development of observatories for KBD, methodologies for diagnosing and enhancing capital systems, leadership education for KBD, innovation capabilities development and public health initiatives addressing cost-effectiveness in multiethnic areas. Projects span various domains, including urban development programs aimed at creating sustainable cities, educational frameworks for knowledge management, and business strategies integrating knowledge and innovation.

In general, the participation of the researchers in R&D projects demonstrates a wide array of contributions across various domains and industries. The members were deeply involved in conceptualizing and implementing methodologies to enhance organizational knowledge and promote sustainable development. Many engaged in cross-disciplinary projects, merging insights from fields such as public health, education, urban development, and business management. Their roles ranged from leading large-scale initiatives and conducting detailed qualitative and quantitative analyses to collaborating with international teams to address region-specific challenges.

This extensive involvement underscores the diverse expertise within the CISC and highlights the practical impact of their research in driving forward the agenda of knowledge-based development. These examples illustrate the diversity and depth of the contributions of CISC members, reflecting their ability to integrate theory and practice to promote knowledge-based development in the region (Figure 3).

Figure 3. R&D areas (survey results)

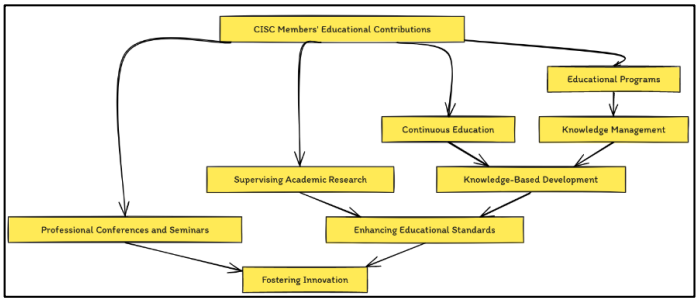


4.1.2 Education

Data analysis reveals the extensive involvement of the CISC members in educational initiatives, underscoring their significant contributions to advancing knowledge and fostering innovation in Latin America. A member from Brazil exemplifies this contribution through their coordination of a pilot specialization in KM at UCS during 2010-2011. This project involved the collaboration of CISC member professors from various countries and included an international module at the CISC cell in Mondragón, Spain. In a similar vein, a member from Mexico has been instrumental in developing and teaching a diploma program in Electronic Government at Tecnologico de Monterrey, leveraging the Generic Capital Systems framework. Another member from Mexico contributed significantly to educational development by designing and teaching master's courses in Information Technology Management, specializing in KM, thus influencing the curriculum and instructional design. Members from Brazil participated in programs like the KBD and Capital Systems in the Master's in Administration at UCS, while the member from Peru co-directed programs such as EmprendedorExt, highlighting their ongoing commitment to professional development and lifelong learning. A member from Peru highlighted their role as an instructor in multiple doctoral courses at the University of Extremadura, focusing on Capital Intelligence and KBD Systems. Furthermore, pioneer distance education programs in KM and KBD have been developed by CISC members. A member form Mexico created and directed back in 1989 he Sinapsis Program, the first satellite broadcast distance education in the region, that included KM courses. This program provided the grounds for Universidad Virtual at Tecnologico de Monterrey, the first Internet-based graduate program in the region. Collaborative Masters and Executive Education programs were developed between Mexico, Peru and Brazil. The World Bank Innovation Program

These examples illustrate the diversity and depth of the educational contributions made by CISC members, reflecting their ability to integrate theoretical insights with practical applications to enhance KM and KBD education in the region. Members from Mexico, Brazil, Peru and Colombia supervised numerous doctoral and master's theses, guiding research that incorporates theoretical and practical components of KBD and Capital Systems. These members also contributed as supervisors and panel members, ensuring rigorous academic standards and contributing to the advancement of knowledge in their respective fields. CISC members actively participated in various academic and professional events, sharing their expertise and fostering collaboration. They attended multiple CISC assemblies and Knowledge Cities World Summits, often as speakers. Members from Mexico, Peru, Brazil, Colombia, Ecuador, El Salvador and Spain participated and co-organized significant conferences, reflecting the vibrant academic and professional engagement of CISC members. Overall, the analysis of educational involvement among CISC members reveals a robust engagement in developing and delivering educational programs, contributing to continuous education, supervising academic research, and actively participating in professional conferences and seminars. Their contributions have significantly advanced the field of KM and KBD, demonstrating a strong commitment to enhancing educational standards and fostering innovation across Latin America (Figure 4).

Figure 4. Education activities. (Survey results).



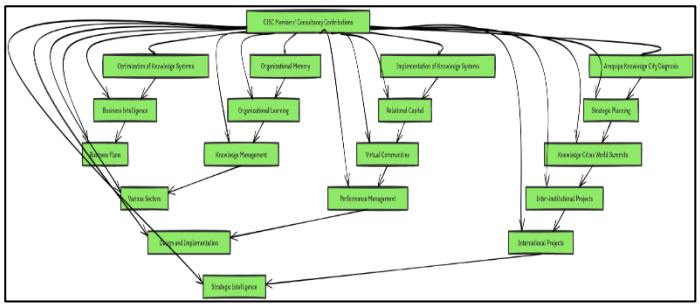
4.1.3 Consultancy

Data analysis reveals the extensive involvement of CISC members in consultancy projects, highlighting their significant contributions to the implementation and optimization of knowledge systems in organizations across Latin America. Researchers from CISC in Mexico, Brazil, and Peru exemplify this contribution through their roles as consultants in the "Diagnosis of Arequipa as a Knowledge City," where they provided key recommendations following the research project (Fachinelli, 2018). Similarly, members from Mexico have been actively involved in multiple consultancy projects, such as providing expertise on Organizational Memory, Relational Capital, Virtual Communities, and Organizational Learning for companies like CEMEX, PEMEX, and Volkswagen and have served as a consultants for numerous companies, including Aeromexico and Microsoft, focusing on the implementation of knowledge systems for project management and strategic planning. A member from Peru contributed as a business intelligence and performance management consultant in Monterrey, Mexico, bringing innovative approaches to corporate knowledge management. These examples illustrate the diversity and depth of the consultancy contributions made by CISC members, reflecting their ability to apply theoretical knowledge to practical challenges in various organizational contexts.

Members participated in CISC assemblies as both community members and presidents, while others took on roles as participants and co-organizers at KCWS editions. They attended multiple conferences, contributing as speakers and organizers, demonstrating their active engagement in disseminating knowledge and fostering professional networks. CISC members engaged in various inter-institutional and international projects, such as evaluating MAKCi candidates and collaborating with institutions like the European Commission and the World Bank, showcasing their global impact on knowledge management practices.

Members provided consultancy services to numerous organizations, implementing and optimizing knowledge systems. They worked on strategic projects with companies such as Aeromexico and Coca-Cola FEMSA, focusing on business intelligence and performance management, and enhancing organizational knowledge capabilities. Members also worked on innovative business plans with organizations like Corporación Biotec and led the design and implementation of knowledge systems in various multinational corporations. Their diverse consultancy experiences reflect their expertise in applying strategic intelligence and knowledge management in different sectors and institutions (Figure 5).

Figure 5. Consultancy projects (survey results)



4.2 Documentary analysis of CISC Events and Assemblies

This section analyzes key documents from CISC's assemblies and events. By reviewing the Informes de Comités, Informes de Actividades de Células, and Planes de Trabajo de Comités, we gain insights into the organizational structure, strategic initiatives, and collaborative efforts across CISC members. These documents detail CISC's educational initiatives, consultancy projects, and research and development activities, highlighting the community's commitment to enhancing educational standards, implementing innovative KM and KBD practices, and fostering international collaboration.

4.2.1 Documents

Comunidad Iberoamericana de Sistemas de Conocimiento (CISC) is a non-profit organization dedicated to promoting KM and KBD at the Ibero-

American region. It comprises professionals interested in the study, research, application, and dissemination of Knowledge Systems, primarily focusing on Latin America, Spain, and Portugal, with connections to the United States, Canada, and the European Community.

CISC's principles emphasize promoting development through knowledge in people, organizations, and societies. It encourages participation, commitment, and service within organizations, focusing on sustainable and integral development through people rather than technology. The organization uses technology to benefit people and organizations, fostering collaboration over consolidation. CISC observes phenomena with a systemic and interrelated perspective, defining success through sustainable value creation. It incorporates economic, environmental, and social aspects into its concept of development, ensuring equity in participation, opportunities, and benefits distribution.

The statutes of CISC define its structure, membership, and operations. Membership includes active and observer members, where active members participate in CISC activities, and observers stay connected for learning purposes. The organization comprises local groups called células, focusing on KM and KBD. These groups are coordinated regionally to ensure cohesive efforts across countries. CISC's governing bodies include a Council, Executive Committee, and Technical Secretariat, which manage and coordinate activities.

CISC operates based on respect for group initiatives, collective learning, and trust. Each cell is autonomous and responsible for its activities, promoting local knowledge-based development. Interaction and communication are ensured through electronic platforms, with the Liaison Office promoting initiatives via the CISC website. The Liaison Office was hosted for over 20 years by CKS, Mexico.

Overall, CISC's principles and statutes highlight its commitment to knowledge-based development, collaborative initiatives, and sustainable growth in the Ibero-American region. The organization supports flexible, autonomous operations with a strong focus on collective learning and knowledge dissemination.

4.2.2 Minutes and Assemblies

This subsection analyzes the minutes and records from various CISC assemblies and events. These documents highlight the discussions, decisions, and actions taken during the assemblies, providing a comprehensive view of CISC's strategic directions and practical outcomes. The analysis illustrates the impact of these gatherings on promoting sustainable development and knowledge-based economies in Latin America, following the division into education, research and development, and consultancy, and showing how each area is addressed in these meetings.

This subsection analyzes the minutes and records from various CISC assemblies and events, highlighting the discussions, decisions, and actions taken during these gatherings. The documents reveal significant educational initiatives undertaken by CISC and its various cells, emphasizing the community's commitment to knowledge-based development through education.

In Mexico, El Salvador, Colombia, Brazil, Ecuador and Spain, educational activities included training in KM and advanced seminars on KBD. The Plan de Trabajo Comités 2011-2012 emphasized updating curricula, supporting teaching capabilities, and creating certification conditions for educators within the CISC network. Key projects, such as KBD Currícula, shaped postgraduate programs in KM and KBD, benefiting students across different regions. Educational modules were also delivered in Bento Gonçalves, reinforcing the practical implementation of CISC's educational framework.

Consultancy activities have been crucial in applying KM and KBD in practical settings. In Mexico, consultancy projects included collaborations with companies like MABE and PROLEC-GE. In Bogotá, the International Conference on Intellectual Capital and Knowledge Management (ICICKM 2012) was established in collaboration with Universidad del Rosario. Other prominent consultancy initiatives include CMAN-Corredor Multimedia Agrópolis del Norte and Santander Digital in Colombia, integrating KM into public and private sectors. Assemblies in Alicante and Guayaquil discussed projects such as CISC 2.0 and strategies for innovation and organizational memory with major organizations like PEMEX.

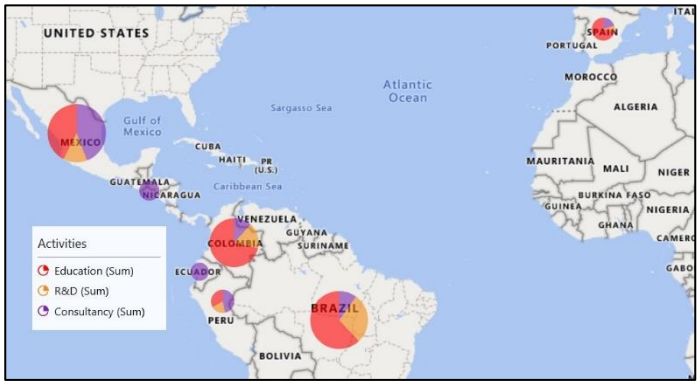
R&D activities have driven innovation and knowledge creation. In Monterrey, R&D initiatives included participation in IFKAD 2011 in Tampere, presenting research on intangible assets and publishing multiple papers. Projects aimed at advancing knowledge systems development and promoting best practices in knowledge management were emphasized in the Plan de Trabajo Comités 2011-2012. Assemblies in Alicante and Guayaquil discussed leveraging collective intelligence and developing new curricula based on the latest research findings, while the IX Asamblea highlighted evaluations of existing projects and new strategies to enhance R&D impact.

In conclusion, CISC's actions in Latin America have focused on education, consultancy, and research and development. Significant educational initiatives occurred in Mexico, El Salvador, Colombia, Peru and Brazil. Consultancy projects were prominent in Mexico, Bogotá, and Colombia. R&D activities were driven by efforts in Monterrey, Peru and Brazil and discussed extensively in assemblies held in Alicante and Guayaquil. These actions reflect CISC's diverse expertise and collaborative efforts in advancing knowledge and innovation across the region.

4.2 General Analysis

The following map provides an overview of CISC members' participation in R&D, Education, and Consultancy activities across various countries, highlighting their contributions in these areas (Figure 6).

Figure 6. Senior CISC members activity distribution by country (survey results)



Mexico has significant involvement in both Education and Consultancy, indicating strong contributions in these areas. Brazil focuses substantially on Education, highlighting its emphasis on academic activities. Colombia also shows notable contributions in Education, reflecting a robust academic presence. Spain, Peru, Ecuador and El Salvador have a balanced distribution between Education and Consultancy. In R&D contributions, Brazil and Mexico are primary contributors, with Colombia showing significant involvement.

The map visually represents the distribution of activities across the regions. The active presence of CISC cells in various Latin American countries demonstrates the movement's deep commitment to regional development through knowledge management. The study shows that the transformational impact of CISC's initiatives is closely tied to the unique characteristics and needs of each region. By tailoring their actions to the specific contexts of countries like Mexico, Brazil, Peru, Colombia, and others, CISC effectively promotes sustainable development and innovation. This regional customization underscores CISC's dedication to leveraging local strengths and addressing local challenges, thereby fostering significant and lasting improvements in each area.

5. Conclusion

This exercise documents KSM throughout Ibero-America and its global reach. By recollecting evidence on its origins, evolution and current situation, its legacy gains visibility. The survey and documentary analyses, highlight KSM role in promoting KM and KBD. Several international accolades testify the KM pioneering work from KSM actors. Emerald's Award

of excellence to the Outstanding Special Issue 2005, the most downloaded paper award from the Journal of Open Innovation, 2017, The second most productive and influential institution publishing in JKM, 2018, the Third most-productive and influential author, JKM, 2018. An informed recollection of KS experiences shows a vibrant regional and a significant contribution from Latin-America to the World.

6. Acknowledgments

We would like to express our heartfelt gratitude to the following researchers for their invaluable contributions to our study: Garcia, Blanca; Guevara, Daniel; Herrera, Dario; Lopes, Ronald; Olavarrieta, Gilberto; Rodriguez, Francisco; Sanguino, Ramón; Sanguino, Sandra; Valerio, Gabriel. Their participation and insights were instrumental in the successful completion of this article. Thank you for your dedication and support.

References

1. Alizadeh, T., 2010. The interaction between local and regional knowledge-based development: towards a quadruple helix model. Knowledge-based Development of Cities and Societies 81-98. Hershey: IGI Global.
2. Amidon, D., 2003. The Innovation Superhighway. Oxford: Elsevier.
3. Arbonies, A. L. (Ed.), 2006. Conocimiento para innovar. Madrid: DíazDeSantos.
4. Arbonies, A., and Mosso, M., 2002. Basque Country: the knowledge cluster. Journal of Knowledge Management 6(4), 347-355.
5. Arce, G. (Ed.), 2017. 10ª Cumbre Mundial de Ciudades del Conocimiento. Arequipa: UNSA.
6. Asheim, B. T., 2012. Innovating: creativity, innovation, and the role of cities in the globalizing knowledge economy. Building Prosperous Knowledge Cities, 3-23. Cheltenham: Edward Elgar.
7. Azua, J., 2006. Bilbao: from the Guggenheim to the knowledge city. Knowledge Cities, 97-112. Oxford: Elsevier.
8. Bañegil, T. M., and Sanguino, R., 2006. Intellectual capital within Iberian municipalities. Journal of Knowledge Management 10(5), 55-64.
9. Batra, S., 2012. Development perspectives of knowledge management. Review of Knowledge Management, 2(1), 17–23.
10. Batra, S., Payal, R., & Carrillo F. J., 2013. Knowledge village capital framework in the Indian context. International Journal of Knowledge-Based Development, 4(3), 222–244.
11. Batra, A. and Carrillo, F. J. (Eds.), 2009. Knowledge Management and Intellectual Capital: Emerging Perspectives. Delhi: Allied.
12. Bennet, A., & Bennet, D., 2014. Knowledge, theory, and practice in knowledge management: Between associative patterning and context-rich action. Journal of Entrepreneurship, Management, and Innovation, 10(4), 7–55.
13. Bennet, A. and Bennet, D., 2010. Deep knowledge as the core of sustainable societies. Knowledge-based Development of Cities and Societies, 141-161. Hershey: IGI Global.
14. Bennet, A., and Bennet, D., 2008. The fallacy of knowledge reuse; Building sustainable knowledge. Journal of Knowledge Management 12(5), 21-33.
15. Bennet, A., & Bennet, D., 2007. Knowledge Mobilization in the Social Sciences and the Humanities. MQI Press.
16. Bennet, A. and Baisya, R., 2023. Inside Innovation. Frost: MQI Press.
17. Bidault-Waddington, R., 2006. An experimental aesthetic audit of a city within a city: the case of Christiania. Knowledge Cities, 177-187. Oxford: Elsevier
18. Brachos, D., Kostopoulos, K., Soderquist, K. E., and Prastacos, G., 2007. Knowledge affectiveness, social context and innovation. Journal of Knowledge Management 11(5), 31-44.
19. Buendia, A., Martinez, A. and Martinez, S., 2005. Estrategia basada en conocimiento: implementación del sistema de capitales. Conocimiento para el Desarrollo, 215-236. Bilbao: Universidad de Deusto.
20. Buckley, S. And Giannakopoulos, A., 2010. Using communities of practice to share knowledge in a knowledge city. Knowledge-based Development of Cities and Societies 222-253. Hershey: IGI Global.
21. Carrillo, F. J., 2024. End of the Holocene City: The limits of urban imagination. Routledge Companion to Creativity and the Built Environment, 221-233. Routledge.
22. Carrillo, F. J., 2023. Knowledge Management and Knowledge-Based Development for Human Flourishing. Reblooming the Knowledge Movement, 428-452. MQI Press.
23. Carrillo, F. J., 2022a. A Modern Guide to Knowledge. From Knowledge Economies to Knowledge in the Anthropocene. Edward Elgar.
24. Carrillo, F. J., 2022b. Urban security in the Anthropocene: an existential challenge. Annales Universitatis Paedagogicae Cracoviensis Studia de Securitate 12(1).64-76.
25. Carrillo, F. J., 2021a. The Sciences of Knowledge. Knowledge for the Anthropocene, 225-239. Edward Elgar.
26. Carrillo, F. J., 2021b. Knowledge markets regimes for the urban climate emergency. City Preparedness for the Climate Crisis, 177-194. Edward Elgar.
27. Carrillo, F. J., 2019. Knowledge Markets and Social Urban Innovation. Ecocity, Knowledge city, Smart city: Vers une ville écosoutenable? 255-265. Septentrion.
28. Carrillo, F. J., 2017a. Mercados de conocimiento: un mapa referencial. Derechos Humanos y Economía del Conocimiento, 109-146.
29. Carrillo, F. J., 2017b. The Global Knowledge-based Development Network. Higher Education in the World 6, 283-285. Girona: GUNI.
30. Carrillo, F. J., 2016a. Knowledge markets: A typology and an overview. International Journal of Knowledge-based Development, 7(3), 264–289.

31. Carrillo, F. J., 2016b. Drivers and Processes: Experiences of Implementation of Knowledge Management in Public Administration in Mexico. Experiências Internacionais de Implementação da Gestão do Conhecimento no Setor Público, 97-138. Brasilia: IPEA.
32. Carrillo, F. J., 2015. Knowledge-based development as a new economic culture. Journal of Open Innovation: Technology, Market, and Complexity, 1(1), 1–17.
33. Carrillo, F. J., (Ed.), 2014a. Sistemas de Capitales y Mercados de Conocimiento. Kindle Direct.
34. Carrillo, F. J., 2014b. What "knowledge-based" stands for? A position paper. International Journal of Knowledge-Based Development, 5(4), 402–421.
35. Carrillo, F. J., 2014c. Marco Analítico de los Mercados de Conocimiento. Sistemas de Capitales y Mercados de Conocimiento, 167-185. Kindle Direct.
36. Carrillo, F. J., 2012. University-Industry Transpositions and Knowledge Markets. Universités et enjeux territoriaux. Une comparaison international de l'economie de la connaissance, 255-268. Septentrion,
37. Carrillo, F. J., 2010a. Cities as Knowledge Markets. 7th Conference on Intellectual Capital for Communities in the Knowledge Economy. Paris: The World Bank.
38. Carrillo, F. J., 2010. Knowledge-based Value Generation. Knowledge-Based Development for Cities and Societies, 1-16. Hershey: IGI Global.
39. Carrillo, F. J., 2009. Ciudades de Conocimiento: Unidades de Análisis de la Economía del Conocimiento. Revista del Colegio de Economistas de Arequipa (2a. Ed.), junio, 2-7.
40. Carrillo, F. J., (Ed.), 2008. Desarrollo basado en Conocimiento. Fondo Editorial Nuevo León.
41. Carrillo, F. J., (Ed.), 2006a. Knowledge cities: Approaches, experiences, and perspectives. Oxford: Elsevier.
42. Carrillo, F. J., 2006b. A Taxonomy of Urban Capital. Knowledge Cities 42-59. Oxford: Elsevier.
43. Carrillo, F. J., 2006c. A Capital System for Monterrey. Knowledge Cities, 145-165. Oxford: Elsevier.
44. Carrillo, F. J., 2006d. Reconstructing Urban Experience. Knowledge Cities, 273-284. Oxford: Elsevier.
45. Carrillo, F. J., 2006f. A Global Knowledge Agenda Based on Capital Systems. Knowledge Economics: Emerging Principles, Practices and Policies, Ch. 10. Tartu University Press.
46. Carrillo, F. J. (Coord.), 2005a. Prácticas de Valor de Gestión Tecnológica en México. CONACyT/ADIAT.
47. Carrillo, F. J., 2005b. Las Ciudades de la Era del Conocimiento: El Espacio de Posibilidades. Conocimiento para el Desarrollo, 205-214. Universidad de Deusto/CISC.
48. Carrillo, F. J., 2004a. Capital Cities: a taxonomy of capital accounts for knowledge cities. Journal of Knowledge Management 8(5), 28-46.
49. Carrillo, F. J., 2004b. Desarrollo Basado en el Conocimiento. Transferencia, 17 (65).
50. Carrillo, F. J., 2002. Capital systems: Implications for a global knowledge agenda. Journal of Knowledge Management, 6(4), 379–399.
51. Carrillo, F. J., 2001a. Meta-KM: a program and a plea. Journal of the KMCI, 1(2), 27-54.
52. Carrillo, F. J., 2001b. La evolución de las especies de gestión de conocimiento. Entorno Empresarial del Siglo XXI: Cinco años del Cluster de Conocimiento, Zamudio: Parque Tecnológico.
53. Carrillo, F. J., 2001c. El futuro de la Gestión del Conocimiento: tres incógnitas, tres fases y tres escenarios. Conocimiento para Innovar, 235-242. Madrid: DíazDeSantos.
54. Carrillo, F. J., 1998. Managing knowledge-based value systems. Journal of Knowledge Management, 1(4), 28–46.
55. Carrillo, F. J., 1996a. The ways of knowledge management. National Business Conference: Management of Intellectual Capital and Innovation. Toronto: McMaster University.
56. Carrillo, F. J., 1996b. Managing innovation in a knowledge-based economy. European Association for the Study of Science and Technology and the Society for Social Studies in Science: Signatures of Knowledge Societies. Bielefeld: EASST.
57. Carrillo, F. J., Arce, G., Ugarte, W., Portugal, A., Torres, G., & Sánchez, G., 2022. Intelligence capital: The management of knowledge assets and development of adaptive capacities in the city of Arequipa. Intangible Capital, 18(2), 163–181.
58. Carrillo, F. J., & Arce, G., 2020. Arequipa, ciudad de conocimiento: Project Report. WCI/UNSA.
59. Carrillo, F. J., Arce, G., Ugarte, W., Portugal, A., Torres, G., & Sánchez, G., 2022. Intelligence capital: The management of knowledge assets and development of adaptive capacities in the city of Arequipa. Intangible Capital, 18(2), 163–181.
60. Carrillo, F. J., & Batra, S., 2012. Understanding and measurement: Perspectives on the evolution of knowledge-based development. International Journal of Knowledge-Based Development, 3(1), 1–16.
61. Carrillo, F. J. & Chase, R., 2007. Most Admired Knowledge City report. WCI/Teleos.
62. Carrillo, F. J., Edvardsson, B., Reynoso, J., & Maravillo, E., 2019. Alignment of resources, actors. and contexts for value creation: Bringing knowledge management into service-dominant logic. International Journal of Quality and Service Sciences 11(3), 424-438.
63. Carrillo, F. J. & Flores, R. E., 2012. Measuring: knowledge-based development metrics, evolution and perspectives. Building Prosperous Knowledge Cities, 309-326. Edward Elgar.
64. Carrillo, F. J., & Galvis-Lista, E., 2014. Procesos de gestión de conocimiento desde el enfoque de sistemas de valor basados en conocimiento. Ideas CONCYTEG, 9(107), 3–22.
65. Carrillo, F. J., & Garner, C. 2021, (Eds.). City Preparedness for the Climate Crisis. Cheltenham: Edward Elgar.

66. Carrillo, F. J., Gonzalez, O., Elizondo, G., Correa, A., 2014. Marco analítico de sistemas de capitales. Sistemas de Capitales y Mercados de Conocimiento, 34-45. Seattle: KindleDirect.
67. Carrillo, F. J. and Guajardo, S., 2014. Capital de Identidad. Sistemas de Capitales y Mercados de Conocimiento, 89-104. Seattle: KindleDirect.
68. Carrillo, F. J., & Koch, G., 2021 (Eds.). Knowledge for the Anthropocene. Cheltenham: Edward Elgar.
69. Carrillo, F. J., & Olavarrieta, G., 2009. Modelo integral de inteligencia. Revista Contaduría Pública, 37(440), 34–39.
70. Carrillo, F. J., & Villa, A., 2014. Mercados de Conocimiento: Tipología, Casos y Recursos. Sistemas de Capitales y Mercados de Conocimiento, 255-266. KindleDirect.
71. Carrillo, F. J., Lönnqvist, A. Yigitcanlar, T., & García, B., 2014. Knowledge and the city: Concepts, applications and trends of knowledge-based urban development. Routledge.
72. Carrillo, F. J., Shapiro, L. and Velazquez, C., 2000. Evolution of collaborative distance work at ITESM: structure and process. Journal of Knowledge Management 4(1), 44-55.
73. Carvajal, F., 2009, abril. Retrieved April 20, 2024. Gestión del Conocimiento: Un Asunto de Conciencia. Agencia Universitaria de Periodismo Científico. http://aupec.univalle.edu.co/informes/2009/abril/gestionconocimiento.html
74. Casado, F. (Ed.), 2009. Desarrollo basado en el conocimiento: Transferencia de conocimiento. Valencia: CISC.
75. Centro de Sistemas de Conocimiento -CSC, 2004. Reporte Integral de Valor. Monterrey: CSC
76. Cevikayak, G. and Velibeyoglu, K., 2012. Organizing: spontaneously developed urban technology precincts. Building Prosperous Knowledge Cities, 40-59. Cheltenham: Edward Elgar.
77. Chaparro, F., 2007. Construyendo una Ciudad-Región del Conocimiento en Bogotá. Bogotá: Universidad del Rosario.
78. Chatzkel, J., 2006. Phoenix knowledge capital. Knowledge Cities, 135-144. Oxford: Elsevier.
79. Chatzkel, J., 2004. Greater Phoenix as a knowledge capital. Journal of Knowledge Management 8(5), 61-72.
80. Chawla, D. and Joshi, H., 2010. Knowledge management practices in Indian industries -a comparative study. Journal of Knowledge Management 14(5), 708-725.
81. Chen, S., 2006. How much does urban location matter? A comparison of three science parks in China. Knowledge Cities, 191-204. Oxford: Elsevier.
82. Chen, S. And Choi, C. J., 2004. Creating a knowledge-based city: the example of Hsinchu Science Park. Journal of Knowledge Management 8(5), 96-106.
83. Cheng., C., Choi, C. J., Chen, S., Eldomiaty, T. I., and Millar, C. J. M., 2004. Knowledge repositories in knowledge cities: institutions, conventions, and knowledge subnetworks. Journal of Knowledge Management 8(5), 5-15.
84. Chou, P. B. and Passerini, K., 2009. Intellectual property rights and knowledge sharing across countries. Journal of Knowledge Management 13(5), 331-358.
85. Olavarrieta, G. and Rodriguez, L. A., 2014. Meta Capitales: Capital Referencial y Articulador. Sistemas de Capitales y Mercados de Conocimiento 80-88. Seattle: KindleDirect.
86. Chavez, D. and Garza, C., 2014. Sistemas de Innovación Basados en Conocimiento. Sistemas de Capitales y Mercados de Conocimiento 218-227. Seattle: KindleDirect.
87. Dang, D. and Umemoto, K. Modeling the development toward the knowledge economy: a national capability approach. Journal of Knowledge Management 13(5), 359-372.
88. Darchen, S. and Trembaly, D-G., 2010. Attracting and retaining knowledge workers: the impact of quality of place in the case of Montreal. Knowledge-Based Development for Cities and Societies, 42-58. Hershey: IGI Global.
89. D'Arisbo, A., 2014. Sistemas de capitais como método de análise da economia criativa para o desenvolvimento baseado no conhecimento na cidade de Bento Gonçalves. Caxias do Sul: UCS.
90. Delgado, D., 2005. El aporte de la gestión de capital humano con base en competencias. Conocimiento para el Desarrollo, 137-152. Bilbao: Universidad de Deusto.
91. Donnet, T., Keast, R., and Pickernell, D., 2010. Up the junction? Exploring knowledge-based development through supply-chain and SME cluster interactions. Knowledge-based Development of Cities and Societies 179-195. Hershey: IGI Global.
92. Duran; C., 2012. Gestión de Conocimiento en la Implementación de la Ley de Acceso a la Información Pública en El Salvador. San Salvador: CISC Centroamerica.
93. Duran, J. C., 2014. Mercados de conocimiento universidad-empresa. Sistemas de Capitales y Mercados de Conocimiento 194-202. Seattle: Kindle Direct.
94. Duran, J. C., Flores, M., Herrera, M., & Carrillo, F. J., 2011. University–industry knowledge markets: The CEMEX-ITESM research chair case. 4th Knowledge Cities World Summit, 90–96. Bento Goncalves: WCI.
95. Dvir, R., Schwartzberg, Y., Webb, C. and Lettice, F., 2006. The future center as an urban innovation engine. Journal of Knowledge Management 10(5), 110-123.
96. Dvir, R. and Pasher, E., 2004. Innovation engines for knowledge cities: an innovation ecology perspective. Journal of Knowledge Management 8(5), 16-27.
97. Edvardsson, I. R., Yigitcanlar, T., & Pancholi, S., 2016. Knowledge city research and practice under the microscope: A review of empirical findings. Knowledge Management Research & Practice, 14(4), 537–564.

98. Edvinsson, L., 2006a. K-City and society entrepreneurship for intellectual capital growth. Knowledge cities, 59-74. Oxford: Elsevier.
99. Edvinsson, L. 2006b. Aspects of the city as a knowledge tool. Journal of Knowledge Management 10(5), 6-13.
100. Ergazakis, E., Ergazakis, K., Metaxiotis, K, J., and Charalabidis, Y., 2009. Rethinking the development of successful knowledge cities: an advanced framework. Journal of Knowledge Management 13(5), 214-227.
101. Ergazakis, K., Metaxiotis, K., Psarras, J., and Askounis, D., 2007. An integrated decision support model for a knowledge city's strategy formulation. Journal of Knowledge Management 11(5), 65-86.
102. Ergazakis, K., Metaxiotis, K. and Psarras, J., 2006a. An emerging pattern of successful knowledge cities' main features. Knowledge Cities, 3-16. Oxford: Elsevier.
103. Ergazakis, K., Metaxiotis, K., Psarras, J., and Askounis, D., 2006. Aspects of the city as a knowledge tool. Journal of Knowledge Management 10(5), 6-13.
104. Ergazakis, K., Metaxiotis, K. and Psarras, J., 2004. Towards knowledge cities: conceptual analysis and success stories. Journal of Knowledge Management 8(5), 5-15.
105. Ergazakis, E., Ergazakis, K., Metaxiotis, K., 2010. Building successful knowledge cities in the context of the knowledge-based economy: a modern strategic framework. Knowledge-Based Development for Cities and Societies, 17-41. Hershey: IGI Global.
106. Escriba-Esteve A., and Urra-Urbieta, A., 2002. An analysis of co-operative agreements from a knowledge-based perspective: an integrative conceptual framework. Journal of Knowledge Management 6(4), 330-346.
107. Evers, H-D, Gerke, S., and Menkhoff, T., 2010. Knowledge clusters and knowledge hubs: designing epistemic landscapes for development. Journal of Knowledge Management 14(5), 678-689.
108. Fachinelli, A.C., Yigitcanlar, T., Sabatini-Marques, J., Cortese, T.T.P., Sotto, D. and Libardi, B., 2023. Urban smartness and city performance: identifying Brazilian smart cities through a novel approach. Sustainability, 15(13), 10323.
109. Fachinelli, A. C., Perini, R., Nesello, P., 2021. Learnings from knowledge-based development metrics. City Preparedness for the Climate Crisis, 141-151. Edward Elgar.
110. Fachinelli, A. C., Pauletto D'Arrigo, F., & Breunig, K. J., 2018. The value context in knowledge-based development: revealing the context factors in the development of Southern Brazil's Vale dos Vinhedos region. Knowledge Management Research & Practice, 16(1), 32-41.
111. Fachinelli, A. C., Carrillo, F. J., & D'Arisbo, A., 2014. Capital system, creative economy, and knowledge city transformation: Insights from Bento Gonçalves, Brazil. Expert Systems with Applications, 41(12), 5614–5624.
112. Fachinelli, A. C., Giacomello, C. P., Larentis, F., & D'Arrigo, F., 2017. Measuring the capital systems categories: The perspective of an integrated value system of social life as perceived by young citizens. International Journal of Knowledge-Based Development, 8(4), 334–345.
113. Fachinelli, A. C., Giacomello, C. P., Larentis, F., & D'Arrigo, F. P., 2016. Measuring The Capital Systems Categories: A Perception of an Integrated Value System of Social Life for Knowledge-Based Development. Knowledge Cities World Summit, 25.
114. Fachinelli, A. C., D'Arrigo, F. P., & Giacomello, C. P., 2015. Open data for sustainability performance assessment in Brazilian cities. Australian Journal of Basic and Applied Sciences, 9(20), 32-38.
115. Fachinelli, A. C., Giacomello, C. P., & Larentis, F., 2014. The influence of capital system categories on Human Development Index in Brazil. International Journal of Knowledge-Based Development, 6(4), 350–369.
116. Fachinelli, A. C. and Macke, J., 2012. Connecting: community supporting universities for knowledge city transformations. Building Prosperous Knowledge Cities, 213-227. Cheltenham: Edward Elgar.
117. Fernandez-Maldonado, A.M., 2012. Designing: combining design and high-tech industries in the knowledge city od Eindhoven. Building Prosperous Knowledge Cities, 175-194. Cheltenham: Edward Elgar.
118. Ferreira, F., (Ed,), 2016. Experiências Internacionais de Implementação Da Gestão Do Conhecimento No Setor Público. Brasilia: IPEA.
119. Firestone, J., & McElroy, M., 2002. Generations of knowledge management. Knowledge and Innovation: Journal of the KMCI, 2(2), 111–122.
120. Flores, P., Carrillo, F. J., Robles, J. G., & Leal, M. A., 2018. Applying open innovation to promote the development of a knowledge city: The Culiacan experience. International Journal of Knowledge-Based Development, 9(3), 312-335.
121. Flores, P., 2014. Desarrollo de negocios basados en conocimiento. Sistemas de Capitales y Mercados de Conocimiento 186-193. Seattle: KindleDirect.
122. Flores, P., 2006. Implementation of the capital system for a knowledge city. Knowledge Cities, 75-84. Oxford: Elsevier.
123. Flores, R. and Carrillo, F. J., 2012. Measuring: knowledge-based development metrics, evolution and perspectives. Building Prosperous Knowledge Cities, 309-326. Cheltenham: Edward Elgar.
124. Flores, R. and Carrillo, F. J., 2010. Métricas de Desarrollo Basado en Conocimiento; Estado de la cuestión. Administración de Conocimiento y Desarrollo Basado en Conocimiento, 111-122. México: Cengage.
125. Garcia, B., 2021. Knowledge city benchmarking and the MAKCi experience. City preparedness for the climate crisis, 129–140. Cheltenham: Edward Elgar.
126. Garcia, B., 2014. Ciudades de Conocimiento. Sistemas de Capitales y Mercados de Conocimiento, 228-242. Seattle: Kindle Direct.,
127. Garcia, B., 2010. Rising Northern Light: a systems outlook on Manchester's Knowledge-based Capitals. Knowledge-based Development of Cities and Societies, 296-314. Hershey: IGI Global.
128. Garcia, B., 2008. Global KBD community developments: The MAKCi experience. Journal of Knowledge Management, 12(5), 91–106.

129. Garcia, B., 2007. Working and learning in a knowledge city: a multilevel development framework for knowledge workers. Journal of Knowledge Management 11(5), 6-17.
130. Garcia, B., 2006. Learning conversations: Knowledge, meanings and learning networks in Greater Manchester. Journal of Knowledge Management, 10(5), 99–109.
131. Garcia, B., 2004. Developing futures: A knowledge-based capital for Manchester. Journal of Knowledge Management, 8(5), 47–60.
132. Garcia, B., & Chavez, D., 2014. Network-based innovation systems: A capital base for the Monterrey city-region, Mexico. Expert Systems with Applications, 41(12), 5636–5646.
133. Garcia B., Rivera G., Leal A., Garcia C. Batra S., and Carrillo F. J., 2009. Steel and mountain horizon: Shaping a knowledge-based capitals systems for Monterrey. Knowledge Management and Intellectual Capital: Emerging Perspectives, 761-776. Delhi: Allied.
134. Garcia, C. J., 2014. Indicadores e índices para la medición de sistemas de capitales y mercados de conocimiento. Sistemas de Capitales y Mercados de Conocimiento 46-57. Seattle: Kindle Direct.
135. Garcia, L. M., 2012. Dos décadas de darle al conocimiento su valor. Panorama, Nº 1707, Año XLVI, 5.
136. Garner, C. and Dornan, 2012. Piloting: knowledge-based development policy and practice in building a vibrant exosystem. Building Prosperous Knowledge Cities, 133-148. Cheltenham: Edward Elgar.
137. Gaviria-Marín, M., Merigo, J. M., & Popa, S., 2018. Twenty years of the Journal of Knowledge Management: A bibliometric analysis. Journal of Knowledge Management, 22(8), 1655–1687.
138. Gil, A., Carrillo, F. J. and Fonseca-Pedrero, E., 2018. Replicating a learning organization model in Spanish schools. International Journal of Learning and Change 10(4), 279-299.
139. Gil, A. J. and Carrillo, F. J., 2014a. Knowledge transfer and the learning process in Spanish wineries. Knowledge Management Research & Practice 14(1), 60-68.
140. Gil, A. J. and Carrillo, F. J., 2014b. Capital Humano Sistemas de Capitales y Mercados de Conocimiento, 144-154. Seattle: Kindle Direct.
141. Gil, A. J. and Carrillo, F. J., 2013. La creación de conocimiento en las organizaciones a partir del aprendizaje. Intangible Capital 9(3), 730-753.
142. Goldberg, M., Pasher, E., and Levin-Sagi, M., 2006. Citizen participation in decision-making processes: knowledge sharing in knowledge cities. Journal of Knowledge Management 10(5), 92-98.
143. Gonzalez, O. and Carrillo, F. J., 2012. Cities-benchmarking algorithm: a meta-ranking exercise. International Journal of Knowledge-Based Development 3 (2), 157-174.
144. Gonzalez, O., Wilhelmy, R., Cavazos, S. and Martinez, A., 2012. Participating: Knowledge citizens' competences and knowledge city transformations. Building Prosperous Knowledge Cities, 111-131. Cheltenham: Edward Elgar.
145. Gonzalez, M. R., Alvarado, J. A., Martinez, S. D., 2004. A compilation of resources on knowledge cities and knowledge-based development. Journal of Knowledge Management 8(5), 107-127.
146. Grau, F. X., Goddard, J., Hall, B. L., Hazelkorn, E., & Tandon, R., 2017. Higher Education in the World 6. Girona: GUNI.
147. Greiner, M., Bohmann, T., & Krcmar, H., 2007. Strategy for knowledge management. Journal of Knowledge Management, 11(6), 3–15.
148. Hu, R., 2012. Clustering: concentration of the knowledge-based economy in Sydney. Building Prosperous Knowledge Cities, 3-23. Cheltenham: Edward Elgar.
149. Imukuka, J. K., Bajracharya, B., Too, L. and Hearn, G., 2012. Promoting: programs for and challenges of the knowledge-based small business. Building Prosperous Knowledge Cities, 228-240. Edward Elgar.
150. Inkinen, T. and Vaattovaara, M., 2010. Creativity and Knowledge-based urban development in a Nordic welfare state: combining tradition and development in Helsinki Metropolitan Area. Knowledge-based Development of Cities and Societies 196-210. Hershey: IGI Global.
151. Icaza, J. I., 2021. An object-oriented framework for subsistence assurance. City Preparedness for the Climate Crisis, 304-317. Cheltenham: Edward Elgar.
152. Jelcic, K., 2006. Rijeka: increasing efficiency of intellectual capital in city-owned companies. Knowledge Cities, 167-176. Oxford: Elsevier.
153. Jerome, K. P., 2010. The role of the built environment in the creation, cultivation, and acquisition of a knowledge base. Knowledge-based Development of Cities and Societies 211-221. Hershey: IGI Global.
154. Johnson, K., 2012. Commuting: the geography of Melbourne's knowledge economy. Building Prosperous Knowledge Cities, 279-308. Cheltenham: Edward Elgar.
155. Kayakutlu, G., 2010. Knowledge worker profile: a framework to clarify expectations. Knowledge-based Development of Cities and Societies 162-178. Hershey: IGI Global.
156. Lambooy, J. G., 2006. Knowledge dissemination and innovation in urban regions: an evolutionary perspective. Knowledge Cities, 223-232. Oxford: Elsevier.
157. Lasheras, I., 2007. Innovación en la gestión local: Aplicación del sistema de capitales en un pequeño municipio industrial Vasco. Regiones iberoamericanas del conocimiento, 149–185. Bilbao: Universidad de Deusto.
158. Lasheras, I., 2006. Legazpi Bai! El proyecto. Zamudio: MIK.
159. Laszlo, K., & Laszlo, A., 2002. Evolving knowledge for development: The role of knowledge management in a changing world. Journal of Knowledge Management, 6(4), 400–412.

160. Leal, M. A., 2014. Modelo de ecuaciones diferenciales para el sistema de capitales. Sistemas de Capitales y Mercados de Conocimiento 58-79. Seattle: KindleDirect.
161. Leal, M. A. and Garcia, B., 2012. Benchmarking: knowledge-based development metrics through the MAKCi exercise. Building Prosperous Knowledge Cities, 352-373. Cheltenham: Edward Elgar.
162. Leal, P., 2005. Estrategia basada en conocimiento: implementación del sistema de capitales. Conocimiento para el Desarrollo, 41-70. Bilbao: Universidad de Deusto.
163. Lerro, A. and Schiuma, G., 2009. Knowledge-based dynamics of regional development: the case of Basilicata region. Journal of Knowledge Management 13(5), 287-300.
164. Levin-Sagi, M., Pasher, E., and Hertzman, H., 2006. Holon: Transition into city of children. Knowledge Cities, 113-122. Oxford: Elsevier.
165. Lopez, M., Cuesta, A., & Joyanes, L., 2008. Gestion de conocimiento para una ciudad-region. Manizales: Universidad de Caldas.
166. Lopez-Saez, P., Navas-Lopez, J. E., MartinDeCastro, G., and Cruz-Gonzalez, J., 2010. External knowledge acquisition processes in knowledge-intensive clusters. Journal of Knowledge Management 14(5), 690-707.
167. Lorenzen, M., Vaars Andersen, K., and Laursen, S., 2012. Creating: the creative-class based knowledge city models of Denmark. Building Prosperous Knowledge Cities, 24-39. Cheltenham: Edward Elgar.
168. Malone, t. and Yohe, G. W., 2002. Knowledge partnerships for a sustainable, equitable and stable society. Journal of Knowledge Management 6(4), 368-378.
169. Mansell, R., 2002. Constructing the knowledge base for knowledge-driven development. Journal of Knowledge Management 6(4), 317-329.
170. Manrique, L., 2008. Desarrollo de Competencias. Aprendizaje Organizacional (1a. Ed.). Mexico: McGraw-Hill.
171. Martensson, M., 2000. A critical review of knowledge management as a management tool. Journal of Knowledge Management, 4(3), 204–216.
172. Martins, B. and Viedma, J. M., 2006. The region's intellectual capital benchmarking system: enabling economic growth through evaluation. Journal of Knowledge Management 10(5), 41-52.
173. Martínez, A., 2010. Personal knowledge management by the knowledge citizen. Knowledge-based development for cities and societies,131–140. Hershey: IGI Global.
174. Martínez, A., 2001. Un modelo de procesos clave de administración del conocimiento. Transferencia, 14(53), 28–29.
175. Martínez, A., 2006. Knowledge citizens: A competence profile. Knowledge cities: Approaches, experiences, and perspectives, 233–244). Oxford: Elsevier.
176. Martinez, A. and Buendia, A., 2009. Aplicación de las competencias diferenciadoras de valor en la generación de conocimiento en una comunidad de práctica. Desarrollo Basado en el Conocimiento: Transferencia del Conocimiento, 141-150. Bilbao: CISC.
177. Martínez, A. and Carrillo, F. J., 2011. Capitalización del Conocimiento Colectivo en la Organización: Método de Practicas de Valor. Administración de Conocimiento y Desarrollo Basado en Conocimiento. Mexico: Cengage.
178. Martínez, A. and Corrales, M., 2011. Administración de Conocimiento y Desarrollo Basado en Conocimiento. Mexico: Cengage.
179. Martinez, A., 2010. Personal knowledge management by the knowledge citizen: the generation aspect of organizational and social knowledge. Knowledge-based Development of Cities and Societies, 81-98. Hershey: IGI Global.
180. Martinez, A., 2006. Knowledge citizens: a competence profile. Knowledge Cities, 233-244. Oxford: Elsevier.
181. Martínez, A., 2001. Un modelo de procesos clave de administración de conocimiento. Transferencia, 14(53), 28-29.
182. Martinez, S., 2006. A comparative framework for knowledge cities. Knowledge cities, 17-30. Oxford: Elsevier.
183. Martinus, K., 2012. Attracting: the coffeeless urban café and the attraction of urban space. Building Prosperous Knowledge Cities, 74-95. Cheltenham: Edward Elgar.
184. Martinus, K., 2010. Planning for production efficiency in knowledge-based development. Journal of Knowledge Management 14(5), 726-743.
185. Matthiessen, C. W., Schwartz, A. W. and Find, S., 2006. World cities of knowledge: research strength, networks, and nodality. Journal of Knowledge Management 10(5), 14-25.
186. McElroy, M. W., Jorna, R. J., and van Engelen, J., 2006. Rethinking social capital theory: a knowledge management perspective. Journal of Knowledge Management 10(5), 6-13.
187. Metaxiotis, K. and Ergazakis, K., 2012. Formulating: an integrated strategy for the development of knowledge cities. Building Prosperous Knowledge Cities, 149-174. Cheltenham: Edward Elgar.
188. Metaxiotis, K. and Ergazakis, K., 2008. Exploring stakeholder knowledge partnerships in a knowledge city: a conceptual model. Journal of Knowledge Management 12(5), 137-150.
189. Metaxiotis, K., Carrillo, F. J., & Yigitcanlar, T. (Eds.), 2010. Knowledge-based development for cities and societies. Hershey: IGI Global.
190. Michelam, L. D., Cortese, T. T. P., Yigitcanlar, T., Fachinelli, A. C., Vils, L., & Levy, W., 2021. Leveraging smart and sustainable development via international events: Insights from Bento Gonçalves Knowledge Cities World Summit. Sustainability, 13(17).
191. Millar, C. J. and Choi, C. J., 2010. Development and knowledge resources: a conceptual analysis. Journal of Knowledge Management 14(5), 759-776.
192. Mohamed, M., Murray, A., and Mohamed, M., 2010. The role of information and communication technology (ICT) in mobilization of sustainable development knowledge: a quantitative evaluation. Journal of Knowledge Management 14(5), 744-758.

193. Mohamed, M., Stankosky, M., and Mohamed, M., 2009. An empirical assessment of knowledge management criticality for sustainable development. Journal of Knowledge Management 13(5), 271-286.
194. Mohamed, M, S., O'Sullivan K. J., Ribiere, B., 2008. A paradigm shift in the Arab Region knowledge evolution. Journal of Knowledge Management 12(5), 8-20.
195. Morales, I., 2007. Regional development through knowledge creation in organic agriculture. Journal of Knowledge Management 11(5), 87-97.
196. Mugellesi, R. and Pallaschke S., 2010. Managing knowledge for spacecraft operations at ESOC. Journal of Knowledge Management 14(5), 659-677.
197. Mujika, A. (Ed.)., 2007. Regiones Iberoamericanas del Conocimiento. Bilbao: Universidad de Deusto.
198. Mujika, A. (Ed.). (2005). Conocimiento para el Desarrollo. Bilbao: Universidad de Deusto.
199. Nesello, P. and Fachinelli, A.C., 2020. Towards a knowledge-based development framework for the manufacturing industry: insights from Brazilian companies. International Journal of Knowledge-Based Development, 11(4), 338-356.
200. Nespolo, D., Fachinelli, A. C., Fortes, V. M. M., Milan, G. S., & Camargo, M. E., 2018. Knowledge-based development from the citizen's perspective: a study from Southern Brazil. International Journal of Knowledge-Based Development, 9(1), 6-22.
201. Olavarrieta, G., 2011. Capital de Inteligencia. Administración de Conocimiento y Desarrollo Basado en Conocimiento, 123-143. Mexico: Cengage.
202. Olavarrieta, G., & Carrillo, F. J., 2014. Intelligence capital: a capability maturity model for a software development centre. Knowledge Management Research & Practice, 12, 289-296.
203. Olavarrieta, G., Carrillo, F. J. and Rodríguez, C., 2013. Developing Customer Knowledge Through Adaptive Intelligence. 6th Knowledge Cities World Summit. Istanbul: WCI.
204. Olavarrieta, G. and Carrillo, F. J., 2014. Capital de Inteligencia. Sistemas de Capitales y Mercados de Conocimiento, 105-119. Seattle: KindleDirect.
205. Olavarrieta, G. and Carrillo, F.J., 2012a. Intelligence Capital: A Capabilities Maturity Model and a Technology Center Case. Joint Conference 7th International Forum on Knowledge Assets Dynamics and 5th Knowledge Cities World Summit. Matera: WCI.
206. Olavarrieta, G. and Carrillo, F.J., 2012b. Intelligence Capital: Developing Adaptive Capabilities through Agent-based Simulation. International KMAP Conference, Knowledge-Management in Asia Pacific. Shanghai: KMAP.
207. Olavarrieta, G. and Carrillo, F.J., 2011a. Intelligence Capital for a Technology Development Centre. International Forum on Knowledge Assets Dynamics. Tampere: TTU.
208. Olavarrieta, G. and Carrillo, F.J., 2011b. Intelligence Capital for a Global Organization. 4th Knowledge Cities World Summit. Bento Goncalves: WCI.
209. Olavarrieta, G. and Rodriguez, L. A., 2014. Meta Capitales: Capital Referencial y Articulador. Sistemas de Capitales y Mercados de Conocimiento, 80-88. Seattle: KindleDirect.
210. Ortiz, A., 2012, September 26. Celebran 20 años de impulsar la Gestión del Conocimiento. Panorama, 1713 (XLVI).
211. Pasher, E., and Shachar, S., 2010. Israel: a knowledge region case study. Knowledge-based Development of Cities and Societies, 272-2280. Hershey: IGI Global.
212. Passerini, K. and Wu, D., 2008. The new dimensions of collaboration: mega and intelligent communities, ICT and wellbeing. Journal of Knowledge Management 12(5), 79-90.
213. Passerini, K., 2007. Knowledge-driven development indicators: still an eclectic panorama. Journal of Knowledge Management 11(5), 115-128.
214. Petruzelli, A. M., 2010. The interaction between local and regional knowledge-based development: towards a quadruple helix model. Knowledge-based Development of Cities and Societies, 59-80. Hershey: IGI Global.
215. Petruzelli, A. M., Albino, V., Carbonara, N., and Rotolo, D., 2010. Leveraging learning behavior and network structure to improve knowledge gatekeepers' performance. Journal of Knowledge Management 14(5), 635-658.
216. Petruzelli, A. M., Albino, V. and Carbonara, N., 2009. External knowledge sources and proximity. Journal of Knowledge Management 13(5), 310-318.
217. Petruzelli, A. M., 2008. Proximity and knowledge gatekeepers: the case of the Polytechnic University of Turin. Journal of Knowledge Management 12(5), 34-51.
218. Pleitez, J., & Flamenco, E., 2009. Desarrollo basado en conocimiento aplicado a la marginalidad y pobreza urbana en el Salvador. Desarrollo basado en el conocimiento, 301–313. Valencia: CISC.
219. Powell, J. A., 2012. Transforming: turning knowledge cities into a knowledge region. Building Prosperous Knowledge Cities, 260-277. Cheltenham: Edward Elgar.
220. Rahman, B. A., Saad, N. M. And Harun, M. S., 2010. Knowledge management orientation and business performance: the Malaysian manufacturing and service industries perspective. Knowledge-based Development of Cities and Societies, 315-328. Hershey: IGI Global.
221. Ramirez, G., 2007. En busqueda del desarrollo basado en conocimiento en Chile. Regiones iberoamericanas del conocimiento, 187–213. Bilbao: Universidad de Deusto.
222. Raza, A., Kausar, R., and Paul, D., 2007. Attracting and retaining knowledge workers in knowledge cities. Journal of Knowledge Management 11(5), 45-54.
223. Raza, A., Kausar, R., and Paul, D., 2006. Culture, cognition, and knowledge-based development. Journal of Knowledge Management 10(5), 137-146.
224. Reffat, R. M., 2010. Essentials for developing a prosperous knowledge city. Knowledge-based Development of Cities and Societies, 118-130. Hershey: IGI Global.

225. Rivera, A. E., Rivera, G., and Carrillo, F. J., 2021. Urban relational capital and new transaction regimes. City Preparedness for the Climate Crisis, 281-291. Cheltenham: Edward Elgar.
226. Rivera, A. E. and Carrillo, F. J., 2016. Relational Capital Wealth in an Organizational Context. Knowledge Management Research & Practice 14(4), 422-433.
227. Rivera, A. E. and Carrillo, F. J., 2014. Capital Relacional. Sistemas de Capitales y Mercados de Conocimiento, 127-143. Seattle: KindleDirect.
228. Rivera-Vazquez, J. C., Ortiz-Fournier, L. V. And Flores, F. R., 2009. Overcoming cultural barriers for innovation and knowledge sharing. Journal of Knowledge Management 13(5), 257-270.
229. Rodriguez, L. A., Menéndez, J. A., Rivera, A. E. and Garza, C., 2014. Redes basadas en conocimiento. Sistemas de Capitales y Mercados de Conocimiento, 203-217. Seattle: KindleDirect.
230. Rowley, J., 2003. Knowledge management – the new librarianship? From custodians of history to gatekeepers to the future. Library Management, 24(8/9), 433–440.
231. Rubalcaba, L. and Garrido, R., 2006. Urban concentration of European business services and the role of regional policies. Knowledge Cities, 205-222. Oxford: Elsevier.
232. Sarimin, M., & Yigitcanlar, T., 2012. Towards a comprehensive and integrated knowledge-based urban development model: Status quo and directions. International Journal of Knowledge-Based Development, 3(2), 175–192.
233. Scheel, C., 2002. Knowledge clusters of technological innovation systems. Journal of Knowledge Management 6(4), 356-3367.
234. Schiuma, G. and Lerro, A., 2008. Knowledge-based capital in building regional innovation capacity. Journal of Knowledge Management 12(5), 121-136.
235. Schneider, U., 2007. The Austrian National Knowledge Report. Journal of Knowledge Management 11(5), 65-86.
236. Searle G. and O'Connor, K., 2012. Globalizing: what makes Australian information technology industry companies go global? Building Prosperous Knowledge Cities, 60-73. Cheltenham: Edward Elgar.
237. Sharma, N. L. and Goswami, S., 2009. The nuances of knowledge creation and development in Indian pharmaceutical industry. Journal of Knowledge Management 13(5), 319-330.
238. Sharma, R. S., Samuel, E. M, and Ng, E. W., 2009. Beyond the digital divide: policy analysis for knowledge societies. Journal of Knowledge Management 13(5), 373-386.
239. Sharma, R. S., Ng, E. W., Dharmawirya, M. and Lee, C K., 2008. Beyond the digital divide: a conceptual framework for analyzing knowledge societies. Journal of Knowledge Management 12(5), 8-20.
240. Simmie, J. and Strambach, S., 2006. The contribution of KIBS to innovation in cities: an evolutionary and institutional perspective. Journal of Knowledge Management 10(5), 26-40.
241. Skyrme, D. J., & Amidon, D. M., 1997. Creating the knowledge-based business. Key lessons from an international study of best practice. London: Business Intelligence.
242. Spender, J. C., 2010. The way forward: Theorizing Knowledge-Based Development? Knowledge-based Development of Cities and Societies 329-339. Hershey: IGI Global.
243. Thompson, M. P. A., & Walsham, G., 2004. Placing knowledge management in context. Journal of Management Studies, 41(5), 725–747.
244. Tresman, M., Pasher, E. and Molinari, F., 2007. Conversing cities: the way forward. Journal of Knowledge Management 11(5), 55-64.
245. Valerio-Ureña, G. (2014). Capital instrumental. Sistemas de capitales y mercados de conocimiento, 155–163). Seattle: KindleDirect.
246. Van Wezemael, J., 2012. Concluding: Directions for building prosperous knowledge cities. Building prosperous knowledge cities, 374–382. Cheltenham: Edward Elgar.
247. Vasquez, F., & Gabalan, J., 2009. Gestionando el conocimiento: Acercamiento conceptual en entornos organizacionales y proyección en el contexto académico. Revista Iberoamericana de Ciencia, Tecnología y Sociedad – CTS. Retrieved 6 March 2022 from http://www.revistacts.net/wp-content/uploads/2009/ 08/vazquezeditado.pdf.
248. Vazquez, M., 2014. Innovación y Emprendimiento Social. Sistemas de Capitales y Mercados de Conocimiento 243-254. Seattle: Kindle Direct.
249. Von Mutius, B., 2005. Rethinking leadership in the knowledge society learning from others: How to integrate intellectual and social capital and establish a new balance of value and values. Intellectual capital for communities, 151–163. Oxford: Elsevier.
250. Waltzer, C., Nesello, P., Barros, I.C., 2022. Influenciadores Digitais E O Sistema de Capitais como Fator para Contratação de Serviços na Cidade de Pelotas/Rs. Desenvolvimento em Questao 20(58).
251. Webb, C., 2008. Measuring social capital and knowledge networks. Journal of Knowledge Management 12(5), 65-78.
252. Wesselman, S., Meyer, C. and Losowski, R., 2012. Researching: key factors for the success of knowledge cities in Germany. Building Prosperous Knowledge Cities, 3-23. Cheltenham: Edward Elgar.
253. Wiig, K. M., 2007. Effective societal knowledge management. Journal of Knowledge Management 11(5), 65-86.
254. Wong, C., 2010. Singapore: a model for knowledge-based city. Knowledge-based Development of Cities and Societies 222-253. Hershey: IGI Global.
255. Wong, C. Y., Choi, C. J., Millar, C. J., 2006a. The case of Singapore as a knowledge-based city. Knowledge Cities, 87-96. Oxford: Elsevier
256. Wong, C. Y., Millar, C. J. Choi, C. J., 2006b. Singapore in transition: from technology to culture hub. Journal of Knowledge Management 10(5), 6-13.

257. Yigitcanlar, T., & Inkinen, T., 2019. Theory and practice of knowledge cities and knowledge-based urban development. Geographies of disruption, 109–133. Berlin: Springer.
258. Yigitcanlar, T., 2009. Planning for knowledge-based urban development. Journal of Knowledge Management 13(5), 228-242.
259. Yigitcanlar, T., Baum, S., and Horton, S., 2007. Attracting and retaining knowledge workers in knowledge cities. Journal of Knowledge Management 11(5), 6-17.
260. Yigitcanlar, T., and Martinez-Fernandez, C., 2010. Making space and place for knowledge production: Socio-spatial Development. Knowledge-based Development of Cities and Societies 99-117. Hershey: IGI Global.
261. Yigitcanlar, T., Metaxiotis, K., Carrillo, F. J. (Eds.), 2012. Building Prosperous Knowledge Cities. Cheltenham: Edward Elgar.
262. Yigitcanlar, T. and Sarimin, M., 2010. Orchestrating knowledge-based urban development. Lessons from multimedia supercorridor, Malaysia. Knowledge-based Development of Cities and Societies, 281-295. Hershey: IGI Global.
263. Yigitcanlar, T., Velibeyoglu, K, and Martinez-Fernandez, C., 2008. Rising knowledge cities: the role of urban knowledge precincts. Journal of Knowledge Management 12(5), 8-20.
264. Zapata, L., 2011. Aprendizaje Organizacional (2a. Edicion). Mexico: McGraw-Hill.
265. Zapata, L., 2009. Generation and transfer of knowledge in IT-related SMEs. Journal of Knowledge Management 13(5), 243-256.
266. Zapata, L., 2008. Aprendizaje Organizacional (1a. Edicion). Mexico: McGraw-Hill.

EDITORIAL DETAILS AND AUTHOR CONTRIBUTIONS

Detalhes Editoriais e Contribuições Autorais

Financial support:
Not informed by the authors.

Open Science:
Carillo, F. J., Perini, R. L., & Fachinelli, A. C. (2024). Knowledge Systems: From Latin America to the World. *Brazilian Journal of Management and Innovation (Revista Brasileira de Gestão e Inovação)*, 11(3), 65-83. https://doi.org/10.18226/23190639.v11n3.07

Interest conflicts:
The authors declare that they have no conflicts of interest.

Plagiarism Analysis:
RBGI performs plagiarism analysis on all its articles at the time of submission and after approval of the manuscript using the iThenticate tool.

Author 1
Francisco Javier Carillo
World Capital Institute
https://orcid.org/0000-0001-7669-2005
fjcarrillo@worldcapitalinstitute.org

Author 2
Ana Cristina Fachinelli
Universidade de Caxias do Sul – UCS
https://orcid.org/0000-0003-4136-6933
acfachin@ucs.br

Author 3
Rafael de Lucena Perini
Universidade de Caxias do Sul – UCS
https://orcid.org/0000-0002-3638-8778
rlperini@ucs.br

Authors' statement of individual contributions

Roles	Contributions		
	Author 1	Author 2	Author 3
Conceptualization	•	•	•
Data curation		•	•
Formal analysis		•	•
Funding acquisition			
Investigation	•	•	•
Methodology	•	•	•
Project administration	•		
Resources		•	
Software			
Supervision	•	•	
Validation	•	•	
Visualization		•	
Writing – original draft	•	•	•
Writing – review & editing	•	•	•

Editorial flow of double-blind peer review managed by PPGA of UCS Business School (AACSB Member)
Owned/Editing/Layout by Publisher EDUCS from UCS - University of Caxias do Sul.