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The management of local knowledge in the strategic planning of Quito



JLUpub 2023

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Originally published as:

Carlos M. Fernández-Jardón / Klaus Gierhake / Xavier Martinez Cobas, 2023. The Management of Local Knowledge in the Strategic Planning of Quito. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4629502



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Zusammenfassung

Lokales Wissen ist Teil der immateriellen Vermögenswerte eines Gebietes. In früheren Arbeiten wurde der Beitrag von lokalem Wissen im Zusammenhang mit der Fähigkeit eines Territoriums für die Initiierung von Innovationsprozessen untersucht. Es wurde jedoch noch nicht in Verbindung mit dem Ansatz intellektuellen Kapitals diskutiert. Auch die räumliche Lokalisierung intellektuellen Kapitals und daraus resultierende Prozesse steht noch aus.

Diese auf dem Ansatz intellektuelles Kapital basierende Untersuchung will zeigen, wie immaterielle Vermögenswerte in einem Raum und den dortigen Institutionen Werte generieren, die wesentlich für die Einführung umfassender sozialer Innovationen sind.

Damit wird ein Beitrag zur vierten Phase der Forschung über intellektuelles Kapital präsentiert, indem es Aspekte des intellektuellen Kapitals hervorhebt, die in lokalem Wissen vorhanden sind und in einem bestimmten Raum sozialen Wert schaffen. Die auf intellektuellem Kapital basierende Sichtweise, die die Bedeutung von lokalem Wissen als Quelle der regionalen Entwicklung hervorhebt, wird mit einer Perspektive der angewandten Geografie verbunden. Wichtig ist anzumerken, dass es hier um städtischen Ballungsräume und das dort vor allen Dingen in der lokalen Regierung und Verwaltung vorhandene intellektuelle Kapital geht.

Die Elemente des lokalen Wissens im Metropolitandistrikt Quito entsprechen der bisherigen Literatur über nationale und regionale Dimensionen des intellektuellen Kapitals.

Der Prozess zwischen den verschiedenen Dimensionen des lokalen Wissens zeigt einen positiven Kreislauf von lokalem Wissen, der eine mögliche Quelle für die Entwicklung darstellt, insbesondere in urbanisierten Gebieten mit Merkmalen territoriale Kreativität außerhalb der lokalen Wirtschaft, die durch ihre kulturelle Identität gestärkt werden können. Die Ergebnisse dieser Arbeit verdeutlichen auch die raumrelevanten Aspekte von lokalem Wissen,

Auf diese Weise tragen die Resultate zur vierten Stufe der Forschung im Bereich des intellektuellen Kapitals bei, indem sie die Verbindung von lokalem Wissen als eine Quelle des sozialen Werts darstellen. Die Bedeutung der einzelnen Dimensionen des lokalen Wissens für die Steigerung des sozialen Werts wird aufgezeigt.

In diesem Beitrag werden die Strukturen aufgezeigt, die diesen Prozess der Schaffung zusätzlichen sozialen Wertes in Quito erklären können. Diese Ergebnisse tragen zum Diskurs über neue Formen der lokalen Governance bei. Sie sind die Basis, um wissenschaftliche Konzepte zur Metropolen-Entwicklung, die auch in Entwicklungsländern eine Perspektive für nachhaltigere Entwicklung zeigen, zielgerichteter in die Praxis umzusetzen.

Lokales Wissen eignet sich Analyse- und Planungskonzept für die Verwaltung von Gemeinden, also relativ kleinen territorialen Einheiten. Damit wird gleichzeitig das Konzept der Dezentralisierung gefördert, das in den nationalen Zielsetzungen vieler lateinamerikanischer Staaten und Institutionen der internationalen Zusammenarbeit einen hohen Stellenwert einnimmt. Die territoriale und ökologische Entwicklung einer großen Metropole kann durch die Lokalregierung beeinflusst werden.

The management of local knowledge in the strategic planning of Quito.

Introduction

Local knowledge is important for territorial development. It is the root of many environmental practices, health improvements, eating habits, and the general social cohesion necessary for a territory's dynamic development (Pedler, 2002; Quartey and Wells, 2017).

Previous studies analyze the management of local knowledge from different perspectives. For example, (Chen and Choi, 2004) highlight the role of local knowledge in successful knowledge-based cities. (Girard, 2015) analyses farmers' knowledge from a perspective of knowledge management (KM) within the boundaries between science and society. (Quartey and Wells, 2017) study the contribution of local knowledge to sustainable development from industries. (Gierhake and Jardon, 2017) analyze the elements of local knowledge that intervene in the constitution of creative environments, introducing an intellectual based view. (Pedler, 2002) studies how local knowledge improves organizational direction, performance, and learning in local governments.

Local knowledge is essentially tacit knowledge. Thomas and Gupta (2022) emphasize several topics of interest in the study of tacit knowledge. Previous studies highlight the importance of organizational culture (Suppiah and Sandhu, 2011), leadership (Le and Nguyen, 2022), absorptive capacity (Chen, Baptista Nunes, *et al.*, 2018), and technology (Panahi *et al.*, 2013) to tacit knowledge sharing (TKS), showing how the use and management of tacit knowledge improve organizations. However, the use of local knowledge to manage a metropolitan strategic plan is not studied. This work presents a case study of the application of local knowledge management to the strategic plan of the metropolitan district of Quito (MDQ) in Ecuador in 2012 (MDMQ, 2012a), analyzing tacit knowledge management and showing how the management of Quito's local knowledge promoted social value.

Bhardwaj *et al.* (2023) explore the micro-foundations of knowledge-based dynamic capabilities in social purpose organizations. Local government presents different characteristics than social purpose organizations. These issues have not been analyzed by intellectual based view. This paper uses an intellectual capital-based view to analyze the micro-foundations of the management of local knowledge in a local government. This view

is oriented toward showing how intangible assets generate value in organizations (Martín-de-Castro *et al.*, 2010). This view has evolved beyond the first stage that was dedicated to using “grand theories”, introducing concepts and measures in a fourth stage that analyzes intellectual capital in specific contexts (Dumay and Garanina, 2013). The paper contributes to this stage, highlighting the aspects of intellectual capital present in local knowledge management (Gierhake and Jardon, 2017) to generate social value in a metropolitan territory.

The paper contributes to the literature on TKS (Thomas and Gupta, 2022), showing a particular case in that line. In addition, it contributes to the studies of the management of local knowledge to generate social value by integrating the intellectual capital-based view (Martín-de-Castro *et al.*, 2010) with an applied geography perspective (Von Rohr, 1994) to highlight the importance of local knowledge as a source of regional development (Quartey and Wells, 2017). In addition, the paper shows the importance of managing local knowledge to the success of metropolitan strategic plans.

Next, the paper then presents the concept of local knowledge from an intellectual capital perspective, followed by the methodology used for the case study and the empirical results. Finally, the discussion is based on the model presented in the theoretical section, and conclusions are presented with some applications of these findings.

Theoretical basis

A territory's intangible assets include aspects of traditional local knowledge and the territory's contributions to scientific knowledge. Local knowledge includes intangible assets in the territory, both in organizations and individuals. Local knowledge is the set of skills, expertise, and experience learned and generated within a territory. Local knowledge implies an expert understanding and practical reasoning about local conditions derived from lived experience (Yanow, 2004). It encompasses the learning, ideas, and experiences determined by a specific geographical location (Díez-Vial and Montoro-Sánchez, 2014). Local knowledge develops from the actors' lived experiences, practical reasoning, personal introspection, social learning, and continuous experimentation. It is, therefore, inherently pragmatic knowledge (Quartey and Wells, 2017).

Turnbull (2009) suggests that “human movements, actions, practices, and protocols [develop local knowledge]. It is dynamic, heterogeneous, social and distributed, its knowledge is not unified, coherent or located in the heads of individuals, but are experimental, messy, inconsistent, collective and in the process of continuous adaptation and negotiation” (Turnbull, 2009, p3). This knowledge is acquired by learning from others and adapting to changes (Raymond *et al.*, 2010), which leads to constant evolution as it develops through interaction and experimentation between humans and the environment.

Traditional local knowledge is part of the intellectual capital of territory as it contains intangible assets. The study of intellectual capital has evolved in different stages. Late-stage approaches suggest the importance of local knowledge. For example, Dumay and Garanina (2013) indicate that the fourth stage of intellectual capital research expands the boundaries of intellectual capital to broader ecosystems such as countries, cities, and communities, rather than specific companies. This expansion draws local knowledge under the umbrella of intellectual capital.

Although literature exhibits no consensus on the dimensions of intellectual capital, it is typically classified as human, structural, and relational capital (Jardon and Martos, 2012). Human capital is the set of people’s values, attitudes, aptitudes, and capabilities that generate value for an organization (Bontis *et al.*, 2000). Structural capital is value-generating knowledge that the company internalizes and that is “left in the organization when people go home in the evening” (Roos *et al.*, 1997, p415). Structural capital usually includes organizational and technological aspects. These categories are combined because many authors have considered organizational systems to be “soft technologies.” Relational capital is the value to a company of the set of relationships it maintains with external stakeholders. It includes relationships with the environment and the economic agents involved in the different stages of the product value chain: suppliers, competitors, and customers.

The intellectual capital framework suggests establishing three types of local knowledge. Human local knowledge includes the intangible assets present in the people working in a territory, such as their values and attitudes, knowledge, and skills (Spencer and Spencer, 1993). People’s values and attitudes include the traditional values of the culture of the territory they have assumed. All these elements are easily integrated into the concept of human capital because they refer to the intellectual capital individuals possess. Similarly,

people's specific knowledge is part of local human knowledge as it is an intangible asset and a potential source of competitive advantage for territories. Human local knowledge also includes people's capabilities that increase the value of the territory.

Structural local knowledge encompasses the intangible assets that belong to organizations and the territory and allows them to be efficient in their daily activities; this derives from the traditional culture. This dimension includes the cultural, organizational, and technological aspects of institutions and the society in which they are integrated. The cultural aspect refers to organizations and society's history, values, mission, and vision of their projects. Traditions and values distinguish a territory from other territories; culture is the basis for the generation of creative elements (Suwala, 2014), including social governance (Delgado and Leite, 2011), civic culture (Kalu, 2018), and environmental culture (Jardon and Dasilva, 2017). A common culture favors territorial cohesion (Davoudi, 2005). Organizational aspects such as work distribution, hierarchical structure, coordination, and internal communication are also manifestations of structural local knowledge. The organizational structure allows competition under better conditions than other, less structured territories and leads to the development of higher quality processes that rely on territorial knowledge. A complementary intergenerational support structure facilitates the transmission and reception of knowledge and is fundamental to ensure the integrity of the territorial knowledge stock. The structure manifests in the support services that allow an organization's specific tasks to be conducted more efficiently. Technology includes systems, processes, regular and predictable patterns of activity composed of sequences of actions coordinated by individuals (organizational routines) (Nelson and Winter, 1982), and technological development (McLoughlin and Harris, 1997). Therefore, it is convenient to consider the usage and knowledge of technology in the territory that facilitates the absorption of new technologies and their possible integration into everyday life (Caragliu *et al.*, 2011).

Relational local knowledge includes all the relationships organizations or territories have with the outside world, which they manage or can manage to develop their activity, i.e., relationships with other organizations, institutions in other territories, the environment, or the population in general. Local relational knowledge is very useful for territory as it offers an external assessment of the territory's situation compared with other, similar territories;

it provides information about the trends or interests of the agents in the environment, which are crucial for detecting the technological and social opportunities that guide the process of developing new knowledge and facilitate competitiveness (Martín-de-Castro *et al.*, 2010). The image of the institution or the territory overall is another aspect of relational local knowledge. It is essentially based on the perception of the territory that users and other external actors have. A favorable image enhances attractiveness, facilitates relationships, and helps to generate the trust needed for them to bear fruit in cooperative agreements. The indicators of the image are external knowledge of the territory and its valuation in international forums, location (Felzensztein *et al.*, 2012), and local hospitality as it facilitates attention to visitors, reinforcing a territory's social image. Relational local knowledge contains cooperative networks and alliances as they include specific agreements to improve the territory or the organizations within it.

Studies on intellectual capital studies indicate an interaction between the different components. Various authors note that human capital generates structural capital and relational capital (Bontis *et al.*, 2000; Jardon and Martos, 2012). Other authors indicate that structural capital generates relational capital or human capital (Fdz –Jardón *et al.*, 2012). Still, other papers suggest that relational capital facilitates structural capital or human capital (Manfredi *et al.*, 2011). In the case of local knowledge, we show that all three components interact, producing a virtuous circle of increased local knowledge (see Figure 1).

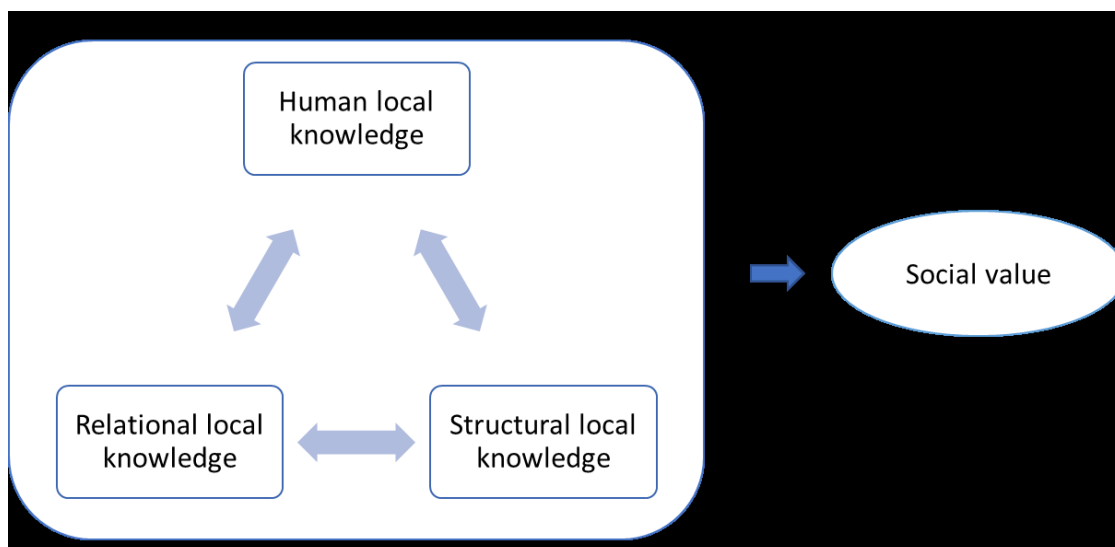


Figure 1: Model and propositions

Local knowledge is essentially tacit because it is usually “unconscious, embodied, action-orientated know-how or routines learned from practical activity or bodily experience” (Bickel *et al.*, 2020:5). Tacit knowledge is difficult to transmit and use (Nonaka and Takeuchi, 1995). Thomas and Gupta (2022) summarize the factors that facilitate the sharing of tacit knowledge in social capital, organizational culture, leadership, absorptive capacity, and oriented technology.

Social value and local knowledge

Social value is a complex concept that is usually adapted to the conditions of the environment in which it is defined (Acs *et al.*, 2013). Social value includes the improvement of people’s economic, social, and environmental conditions (Roy and Karna, 2015). Local knowledge management facilitates the creation of social value (Pedler, 2002), and the management of each dimension increases social value.

Human local knowledge is displayed in people. The management of the values of the people in a territory generates social value as they increase trust and enrich relationships (Holste and Fields, 2010). The use of ideas from local knowledge has always provided solutions to problems and conflicts in that society. Training increases citizens’ level of education, facilitating the creation of knowledge. The management of this human capital underpins social innovations (Sánchez *et al.*, 2000) as a source of social value. Leaders must have the experience to build a culture that builds mutual trust (Thomas and Gupta, 2022). Trust makes it easy to share and use tacit knowledge (Holste and Fields, 2010). Leadership skills are essential for social improvement as management behavior is vital to support human capital and promote and implement practices that lead to the transformation of human capital into performance (Jardon and Martos, 2012).

Structural local knowledge channels social improvements as it is based on local culture and improvement associated with local culture is typically more highly valued by various stakeholders. Organizational culture is a powerful instrument for knowledge-sharing because many aspects of organizational culture may affect the sharing of knowledge positively or negatively (Suppiah and Sandhu, 2011). There is evidence of a strong correlation between organizational culture and social performance. For citizens to feel motivated to improve socially, the culture must support and reward these improvements

(Wan *et al.*, 2005). This requires a fertile climate for the gestation and implementation of improvements, which is determined fundamentally by the culture (Hii and Neely, 2000). In practice, the skills and knowledge in the physical and management systems of institutions are shaped by the culture of the territory. The existence of mutual trust and understanding of the other, as well as friendship among the people involved in a network, facilitate its creation and permanence (Thuy *et al.*, 2005), promoting organizational learning (Martín-de-Castro *et al.*, 2010) in the territory increasing the sharing and use of tacit knowledge and improving social value. Thus, culture is seen as the key to developing the resources and competencies of social improvement (Hii and Neely, 2000). The organizational system imposed on society also conditions the results of social improvement. The knowledge associated with technological endowments helps share the local tacit knowledge (Thomas and Gupta, 2022), especially in those oriented to social aspects that enable increased social welfare (López Ruiz *et al.*, 2008).

The cooperation networks and alliances include specific agreements for the improvement of the territory or organizations. Innovation-oriented cooperation management (Felzensztein, 2008) increases the competitiveness of the territory. Relationships with citizens and external public institutions are also manifestations of this knowledge, increasing social value. Relational local knowledge is very useful for territory as it provides an external assessment of the territory's situation compared with other, similar territories. This comparison provides information about the trends or interests of the agents in the environment, which are crucial for detecting technological and social opportunities that guide the development of new knowledge and facilitate social improvement (Martín-de-Castro *et al.*, 2010). The social capital that is generated in networks of companies and institutions facilitates social innovation and, therefore, is expected to foster societal improvement. Territories with strong social capital can promote the flow of tacit knowledge among the inhabitants (Thomas and Paul, 2019). Consequently:

Proposition 1: Local knowledge management in metropolitan strategic planning increases social value.

Methodology

The paper analyzes a case study to test the above proposition, relying on the perspective of applied geography with an intellectual capital-based view (Martín-de-Castro *et al.*, 2010). The applied geography perspective suggests that impact analysis, evaluation of objectives and concepts, planning, and implementation are the steps to integrate existing knowledge into new issues (Von Rohr, 1994). The approach, based on intellectual capital, allows each of the elements of local knowledge to be analyzed as a source of territorial competitiveness, constituting the basis of the territory's social value.

The research uses different sources of information. Firstly, the documentation of the municipality of Quito was reviewed (in Spanish), including the design of the strategic plan and subsequent development in each of the organizational subunits (Bowen, 2009). Secondly, the observation of the explicit functioning of the municipality and its specific repercussions on the day-to-day life of the community of Quito and its surroundings during 2014, as Dana and Dumez (2015) describe. Thirdly, 40 semi-structured interviews were conducted with the main social actors of the process and outside observers, experts who were able to evaluate the causes of process implementation and criticize the defects in its operation or application (Adams, 2015). In total, 13 people from the MDQ were interviewed, covering the main hierarchical levels and the most important sectors for territorial policy. Some people were interviewed more than once to evaluate and contrast different opinions and adapt the information base to a specific territory. The content of the interviews was designed in advance. Semi-structured interviews are a valid instrument to combine theoretical and practical aspects as they collect ideas firsthand and are presented according to the underlying theory. The interviewees' credibility, transferability of the concepts, and dependence on local actors were checked from different sources by triangulating the results (Lincoln and Guba, 1985).

The information was triangulated with different issues. The research consulted key actors in the territory (advisors from the mayor's office and external observers from NGOs) with whom MDQ entities could work on the topic of "territorial development". The researchers then conducted interviews and made observations in the municipality's units. The head of the entity, an advisor from each of the units identified, and an external observer from the institutions associated with the territory were interviewed. These interviews were

conducted in Ecuador from the beginning of February to the end of May 2014. Afterwards, international experts were consulted. During the month of June, a series of three interviews were conducted in Germany with different experts with knowledge and interest in the topic, complemented by seven interviews in different Latin American countries (Argentina, Peru, and Mexico) by invitation, from late August to early October, aimed at assessing the dissemination of the process developed in Quito. Finally, from July to November, complementary interviews were conducted in Ecuador with the same people who had been contacted previously to present the first results and hypotheses and contrast them with their opinions. The summary of these interviews was collected in a report (Gierhake, 2014). The information was processed with qualitative analysis.

The research uses a specific model based on the theoretical concepts defined in the previous section to search for indicators to evaluate the local knowledge existing in the area. Based on these aspects, variables have been established that present a greater relationship with each aspect of local knowledge, evaluated with indicators obtained in the interviews and municipal documentation. The relationships were highlighted by the interviews and confirmed by the observed facts.

The Metropolitan District of Quito

The MDQ had a population of approximately 2 million inhabitants in 2014. Suburbanization processes were present, especially in the valleys, and forest and agricultural areas were being lost. As in all large cities, social services were concentrated in the centers of the urban areas. These services had recently improved their coverage (MDMQ, 2012b). The social and economic situation of the MDQ was very similar to those of other Latin American cities. The municipality of the Metropolitan District of Quito (MMDQ) is the institution that governs and manages the MDQ, so many activities and characteristics are identified in both entities.

Latin America is the region most affected by urbanization (Coy and Töpfer, 2012). This research focuses on the impact on so-called “mega-cities” (territories with more than 5 million inhabitants, not always with precise administrative boundaries), such as informality and insecurity (Wehrhan and Haubrich, 2010) and the privatization of public space (Borsdorf and Coy, 2009). Almost no geographic research has been performed in intermediate cities, like Quito (Wehrhahn, 2007). UNESCO’s Creative Cities Network program offers a database

on the experiences of innovations created in such cities but focuses on cultural and creative aspects, covering fields such as literature, film, music, crafts, design, media, and gastronomy, omitting other aspects of social value (UNESCO, 2004).

Local knowledge of the Metropolitan District of Quito

Local knowledge has appeared in the MDQ, especially in the Metropolitan Development Plan of Quito 2012–2022, which has a frame of reference for ancestral knowledge included in the concept of “good living” (*Buen Vivir*), implemented through the National Development Plan (SENPLADES, 2009). “Good living” in the modern constitutions of Ecuador (2008) and Bolivia (2009) refers to *sumak kawsay*, a Quechua phrase derived from the ancestral Kichwa world view on life, which refers to the ideal and beautiful realization of the planet (*sumak*) with a dignified life of plenitude (*kawsay*); that is, seeking balance with nature to satisfy needs (“taking only what is necessary” with the intent to endure), and not only for economic growth (Dávalos, 2011).

The local knowledge of the territory manifested in the factors that were deployed as a consequence of the evolution and development of the national plan as an innovative action (Anjos *et al.*, 2013). This has contributed to environmental improvement and the integration of Indigenous peoples.

Human local knowledge manifested in different facts. Universities are a source of knowledge (Capó-Vicedo *et al.*, 2013) and so is human local knowledge. The Metropolitan District contained in 2014 the best universities in the country, the only two offering doctoral degrees (FLACSO and Universidad Andina Simón Bolívar), and the oldest public university in the country (Universidad Central). It also has several recognized private universities (Catholic and San Francisco, for example). These institutions were the basis for professional and cultural training. Traditionally, Quito’s academic institutions have been considered less rigorous than those of other nearby territories, such as Lima or Bogotá. This academic weakness has favored the emergence of a very innovative NGO movement that has permeated the country’s culture (Fdez-Jardón *et al.*, 2016). The interrelationships between NGOs and universities have generated a new class of leaders and people in the MDQ. This issue in the MDQ and its implications for society are demonstrated in Table 1. The MMDQ showed a certain capacity for leadership by knowing how to identify the need for a highly

multidisciplinary team, systematize experiences in the context of administrative needs, coordinate and lead the institution, and create internal cohesion by supporting the perception of a shared identity among all in the institution. The learning capacity was shown in the strengthening of the City Institute as a think tank for municipal policies and endowing this institution with staff and a flexible work structure with a training plan to constantly renew its knowledge. This facilitates the acquisition of tacit knowledge and its conversion into explicit knowledge (MDMQ, 2010).

Structural local knowledge is shown in several issues. The long tradition of existing municipal planning was embodied to maintain institutional memory. This can be seen in the fact of hiring advisors from the previous government to ensure continual human local knowledge (Fdez-Jardón *et al.*, 2016). The capacity of governance and its assumption by the citizenry are also part of Quito's sociopolitical culture. There is a shared perception between the municipal government and citizens that is reflected in participatory municipal development plans, the interaction of local administrations with citizens, and the promotion of public-private actions. There is an environmental culture, as Quito was one of the first cities to introduce municipal environmental policies (during Jamil Mahuad's mayoralty), which have been maintained (Barrera, 2014). The culture encourages citizen participation, creating an environment conducive to a culture of participation and decentralization, for example, with networks of citizen participation (Morales Gutiérrez, 2009). In addition, an effort was made to integrate technology into civil society, which is particularly reflected in the digital agenda (MDMQ, 2012c). These cultural, organizational, and technological aspects are manifested in the MDQ, as shown in Table 1.

Table 1: Local knowledge indicators in municipal territories (MDMQ)

Aspects	Elements	Indicators
Human		
Values and attitudes	Ethical behavior.	Personal trust relationships are highly valued (Gierhake, 2014).
Training	The educational level of the population.	Professional training of the management team.
		Encourage training at all professional levels (Gierhake, 2014).
	Professional experience.	Professional experience in multi-sectoral fields (MDMQ, 2014a).

	Specialization in technical and management expertise.	There is no specific knowledge associated with the management of local products. It concentrates on the best universities in the country. Creation of the City Institute as a "think tank" for municipal policies (MDMQ, 2010).
Capabilities	Entrepreneurship (risks, planning, leadership).	Leadership ability manifests itself in knowing how to identify the need for a highly multidisciplinary team (Gierhake, 2014).
	Professionalism (creativity, seriousness, sociability).	Ability to adapt experiences obtained abroad to the needs of projects in Quito (Gierhake, 2014).
Structural		
Cultural aspects	Cultural identity.	Good Living Plan (Dávalos, 2011). Governance capacity and the expectation of having it.
	Civic culture.	Culture of participation and decentralization (MDMQ, 2011a). Encourage public-private partnerships. Shared perception between municipal government and citizenry (Gierhake, 2014).
	Concern for the environment.	Culture of concern for the environment as a consequence of Good Living Plan (Dávalos, 2011).
Structural aspects	The intergenerational support structure.	Institutional memory (MDMQ, 2014a).
	Organizational structure.	Structure to promote participation. DMQ organizational structure with the idea of achieving greater inclusion facilitates coordination (Gierhake, 2014).
	Quality of products/services (know-how).	Orientation towards commodities (Brenes <i>et al.</i> , 2009).
Technological aspects	Levels of technology use.	Quito Tech (MDMQ, 2014b).
	Social technology endowments.	Digital agenda. Technology integration as a support to civil society (MDMQ, 2012c).
	Level of technology centers.	It does not manifest itself (Gierhake, 2014).
Relational		
Image of the region	Location, as an attraction factor.	It does not manifest itself (Gierhake, 2014).
	Knowledge of the territory outside of it.	Tourism promotion (Quito-Turismo, 2014).
	Hospitality.	It does not stand out (Gierhake, 2014).
Cooperation with external actors	Cooperation agreements entered.	Cooperation agreements with cities in other countries (MDMQ, 2011b).
	Cooperation projects carried out and the number of partners.	International commitments with active participation (MDMQ, 2011b).
Relations with other external agents	Associations of cities to which it belongs.	Participation in other international associations (MDMQ, 2011b).
	Citizen relations.	Public space policies (Gierhake and Jardon, 2016).
	Relations with public institutions.	Political support from the current government in the city (Gierhake, 2014).

Relational local knowledge includes an attitude of cooperation and relationships (see Table 1). The MMDQ created cooperation agreements with cities in other countries, actively participated in international commitments or international associations (Barrera, 2014), and established collaboration relationships with neighboring territories. Relationships with the citizenry were evidenced in the policies of public space (Gierhake and Jardon, 2016), cultural development, and the promotion of the use of technologies, through the Digital Agenda and the use of the internet (MDMQ, 2012c). Relations with other national government institutions were shown by the current national government's political support for works in the city. The image of the territory was improved with the idea of promoting Quito's cultural development, boosting sustainable tourism and preserving the natural heritage of the area, improving accessibility to the people or institutions elsewhere, supporting productive municipal development with community agency, and specifying and ensuring the competencies of other entities of the territorial administration. For example, a Historic Center Rehabilitation Program was created to restore colonial houses, with attractions for the population and businesses (Quito Informa, 2012).

The interaction among previous indicators proves the existence of a virtuous circle in local knowledge. Human local knowledge generates more structural local knowledge. For example, the interviews indicated that the key to the MMDQ's organizational reform was in the professional and human training of its leaders and officials. The basis of the environmental culture, citizen participation, and decentralization is found in the leadership capacity of the management team that helped create a shared culture (Gierhake, 2014). The transmission of experiences was achieved, largely, by the professional training and experience of the municipality's workers (MDMQ, 2014a). Human local knowledge generates more relational local knowledge. For example, leaders' foreign-acquired professional training and language skills facilitated international relations; leadership and cohesion skills promoted relationships with citizens; and workers' and leaders' experience in national politics facilitated relationships with the central and other regional governments that had been scarce (Barrera, 2014; Gierhake, 2014).

Structural local knowledge generates more relational local knowledge. For example, the interviews suggested that the existence of long-term planning facilitated relationships with citizens, giving them security through established legislation; the participatory and

decentralized culture also fosters relationships with citizens by involving them more in the management of the municipality (Gierhake, 2014). The environmental culture promoted international relations as a globally trending topic. The culture of internal cohesion facilitated informal agreements with the central government and other regional governments by finding consistent interlocutors who fostered trust (Todorovic and McNaughton, 2007). Technology, in particular the digital agenda, facilitates relationships with citizens by connecting them with the outside world (through the Internet), or/and allowing remote work (in order) to complete projects (MDMQ, 2012c). Finally, the organizational structure facilitates a connection with citizens, the outside world, and governments by creating specific departments and offices for these functions (MDMQ, 2014a). Structural local knowledge affects human local knowledge. The culture of the territory, which forms part of the structural local knowledge, conditions citizens' values and attitudes and, consequently, those of the team of people who work in the MMDQ. That is, it shapes the human local knowledge. Organizational learning facilitates people's learning. Organizational structures and technology facilitate the training of workers and the use of organizational systems generates routines that make workers more efficient (Barrera, 2014; Gierhake, 2014).

The importance of relationships to generate knowledge and skills in human resources shows the effect of relational local knowledge on human local knowledge. For example, as the interviews showed, relationships with the outside world helped to enhance the training of the municipal leaders' team; relationships with citizens gave them more precise knowledge of specific needs, improving their perception of reality and leading them to be more professional in their work (Gierhake, 2014). Established relational local knowledge affects structural local knowledge. International relations improve the organizational structure through the experience and knowledge acquired in these relations. Citizen relations also help improve the organizational structure through citizens' input. Organizational learning is highly conditioned by the knowledge and information acquired through relationships. Finally, although indirectly, technology investments are possible through relationships with the government that facilitate the financing of many of these activities (MDMQ, 2014a).

Social value in the Metropolitan District of Quito

This process of interrelation between the dimensions of local knowledge has supported the municipality's income and investment capacity, which facilitate the implementation of the reform plans established, showing the economic aspect of sustainable development. The environmental and social aspects are presented in the different indicators by being associated with environmental culture and social innovation results. Thus, the three aspects of sustainable development appear in the implementation process of the development plan in the MDQ (MDMQ, 2012a).

The management of the dimensions of local knowledge affects social value. Both the interviews and the observation showed that the success of the organizational reform process in the constitution relied on the integration and leadership capacity of Mayor Barrera and the training of officials. There was a charismatic and authoritarian leader (Gierhake, 2014) and authoritarian leadership increases tacit local knowledge sharing (Chen, Davison, *et al.*, 2018). Charismatic leadership has a strong impact on the climate of psychological safety (Shao *et al.*, 2017), which facilitates tacit knowledge sharing and use. The mayor's leadership facilitated the efficient coordination of a team of experts. The training of officials led to decisive contributions from the "Institute of the City" as an entity of applied science supporting municipal policies to provide such training (MDMQ, 2010). The professional preparation of the coordination cabinets was essential to provide information for all of the secretariats, facilitate sectoral coordination, and monitor the decisions taken (Barrera, 2014) (see Table 2).

The management of local structural knowledge, in its triple aspect of culture, organization, and technology, was essential to carry out the MDQ's social improvements. For organizational reform to function, mechanisms were introduced to follow up on the decisions taken through the Planning Secretariat and coordinate among the different secretariats. To make better use of institutional memory, personnel from the previous municipal government were integrated as advisors to the Mayor's Office (Barrera, 2014). Adaptable teamwork facilitates the exchange and use of knowledge (Thomas and Gupta, 2022). The coordination and integration capacities of the team of advisors were also essential for the success of the innovation associated with social improvements as they

established the administrative structure and coordinated many of the functions of the secretariats.

The interviews showed that the cultural aspect was essential for land-use planning reform, manifesting in re-establishing the centrality of the human being by incorporating its true territorial dimension. For example, the reform includes the triple objective of sustainable development supported by cultural aspects, such as the intention to preserve, maintain and protect the natural heritage; improve environmental quality; and mitigate the effects of climate change. The right to the city as a space for living and coexistence is also an indicator of a culture of social concern. This culture is also shown in the effort to strengthen citizen rights with characteristics of universality, accessibility, and synergy. The organizational culture of the municipality affects tacit local knowledge sharing (Suppiah and Sandhu, 2011), increasing the use of local knowledge. In particular, the culture of decentralization (adhocracy) facilitates the use of local knowledge (Suppiah and Sandhu, 2011). This culture manifests in different parts of the project. Firstly, it promotes democratic access to the benefits of science, technology, and popular and ancestral knowledge. Secondly, it supports the dialogue of knowledge to close territorial, social, cultural, and economic gaps in accessing and using health services. Thirdly, it articulates the educational offer for territorial development and the promotion of pedagogical innovations in MDQ establishments, emphasizing the development of capacities to produce knowledge and creativity. Fourthly, it promotes decentralized cultural management and the consequent equity of territorial interventions that generate easily accessible cultural centers and reactivate social, cultural, and productive capital that encourage the construction of identity at the neighborhood and district levels. Finally, it supports equitably recovering the value of the sociocultural use of public space. As empirically observed and highlighted by the interviews, the culture of collaboration was essential to achieving the digital agenda (MDMQ, 2012c).

The technology adapted to knowledge sharing was developed with Digital Agenda. The model for the development of this agenda was the collaboration between people, groups, institutions, and companies in the territory. This facilitated the exchange of ideas and experiences, making the social improvement process more efficient, fluid, and open. Its development required the use of technology, and technological knowledge was somewhat responsible for the success of this development as the agenda incorporates information and

communication technologies in everyday life to improve both citizens' quality of life and their development capacity.

Management of local relational knowledge appears in multiple facets of the social value of the MMDQ, but it is best manifested in the process of dissemination and connection with other territories. The interviews clarified that different international partners were the potential basis for a multitude of external communication channels (such as the South American Cities Network, Pact of Mexico, Pact of Quito, and Sister Cities, among others) (Gierhake and Jardón, 2016). The empirical observation affirmed that relations with citizens were essential to the collaborative model of the digital agenda and helped the policies of public space, cultural development, and the use of technologies to succeed. The interpretation of public spaces by the Barrera Administration has gone beyond the purely economic level to become an instrument of territorial cohesion at the neighborhood level, promoting dialogue, communication, and neighborhood responsibility (Gierhake and Jardon, 2016). This management of relational local knowledge increased social value (see Table 2).

Table 2: Local knowledge and social value effects

Information	source
Urban agriculture with 211 new agricultural and livestock production units implemented, integrating 1,215 people into the urban agriculture training process.	(Conquito, 2014)
703 environmental and productive integration fairs were held.	(Conquito, 2014)
49 agricultural production units obtained international certification BCS in organic production.	(Conquito, 2014)
Participatory management was promoted with 50 workshops, forums, and conferences with a large attendance (around 5,000 people).	(MDMQ, 2014 b)
The Zoning Administrations interacted with around 2000 community organizations and in connection with companies, promoting an environmental culture (Green and Clean Quito Event, recognition to companies for their actions in favor of the environment; etc...).	(MDMQ, 2014 b)
Popular and Solidarity Economy (EPS) fairs where small enterprises (30 to 40 per fair) are directly benefited.	(MDMQ, 2014b)
The QuitoTech project supports 160 technology-based projects.	(MDMQ, 2014b)
Financial support was provided for 500 cultural projects:	(MDMQ, 2014a)

4,628 cultural events were held in public spaces with more than 10 million attendees.	(Quito-Cultura, 2015)
The Secretariat of Productive Development has carried out four projects on industrial parks and production areas.	(MDMQ, 2014a)
The Secretary of Productive Development has promoted industrial areas, such as the Itulcachi Public-Private Park.	(MDMQ, 2014a)
The Secretariat of Productive Development has provided advisory services to 412 industries	(MDMQ, 2014a)
The municipal development agency CONQUITO strengthened training in job skills and entrepreneurship for 8,000 jobs	(Conquito, 2014)
High citizen participation in environmental activities (421,050 citizens in different actions in support of environmental management; 157,050 Participation Events; 170,000 Good Environmental Practices, 171,400 in reforestation, and 10,000 in aspects associated with Climate Change).	(Quito-Cultura, 2015)
The Secretariat of Productive Development has designed a management model for the Popular and Solidarity Economy.	(MDMQ, 2014a)
8 international recognitions with awards; 33 twinned cities; belongs to 17 city networks and participates in 5 international commitments.	(MDMQ, 2014a)
The growth rate of international arrivals has averaged 9% since 2007.	(Quito-Turismo, 2014)
18.1% of households have at least one laptop computer, 9.1 points more than in 2010. While 27.5% of households have a desktop computer, 3.5 points more than in 2010.	(INEC, 2015)
28.3% of households nationwide have access to the Internet, 16.5 points more than in 2010. In urban areas, the increase is 20.3 points, while in rural areas it is 7.8 points.	(INEC, 2015)

Discussion and conclusions

The research seeks to verify that the development of the Quito strategic plan carried out in 2012 and put into practice by Mayor Barrera was a success, generating social value, thanks to knowing how to use and integrate the existing local knowledge in the territory. In the development of the strategic plan, aspects of knowledge management are shown that facilitate the sharing and use of tacit and explicit local knowledge existing in the territory. The paper focuses especially on the tacit knowledge part since the local knowledge in this

municipality combines indigenous knowledge with the knowledge acquired through traditions imported mainly by Spanish immigrants.

This paper analyzes the management of the different elements of local knowledge present in the territory of the metropolitan district of Quito from an intellectual capital-based perspective (Martín-de-Castro *et al.*, 2010) to increase the social value of the territory.

The classical division of intellectual capital into human, structural and relational dimensions makes possible to define different dimensions of local knowledge. There are multiple indicators of local knowledge in the territory. For example, the human dimension includes the existing training centers in the territory, the MMDQ leaders' education level, the mayor's leadership capacity, and the creativity and know-how of the team participating in the project. The structural dimension includes the organizational structure and organizational change implemented by the municipality, the environmental culture, the participatory system, and the professionalization of management or the use of technology. The relations with other cities, cooperation with other municipalities and the central government, and integration of the "good living" plan indicate the relational dimension and had an important social impact. These elements of local knowledge are according to previous literature on national (Seleim and Bontis, 2013) and regional intellectual capital dimensions (Lapygin and Makarov, 2019).

This paper analyses the micro foundations of the local knowledge management showing that the internal dynamics of local knowledge require interrelated human, structural, and relational local knowledge. The interaction among the different dimensions of local knowledge was tested according to previous literature on intellectual capital (Benevene and Cortini, 2010; Jardon and Martos, 2012; Kong, 2017; Manes Rossi *et al.*, 2016). This process generates a virtuous circle of local knowledge that is a possible source of development, especially in urbanized areas with territorial characteristics that could be strengthened through cultural identity and building the pillars of development around it (Anjos *et al.*, 2013).

The results confirm previous studies on tacit knowledge sharing applied to local knowledge. Firstly, it confirms that charismatic and authoritarian leadership facilitates the sharing and use of tacit knowledge (Shao *et al.*, 2017), thus ensuring that the results of the strategic plan

increase the social value of the territory. Secondly, it confirms that the existing organizational culture in the municipality is key to sharing tacit local knowledge according to (Suppiah and Sandhu, 2011). Thirdly, the results show that the municipality knew how to use social networks to share existing knowledge in the territory, thus generating greater social value according to (Panahi *et al.*, 2013).

The findings contribute to the fourth stage of research on intellectual capital by suggesting that local knowledge is a source of social value, confirming previous studies (Pedler, 2002; Quartey and Wells, 2017). Gravili *et al.* (2021) analyze the effect of intellectual capital to create social value in the healthcare industry. This paper confirms these findings by analyzing the effect of local knowledge (local intellectual capital) on the creation of social value in a municipal district. In addition, this paper shows the importance of each dimension of local knowledge for increasing social value. For example, this paper shows the effect of human local knowledge manifested in MMDQ leaders' education level, the mayor's leadership capacity, and the creativity and know-how of the team participating in the project on social value, according to Altinay *et al.* (2016). The organizational change imposed on the municipality, the environmental culture, the participatory system, and the professionalization of management increases social value, according to previous papers (Nezam *et al.*, 2016). Relations with other cities, cooperation with other municipalities and the central government, and integration of the "good living" plan also have social effects. These findings on relational capital align with previous literature about cooperation (Felzensztein and Gimmon, 2009).

This paper shows the causes of this process of increasing social value in Quito. Unlike (Chen and Choi, 2004), the research shows that since there are no universities or other centers that specialize in territorial processes and administrative modernization, nor are there international technical cooperation activities, the concept of local knowledge has been used to elaborate and apply the strategic planning of Quito. On this basis, by adding studies on similar cases, a proposal that facilitates sustainable territorial growth by adjusting public interventions to the territory can be developed (Belletti *et al.*, 2017). These results contribute to the discourse on new forms of local governance and allow some methodological conclusions that help to put scientific concepts for sustainable development into practice in developing countries.

Local knowledge is adapted to the holistic management of municipalities and small territorial entities, which changes the territorial reference and facilitates decentralization (Gierhake and Jardon, 2017). In combination with the concept of local knowledge at the level of a municipal institution and its territory, this research adds value to the geography of innovation approach because it leaves open the question of the other conditioning factors of a creative environment (Delgado and Leite, 2011; Gierhake and Jardon, 2017), exogenous and endogenous (Kiese, 2004), and their relationship with local knowledge. The MMDQ demonstrates new, positive characteristics: the territorial–environmental development of a large metropolis can be influenced.

The results suggest practical implications for management in local governments and other territorial institutions. Firstly, it points out the importance of authoritarian and charismatic leadership to facilitate the integration of existing local knowledge and use it to improve the territory according to Shao *et al.* (2017). Consequently, institutions need charismatic leadership to apply a successful strategic plan. Secondly, it suggests the need to create an organizational culture that facilitates the sharing of existing local knowledge, transmitting it to future generations, and taking advantage of it to increase social value. Therefore, institutions should support their actions in a common culture, possibly a clan culture, or adhocracy culture according to Suppiah and Sandhu (2011). Finally, it suggests the importance of making use of technological aspects, for example, through online platforms (Panahi *et al.*, 2013), and engage the management with stakeholders and beneficiaries (Bhardwaj *et al.*, 2023) which lead to greater citizen participation and a greater integration of this in municipal management in a way that encourages sharing the knowledge of people who live in the territory.

This study has some limitations. Firstly, it focuses specifically on the most representative institution of the MDQ, its municipality, although some social interactions with the territory are analyzed and some specific aspects of the territory are suggested. Future work should include other institutions. Secondly, this study focuses on a single case, so its conclusions should be generalized with caution. Finally, quantitative information on the aspects studied in this work is absent or very limited, so most of the statements are based on the results of interviews, the researchers' observations, or local actors' reports. This may limit the validity of the results. However, the work suggests fascinating aspects for future research.

Metropolitan areas could soon be key actors in solving the mentioned problems (Intendencia de Montevideo *et al.*, 2015), as they represent an interesting potential for social, territorial, ecological, and economic changes. These territories could serve as liaisons between development trends at the global level and processes at the local level; in other words, a territory could create innovations to improve social value by being situated between local and international knowledge (Wehrhan and Haubrich, 2010).

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