RAÚL EDUARDO DOS SANTOS CABELEIRA CARNEIRO

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Dissertação apresentada à Universidade de Aveiro, para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Ciência Política, realizada sob a orientação científica da Doutora Patrícia Catarina de Sousa e Silva, Professora Auxiliar do Departamento de Ciências Sociais, Políticas e do Território da Universidade de Aveiro.

Esta dissertação foi desenvolvida no âmbito do projeto "DECIDE: Governação Territorial Descentralizada: coordenação, capacidade e responsabilização em arranjos de governação local em contextos regionais complexos" (POCI-01-0145-FEDER-032502), financiado pelo Fundo Europeu de Desenvolvimento Regional (FEDER), através do Programa Operacional Competitividade e Internacionalização (POCI) e por fundos nacionais, através da FCT/MCTES.

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agradecimentos / acknowledgements

Deixo os meus sinceros agradecimentos às pessoas que contribuíram para que este trabalho se concretizasse:

Particularmente, à Professora Patrícia Silva, orientadora desta dissertação, por todo o apoio, crítica construtiva e paciência ao longo deste trabalho.

Ao Professor Filipe Teles pela oportunidade de integrar o projeto DECIDE, âmbito que se revelou fundamental para o desenvolvimento desta dissertação.

À Professora Sara Moreno Pires pela disponibilidade, lucidez e conselhos, sobretudo nos "primórdios" do processo.

À equipa do DECIDE pelo companheirismo, trabalho conjunto e contributos na recolha e interpretação dos dados.

A todos os professores, colegas e amigos pela compreensão e motivação nos momentos bons e menos bons.

Dedico um especial agradecimento aos meus pais pelos seus sacrifícios, e por me terem cá posto.

À Mónica por todo o ânimo e carinho incondicional, e pela preciosa ajuda na concretização desta dissertação.

A todos aqueles que contribuíram de alguma forma para este trabalho – Obrigado.

Keywords Local governance, higher education institutions, networks, coordination, capacity, accountability.

Abstract This dissertation aims to address the influence of higher education institutions (HEIs) on local governance networks in which Portuguese municipalities take part. In order to assess the impacts of this typology of institutions, three central aspects of local governance will be analysed: capacity, coordination and accountability. The aim of this approach is to relate the existence of higher education institutions with the presence and inclusion of networks in local governance, within a framework of interactions between different actors. Furthermore, the study will focus on the coordination dimension of local governance, analysing the cohesion of relationships involving municipalities and HEIs on one hand, and between those and semi-public and/or private partners on the other. As such, this study seeks to contribute for a deeper understanding of the effects of higher education institutions on the work of local governance networks, and their impacts on the development of Portuguese municipalities, their capacity, leadership and results of their actions.

Palavras-chave Governação local, IES, redes, coordenação, capacidade, accountability.

Resumo

Esta dissertação visa abordar a influência das instituições de ensino superior (IES) nas redes de governação local através das quais os municípios portugueses desenvolvem atividades. Para avaliar os impactos dessa tipologia de instituições, três aspetos centrais da governação local serão considerados: capacidade, coordenação e responsabilização. O objetivo desta abordagem é relacionar a existência de instituições de ensino superior com os impactos da presença e inclusão em redes de governação local, enquanto estrutura de interações entre diferentes atores. De tal modo, o estudo irá concentrar-se sobre a dimensão de coordenação de governação local, analisando a coesão das relações que envolvem os municípios e instituições de ensino superior, por um lado, e entre essas instituições e parceiros privados e/ou semipúblicos, por outro. Este estudo procura contribuir para uma compreensão mais profunda dos efeitos das IES no trabalho desenvolvido através das redes de governação local, bem como os seus impactos no desenvolvimento da capacidade, liderança e resultados dos municípios portugueses.

Contents

List of Acronyms

CIM	Intermunicipal Community
DGAL	Directorate-General for Local Authorities
DGEEC	Directorate-General for Education and Science Statistics
EU	European Union
GDP	Gross Domestic Product
GERD	Gross Domestic Expenditure on Research and Development
GVA	Gross Value Added
HEI	Higher Education Institution
INE	Statistics Portugal - National Institute of Statistics
IPCTN	National Scientific and Technological Potential Survey
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
R&D	Research and Development
UN	United Nations

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Chapter 1

Introduction

"Enlightenment is man's emergence from his self-imposed immaturity. Immaturity is the inability to use one's understanding without guidance from another (...) Sapere aude!"

— Immanuel Kant, "What is Enlightenment?" (1784)

How does the presence of higher education institutions influence local governance networks? From this question, a research is proposed aiming to analyse the impacts of higher education institutions on governance networks through which Portuguese municipalities develop their work. Thus, it is part of a study that seeks to assess, at local level, the potential effects on coordination, capacity and accountability of governance networks, having as object of analysis the perspective of executive bodies of Portuguese municipalities (mainland Portugal).

The choice for this subject stem from the growing complexity of governance in the local context, as a phenomenon that brings new challenges and involves working with a wide range of actors through networks (Teles, 2013), a non-hierarchical collaborative perspective. Since decision-makers increasingly opt for involving these arrangements in public policy processes, there are plausible reasons to look at what affects the functioning of local governance networks (Damgaard & Torfing, 2011). These dynamics delve the demand for political authorities' capacity and public scrutiny, aiming at greater transparency and accountability (Teles, 2013), but also confronts with the preponderant role of municipal executives as decisive actors to facilitate or block less hierarchical governance models of developing and coordinating activities (Heinelt et al., 2017).

Parallelly, multiple channels emerge for broad discussion and deliberation processes, empowering civic engagement and allowing a panoply of actors to participate, ranging from

public and private organisations, to social economy organizations and universities (Sørensen & Torfing, 2007). Thereby, the success of local governance increasingly depends on sharing powers previously assigned to executives with the other actors of the network, adding legitimacy to decision-making processes and enhanced policy implementation (Koppenjan & Klijn, 2004; Rhodes, 2000; Sørensen & Torfing, 2007). Thus, a successful approach to governance networks reflects on the economic development of the municipality, namely through business and social economy sectors, mainly relying on the production and availability of knowledge (Harrison & Turok, 2017; Uyarra, 2010). Extensively, at the policy level, the importance of tacit dimensions in knowledge production combined with the heterogeneity of governance networks shifted the approach of the role of universities (Laredo, 2007).

As such, in modern capitalist economies, higher education institutions have numerous potential roles in contributing for economic growth beyond teaching, research and technology development. Globalised knowledge-based societies increasingly rely on universities to contribute for social progress and welfare (Laredo, 2007; Pinheiro et al., 2015). In numerous ways, higher education Institutions potentially contribute to healthy and sustainable regional economies (Goldstein & Glaser, 2012; Goldstein et al., 1995). By participating in the development of their respective regions, universities can improve the steering capacity and effectiveness of governance, potentially increasing competitiveness (Porter, 1998, 2003). As such, many public authorities have become partners of these institutions, since in most cities, universities play an important economic, social and cultural role (Laredo, 2007). Particularly, in Portugal, universities and polytechnic institutes are recognized as key stakeholders in regional development (Alves et al., 2015).

Within this frame of reference, and regardless the wealth of literature on governance networks, there is much to explore on the specific conditions under which they operate (Damgaard & Torfing, 2011). By exploring the factors that influence the work of municipalities, within a context of network governance, this research aims to give academic contributes for improving general comprehension of these arrangements and, particularly, understanding the precepted relevance of higher education institutions coping with municipalities through networks. Hence, this research focus on the characteristics of governance networks, and the precepted dynamics between other actors, outcomes and results achieved through network-based arrangements at the local level. Similarly, the fact that there is a growing multiplication of stakeholders with prominent roles in territorial development reinforces the purpose of this study, seeking to fill a gap in the literature, framed in the Portuguese context.

Chapter 2

Governance Networks and Higher Education Institutions: a literature review

"We live in a social universe in which the formation, circulation, and utilization of knowledge presents a fundamental problem. If the accumulation of capital has been an essential feature of our society, the accumulation of knowledge has not been any less so. Now, the exercise, production, and accumulation of this knowledge cannot be dissociated from the mechanisms of power; complex relations exist which must be analysed."

— Michel Foucault, Remarks on Marx: conversations with Duccio Trombadori (1991: 165).

2.1 Between democracy and decentralisation: contextualizing local governance

Local-municipal territorial organization is the oldest and most durable element of administration in the European context. Though, local governments around the world have been undergoing a noticeable process of change over the last two decades (Andrew & Goldsmith, 1998; Hulst & van Montfort, 2011). Debates about the role, form and function of local government have focused on local authorities not only as mechanisms for service delivery, but also with a notion of community, as a 'key-agent' to foster civic culture and improve quality of life (Burns et al., 1994). Furthermore, local government has a crucial role in protecting political

liberties since it supports political diversity, moderating tendencies towards autocracy, and therefore promoting good governance (United Cities and Local Governments (UCLG), 2009; King & Stoker, 1996). In the same way, local governments contribute to defining democratic habits, which are fundamentally acquired, practised and advanced through political education (Burns et al., 1994), constituting central means for setting collective goals and enabling citizens and communities to be involved into the process of local policy-making (Burns et al., 1994; Ribot, 2007).

Decentralisation underpins these dynamics at a broad scale, defining itself as a major process involving the transfer of power and responsibilities from the centre to lower levels of authority, defining itself as an attempt to bring government 'closer to the people' (Oxhorn, 2004). Economic liberalisation and growing democratisation observed over the last decades helped to embrace this concept as the new 'hymn' of development among actors within political spectrum, since it is viewed a mean of reducing the size and reach of the state, making government more efficient (Crook & Manor, 2000; Oxhorn, 2004; Ribot, 2007). As such, based on the assumption that decentralisation strengthens local government structures, it founds support in policy makers and political activists, who assume that it also increases accountability and promotes citizen participation (Crook & Manor, 2000; Oxhorn, 2004). By redistributing power away from the centre towards lower levels of government, decentralisation allows local societal actors to demand greater autonomy and to have access to political spaces. Notwithstanding the limitations, it envisages reforms that may strengthen civil society, enhancing democratic responsivity and participation (Oxhorn, 2004; Ribot, 2007). Although, to achieve successful decentralisation many factors should be considered, such as engaged political leadership, political parties committed to popular participation, and capacity at the local level. Otherwise, political bosses may manipulate policy areas into personalised arenas rather than laboratories of democratic governance (Oxhorn, 2004; Sotarauta, 2016). These concerns put local governments constantly facing new challenges that exceed local level, since local democracy directly contribute to the health of the national polity (Burns et al., 1994; King & Stoker, 1996). Overall, democracy faces a set of challenges, particularly those related to citizen engagement (Teles, 2012).

Hierarchical forms of government based on unicentric control and command were the pinnacle of most modern welfare states in Western countries since the end of World War II until just two decades ago (Rose & Miller, 1992; Torfing, 2012). Thus, controversial devolution strategies have been built over the decades, which defined institutional arrangements that give insufficient answers to the expectations of civil society, standing far from the objectives and failing to cope with emergent democratic expectations (Oyugi, 2000; B. G. Peters & Pierre, 2008). Therefore, a major tendency evolved, reshaping the context of local political institutions to a new paradigm of 'governance' that emphasizes partnership and building cooperation in a

more complex network of power, institutions, boundaries, and private organizations (Provan & Kenis, 2007; Teles, 2012). Parallelly, this trend demands new competences from local leaders in order to move around the necessary networks of delivery and deliberation (Stoker, 2006). As such, this assertion has led scholars to assert that we are witnessing a "transition from government to governance" (Torfing, 2012).

The challenges of recent decades, widely related to globalization or fragmentation of social and political life, have brought constraints on local governments' performance of power, changing their domains through new demands and new opportunities (Hulst & van Montfort, 2011; Sotarauta, 2016). Deepening governance tasks have changed political systems in liberal democracies, requiring new ways of looking at governance at various levels (Sørensen, 2006). Therefore, the vast number of wicked problems and new ideas of how to govern through "regulated self-regulation" make it clear that public agencies cannot govern alone. Indeed, no actor has the knowledge, capacity, and authority to regulate society and the economy single-handedly (Andrew & Goldsmith, 1998; Torfing & Sørensen, 2014). As such, the narrative inherent in government actions has been redefined in recent decades, abandoning the approach of 'government' as a sovereign, centralizing imposition of a restricted set of actors on public affairs (Rhodes, 1997; Sørensen, 2006), to take on a broader and more abstract concept of 'governance' where multiple centres now exist through networks of sufficient autonomy and capacity to provide adequate solutions to territorial challenges (Rhodes, 1997, 2000; Torfing, 2012). This concept claims to represent a wider, more inclusive concept than 'government' alone, yet, the latter is not seen as opposite, but rather one of the integrant elements of the former (Pollitt & Hupe, 2011). Thus, the concept of governance transcends previous tensions and contradictions, such as public versus private, or bureaucracy versus market (Osborne, 2010; Pollitt & Hupe, 2011).

In this context, local government becomes conventionally understood to mean the government provided by elected local authorities (or local councils), while local governance includes appointed agencies and other local governing bodies besides elected local authorities, emphasizing the process of governing, rather than the institutions of government, and relations between organisations and sectors, and with the local community (Coxall et al., 2003). An equally capacious approach is made by the OECD, defining governance as "the formal and informal arrangements that determine how public decisions are made and how public actions are carried out, from the perspective of maintaining constitutional values in the face of changing problems" (Bouckaert, 2006; OECD, 2005). Parallelly, local governance is also broadly characterized by complex and diverse sets of institutions and processes (Stoker, 2004). It consists of enhanced political and institutional processes through which decisions are taken and implemented (United Cities and Local Governments (UCLG), 2009) that reveal most effective when these are participatory, accountable, transparent, efficient, inclusive, and respect

the rule of law (United Cities and Local Governments (UCLG), 2009).

Essentially, this contemporary approach to governance helps to better understand the dynamics between state and society in defining and implementing collective goals and objectives (B. G. Peters & Pierre, 2008). It brings a more comprehensive view of state-society interactions and the governance process than the traditional approach to government as a hierarchical activity, acquiring an increased importance in explaining modern governance structures and processes (Sorensen & Torfing, 2005). An operational definition of governance networks applied to the local context can be explained as arrangements between agents involved in the formulation and/or implementation of public policies in which municipalities are involved (B. G. Peters & Pierre, 2008). More broadly, governance defines an attempt to guide society and the economy through collective action and regulatory forms that combine objectives with outputs and outcomes, and may be produced by hierarchies and markets, as well as by relevant actors in the networks (Rhodes, 1997; Torfing, 2012). As such, governance networks should be particularly regarded as an emerging form of governance (Provan & Kenis, 2007; Torfing, 2012).

Consequences of this transformation bring direct impacts on the role of political actors in society, as they lose predominance in the process of steering the society, as it becomes organized through networks that empower a larger scope of actors (public, private, semi-public, from civil society or groups of citizens), developing in an autonomous and proactive manner, giving answers to societal challenges that may even exceed the territorial scale of the municipality (local), assuming different levels of governance (regional, national, supranational) (B. G. Peters & Pierre, 2008; Sotarauta, 2016; Torfing, 2012). As a result, resource and authority sharing becomes crucial to achieve collective goals (B. G. Peters & Pierre, 2008), with a shift from 'command and control' to resource negotiation and sharing (Sørensen & Torfing, 2007). Smaller communities are confronted with growing difficulties in meeting demand as well as emerging patterns of needs related to the provision of public services, which require a larger scale of production (Heinelt et al., 2017). In general, local communities face increased social and administrative complexity inherent in decision-making processes, which result in increased externalities about local strategies (Hulst & van Montfort, 2011).

Table 2.1 Governance organizations, by level and sector

Level	Sector		
	Private (Market sphere)	**Public** (Government/State sphere)	**Voluntary** (Civil Society sphere)
Local	Local Business	Local Government	Local non-profit Organisations Community / Civic groups
Regional	Business / (Small) Corporations	Regional / Sub-national Government	Regional non-profit Organisations
National	Corporations	National Government	National-wide non-profit Organisations Labour Unions
International	Multi-national Corporations	Supra-national regulatory entities European / International government structures (e.g. European Union)	International non-profit organisations

Source: Author's production based on Koliba (2006)

Similarly, European integration represented new challenges for the structure of local governments, through new demands and opportunities, redefining the meaning of contemporary governments as agents who must master multilevel relations, contextually defined by the participation of external actors of which they are increasingly found dependent and, at the same time, meeting the policy goal settings and providing the right political leadership (Sotarauta, 2016). Parallelly, the conceptual framework of multilevel governance (MLG) has been profiling this approach as an 'arrangement' for policy-making activities performed within and across politico-administrative institutions, located at different territorial levels, broadly recurring to networks to discuss, formulate and implement actions (Stephenson, 2013). The bottom line for this multi-level governance (MLG) approach is coexistence of competencies among multiple levels of governments, marked by overlapping interactions of political actors across those levels (Marks et al., 1996; Piattoni, 2009). This puts on a set of overarching, multilevel policy networks, relegating the 'two level game' assumptions adopted by state centrists. Thus, it complements the concept of 'governance' by assuming that networks may involve subnational actors (i.e. interest groups, regional companies and subnational governments) participating in diverse policy networks dealing directly with supranational actors (Marks et al., 1996).

Governance arrangements involving a larger number of social, political, economic and knowledge stakeholders (Koppenjan & Klijn, 2004; Provan & Kenis, 2007) have been assumed as the main strategy by local, regional and national authorities to cope with a panoply of societal problems (Klijn & Koppenjan, 2000). Simultaneously, the greater the partnerships between municipalities and other actors involved in governance processes, the greater

the probability of empowering networks and mobilizing resources (P. Silva et al., 2018; Teles, 2016), making it possible to create appropriate and effective policies, favourable to the development of territories. The networking of all involved stakeholders allows a multidimensional approach of local issues, bringing greater effectiveness and efficiency to social responses and increasing speed in solving concrete problems of citizens and families (Considine & Giguère, 2008). However, the (expected) facilitative role in partnerships assumed by local governments may find barriers (B. G. Peters & Pierre, 1998; Stoker, 2000) into institutions that are not subject to direct democratic control (i.e. are not elected) and that try to override local government, leading to coordination and accountability problems (B. G. Peters, 2010; Provan & Milward, 2001; Teles, 2013).

2.2 Governance Networks: key aspects and importance

The model of the 'lonely organization' that determines its policy in isolation is obsolete (Koppenjan & Klijn, 2004), since contemporary problems demand greater capacity to be solved. Hierarchy as a predominant organizing assumption has lost much of its meaning. Thereby, networks are envisaged as more adequate ways to tackle contemporary complexities (Koppenjan & Klijn, 2004; Provan & Kenis, 2007). In the face of emerging new technology and globalization, networking is seen as an economic and political imperative (Dzisah & Etzkowitz, 2012; Torfing, 2012). Thinking and acting in terms of networks provide a 'third way' and a 'new' politics (Agranoff, 2004; Castells, 2010).

Governance networks play a significant role in the production of public policy at the local, national and transnational levels (Sorensen & Torfing, 2005). They proliferate at all (Torfing & Marcussen, 2003), having a crucial role in societal regulation. Considering the advantages of interactive governance arrangements routinely claimed in the literature, the acceptance of governance networks, particularly at the local level, is not staggering (Torfing, 2012). A non-exhaustive set of arguments refer improvements in problem identification, increments on community capacities, more adequate and precise political decisions, enhanced learning processes or raised legitimacy for decision-making processes and implementation of agreed policies ((Considine & Giguère, 2008; Koppenjan & Klijn, 2004; Provan & Kenis, 2007; Rhodes, 1997; Sørensen & Torfing, 2007). As such, it tends to be a result of sustained interaction between key actors - or stakeholders - from the state, economy, and civil society (Klijn & Koppenjan, 2000; B. G. Peters, 2010), in representation of any institution, group or individual with an interest or a role to play in the societal decision-making process (OECD, 2015; Provan & Milward, 2001). Discrepancies between looming steering ambitions and the growing fragmentation of social and political life, make governance networks blossom (Sørensen & Torfing, 2007).

Accordingly, governance networks defines as a horizontal articulation of interdependent, but operationally autonomous, stakeholders from the public and/or private sector who interact through ongoing negotiations that occur in a regulative, normative, cognitive, and imaginary framework that contributes to the production of public governance (Damgaard & Torfing, 2011; Sørensen & Torfing, 2007). Simultaneously, they facilitate self-regulation in the shadow of hierarchy, contributing to the production of public regulation to a certain extent (B. G. Peters, 2010; Torfing & Sørensen, 2014). Notwithstanding, different stakeholders may have different interests (B. G. Peters & Pierre, 1998). Therefore, engagement strategies should adjust to context, according to differing needs, plans or programme phases, formal requirements, as well as national processes, and national or local culture (Agranoff, 2004; OECD, 2015). Also, the set of actors might vary, from broad in early stages of decision-making, narrowing down as decisions focus on more specific projects or activities (OECD, 2015). The literature on governance networks is diverse (Agranoff, 2004; Klijn & Koppenjan, 2000; B. G. Peters & Pierre, 1998, 2008; Provan & Kenis, 2007; Rhodes, 2000; Torfing, 2012), with its focus ranging from policy networks, service delivery or managing or managing networks, across multidisciplinary approaches (vide Table 2.2 – Approaches from the literature on governance networks) that report to Political Science, Public Administration and Organizational Sciences (Klijn & Koppenjan, 2000; Smelser, 2001), which are not exclusive but rather complementary to each other.

Table 2.2 Approaches from the literature on governance networks

	Policy Networks	**Service delivery and implementation**	**Managing networks**
Research field	Political science	Organizational science	Public administration
Focus	Decision making and effects; power relations on issues; and agenda setting	Inter-organizational coordination; effective policy/service delivery	Addressing societal problems; managing horizontal relations; hierarchy-network relationships; deliberation processes
Main research questions	Which actors are involved in decision making? What is the nature of the power relations in the network? What are the effects on decision making?	How are networks coordinated around complex integrated services? Which mechanisms are effective and efficient?	How can networks be managed? How should networks interact with traditional (hierarchical) institutions? How can various interests and capabilities be combined?
Origins	Developed though pluralist political science research which started in the 1960s and focus has grown on subsystems, policy communities, and policy networks	Initiated with the first interorganizational theorists focusing on coordination across organisations, service delivery, contracting and implementation	Emerged in the mid-1970s with works on intergovernmental relations (Scharpf, 1978). Analyses new forms of management, including their effects, modes and resources

Source: Author's adaptation from Klijn and Koppenjan (2000)

In contemporary society, networks seem to be everywhere (Castells, 2010). Governance networks both supplement and supplant the traditional modes of governance in terms of hierarchy and markets (Damgaard & Torfing, 2011; B. G. Peters & Pierre, 2008). As such, producing and delivering public governance is made through a combination of hierarchies, markets, and networks (Torfing, 2012). Consequently, public problem-solving deploys the relevant questions on how hierarchies, markets, and networks should combine in order to provide appropriate solutions to the challenges they face (Klijn & Koppenjan, 2015; Torfing, 2012). Similarly to hierarchies and markets, governance networks, have particular strengths and merits to address problems (Koppenjan & Klijn, 2004), just as they may prove susceptible to failure (Torfing, 2012; Torfing & Sørensen, 2014). Networking uneasily fits with traditional concepts of democratic legitimacy, responsibility and accountability (Gains & Stoker, 2009). Parallelly, critics on 'governance networks' categorize the approach as 'both everything and nothing', since it is heavily dependent of disperse interests, ideas and institutions which determine how the arrangements work function (Pollitt & Hupe, 2011; Torfing, 2012).

Afterall, why do public authorities give so much importance to governance networks? Several societal aspects that encourage working though these arrangements can be highlighted (Torfing & Sørensen, 2014). Over the past century, the development of welfare states was followed by the multiplication of government agencies at different levels – national, regional, local (Agranoff, 2004). Governments increasingly assumed more and more problems, creating diverse new policy areas and deepening the necessities for more resources, investments, expertise, or commitments needed to formulate solutions (Agranoff, 2004; Stoker, 2006). At the same time, the shifts from labour-based production and services to the integration of knowledge-based symbolic-analytic work (Agranoff, 2004; Jessop, 2002) prominently became one of the motives to place increased value on human capital (Stoker, 2006; Uyarra, 2010). Hence, several organizations became involved in new collaborative structures, joining efforts to approach societal 'wicked problems' which could not be singly addressed (Agranoff, 2004; Damgaard & Torfing, 2011; Rhodes, 2008).

Accordingly, governments drift towards a more developmental or steering role, with the goals of promoting, regulating, and encouraging various types of non-governmental activity and operations (Klijn & Koppenjan, 2000; B. G. Peters & Pierre, 1998). This engagement shed a light over meta-governance (or management) of networks, demanding integrated and specialized approaches, capable of improving the effectiveness of the arrangements (Klijn & Koppenjan, 2000; B. G. Peters, 2010). As a result, the role of monopolistic holder of key information and expertise relating to public issues is no longer granted to government agencies (Rhodes, 2000). Therefore, information needed to solve major social and economic problems is built among 'partnerships', 'cross-cutting services' and 'joined-up government', gathered through collaboration and exchange with private sector, civil society associations and higher education institutions (Agranoff, 2004; Stoker, 2006; Uyarra, 2010).

Nevertheless, the network approach is not absent of potential problems (Provan & Milward, 2001). Beyond the façade of consensus and collaborative management, stronger actors may take advantage of weaker partners (Agranoff, 2004), by assuming positions where their knowledge, financial resources, organization position, or legal authority results in power within the collective (M. A. Peters, 2001; Provan & Milward, 2001). While such power can be used to impede consensus, it is more often used to forge general agreements (Agranoff, 2004) since, by decentralizing power, "robust and sophisticated public institutions can help form local social capital" (Warner, 2001). In order to achieve that, sharing autonomy with citizens is a crucial step towards changing the government role from controller and supplier to catalyst and facilitator (Rhodes, 2000, 2008; Warner, 2001). Interdependent stakeholders might cooperate and share information, knowledge, and ideas. Similarly, in order to improve efficiency, they may coordinate their actions (Agranoff, 2004; Koppenjan & Klijn, 2004). Although political leadership may be assumed as a relevant aspect of governance arrangements'

coordination (Teles, 2012), singlehandedly, no actor has the power and authority to resolve disputes that emerge in the network, since relationships are horizontal (Damgaard & Torfing, 2011; Mandell & Keast, 2009; Stoker, 2006). Regardless how they interact, actors will have the tendency to maintain their operative autonomy, as they cannot be forced to think or act in a specific way, since their participation is voluntary and they are free to leave the network (Gains & Stoker, 2009).

In this context, it becomes evident that these collaborative structures portray a great promise for present and future policy-making processes but also pose major challenges, requiring adequate capabilities to deliver outputs efficiently (Agranoff, 2004; Klijn & Koppenjan, 2015; Torfing, 2012). Hence, knowledge is increasingly reaffirmed as an important resource, demanding for new capital that resides in human resources or knowledge workers (Agranoff, 2004; Etzkowitz, 2001; Goldstein & Renault, 2004; Rodríguez-Pose, 2013; Uyarra, 2010; Zhang et al., 2016). In the same way, evidence-based knowledge production allows increasing the capacity of the networks, deemed as important for public management (Goldstein & Glaser, 2012). As non-hierarchical, knowledge is required for a situation where expertise needs to be applied, regardless of organizational position, social status, or possession of wealth (Agranoff, 2004; Warner, 2001). Both internal and external expertise constitute mainstream sources of technical knowledge (Agranoff, 2004; M. A. Peters, 2001). More broadly, stakeholders will rely on specialists or scientists, along with university-based researchers, to share their knowledge within the network (Diaconescu, 2009; M. A. Peters, 2001). Yet, knowledge capital will continue to need some form of "common force" that will bring it together (Harding & Laske, 2007), as asserted by P. Drucker (2012): "Despite all the present talk of 'knowledge management', no one yet really knows how to do it".

Generally, governance structures will increasingly be used to deal with social problems (Agranoff, 2004; Castells, 2010), allowing collective intelligence to be used to master social and institutional discovery and innovation through problem solving (Klijn & Koppenjan, 2015; Smith, 2007). Therefore, this entails newer forms of managing knowledge, which can be applied in both public and private institutions (Agranoff, 2004; Schoen et al., 2006). Nevertheless, critical factors for the success of governance networks are still far from full comprehension (Provan & Milward, 2001). A broadly noted aspect relies on the inappropriate use of traditional notions of cost efficiency or operational effectiveness to evaluate the success of a governance network, which are more suitable for the analysis of hierarchical systems (Klijn & Koppenjan, 2015; Torfing, 2012). Also, analysis to governance networks should focus on the results of collaboration processes (process outcomes) rather than on the results (outputs) of public policies(Ansell & Gash, 2008; Klijn & Koppenjan, 2015; L. F. Mota & Bittencourt, 2019). As such, three levels of results of networks are considered by Bryson et al. (2006): first order, referring to the development of social, intellectual and political capital, as well as pro-

moting innovative approaches; second order, related to coordination of joint actions learning processes; and third order, which addresses the creation of new partnerships or institutions, and also less conflictive and more harmonious arrangements (L. Mota et al., 2014; L. F. Mota & Bittencourt, 2019).

As such, evaluating network governance processes, based on the previous assumptions, should consider criteria (Provan & Milward, 2001; Torfing, 2012) regarding (1) continuous coordination, promoting flexible adjustments to intervention proposals and interdependent development, assuming joint decisions that go beyond the lowest common denominator; (2) favourable conditions for cognitive, strategic and institutional learning processes, with clear and well-informed understanding of the societal problems and possibilities of intervention; (3) ensuring a high degree of legitimacy and responsibility of all stakeholders involved, fostering mutual trust and long-lasting commitment. This set of aspects are conceptually addressed in the next subchapter and framed within the dimensions of coordination (1), capacity (2) and accountability (3).

2.2.1 Coordination

Coordination is a multidimensional, ambiguous and contested concept (Lægreid & Verhoest, 2010)), widely associated with the process of organizing people or groups to collaborate properly and effectively (Lægreid et al., 2016; Lægreid & Verhoest, 2010). Coordination is both a cultural and a structural phenomenon. From a cultural perspective, common norms, values and culture may facilitate coordination (Bouckaert et al., 2010; Lægreid et al., 2016). Parallelly, it can be understood as an outcome that assesses goal achievements through the results of coordinated activities (Pollitt & Bouckaert, 2009). New Public Management (NPM) was a major movement that promoted disaggregation and separation of policymaking from management, contributing to assume coordination as an emergent priority for political and administrative agendas (Pollitt & Bouckaert, 2009).

Contemporary governmental systems are characterized by interdependencies and diversity, putting strong pressure on multidimensional coordination issues (Lægreid et al., 2016; Piattoni, 2009). Context-dependency makes balance between hierarchical instruments and network arrangements complicated (Bouckaert et al., 2010). Hence, in an interorganizational context, coordination is seen as the way of aligning tasks and efforts of government bodies to achieve a defined goal (Lægreid et al., 2016; Lægreid & Verhoest, 2010). Therefore, coordination structure can be divided in two perspectives (Provan & Milward, 2001). For hierarchy-type coordination mechanisms, formal authority is the key aspect, which is based on legislation, administrative orders, common standards and the rights to inspect and to inter-

vene (Koppenjan & Klijn, 2004; Lægreid et al., 2016). As for network-based coordination, the key characteristics are the actors involved and the relationships between them (Klijn et al., 1995; Provan & Milward, 2001). Interaction is based on dependence, assuming that actors are willing to invest their resources in joint processes (Klijn et al., 1995; Koppenjan & Klijn, 2004). Consequently, network-based coordination relies fundamentally on cooperation and solidarity between actors whose relations are shaped and controlled by mutual interdependencies, trust, shared values and reciprocity (Bouckaert et al., 2010; Provan & Kenis, 2007).

Another main distinction can be made regarding coordination quality, between two dimensions: external-internal and vertical-horizontal dimensions of coordination (Lægreid et al., 2016; Lægreid & Verhoest, 2010). Thus, external-internal dimension distinguishes between coordination within the central government and coordination between central government bodies and organizations outside the central government. Vertical coordination concerns coordination between different types of organizations within the central government, or coordination upwards to international organizations or downwards to local government. Horizontal coordination concerns coordination between organizations at the same level. When addressing coordination issues in a multilevel system, normally the vertical dimension of coordination stands for hierarchy-based, while horizontal coordination approaches to network-based arrangements (Lægreid & Verhoest, 2010). Thereby, once this study addresses governance networks, some aspects are drawn, focusing on the horizontal dimension of coordination. As such, articulation and coordination of several institutional actors and instruments in space and time is marked by the combination of instruments and levels of synergy (e.g., incentives, voluntary agreements, social customs); evidences of commitment, adopting long-term adaptive planning and sequencing of policy instruments over time (e.g., voluntary agreements with industry, universities or social economy organisations); and broader fiscal, administrative and democratic support within local/regional agencies or vertical integration between different tiers of government (Bouckaert et al., 2010; Lægreid et al., 2016).

In the European context, coordination is characterized by a mixture of 'old' public administration, NPM and post-NPM approaches (Lægreid & Verhoest, 2010; Pollitt & Bouckaert, 2009). Hierarchy is a predominantly strong coordination mechanism that combines with cross-cutting partnerships, producing complex and hybrid coordination arrangements (Pollitt & Bouckaert, 2009). Although emergent, networks do not just happen, relying on political will to initiate (Torfing, 2012). With the exception of arrangements instituted by central impositions (e.g. as for the Portuguese context, Decreto-Lei defining networks to be created, and their composition), few networks have a pre-existing mandate to operate (Agranoff, 2004; Lægreid et al., 2016). Other networks are based on voluntary action, through multilevel actors' agreement. Therefore, their operation and continuation depend on self-generated actions

- they have to be "held together" (Pollitt & Bouckaert, 2009; Torfing, 2012).

Therefore, developmental activities are required from partners who simultaneously assumed roles of leadership (Lægreid & Verhoest, 2010; Pollitt & Bouckaert, 2009). Despite of being horizontally distributed, authority in networks is primarily based on expertise, and requires someone to come forward and help orchestrate the processes (Agranoff, 2004; Bouckaert et al., 2010). Most of the times, this is role is assumed by an actor who holds a political mandate, or a delegated position in one key agency. Assuming the example of local networks involving municipalities as key agent (Hambleton & Howard, 2013), these positions would be assumed mainly by mayors or other members of municipal executive with high-profile and visible political legitimacy for encouraging a broader involvement of diverse stakeholders (Copus, 2004; Teles, 2014). Although limited by the municipality's restricted autonomy, is of extreme importance (Teles, 2013, 2014). As stated by Copus (2004) "the structural location of power and the ability to make certain political decisions is what tips the balance to either mayor or council when it comes to political power and leadership". Nevertheless, this relationship may emerge as problematic when mayors adopt conservative attitudes towards governance when faced with the possibility of losing power (Steyvers et al., 2006), which can make the exercise of decision making more difficult (Teles, 2014). Yet, political officials not always assume this position. On certain cases other stakeholders of regional agencies, such as non-profit or business associations, or universities' governmental boards who have work capacity to assume the role of orchestrating the networks (Hambleton & Howard, 2013).

Recent studies analysed the processes of public governance reform in Portugal (Lægreid et al., 2016; L. Mota et al., 2014) from a comparative perspective in European terms, having found evidences that there are clear coordination deficits in the country (as in other southern European countries). This is especially the case when network arrangements occur (Lægreid et al., 2016; L. Mota et al., 2014; L. F. Mota & Bittencourt, 2019), within different actors and levels of governance, as well as between different sectors of public policies (L. Mota et al., 2014). Parallelly, it mentions hierarchy as the most commonly applied coordination mechanism, not only in Portugal but all over Europe. Still, there is a lack of statistically significant evidence that the use of hierarchy and the perception of coordination quality are correlated (Lægreid et al., 2016; L. Mota et al., 2014). However, different coordination mechanisms combined are assumed as complementary rather than exclusive, simultaneously creating robustness and flexibility in the coordination of governance activities (Bouckaert et al., 2010; Lægreid et al., 2016).

2.2.2 Capacity

Governance capacity has been presented as a variable that potentially affects policy results and outcomes (P. Silva et al., 2018). Generally, capacity has been defined as "the ability to perform functions, solve problems, set and achieve objectives" (Fukuda-Parr et al., 2002; Milio, 2007). More broadly, this concept may be defined as the ability to "anticipate, respond and cope with changing intra and inter metropolitan relations due to crucial internal and external process of change" (Van-Den-Berg & Braun, 1999). However, these broad definitions fail to indicate the activities that should be performed to build and maintain capacity (P. Silva et al., 2018).

Efforts to analyse and measure governance capacity are put by Nelles (2013) through assimilating governance capacity with the regional capacity "to function as effective, legitimate and robust policy actors", and the "ability of actors in a city-region to recognize collective challenges and opportunities, assemble relevant actors, debate alternatives and secure agreement on solutions, and take collective action". Considering the idea of city-regional boundaries as functional linkages, then city-region can be conceptualized as a set of overlapping functionally networked spaces (Nelles, 2013). Therefore, city-regional governance capacity goes beyond the ability of delivering services at the city-region scale in the absence of formal government structures. In its broadest sense, it encompasses the ability of actors in a city-region to recognize collective challenges and opportunities, assemble relevant stakeholders, prospect alternatives, and seek for collective action (Dubreuil & Baudé, 2008; Nelles, 2013). As such, the ability to repeat successes and guarantee negotiated consensus between local political actors over time constitutes a key dimension of capacity (Nelles, 2013; Provan & Kenis, 2007). Capacity and partnership coherence increase as functional participation align, as autonomy of the partnership is improved through institutionalization, and as local political actors endorse partnership in both attitudes and actions (Nelles, 2013; Teles, 2016).

In this sense, capacity is an important aspect of governance effectiveness, although these are not the same thing (Nelles, 2013). Effectiveness evaluates the outcomes in relation to defined goals, determined, among other factors, by the appropriateness of time-framed strategies, along with the deployment of resources and the complicity of stakeholders (Milio, 2007; Provan & Kenis, 2007). On the other hand, capacity implies a potential for action in formulating strategies, accessing resources and persuade stakeholders to adopt a course of action (Nelles, 2013). Therefore, capacity is a burgeoning concept that sits on the strength of partnerships, characterized by the commitment and consensus among participants (Teles, 2016).

Capacity defines the ability of embracing complexity and avoiding fragmentation of issues

between specialized policy areas (Dubreuil & Baudé, 2008). Thus, by engaging in strategic partnerships to address a vast range of activities, local governments are capable of tackling strategic, holistic and cross-cutting problems (P. Silva et al., 2018; Teles, 2016). Parallelly, the governance reform pattern of southern Europe characterizes by preserving smaller municipalities and simultaneously establishing of new types of arrangements that bring together existing municipalities (Hulst & van Montfort, 2011; P. Silva et al., 2018). Hence, a higher level of governance capacity emerges, reflected by autonomous bodies from the participating members (Nelles, 2013; P. Silva et al., 2016). Governance capacity comprehends having the tools to consult and obtaining consensus from a plurality of territorial actors (Nelles, 2013). Thus, network-based involvement in regional development may induce significantly different allocative choices at the agenda-setting level (P. Silva et al., 2016). Since fostering the common interest constitutes a task of governmental organizations ((Klijn & Koppenjan, 2000) they should actively seek to organize and manage them, avoiding disputes and waste of resources. Hence, territorial networks and organisations are in a better position to approach the dilemmas of territorial scale and resource rationing (P. Silva et al., 2018).

Notwithstanding the variety of approaches to the concept of capacity, they all combine as a product of the cooperative relationship between actors (Nelles, 2013). Their structure, institutions and issues circumscribe the limits of what these networks can and cannot accomplish, but the scope and commitment of their participants are crucial to understand the potential of regional partnerships. However, the success of horizontal network-based connectivity remains attached to the capacity of enhancing transparency and local accountability (Provan & Kenis, 2007; P. Silva et al., 2018).

2.2.3 Accountability

As innovative governmental arrangements emerge, issues related to accountability parallelly arise Andrew and Goldsmith (1998). Collaborative processes between different stakeholders, at different levels and sectors, raise concerns with the transparency of the processes and the accountability of the actors involved in them (Gains & Stoker, 2009; B. G. Peters, 2010; Rhodes, 1997). As such, greater scrutiny is demanded from public institutions, which are compelled to adapt their functioning and management, in accordance with good practices (Gains & Stoker, 2009; OECD, 2005), seeking for greater accountability. Furthermore, OECD (2005) dedicates a whole chapter of their Modernising Government Report to 'modernising accountability and control', thus concluding that "in the past two decades, new technologies, privatisation and new forms of management have changed the way governments operate, but have also created a need for new ways of making governments accountable for what they do".

The concept of accountability (i.e. the act of being accountable), widely seen as a positive quality in organisations or officials (Almquist et al., 2013). There is a focus on normative issues concerning the assessment of active behaviours of public agents (Rhodes, 1997; Salmi, 2015). Parallelly, accountability is used in a narrower, descriptive sense, between an institutional relation or arrangement in which an actor can be held to account by a forum (Bovens, 2007, 2010). Thus, here accountability does not focus on the behaviour of public agents or networks, but in the way through which these institutional arrangements operate (Bovens, 2010; Pollitt & Bouckaert, 2009). In a broad approach, society constitutes a major stakeholder that sets up for its own benefit, along with government authorities who portrays an empowered entity running a region or a country for a predefined period. At the same time, business and industry have their respective stakeholders. Hence, every organization, whether public or private, commercial, industrial, or academic by nature, is accountable to its stakeholders, and exist to maintain a system of checks and balances (Andrew & Goldsmith, 1998; Bovens, 2007, 2010; Gains & Stoker, 2009).

Accountability may assume different perspectives, according to the context it is promoted (Bovens, 2007; Gains & Stoker, 2009). The most common forms come associated with political accountability; financial responsibility; and access to information and communication. Political responsibility (i.e. responsiveness, execution, transparency) is commonly associated with results and processes where decision-makers are accountable to people for their policies and actions (Pollitt & Hupe, 2011; Rhodes, 1997). There exists a responsibility between the locality and the centre, hence, principles of reward and punishment apply. This approach comes as a capacity to respond to obligations, to inform and justify, under the possibility of enforced sanctions when a breach of duty occurs (OECD, 2005; B. G. Peters, 2010; Pollitt & Hupe, 2011). Simultaneously, financial responsibility endorses fiscal transparency in communicating with external (or internal) stakeholders. It must portray an explicit recognition of the cost of governing urban areas, reflecting the benefits received and management decisions, which make possible a scrutinizing assessment on the employed resources (Pollitt & Hupe, 2011). Also, access to information and public policies by those who are governed implies accessibility and openness, through dissemination of results (positive and negative). Therefore, proactive, effective and transparent communication tools with society are considered crucial (Gains & Stoker, 2009; OECD, 2005).

Lack of political transparency may emerge as a destabilizing factor favouring tensions and conflicts at local level (Bovens, 2007; B. G. Peters, 2010; Pollitt & Hupe, 2011). Thus, normatively, nobody can oppose accountability (Bovens et al., 2005). It is assumed as a founding standard of political and social life (Almquist et al., 2013; Bovens, 2007). Yet, public accountability has both positive and negative functions when implemented in public administration (Bovens, 2010; Bovens et al., 2005; Gains & Stoker, 2009). Thereby,

the positive aspects are democratic control, enhancing integrity of public governance and preventing corruption, improving performance, maintaining or enhancing the legitimacy of public governance and, finally, a ritual purifying function, to provide 'public catharsis'. On the negative side are proceduralism, rule-obsession, rigidity, magnifying political scandals and scapegoating (Bovens et al., 2005; Pollitt & Hupe, 2011). In addition, Bovens (2007, 2010); Bovens et al. (2005) contextualizes accountability within six assumptions, focusing on different levels of the political process: control (with a focus on inputs); ethical behaviour (with a focus on processes); performance (outputs); integrity (inputs); legitimacy (processes); and justice (outcomes) (Pollitt & Hupe, 2011).

2.3 The role of Higher Education Institutions in local-regional development

Higher Education institutions (HEIs) are defined as relatively autonomous, public or private, organizations, traditionally abbreviated as universities, colleges or polytechnics, that focus on core functions of teaching at higher, postsecondary and tertiary levels, as well as engaging on the research and analysis of contemporary issues independently of government, political parties, and pressure groups. In a similar way, research and development (R&D) institutions may also be controlled or associated with tertiary education institutions, although with activities focused on producing and disseminating scientific and applied knowledge (Goldstein & Glaser, 2012; Goldstein et al., 1995), without the teaching component as priority. As relatively autonomous institutions, this kind of institutions often establish resource-dependent relationships particularly with public actors, but also with private ones. Therefore, they may be funded directly by government sources or through specific public foundations (e.g. Fundação para a Ciência e Tecnologia, as the most notorious in the Portuguese context), although attempting to maintain their research freedom and not claiming to be obliged to specific interests (Smelser, 2001).

This sector is composed of all universities, colleges of technology (i.e. Polytechnic institutes for the Portuguese context) and other institutions providing formal tertiary education programmes, whatever their source of finance or legal status – public or private (Smelser, 2001). This also includes all research institutes, centres, experimental stations and clinics that have their R&D activities under the direct control of, or administered by, tertiary education institutions (*vide* table 2.3 - Profiles of Higher Education Institutions). Fundamentally, it embraces all establishments for which the primary activity is to provide formal tertiary education, regardless of their legal status (OECD, 2015). These may be corporations or quasi-corporations, either private or belonging to a government unit, market non-profit insti-

tutions (nPIs) or nPIs controlled and mainly financed by government. Thus, the majority is made up of universities and colleges of technology, not all tertiary institutions perform R&D.

Table 2.3 Profiles of Higher Education Institutions

A. Tertiary level education institutions	**A.1. Education institutions** - Universities - Other tertiary level education institutions (e.g. Polytechnic Schools or Institutes) **A.2. University research institutes or centres** **A.3. University hospitals and clinics**
B. Research organisations controlled by higher education institutions	Research centres or institutes whose R&D activities are controlled by tertiary education institutions

Source: Author's production based on Frascati Manual, OECD (2015)

It is widely recognized that education, and particularly the higher tier of education provided mainly by universities, is a crucial factor to the development of a dynamic, globalized and transnational economy, as it sustains and supports economic, social and cultural development (OECD, 2015). The contributes of the academy for science and technological advance has been the core for specializing human resources (Uyarra, 2010). As object of great public and private investments, HEIs are representative of intellectual, economic, cultural and social life of the community in general, creating great expectations and therefore needing to have the capacity for interpreting the necessities of contemporary society (Goldstein & Glaser, 2012; Goldstein et al., 1995).

> *"Universities are transformative spaces and have a particularly important role to play in social innovation development, producing new knowledge or skills development in the disruptive social innovation domain."*
>
> — European Commission, 2018: 9

In a context of globalization, market fluidity and increased mobility of people create impacts on competition between territories, resulting in a continuous process of space reconstruction and deterritorialization (Gunasekara, 2006). At the same time, the (economic) success of sites, regions and countries becomes dependent on comparative expertise to promote attributes and resources through innovation strategies (Goldstein & Glaser, 2012). Integration processes entail a strong struggle for market insertion, as such, local leaders find in higher education institutions a way to promote the productivity and competitiveness of their ter-

ritories (Sotarauta, 2016). Thus, they seek to increase cooperation with these institutions searching for increasing the content of scientific and technological knowledge to apply in goods and services (Uyarra, 2010), as it can be not only important for the local community, but also crucial resources for the competitiveness of their regions in the context of a globalized knowledge-based economy (Goldstein & Glaser, 2012; Pinheiro et al., 2015).

Impacts on economic well-being and on the innovation potential of the regions have been a subject of academic interest in recent years (Uyarra, 2010), bringing political emphasis over the socio-economic contributions of higher education institutions to local and regional environments has increased, as they provide potential contributes to sustainability in numerous ways (Goldstein & Glaser, 2012). The environment created by universities attracts scientists, concentrating highly educated people that focus on teaching and research and fostering the development of a knowledge-based society. Also, entrepreneurs and their investments can foster the attractiveness of the region and so governmental actors relies more on the contribution of HEIs, potentially granting them a more prominent role in the respective local and regional governance processes (Sotarauta, 2016; Uyarra, 2010).

Yet, the diverse pressures on universities have created many tensions and contradictions that are difficult to resolve. Stakeholders have different expectations that often pull in contrary directions and challenge notions of academic freedom (Smith, 2007). As such, this tends to deploy questions over the importance of research excellence vis-à-vis economic impact and social relevance, or dilemmas over reconciliation between competing demands of national, regional and local interests, which raise major issues of institutional autonomy, accountability and responsive governance (Harrison & Turok, 2017; Pinheiro et al., 2012). As mentioned before, the use of networks in governance is a growing reality that is not limited to Portuguese or European contexts, expanding to other countries across the world. In the same way, the relationships between political actors and higher education institutions have also undergone developments, which became subject of a burgeoning interest in regional and local studies (Arbo & Benneworth, 2007; Pinheiro et al., 2012; Uyarra, 2010).

The structure and objectives of research networks is pursued by the emergence of new spatial imaginaries and regional identities resulting from organized research collaboration between major universities (Harrison & Turok, 2017; Smith, 2007). Universities therefore become active agents in shaping new rounds of local-regional relationships with national authorities, revealing a transition from their position as recipients of top-down strategies for the territory (Harrison & Turok, 2017). These new spatial arrangements of higher education praxis, and the processes of regional empowerment which underpins it, represents only the first step. Hence, HEIs collaboration with local and regional actors is consolidating around long-lasting alliances (Pinheiro et al., 2012), which could deepen existing uneven geographies

within the higher education sector, defining more favourable conditions for some institutions to the detriment of others (Harrison & Turok, 2017).

Higher education and research and development (R&D) institutions' involvement arises as a result of the needs for specialization of territorial knowledge, in order to overcome complex contemporary societal challenges (Goldstein & Glaser, 2012; Gunasekara, 2006; Hambleton & Howard, 2013; Harrison & Turok, 2017). This encompasses a very diverse set of activities that project their contributions across different sectors and actors, with impacts in multiple domains - economic, political, social, cultural, environmental (Harrison & Turok, 2017). The complexity of local-global challenges that municipalities face (Uyarra, 2010) requires rethinking and discussing the role of institutions responsible for knowledge creation and transfer (e.g., universities, research centres), based on their link with society in heterogeneous territorial contexts (Hambleton & Howard, 2013; Pinheiro et al., 2012).

With the increased importance of innovation and citizen education as a driving force for territorial development, the focus of attention of local communities has shifted to institutions capable of producing and disseminating knowledge as means of long-term prosperity (Harrison & Turok, 2017; Lester, 2007). Thus, tertiary education and R&D institutions (i.e. Universities, polytechnic schools, research centres) are now regarded by governments as main assets in the knowledge economy (Arbo & Benneworth, 2007). At the same time, by producing highly educated people and new ideas, these institutions become factors of attraction for other actors and key resources in the region (Hambleton & Howard, 2013), including entrepreneurs, industries, new forms of business or simply qualified individuals. Furthermore, another appealing aspect of HEIs is their stillness and commitment with the territory, becoming long-term partners not only with local governments but also with the entire community at a regional level (Lester, 2007; Uyarra, 2010). As such, local political actors' priorities should focus on attracting, maintaining and strengthening partnerships with these institutions (Harrison & Turok, 2017).

Although the contributions of higher education institutions in regional and local contexts have recently gained notoriety, they have not been totally absent in network thinking (Klijn & Koppenjan, 2012), given that outcomes underlying the preferences of the various actors that integrate networks requires searching for innovative solutions (Gunasekara, 2006; Klijn & Koppenjan, 2012). Literature concerning economic innovation recognizes the presence of inter-organizational networks between private organisations (i.e. firms, corporations) and research and development (R&D) structures as a condition for innovation (Arbo & Benneworth, 2007; Bekkers & Tummers, 2018; Laredo, 2007; Porter, 2003; Urbano & Guerrero, 2013). However, in the last decades, governmental innovation policies assumed enhancing network formation as an integral part of their strategy (Dubreuil & Baudé, 2008; Fukuda-Parr et al.,

2002; Klijn & Koppenjan, 2012). Yet, concerns over ineffectiveness and legitimacy within the network approach are a constant (Klijn & Koppenjan, 2012), particularly when prominent stakeholders are of such diverse nature, as it is the case of higher education institutions and civil society organisations (Bekkers & Tummers, 2018).

Literature approaches on the contributions of HEIs to regional development are extensive and diversified (J. Drucker & Goldstein, 2007; Etzkowitz et al., 2000; Huggins & Kitagawa, 2012; Leydesdorff & Etzkowitz, 2001; Pinheiro et al., 2012; Trippl et al., 2015). For the past 30 years, the relationships between private organisations, governments and institutions responsible for producing knowledge directed to enhance innovative capacity of economic regions, clusters and business parks have been subject to a growing attention - becoming defined as the Triple Helix (Guerrero et al., 2016; Hawkins, 2010; Huggins & Kitagawa, 2012; Leydesdorff & Etzkowitz, 2001; Porter, 2003; Van-Den-Berg & Braun, 1999). In the same direction, recent theory deepens this approach by going beyond product, process and institutional innovation, taking HEIs' contribution to the level of societal subsystems (Arbo & Benneworth, 2007; Goddard et al., 2013; Klijn & Koppenjan, 2012; Trippl et al., 2015). As so, higher education institutions are expected to undertake new roles in addition to their traditional ones (teaching and research), which materialize through economic, social and cultural contributions to regional evolution (Arbo & Benneworth, 2007; Goddard et al., 2013; Uyarra, 2010). This interaction with society is therefore defined as the Third Mission of universities (Laredo, 2007; Molas-Gallart et al., 2002; Pinheiro et al., 2015; Trippl et al., 2015). Hence, universities performing 'third-stream' activities (i.e. involved in Triple Helix or Third Mission), focusing on technology transfer and innovation, tertiary education and social commitment (E3M, 2010; Etzkowitz, 2003), are increasingly structuring around commercialisation of teaching and research (Goddard et al., 2013; Pinheiro et al., 2012; Uyarra, 2010). As a result, HEIs' policies and strategic plans move towards redefining their missions and roles in a modern global context, arousing both political and academic attention (Etzkowitz, 2003; Harding & Laske, 2007; Laredo, 2007; Molas-Gallart et al., 2002; Pinheiro et al., 2015).

Nowadays, HEIs are demanded to reconsider their role in society and their relationships their cities, regions and communities (Benneworth et al., 2012). Evidence demonstrate that HEIs are important mechanisms for regional development (Arbo & Benneworth, 2007; Pinheiro et al., 2012, 2015; Smith, 2007; Uyarra, 2010), creating educational and cultural opportunities that would not be present in these regions without these institutions (Goddard et al., 2013). They may constitute public (e.g. more income from taxes, more leases) and private (e.g. higher salaries and better jobs) economic benefits, as well as public and private social benefits (e.g. decreased unemployment rate, poverty and criminality; better quality of life), despite the probability of some costs being incurred (e.g. land use and tax exemptions)

(Goldstein & Renault, 2004; Leydesdorff & Etzkowitz, 2001). Thus, creating partnerships with universities may establish an enduring relationship that may create various programs but also builds connections and social capital (Gunasekara, 2006; Putnam, 1993, 2001). Nevertheless, partnerships must have resources to implement the means, since they may start with clear, specific purposes but risk failure if purposes are not realistic (Etzkowitz, 2003; Etzkowitz et al., 2000). At the same time, parties involved may not interpret accountability in the same way, either focusing on predefined results and benchmarks or disregarding reciprocity and trust needed in partially defined relationships within networks (Etzkowitz, 2003; Feiock, 2007; Pinheiro et al., 2012). Hence, both interests generally converge in simplistic and more or less realistic agreements about the role that partners assume, how they relate and what which goals they must accomplish. At a local scale, a prominent role in "steering" is expected to be assigned (or assumed) by local political authorities that take part in the arrangements (Laredo, 2007; Porter, 2003).

Moreover, the role of universities in territorial development is increasingly broader than technology transfer universities, now producing holistic strategies for urban development, ranging from developing programmes designed to improve the level of innovation within the economy to tackle urban regeneration issues (Uyarra, 2010). In parallel, universities are commonly seen as key repositories of new knowledge and human capital (Goddard et al., 2013), therefore considered potential sources of economic development and innovation both for national and regional economies (Etzkowitz, 2003; Laredo, 2007; Uyarra, 2010). Hence, their roles have suffered a significant shift over the past 25 years (Pinheiro et al., 2012). The accelerated pace with which higher education institutions became widespread deepened funding constraints (Pinheiro et al., 2012), along with the changing paradigm of globalization, emphasized the knowledge capital towards greater focus on establishing relationships with external structures particularly rooted in society – such as political institutions (Bekkers & Tummers, 2018; Trippl et al., 2015; Uyarra, 2010).

Engagement in local governance as a role of HEIs has been largely discussed topic over the last decades (Bekkers & Tummers, 2018; Diaconescu, 2009; Etzkowitz, 2003; Pinheiro et al., 2012; Sá et al., 2018; Schoen et al., 2006). New or modern universities, perhaps reflecting their history of local education authority funding, gave economic development a higher priority than did the older universities (Pinheiro et al., 2012). However, as well established in modern economies, this territorial role has institutionalised and, not surprising, given the financial and political incentives to engage with their territories (Etzkowitz, 2003; Smith, 2007), and economic partnerships. Indeed, hoping to enhance economic growth, many nations, regions, and states have adopted policies to stimulate innovation by entrepreneurial firms (Urbano & Guerrero, 2013). Generally, those policies include local, regional, and national initiatives to promote and to facilitate technology-based entrepreneurship (Urbano & Guerrero, 2013). Yet,

engagement by some HEIs go beyond economic reasons, aiming at coordination and institution building, rather than only supporting the science and technology base of the regions (Dzisah & Etzkowitz, 2012). Universities therefore assume a crucial role in the development of human capital, knowledge capital, and entrepreneurship capital (Etzkowitz et al., 2000; Smith, 2007).

In this sense, governments mobilize universities as a part of the strategy to stimulate regional economic development (Arbo & Benneworth, 2007). As a result, the emerging role of a modern entrepreneurial university contributes to innovation, competitiveness, and economic growth (Pinheiro et al., 2015; Urbano & Guerrero, 2013). Therefore, universities are expected to develop a wide range of relationships with territorial stakeholders in order to enhance its multiple contributions (Benneworth et al., 2012; Trippl et al., 2015). Changes in content, structure, governance, and strategies occur and evolving not as a process of co-creation but instead as transitions where multiple stakeholders are continually shaping/adapting the university model (Harding & Laske, 2007). This development of universities has sometimes been described as an 'Evolution of ivory tower to entrepreneurial paradigm' (Etzkowitz et al., 2000). Particularly, it takes more relevance in the worldwide economic downturn that began in 2008, when severe resource constraints and unpredictable conditions created significant challenges for organizational survival (Tavares & Rodrigues, 2015), letting alone growth through innovation and venturing activities (Urbano & Guerrero, 2013).

Through analysing different entrepreneurial universities, Zhang et al. (2016) found evidence that uncompetitive regions are more intensely engaged in entrepreneurial activities but generate less outcomes than competitive regions. Moreover, academic knowledge is more strongly bounded within a certain distance in weaker regions, while geographical distance seems less of a barrier to academics in successful regions. Hence, these findings contribute to the debate of universities' impacts on socio-economic development, providing insights into the relevance of exchanging knowledge across different regions (Benneworth et al., 2012; Guerrero et al., 2016). Overall, current interaction between universities and economic development can be conceptualised as emerging from political processes (Antonelli & Quere, 2002; Huggins et al., 2008), suffering changes in the organisation of the innovation process. Several specific benefits both to industry and to universities are exchanged from information and cooperation associated with social capital networks (Bekkers & Tummers, 2018; Putnam, 2001) and from the institutional arrangements in which they operate (Provan & Milward, 2001; Trippl et al., 2015).

Contributions of universities into a region may potentially encourage the creation of networks that develop adequate learning environment focusing on skills' improvement, enhancing capabilities and qualifications, which impacts on competitiveness and social cohesion (Bekkers

& Tummers, 2018; Benneworth et al., 2012; Klijn & Koppenjan, 2012). Despite until the end of the 1990s they were not clearly seen as key-actors in regional innovation (Dzisah & Etzkowitz, 2012; Etzkowitz, 2003), today universities are invited by governments to be more active in regional development, mainly through entrepreneurial initiatives (Benneworth et al., 2012). Many public authorities have turned into 'plain' users that demand research to universities (Laredo, 2007). More widely, at the policy level, the importance of tacit dimensions in knowledge production is combined with heterogeneous forms of innovation that networks promote, towards a shift in the approach of the role of universities - and more broadly, public sector research (Bekkers & Tummers, 2018). These institutions play a key role in bringing organisational and cultural changes (Smith, 2007), by participating in territorial governance through networking and institutional capacity building (OECD, 2005; OECD, 2015). Since universities' roles have undergone a paradigm shift, leading to a prominent role at both regional and local levels (Bekkers & Tummers, 2018; Diaconescu, 2009; Pinheiro et al., 2015; Sá et al., 2018), they are therefore expected to make part of local systems of governance. However, HEIs' engagement largely relies on the social and economic local/regional agendas that are prevailing (Bekkers & Tummers, 2018; Charles, 2003; Charles et al., 2014; Cinar & Benneworth, 2020), as well as the profile of leaderships, both from universities and political actors (Arbo & Benneworth, 2007; Goddard et al., 2013; Mandell & Keast, 2009; Teles, 2012, 2013).

Notwithstanding, there are gaps in the explanation of the roles played by higher education institutions in governance (Harrison & Turok, 2017). The benefits that are brought by their activities and the mechanisms through which they occur under local policy (Guerrero et al., 2016; Trippl et al., 2015) still need clarification. In parallel, there are multiple pressures that create tensions and contradictions between these institutions and local governments that are difficult to overcome (Cinar & Benneworth, 2020; Goddard et al., 2013; Harrison & Turok, 2017; Nieth & Benneworth, 2019). The diversity and nature of stakeholders presented by networks provide different expectations for these institutions (Goddard et al., 2013). While political actors are mandated to develop functions that actively pursue public interest (Gains & Stoker, 2009; Huggins et al., 2008; Koliba, 2006; Lægreid & Verhoest, 2010; Milio, 2007), universities have a commitment with their academic freedom (Antonelli & Quere, 2002; Gunasekara, 2006). Dilemmas about institutional autonomy, accountability and responsiveness of governance potentially arise (Goddard et al., 2013; Huggins et al., 2008; Pinheiro et al., 2012), making the cooperation between actors more complex (Harrison & Turok, 2017; Nelles, 2013; Rodríguez-Pose, 2013). The transparency of the processes and actors' accountability is a major concern when managing collaborative processes between different stakeholders from different sector and levels (Bovens, 2010; Rabovsky, 2012; Rodrigues & Pinto, 2011). Hence, public institutions are subject to greater scrutiny (Bovens, 2007; Bovens et al., 2005; Koliba, 2006), seeking to adapt their functioning with good

practices and greater accountability (United Cities and Local Governments (UCLG), 2009; Ribot, 2007; Teles & Moreira, 2007). Similarly, since HEIs' cornerstone relies on the access and communication of valuable information (i.e. knowledge) (Arbo & Benneworth, 2007), it is also expected that efforts to implement institutional accountability practices are made (Goddard et al., 2013; Rabovsky, 2012), potentially pressing governance networks and its members to greater clarity in their actions and processes, thus increasing the accountability (Salmi, 2015).

2.4 The Portuguese context: local governance dynamics and the presence of HEIs

2.4.1 Characteristics of territorial organization and local authorities

Important changes defined Portuguese local governance in its nature and structure in the last 40 years. Sub-national, regional and local self-government in Portugal were profoundly marked by the authoritarian period between 1926 and 1974, from the military dictatorship (1926–1932) throughout the authoritarian political regime of the Estado Novo (1933–1974), to the II Republic, in 1974. During the period of the authoritarian regime (1926–1974), sub-national tiers of government were strictly dependent and controlled by central government. There was no financial autonomy, and direct and free elections for the local boards were inexistent (C. N. Silva, 2017).

The transition period to democracy in the mid-1970s brought troubled periods after the Revolution, that lasted from 1974 to 1976. Though, during those PREC years (Portuguese acronym for *Processo Revolucionário em Curso*, meaning Ongoing Revolutionary Process) in some changes were introduced, parallelly to the successive political unrest at the national level, characteristics of that period (Caiado & dos Santos, 2003). This context changed with the democratic Constitution of 1976, when an autonomous local self-government system was formally instituted and implemented (J. F. Silva & Ribeiro, 2014). As a result of the country's generalized poor level of development, the first decade of the democratic period saw an overwhelming dominance of policies focused on building basic infrastructure. Since then, municipal activities have been moving towards including increasingly more social functions, paving the way for the actual role assumed by municipalities in the social area. Since 1976, and over the years, competences of the municipalities expanded, yet at a very centralized pace. The transference or delegation of new functions, for policy areas such as education, civil protection, health, social housing and justice did not mean autonomy in the execution, since some of them corresponded to social obligations of the state (C. N. Silva, 2017). Not only local government

functions expanded, as did the profile of these functions and the associated competences, exasperating the characteristic of Portuguese local government as relatively fragile compared to its European counterparts (Teles, 2012, 2016).

According to the 1976 Constitution, Portugal is a unitary and decentralized state organized under the principles of subsidiarity, autonomy of local government, and democratic decentralization of the public service (DGAL, 2012; C. N. Silva, 2017). However, administrative reforms towards decentralization remains present only on paper. Concentration and centralization of powers are a salient feature of Portugal's local government (Teles, 2012) which is also characterized by its stable administrative and territorial organization (C. N. Silva, 2017; P. Silva et al., 2018). At the same time, Portugal is a very centralized country in which local authorities have a large dependence on central (state) revenues, with a reduced weight on total national expenditure (Alexandre et al., 2020; Teles, 2016). According to the International Monetary Fund (IMF), in 2016 only around 10% of total government expenditure was allocated to local governments, evidencing that local authorities in Portugal considerably lack financial means, which also suggests that local and regional administration have a very small share of resources at their disposal to define and implement policies that foster the development of their territories (Alexandre et al., 2020). Portuguese local government revenue represents approximately 6 per cent of the national GDP, which stays bellow the EU and the Euro area averages, as depicted in Table 2.4.

Table 2.4 Local government expenses/ revenues (% of GDP)

Area/year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
European Union (28 countries)	12,1	11,9	11,5	11,6	11,4	11,2	11,0	10,8	10,6	10,6
Euro area (19 countries)	10,8	10,6	10,2	10,2	10,2	10,1	9,9	9,7	9,6	9,6
Portugal	7,4	7,4	6,8	6,2	6,6	6,0	5,9	5,7	5,8	5,8

Source: Eurostat (May 2020)

As so, the system of local self-government instituted by the Constitution in 1976 remains untouched, constituted by a system with three tiers: administrative regions (which remain not implemented), municipalities and parishes - all of them with directly elected bodies as well as political, administrative and financial autonomy (Miranda et al., 2005). As noted, the creation of administrative regions remains a mere constitutional premise since only two levels of governance – central and local government (with two tiers – municipalities and parishes) – exist in the mainland territory (P. Silva et al., 2018; Teles, 2012). However, this does not make this issue an irrelevance in the political debate in the last decades. The absence of agreement among the main political parties caused regionalization to be delayed, with

António Guterres in 1998, then prime-minister, failing at passing the regionalization project proposed by referendum, with nearly two-thirds of voters (63.5 per cent) rejecting it (Baum & Freire, 2003). Occasionally, the debate over the administrative and territorial organization becomes salient, as illustrated by the attempts to adjust the existing administrative organization – as the merge and extinction of parishes in 2012 – or to amend the skills, competencies, organization and resources of municipalities.

However, for the cases of Azores and Madeira instead of administrative regions, the Constitution considered a (special) form of regional political autonomy, granting to each of the two archipelagos an autonomous region. Although with a regional scale, the administrative regions planned for mainland territory are a form of administrative decentralization, in the same way as municipalities and parishes are for lower geographical tiers. Therefore, it is substantially different from autonomous regions applied for the archipelagos, since the latter constitute a form of political decentralization, an advanced form of devolution from the state to sub-national tiers (Miranda et al., 2005).

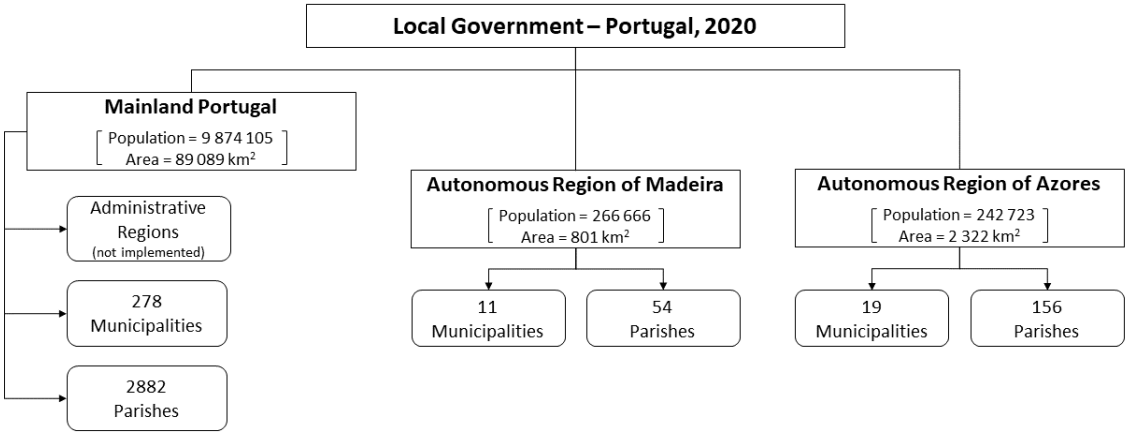

Figure 2.1: Administrative division of Portugal (summary)
Source: Author's productions, based on C. N. Silva (2017)

The municipal administrative division of the country is characterized by its consistency and stability (C. N. Silva, 2017). Portugal is currently divided into 308 municipalities, traditionally known as Municípios, and classified as local authorities. These are administered by a deliberative body (Municipal Assembly) and by an executive body (City Council), both directly elected by the citizens. As for the Municipal Assembly, it is constituted by the presidents of all the parishes that integrate the respective municipality and by directly elected members, whose number must be equal to the number of presidents of parishes, plus one, with the remaining seats calculated according to the population of each municipality. The members of the Municipal Assembly are designated as Municipal Deputies and serve four-year terms.

Parallelly, the City Council consists of the Mayor and several councillors, in variable numbers, according to the population of each municipality. This body is also directly elected by the citizens for a four-year term, and its composition is proportional to the votes received by the parties and groups of citizens who run for election (C. N. Silva, 2017; J. F. Silva & Ribeiro, 2014).

Therefore, in Portugal there are three units at NUTS I level, subdivided into seven units at NUTS II level, which, in turn, are subdivided into twenty-five units of NUTS III. On the islands, NUTS II level coincides with NUTS I in the Azores and Madeira and with the respective autonomous regions. Although they use the territory of the various administrative divisions as the basis for their area, NUTS have no administrative value, but are widely used for statistical and official issues. The NUTS division became the main territorial division of Portugal, and its units are used to define the areas of operation of most of the deconcentrated services and have been increasingly used to define regional planning strategies, to the detriment of the obsolete traditional districts (*Distritos*). Since there are no effective administrative regions, sub-national tiers of governments were reinforced through the creation of intermunicipal communities (*CIM*), which would be sufficiently comprehensive at geographic and population levels to serve as the groundwork for new steps in decentralizing the country (P. Silva et al., 2018). As so, a legal framework was published in 2008 assuming the creation of municipal associations, aimed at rationalizing public infrastructure projects for proximity services at the supra-municipal tier through arrangements coinciding with at the NUTS III level. Although joining the associations was voluntary, central government used several incentives to push municipalities to be engaged in IMCs (DGAL, 2012; P. Silva et al., 2018). Currently, all municipalities are engaged in one of the 23 arrangements present in mainland territory (21 *CIM* and 2 Metropolitan Areas).

Most recently, since 2017, central government have been involved in efforts to decentralize certain policy areas, deconcentrating several competences to the local tiers of government – mainly municipalities and Intermunicipal communities (*CIM*). In this context, Law 50/2018 establishes the framework for the transfer of competences to local authorities and inter-municipal entities, implementing the principles of subsidiarity, administrative decentralization and the autonomy of local power. Paradoxically, the expansion and diversification of municipal functions are proceeded by centralizing trends in the way new functions and competences are assigned to the municipalities (C. N. Silva, 2017). In a certain way, there is a gap between the political discourse, clearly favourable to an increased decentralization and reinforcement of local autonomy, and the practical outcomes of the multiple reforms made in the local government system Steyver2006, Silva2014. At the same time, the stable administrative and territorial organization of the country, along with the coexistence of multiple layers of administration results in a mix of governing structures and networks that overlap each other,

whether they are voluntary or centrally imposed (e.g. CIMs can be overlapped by specific associations; the existence of an "empty" administrative layer – Distrito) (C. N. Silva, 2017; P. Silva et al., 2018; Teles, 2012). Such characteristics translate into increased difficulties in the analysis of local governance networks in the Portuguese context (P. Silva et al., 2016; Teles, 2016).

Nevertheless, constraints push local governance forward to a more decentralized administration, multi-level and networked governance (Steyvers et al., 2006), with local authorities continually pressuring the national government to demand greater autonomy and more resources (P. Silva et al., 2018). At the same time, by aiming at a more participated democracy, there have been changes in traditional representation mechanisms and institutional procedures have been reshaped in the search for more effective and efficient public services (Teles, 2012, 2013), at the same time local political leadership is reinforced (Mandell & Keast, 2009; Steyvers et al., 2006). The influence of mayors on local issues, as well as the actual political and administrative powers held by them, draws a new and extremely relevant issue on the governance arrangements analysis: it needs political will (Teles, 2012, 2014). As Copus (2004) states, "the structural location of power and the ability to make certain political decisions is what tips the balance to either mayor or council" when it comes to political power and leadership. In Portuguese local governance, mayors assume a primary role vis-à-vis other elected actors (Jalali, 2014). In addition to the wide-ranging set of powers assumed by mayors, the electoral system has also greatly contributed to the presidentialization of the local executives (Jalali, 2014; P. Silva et al., 2018), which potentially weakens local deliberative councils. The prominent roles of both the mayor and the municipality may weaken the supporting role of networked structures, whose leading position is often assumed by elected officials (from the municipality), particularly mayors (C. N. Silva, 2017; Steyvers et al., 2006). At the same time, since local authorities are subject to different forms of legitimacy (i.e. they are elected) and accountability (i.e. they manage public funds and pursue collective interest) it is not an easy task to interact with stakeholders of different nature (L. Mota et al., 2014; P. Silva et al., 2018, 2016).

Although Portugal is inserted in a Southern European administrative culture, laggard in transparency and citizen engagement, and even confronted with several limitations concerning municipalities' autonomy and resources, networks have been appearing with considerable success (P. Silva et al., 2018; Teles, 2016). Despite not being frequently discussed in mainstream scholars' debates, network-related arrangements made their way through a potentially unfavourable scenario, though with different degrees of autonomy, coherence and relevance (L. Mota et al., 2014; Teles, 2016). Synergies involving voluntary or centrally imposed mechanisms have growing participation of civil society in policymaking, particularly focused on service delivery tasks and not very structured around broader interests (Rodríguez-Pose,

2013; C. N. Silva, 2017). Yet, the profile of municipal executives (and mayors) influence the use of participation mechanisms (Tavares & Rodrigues, 2013, 2015). As previously addressed, in the Portuguese context mayors have an increased relevance in local politics, whose levels of commitment and availability to promote citizen participation are determinants (L. Mota et al., 2014; Tavares & Rodrigues, 2013; Teles, 2013). The value that local leaderships allocate to the voice of citizens, for the public interest and for social equity is likely to have direct impact on the time and effort to providing opportunities of community engagement (Gains & Stoker, 2009; Teles, 2014). Local authorities' response capacity is therefore crucial for enhancing civic engagement in government decision-making processes therefore depends on the response capacity of local authorities (Mandell & Keast, 2009; Tavares & Rodrigues, 2013). Notwithstanding the developments in the creation of local governance networks, studies concerning their structure and functioning are scarce (P. Silva et al., 2018). Therefore, knowledge about the dynamics of local networks is limited, particularly when they involve higher education institutions.

2.4.2 Higher Education Institutions in Portugal: a brief contextualisation

Before 1974, Portugal higher education system and institutions were characterized as elitist and narrowly participated by great part of the population (Amaral & Magalhães, 2005). The Carnation Revolution (also known as 15 April 1974) brought transformations to Portuguese society and its political organisation that strongly collided with education policies. Nevertheless, before those events, a significant reform of the higher education system was initiated in 1973, formally creating a binary system that remained partially until the present. Largely influenced by the OECD recommendations and reports at the time, the National Assembly diversified the existent offer by establishing new universities and creating the first polytechnic schools/institutes. The years to follow, during the PREC ('Revolutionary Process Unfolding') period, were marked by stagnation in the creation of new institutions, with universities being asked help to cope in the search for solutions for national problems, opening their scientific and technical capacities to be used by other public services (Amaral & Magalhães, 2005; Gornitzka et al., 2005).

After the revolution, European standards became referential for many policy strategies, specifically development of education policies, aiming to increase the rate of participation of citizens in higher education system. In parallel, another relevant political goal was established by revolutionary provisional governments in 1975: regionalize some higher education institutions, seeking for greater economic involvement and solutions for social needs of the population (Alves et al., 2015; Amaral & Magalhães, 2005). Growth patterns marked the rest of the decade, for both the demand and supply sides, with the generalization of numerus clausus for

the access to public institutions and the approval of private initiative largely contributing to this dynamic (Gornitzka et al., 2005).

In recent decades, higher education systems have been subjected to many changes and reforms throughout the world. One of the most important was undoubtedly the expansion of higher education in the second half of the last century from an elite system to one for the masses. While institutions of higher learning have been in existence for approximately 1,000 years, this exponential growth has been much more recent (Taylor et al., 2008). This movement toward mass higher education created substantial national impacts on the development of the systems of higher education. While common denominators of change and adaptation can be identified globally, there remain important differences from country to country. Similarly to HEIs in capitalist "knowledge-based" economies (Dzisah & Etzkowitz, 2012; Harding & Laske, 2007; M. A. Peters, 2001), universities in Portugal coordinate their activities according to market rules (Alves et al., 2015). This new paradigm brought more autonomy to HEIs, although fundamentally changed the paradigm, bringing institutions closer to 'managerial' and 'economistic' in nature, competing with one another, while generating some criticism in Portuguese society (Amaral & Magalhães, 2005; Dzisah & Etzkowitz, 2012).

Currently, Portuguese higher education system maintains a binary format that integrates universities and polytechnic institutes with diverse organizational structures and dimensions of different legal nature (Fonseca & Encarnação, 2012). The system comprehends large institutions with different organizational units (colleges, faculties or institutes) concentrated along different locations in the territory, and smaller institutions corresponding, in most cases, to polytechnic schools that offer specializing courses whose training relates directly to regional needs ((Alves et al., 2015; Fonseca & Encarnação, 2012). Thus, higher education system in Portugal is composed of 121 institutions (HEIs), with public higher education accounting for about one third of the total number of institutions.

In 2007, a major change in tertiary education occurred during the XVII Constitutional Government, directed by prime-minister José Socrates and with the minister responsible for higher education Mariano Gago, sought to consolidate higher education legislation into one single document in an effort to clarify some aspects and to innovate in others (Torgal, 2011). The outcome was the 'Juridical Regime of Higher Education Institutions' (RJIES), formally published under the Law 62/2007 of 10 September, which broadly define the structure and functioning of Portuguese HEIs. Particularly, in Chapter 7 of RJIES, the binary system is clarified, by formally defining both 'University' and 'Polytechnic Institute' attributes. Hence, Article 6, RJIES defines universities as "institutions of higher level oriented for creation, transmission and dissemination of culture, knowledge and science and technology, through the connection of study, teaching, research and experimental development".

On the other hand, Article 7, RJIES puts polytechnic institutes as "institutions of higher level oriented towards creation, transmission and disseminations of culture and knowledge of professional nature, through the connection of study, teaching, targeted research and experimental development". Hereupon, within Portuguese binary system of higher education, polytechnic institutes characterize for having a more targeted scope of research, therefore more committed with orienting cooperation for more concrete activities (Torgal, 2011). In this context, polytechnics are complex organisations with different activities mechanisms of involvement that operate very closely to the communities (regions) in which they are implanted (Alves et al., 2015).

As for regional distribution, HEIs are dispersed across the national territory (*vide* figure 2.2 - Territorial distribution of Portuguese HEIs (total, public and private)) with a fair balance between public and private institutions. Since 1990, the total number of HEIs has grown from 174 to 284 in 2019 – including universities with their respective organic units, associated laboratories, polytechnic schools and institutes (DGEEC, 2018; INE, 2019). They are essentially limited within urban areas, since higher education both as public good and as a (private) business requires minimum levels of demand (i.e. population) (Fonseca & Encarnação, 2012; Taylor et al., 2008).

However, some small urban municipalities with the presence of higher education institutions, having considerable population sizes, may present a profile of trade and services for which economic support does not guarantee the efficiency and sustainability required by the respective HEIs located in the territory (Alves et al., 2015). Public polytechnic schools/institutes are particularly more dispersed throughout the country, being present in 47 different municipalities - and private polytechnics in 28. As for universities, public institutions are present in 16 municipalities and the private ones can be found in 13 municipalities. Notwithstanding the network of HEIs is spread, Lisbon and Porto municipalities concentrate a large number of public and private institutions as well as courses and students enrolled (around 60% of the total) (Fonseca & Encarnação, 2012; Taylor et al., 2008).

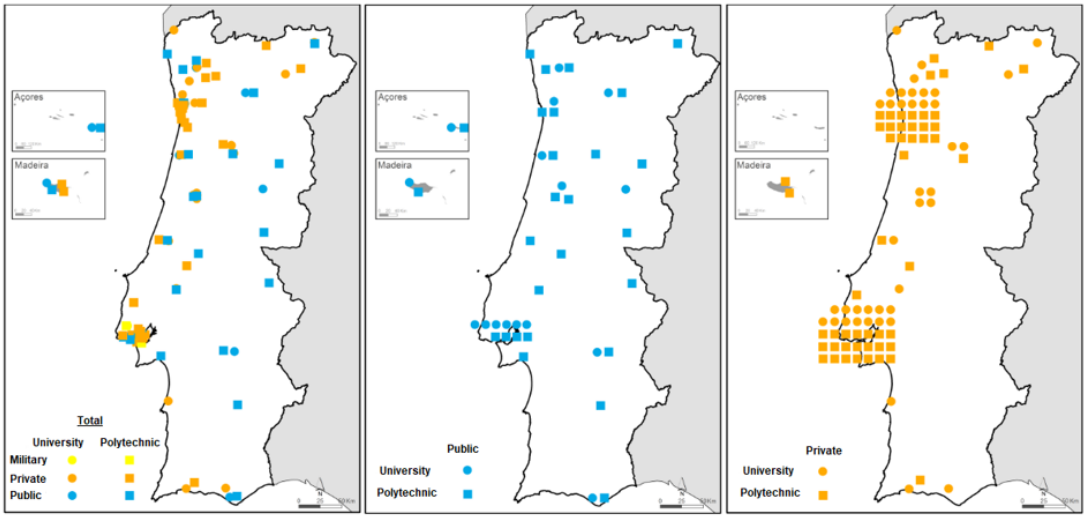

Figure 2.2: Territorial distribution of Portuguese HEIs (total, public and private)

Source: Based on Fonseca and Encarnação (2012); DGEEC (2018)

Nowadays, HEIs are demanded to reconsider their role in society and their relationships their cities, regions and communities (Benneworth et al., 2012). Evidence demonstrate that HEIs are important mechanisms for regional development (Arbo & Benneworth, 2007; Smith, 2007), creating educational and cultural opportunities that would not be present in these regions without these institutions. They may constitute public (e.g. more income from taxes, more leases) and private (e.g. higher salaries and better jobs) economic benefits, as well as public and private social benefits (e.g. decreased unemployment rate, poverty and criminality; better quality of life), despite the probability of some costs being incurred (e.g. land use and tax exemptions) (Goldstein & Renault, 2004; Leydesdorff & Etzkowitz, 2001). Thus, creating partnerships with universities may establish an enduring relationship that may create various programs but also builds connections, or social capital (Gunasekara, 2006; Putnam, 1993, 2001).

Nevertheless, partnerships must have resources to implement the means, since they may start with clear, specific purposes but risk failure if purposes are not realistic (Etzkowitz, 2003; Etzkowitz et al., 2000). At the same time, parties involved may not interpret accountability in the same way, either focusing on predefined results and benchmarks or disregarding reciprocity and trust needed in partially defined relationships within networks (Etzkowitz, 2003; Feiock, 2007). Hence, both interests generally converge in simplistic and more or less realistic agreements about the role that partners assume, how they relate and what which goals they must accomplish. At a local scale, a prominent role in "steering" is expected to be assigned (or assumed) by local political authorities that take part in the arrangements (Laredo, 2007;

Porter, 2003). Arbo and Benneworth (2007) assert that "more and more aspects of academic organisations are thus perceived as being significant to the regeneration and transformation of the regions" (Uyarra, 2010).

In this context, geographical proximity also plays a key role when transaction and communication costs are effectively reduced (Feiock, 2007) by repeated interactions and trusts, enhanced mobility of human capital and frequent user-producer interactions (Etzkowitz, 2003; Molas-Gallart et al., 2002). Geographical space is therefore assumed as a basic governance mechanism, reducing both transaction and communication costs because it makes easier continuity in relations and contributes the basic commonality in languages and codes (Dzisah & Etzkowitz, 2012; Feiock, 2007; Schoen et al., 2006; Uyarra, 2010). Therefore, it is admitted as an effective governance mechanism, facilitating technological knowledge within generic content that can be applied to a diversity of products and processes (Pinheiro et al., 2015; Uyarra, 2010). Accordingly, HEIs in Portugal, particularly polytechnic schools/institutes are generally seen as key stakeholders in regional development (Alves et al., 2015; Taylor et al., 2008).

However, due to the economic recession of the last decade and the consequent budgetary cuts (Tavares & Rodrigues, 2015), higher education institutions needed more than ever to demonstrate their potential social and cultural impacts by matching their own goals to the needs of their communities and contribution to a sustainable economic development (Alves et al., 2015; Charles et al., 2014). Notwithstanding universities being redefined as important institutional actors in national and regional systems of innovation (Molas-Gallart et al., 2002; Uyarra, 2010), funding from the public sector directed for university research increasingly became "dependent on the perception of whether it will make a direct contribution to the economy" as Etzkowitz et al. (2000) highlight. Underfunding and dependency on state funding represent serious constraints to HEIs' activities, leading to relatively weak policies for the higher education sector (Torgal, 2011).

This can be a corroborating element for the reviewed literature on the role of HEIs as promoters of innovation (Benneworth et al., 2012; Cowan, 2005; Gunasekara, 2006; Harrison & Turok, 2017; Lester, 2007; Nieth & Benneworth, 2019) along with actors from the business or industrial sectors, who combined are responsible for almost all of investment in Research and Development (R&D) activities, highly impacting on the total expenditure in Portugal (1,33% of GDP in 2018), significantly lower than the EU average (*vide* figure 2.3 - Expenditure in R&D as % of GDP: Portugal and EU28, 2001-2018).

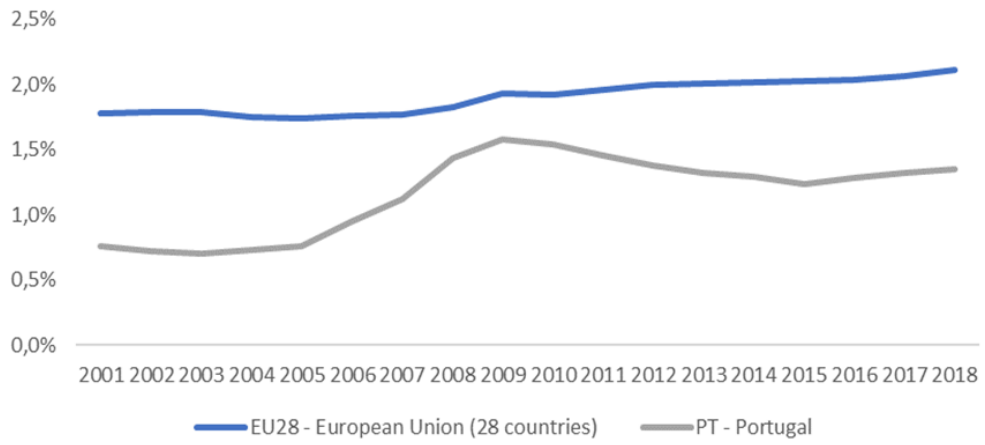

Figure 2.3: Expenditure in R&D as % of GDP: Portugal and EU28, 2001-2018

Source: INE (2019); Eurostat (2020)

In order to have higher and more efficient investment in research activities, proper funding is crucial (Charles et al., 2014).To achieve this, universities need to connect with stakeholders (i.e., governments, companies), convincing them that existing resources are efficiently applied, and new investments will produce added value for the territory (Charles et al., 2014; Dzisah & Etzkowitz, 2012), overcoming difficulties in attracting and retaining both enterprises and specialized human resources to economically depressed territories, for example (Alves et al., 2015; Hambleton & Howard, 2013; Trippl et al., 2015). In the Portuguese context, the portion of funding that comes from businesses and industry ('Enterprise' sector) has been significantly growing in the last decade, now representing more than half of the total expenditure with 0,67% of GDP. The other share comes from the 'Institutional' sector – public agencies (e.g. Fundação para a Ciência e Tecnologia), the State, Higher Education and Private Non-Profit Institutions (e.g. universities, associated research centres and laboratories) – contributing with 0,66% of GDP (Torgal, 2011; DGEEC, 2018).

The Directorate-General for Education and Science Statistics (DGEEC) is the responsible entity for collecting and disseminating official statistical information on higher education and R&D activities in Portugal, carrying out census surveys in accordance with criteria defined internationally by Eurostat and the OECD. Figure 2.4 indicates the overall R&D expenditure (both from private and public sectors) in Portugal (% of GDP), by sub-regional level (NUTS III).

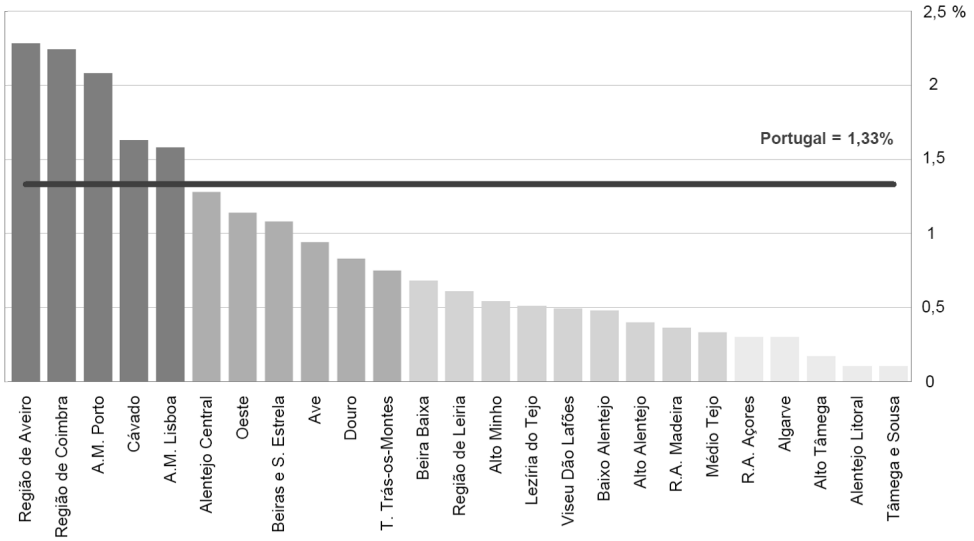

Figure 2.4: Overall R&D expenditure in Portugal (% of GDP), by sub-region (NUTS III)

Source: DGEEC (2018)

Data available[1] in the report of DGEEC stand out that the country's total R&D expenditure presents the value of 1.33% of the national Gross Domestic Product (GDP) in 2018. At regional level (NUTS II), the Metropolitan Area of Lisbon and Norte region assume the highest expenditure figures in terms of GDP, with 1.58% and 1.51% respectively, above the national value. However, when regarding the sub-regional level (NUTS III), the results lead to another interpretation, with five regions presenting values of expenditure much above the national average - Aveiro Region (2,28%); Coimbra Region (2.24%); Porto Metropolitan Area (2.08%); and Cávado (1.63%). These figures relate directly to the presence of HEIs in the territories, but also the high density of industry and business organisations (Neave, 2012; DGEEC, 2018).

[1]No data was available for local (municipal) level. Consolidated data was retrieved through DGEEC, available for central (NUTS I) regional (NUTS II) and sub-regional (NUTS III) levels.

Chapter 3

Methodology

3.1 Research focus, objectives and assumptions

Network governance is a fast-growing multidisciplinary field of research focused on concrete problems or issues, multilevel, comparative and stimulating an interactive investigation between theoretical frameworks and empirical analysis. The analytical focus on policy making and mapping of key political actors leads to the deployment of multilevel governance networks, inclusive of actors at different local, regional, national and transnational levels. Hereupon, this study aims to identify local governance networks, classifying their attributes, structures and stakeholders, in order to characterize them and allow comparisons. Particularly, the main objective of the study is to assess impacts by the presence of higher education institutions (HEIs) in terms of coordination, capacity and accountability on local governance networks, through the construction of an open study, limited to the Portuguese municipal context, seeking for relevant facts that help understanding the municipal network governance initiatives while in the presence of higher education institutions.

A vast majority of studies concerning the role of universities on local and regional development focus on innovation strategies and partnerships within specific programmes of economic nature (Arbo & Benneworth, 2007; Goddard et al., 2013; Hawkins, 2010; Porter, 1998, 2003; P. Silva et al., 2016; Urbano & Guerrero, 2013; Zhang et al., 2016). However, there is room for discussion about their role as active stakeholders taking part in governance networks at municipal, inter-municipal, regional (NUTS III and NUTS II levels) and international levels, either as initiators or as partners invited by local governments. This study will seek to complement the existing literature, contributing to deepen the analysis of the influence of higher education institutions on the work of municipal executives and leaderships.

As such, the impacts of HEIs on the coordination, capacity and accountability of local governance arrangements undertaken by municipalities will be assessed through qualitative data analysis (interviews), contextualised by quantitative sets of data that will allow mapping the attributes of the networks under study. Thereby, and assuming the conceptual framework provided by the literature review, this dissertation will be based on two fundamental axes:

I. Mapping and characterizing the governance arrangements in which Portuguese municipalities take part, considering their structure, formalization, stakeholders and scope;

II. Exploring the impacts of the presence of higher education institutions (HEIs) in local governance networks, exploring three dimensions: coordination, capacity and accountability.

3.2 Methods and research instruments

This dissertation analysed the impact of higher education institutions on a sample of the existent local governance networks in the Portuguese context. To do so, this study was carried out through two fundamental tasks: network mapping and conducting interviews. The first task focused on systematic content analysis of municipalities' websites and documents, which were transformed into quantified datasets through dichotomous and ordinal variables that allowed comparing characteristics of the networks. The second task consisted in interviewing key-actors of municipalities which are involved in work of the identified networks.

With this, by obtaining data through interviews to mayors and elected members of municipalities, and combining it with a quantitative analysis, an adequate approach was possible, allowing to look for evidences on the impacts of HEIs in the creation, maintenance and leadership of the arrangements, as well as the outcomes and different mechanisms used for their involvement in local governance processes. The choice for qualitative data and instruments derivates from the fact that they advocate the analysis and study of specific cases, enriching issues like the context in which the event under investigation is inserted, at the same time seeking for particularization over the generalization of obtained results (Coutinho, 2011).

By focusing on the (2) mentioned research axes, this dissertation intends to deepen the analysis over the transformation of governing structures and processes at the local level, more specifically by paying attention to the role of HEIs as drivers of local and regional economies, societal actors and promoters of innovation (Harrison & Turok, 2017; Lester, 2007; Urbano & Guerrero, 2013; Uyarra, 2010; Zhang et al., 2016). Therefore, it seeks to assess the impacts of HEIs as key partners while working in networked arrangements with other stakeholders at multiple levels, and at the same time assigning distinctive characteristics to the work developed

by local governments (Bekkers & Tummers, 2018; Sotarauta, 2016). Thus, the study of interactive modes of policy formulation and implementation (i.e. governance networks) involving institutions responsible for teaching, creating and transferring knowledge (Goldstein & Glaser, 2012; Smelser, 2001) assumes that distinct interactions between stakeholders could be observed, potentially leading to less obvious or even hidden aspects of network's dynamics concerning coordination, capacity and accountability (Arbo & Benneworth, 2007; Dzisah & Etzkowitz, 2012; Gunasekara, 2006; Pinheiro et al., 2012; Rabovsky, 2012; Salmi, 2015).

3.3 Sampling and case selection

This study focuses on local governance networks through which Portuguese municipalities develop their political activity, framed within mainland territory (*NUTS I - Portugal Continental*), through an exploratory approach. There is a total number of 278 municipalities in mainland Portugal, hence, it was decided to define a reduced but representative number, through a partially intentional sample of sixteen (16) municipalities, considering the *NUTS II* level of territorial division. As this system of territorial organization includes *NUTS* with different municipality numbers, a stratified sample was built considering municipalities with high and low population density (*vide* table 3.1 – Case selection – stratified sampling).

Table 3.1 Case selection – stratified sampling

	LAYER			Population	Sample (case number)		Intentional Sample		
	Pop. Density	NUT II	N municipalities	%	N	N (Estimated)	Case 1	Case 2	Case 3
1	HIGH	NORTE	41	0,1475	2	2	Porto	Valença	
2	HIGH	CENTRO	32	0,1151	2	2	Lousã	Ílhavo	
3	HIGH	AM LISBOA	18	0,0647	1	1	Amadora		
4	HIGH	ALENTEJO	1	0,0036	0	1	Cartaxo		
5	HIGH	ALGARVE	7	0,0251	0	1	Olhão		
6	LOW	NORTE	45	0,1619	2	2	Vimioso	Baião	
7	LOW	CENTRO	68	0,2446	4	3	Idanha-a-Nova	Montemor-o-Velho	Guarda
8	LOW	AM LISBOA	0	0	0	0			
9	LOW	ALENTEJO	57	0,2050	3	3	Mértola	Santarém	Portalegre
10	LOW	ALGARVE	9	0,0324	0	1	Alcoutim		
	TOTAL		278	1	15	16			

Criteria for case selection consisted in the following:

i. Covering the mainland of Portugal by NUTS II;

ii. A stratified sample that includes municipalities with high and low population density, since NUT II presents different municipality numbers;

iii. Criteria used for population density (retrieving data from PORDATA) was the population density value at national level (111.7 in 2017). Below this value, municipalities are considered low density; above this value, they are high density municipalities;

iv. Stratification considers NUTS II and population density, overrepresenting the 'Centro' region, considering that it has the highest number of municipalities, compared to other NUTS II;

v. Even where, by estimating the layer, there should not have cases (e.g., high-density municipalities in the 'ALGARVE' and 'ALENTEJO' regions) one case was included in order to maintain national coverage.

vi. Even where, by estimating the layer, there should not have cases (e.g. high-density municipalities in the 'Algarve' and 'Alentejo' regions) one case was included in order to maintain national coverage.

Although widely assumed in literature when analysing regional asymmetries (Alegria et al., 1990; Caiado & dos Santos, 2003; J. F. Silva & Ribeiro, 2014; R. Silva & Ferreira-Lopes, 2013), the North-South, Coastal-Interior and Rural-Urban dichotomies were not necessarily part of criteria for sample selection, since these approaches tend to dwindle some positive dimensions associated to territories, highlighting endogenous spatial problems, such as excessive concentration of people and activities or lack of planning for coastal/urban territories; and desertification, abandonment or lack of infrastructure and public services, for interior/rural territories (Alegria et al., 1990; Ferrão, 2000; Ferrão, 2002). Still, this conception is considered by some to be "unavoidable but conjunctural" (Ferrão, 2002; J. F. Silva & Ribeiro, 2014) when observing, for example, the disparity between economic dynamics in the different parts of the national territory. Also, it is specifically valid for defining problem areas where strong internal unity feelings of identity are not present, but similar structural problems are shared (Ferrão, 2000).

Nevertheless, more 'impartial' criterion was adopted for identifying municipalities to study, based on territorial representativity (i.e. assuming NUTS II level), combined with population density. Although not coincident with the oppositions previously invoked, these criteria do not correspond to realities or fixed images, since a combination of the various contrasts mentioned coexist, which are intrinsically permanent both in relative importance and in nature (Ferrão, 2000; Ferrão, 2002).

3.3.1 Quantitative data

Quantitative sets of data were generated through a content analysis approach to institutional websites and online documents, mainly from municipalities, originally in qualitative form, which were converted and categorized in dichotomous and ordinal variables in order to perform an adequate analysis that could allow comparing attributes of local networks under study. Hence, the quantitative database was also complemented with some information gath-

ered during the presential interviews. Although this study is based primarily on qualitative data, the quantitative analysis was used for framing the networks characteristics, enriching and supporting the evidence that could be found during the interviews' analysis.

Quantitative analysis was conducted based on several networks (*n=167*), using a set of 11 variables (*vide* Appendix A – Core variables). These networks were classified, coded manually by other coders[1] into categorical (dichotomous and ordinal) variables, revised and validated by a third coder (the author). Microsoft Excel was used for organizing data and creating graphics, tables and charts, while data analysis was conducted using *IBM SPSS Statistics*. This database allowed mapping the networks, with the purpose of providing specific information for analysing significant differences between networks with and without the presence of higher education institutions, in terms of: a) typology; b) structure of network coordination; c) number and type of stakeholders; b) frequency of interactions; c) geographical scope; and d) voluntary or imposed establishment and formalization; and e) policy areas covered. Furthermore, in order to allow comparing groups (i.e., networks with and without HEIs; Low- and High-density territories) some statistical tests (non-parametric ANOVA) were also conducted

3.3.2 Qualitative data

In order to assess different aspects concerning the coordination, capacity and accountability of networks, with and without the presence of higher education institutions, an exploratory approach was assumed through presential interviews to elected members of municipalities where networks operate. Due to the character of their functions while elected members of municipal executives, these stakeholders were assumed as being active decision-makers in local governance networks, allowing to collect more holistic perceptions on the dynamics developed within networks. Although members of HEIs could also provide good contributions to the research, a methodological choice to limit the interviews to the members of municipal executives was assumed.

Interviews to elected member from municipal executives occurred during October 2019 and February 2020, and involved travelling to local governments facilities, for each of the municipalities under study. Interviews were directed mostly to mayors, although in some cases other elected members (vice-presidents or councillors) were interviewed, when the former was not available within the time frame appointments were made.

[1] Data was retrieved, classified and coded in the context of I&CT project "DECIDE - Decentralized Territorial Governance: coordination, capacity and accountability in local governance arrangements in complex regional contexts" (POCI-01-0145-FEDER-032502).

Notwithstanding the considerable flexibility showed during the several attempts to schedule interviews with all the expected actors (at least 16 stakeholders, one from each municipality), only 11 interviews were granted. The remaining (5) potential respondents could not schedule interviews due to agenda issues or refused to participate in the study, due to unspecified reasons. The sample of interviews was represented by 4 High Density territories (HD) and 7 Low Density (LD) territories. Participants that were interviewed had different roles in the municipal executives, assumed to be within the structure of local elected representatives of the executive branch – 7 mayors (*Presidente*), 2 deputy mayors (*Vice-presidente*) and 1 councillors (*Vereador*) - with the exception of one (executive advisor), although assuming relevant roles of executive nature in the mayor's office.

The interview script[2] assumed a semi-structured form, consisting of an initial section with three (3) introductory questions, followed by twenty-eight (28) questions divided by four (4) main sections - I. Coordination; II. Capacity; III. Accountability; IV. Results, impacts and constrains. Semi-structured typology of interview was chosen due to greater advantages in terms of personalisation of questions, without the risk of diverging too much from the intended scope for the question (Bryman, 2016; Newcomer et al., 2015). At the same time, by combining both structured and unstructured styles of interviewing, semi-structure interview allows a more spontaneous approach to the interviewed person, favouring the exploration of interesting issues that relate to the core question (Bryman, 2016). Although, they may prove more difficult in case of doing a full transcription, at the risk of becoming too long and less objective (Gubrium et al., 2012; Kvale & Brinkmann, 2009), this type of interview structures core questions (Wilson, 2014) at the same time it allows secondary or additional questions to be asked without compromising the validity of the whole instrument (Newcomer et al., 2015).

The following diagram summarizes the steps assumed during the research (*vide* figure 3.1 - Research steps - methodology summary).

[2]Since it was developed in the context of I&CT project "DECIDE - Decentralized Territorial Governance: coordination, capacity and accountability in local governance arrangements in complex regional contexts" (POCI-01-0145-FEDER-032502), the interview script that was used can be consulted by request to the project coordinator.

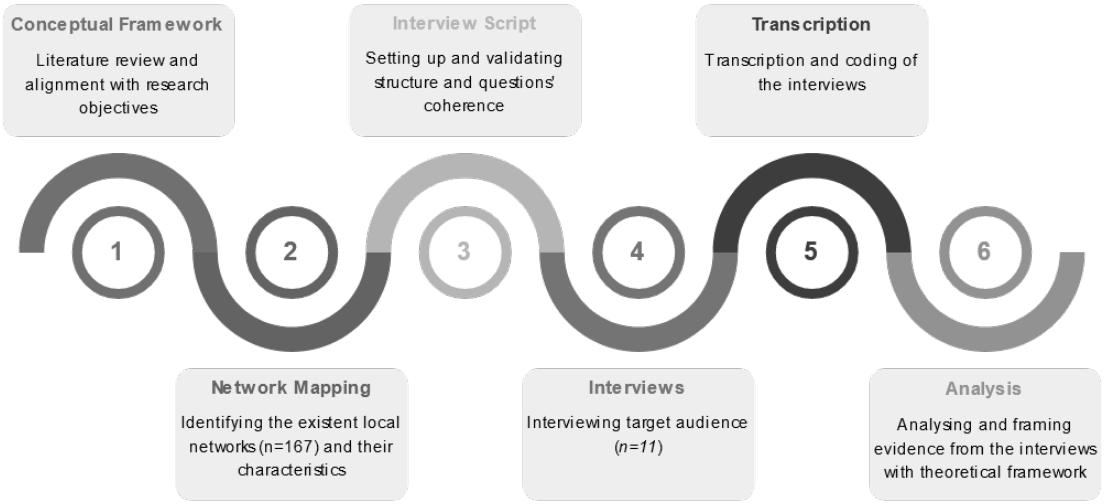

Figure 3.1: Research steps (methodology summary)

3.4 Data collection, coding and processing: ethical and legal concerns

Several ethical and legal concerns must be considered when collecting and processing data. Firstly, when planning to gather data, one should consider the costs involved, for both the gatherer and the sources. For example, time and money prevail as main costs when coordinating such tasks, not only when collecting, analysing, interpreting and disseminating, but especially when it comes to motivate third parties to collaborate in the process. As such, there is a constant concern with the efficient use of resources, not only to avoid compromising the results, leading to wrong conclusions, but also not to employ resources that will be crucial for moving the work forward in a biased way.

For this dissertation, content analysis and interviews were used to gather data. The first consisted in an extended exploration of municipalities websites and (online) documents, followed by coding and classification into quantitative database; for the second, interviews were conducted following a set of questions directed to members of municipal executives. Hence, the conduct assumed for both components seek to assure that (i) data collected was truly going to be needed; (ii) methods to apply would consider efficiency as a priority; (iii) collection instruments, namely the interview script, must be the least intrusive and allow total encryption of data gathered; (iv) all intervenient parts must declare their written consent, following the legal requirements[3], before any recording or transcription acts (*vide* Appendix

[3]According to the General Data Protection Regulation (GDPR), implemented by the European Union Regulation (EU) 2016/679.

B – Informed Consent); (v) guaranteeing impartiality in any process involving the collection, coding and analysis of data, with no discrimination or favouring by any personal or political element of the involved individual and/or institutions.

Simultaneously, anonymity was guaranteed, with all the information being coded, so that identities of the sources could not be identified directly, avoiding possible biases when analysing the contents. Therefore, neither the names of the interviewed representatives nor the name of the municipalities is disclosed in the analysis. It was decided to only identify the interviewee's position and the municipality to which it belongs using only territorial characteristics (i.e. population density).

Chapter 4

Data analysis

4.1 Network mapping: summary statistics

This subchapter conducts quantitative analysis to the characteristics of governance networks that were identified. To do so, qualitative data that was gathered through content analysis was recoded into quantifiable core variables (*vide* Appendix A - Core variables). Hence, attributes were classified, and preliminary analysis resulted in a detailed mapping of number, distribution and typology of networks; type and distribution of stakeholders within networks; establishment, formalisation and structure of networks' coordination; geographical scope and policy areas covered by the networks. Moreover, statistical tests were conducted in order to verify the existence between two groups of networks considering i) presence and distribution of HEIs and ii) population density (Low vs. High).

A. Number of networks and actors involved by population density and NUTS II

Overall, a sample of 16 municipalities was defined. By analysing websites and online documents of these municipalities, 167 networks were identified, along with 4450 actors. Table 4.1 reports the number of networks according to population density of municipalities and NUTS II distribution.

Table 4.1 Number of networks and actors involved, by population density and NUTS II.

Population Density	NUTS II	Number of networks	Actors involved in networks
HIGH	NORTE	30	887
HIGH	CENTRO	20	456
HIGH	LISBOA	9	241
HIGH	ALENTEJO	11	326
HIGH	ALGARVE	6	166
LOW	NORTE	15	251
LOW	CENTRO	32	819
LOW	LISBOA	n.a.	n.a.
LOW	ALENTEJO	34	1161
LOW	ALGARVE	10	143
TOTAL		167	4450

B. Networks' distribution by population density

From a total of 167 networks identified, the majority (54,5) was associated with low population density (LD) municipalities, while the remaining 45,5% were present in high population density (HD) territories, as depicted by Table 4.2.

Table 4.2 Networks' distribution by population density

		n	%
Population	Low	91	54.5%
Density	High	76	45.5%

C. Networks by Typology (%)

Descriptive analysis shows that the typology of networks involved is mostly composed by Municipal Commissions/Councils (59,9%), whilst special purpose (non) profit associations (SPnPA) represent 22,8% of the identified arrangements (*vide* figure 4.1). Inter-municipal communities (IMCs) constitute 8,4% of the total networks, and 5,4% were identified as being Municipal or Inter-municipal companies, while 3,6% were framed in other typologies (e.g., EUROCITIES arrangements, cross-border SPnPA and international networks).

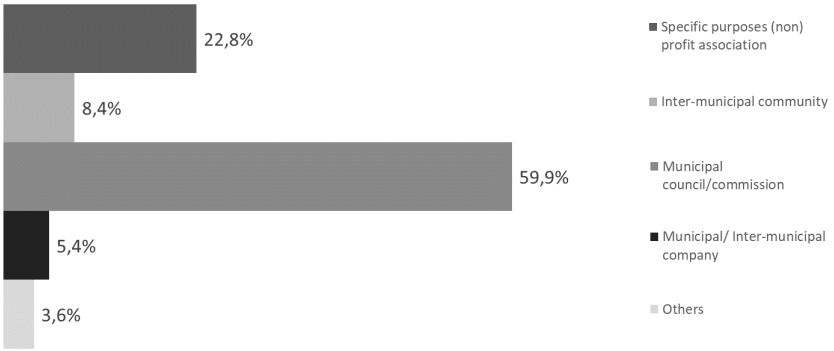

Figure 4.1: Networks by Typology (%)

D. Distribution of stakeholders

While analysing the stakeholders' presence in the networks by category (Figure 4.2 - Distribution of stakeholders) is noted that more than half (58,9%) are public actors, followed by TSOs and Business and Industry associations, representing, respectively, 22,4% and 6,9% of the total number of stakeholders.

Further observation on the distribution of stakeholders (*vide* Appendix C - Stakeholders' distribution by typology of network) shows that private actors takes only 6,6% of the total and are vastly present in Specific purposes (non) profit associations (60,6%), but also in Municipal councils/commissions (27,5%). Citizen groups and personalities are scarcely represented in local governance networks, with only 3% of the total universe of 4450 actors. In parallel, Higher Education Institutions represent only 1,3% of the identified stakeholders and are mostly concentrated in Specific purposes (non) profit associations (46,6%) and Municipal councils/commissions (31,7%).

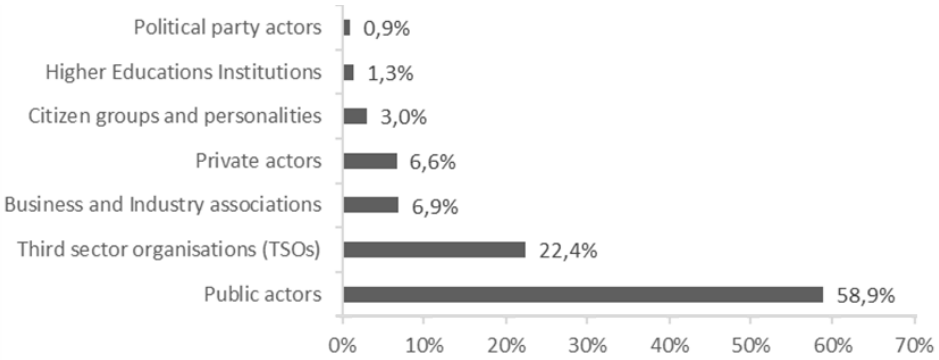

Figure 4.2: Distribution of stakeholders

At the same time, the average number of stakeholders present in the networks, by municipality, for the whole country is approximately 10. Although, when analysing their distribution by region (NUTS II), some differences put Norte and Alentejo municipalities somewhat ahead, with over 11 actors by each network, followed by Centro region municipalities, that align with the national average, with the Metropolitan Area of Lisbon and the Algarve region slightly below this value, as depicted in Figure 4.3.

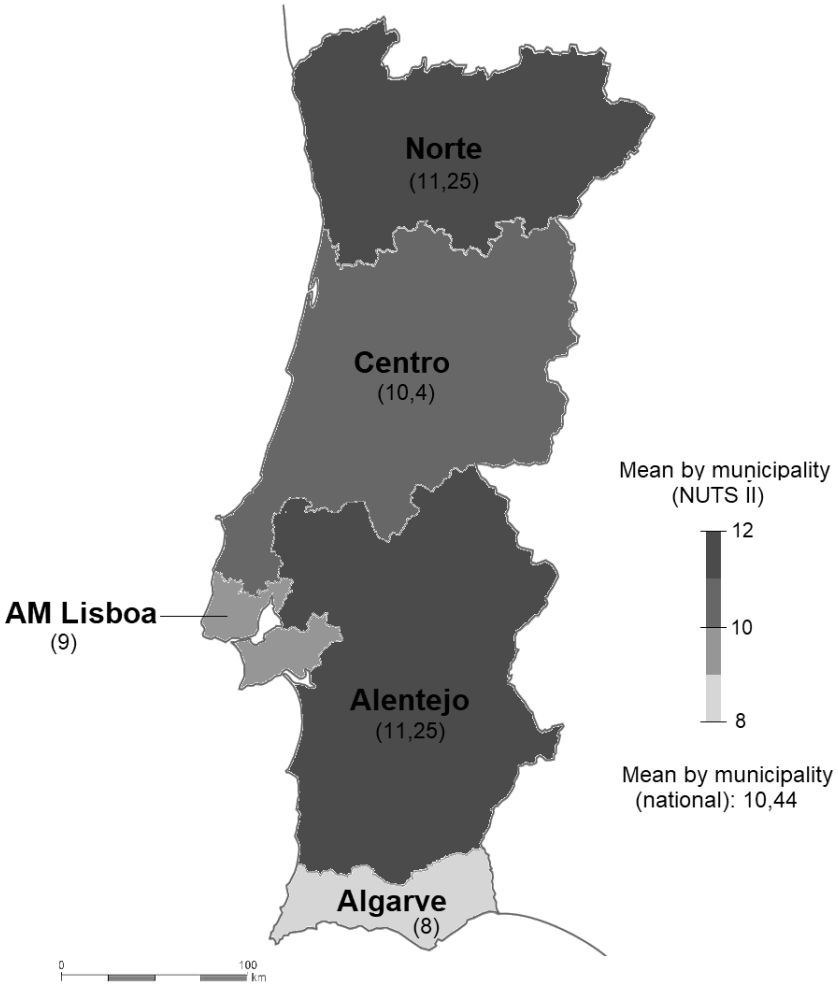

Figure 4.3: Average number of stakeholders per network, by NUTS II

E. Networks' initiators, formalization and structure of coordination

Through analysing the reasons for establishment of the arrangements, data shows that the majority (64,1%) are established (i.e. created, initiated) by imposition (decree) of the central government, while only 13,8% were created by initiative of the local governments, with other actors having held initiatives for generating the remaining 22,2% (*vide* Table 4.3).

Table 4.3 Networks' initiators

1 – Central government imposition (decree)	2 – Local government initiative	3 – Initiated by other actors
107	23	37
64,1%	13,8%	22,2%

Furthermore, data also shows that more than 4/5 (83,4%) of the networks identified as 'Municipal councils/commissions' typology are centrally constituted, by decree, while municipalities are responsible for just 16,6% of network establishments. At the same time, specific purpose (non) profit associations are mostly initiated by other actors (e.g. civil society organisations), whereas central and local governments are identified as responsible for initiating 21,7% and 8,7% of the networks, respectively (*vide* Appendix D - Reason for establishment, by typology of network).

Along with the aforementioned identification formal processes of initiation (i.e. reasons for creating the network), specific documents concerning networks' formal constitution (e.g. statutes, election and meetings' reports) allowed to discern their degree of formalization (*vide* Table 4.4) and their structures of coordination (*vide* Table 4.5). When there was no specific constitution, general decrees (e.g. *Decreto-Lei, Resolução do Conselho de Ministros*) were considered for both indicators. Accordingly, more than half (58%) of the arrangements are formalized only by national decree, with one quarter (25,15%) having their own regulation. Municipalities are responsible for ensuring the regulation for around 14% of networks.

Table 4.4 Type of Formalization of Portuguese local governance arrangements

Formalization			
Not formalized /not identified	**By national decree only**	**By municipal regulation**	**By own regulation only**
4	97	24	42
2,40%	58,08%	14,37%	25,15%

While analysing the structure of coordination of the networks, local government holds the coordination of 58,7% of the total identified networks, whilst 26,3% are assumed by a specific structure of coordination. There are also 14,4% of networks led by other actors, and a community association where a municipality takes part that has no leading structure whatsoever.

Table 4.5 Distribution of networks, according to Structure of Coordination

Structure of Coordination			
None	**Local government**	**Other actors**	**Managed by a specific structure**
1	98	24	44
0,6%	58,7%	14,4%	26,3%

F. Policy Areas represented (Top 3 and Bottom 3)

While adopting the EU (Eurostat) classification methodology[1] the policy areas identified as predominantly present across the arrangements (*vide* Figure 4.4) are Social and Youth Policy, Environment, nature conservation and climate change, and Culture and Heritage (material, immaterial, cultural and natural). By the other hand, the less present areas of action are Research and Innovation, Citizenship, and Taxes and Fees. Data also allowed to verify that barely 35% of the networks develop activities in more than one area (67 out of 167).

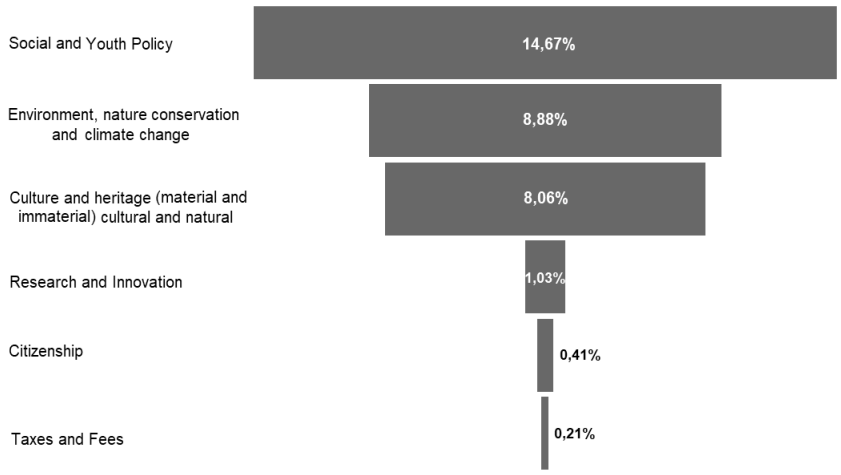

Figure 4.4: Policy Areas representation (Top 3 and Bottom 3)

[1] European Commission > Eurostat > Data > Database > Database by themes > Economy and finance > Government statistics, available at `https://ec.europa.eu/eurostat/Statistics-explained/index.php/Government_expenditure_by_function`

G. Networks by year of establishment

At the same time, data concerning the establishment of the networks under study, with a time interval between 1986 and 2019, shows that the vast majority (approximately 85% of the networks) were created in the last two decades (from the year 2000 onwards). Furthermore, half of the identified arrangements were established between 2007 and 2019, as depicted in Figure 4.5.

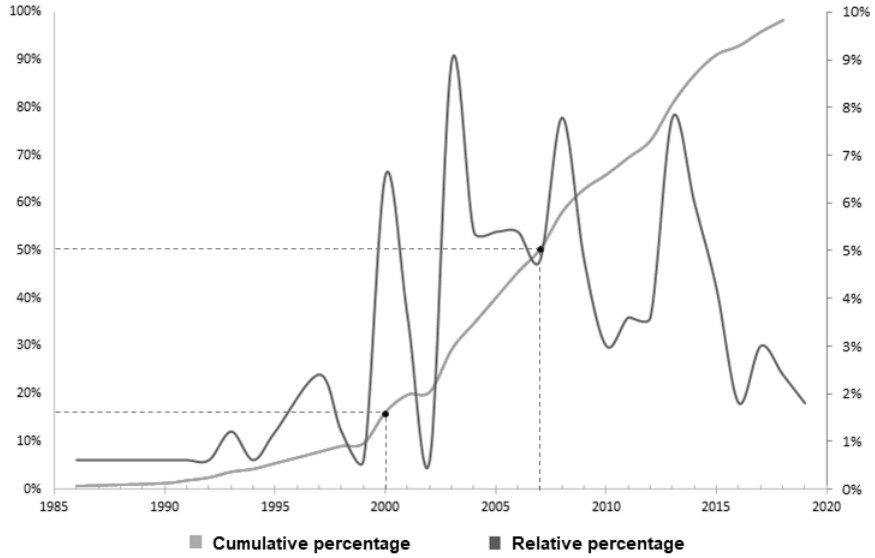

Figure 4.5: Percentage of networks, by year of establishment

4.1.1 Quantitative analysis: unveiling evidences

In this topic, the previously addressed variables are cross analysed considering two groups: networks with the presence of HEIs and Networks without HEIs. To do so, normality tests (Shapiro-Wilk and Kolmogorov-Smirnov (KS) with Lilliefors correction) were applied, (Zvi Drezner et al., 2010) confirming the absence of normality in the data, through histograms and QQ plots (Appendix E - Normality tests and statistical procedures). Therefore, non-parametric ANOVA (Kruskal-Wallis tests) were conducted since the sample has a distribution other than normal (Feir-Walsh & Toothaker, 1974). In these tests, unlike the parametric ones, measures of central location are considered, and not average values. As so, it allows comparing the groups by assuming the median values. (McCrum-Gardner, 2008). A significance level of 0.05 was assumed for all of the results.

The dichotomic variable (i.e. assuming 'Yes' and 'No' values) concerning the existence of higher education institutions (HEIs) in the networks is common to all the specific objectives

of the analysis (vide Table 4.6. The remaining variables under analysis assume the values indicated in Appendix A – Core variables.

Table 4.6 Specific objectives for comparing groups

Specific objective(s)	Variable(s) to analyse
I. Verify if there are significant differences in typology and structure of coordination between networks with and without higher education institutions	Typology (categorical) Structure of Coordination (categorical)
II. Analyse if the number of policy areas alters when HEIs are present (or absent) in the network	Number of Policy Areas (discrete)
III. Compare, in terms of number and type of stakeholders, the networks with and without the presence of HEIs	Number of stakeholders (discrete) Category of stakeholders (categorical)
IV. Verify if networks with HEIs operate in distinct geographical areas when compared to those where HEIs are not present	Geographical scope (categorical)
V. Analyse if the prominence of HEIs varies according to voluntary or imposed establishment of networks	Actors responsible for establishing the network (categorical) Degree of formalization (categorical)

I. Compare, in terms of number and type of stakeholders, the networks with the presence of HEIs and LD/HD territories

When analysing the number of stakeholders between the two groups of networks, data shows that HEIs are present in 19,2% of the total arrangements identified, which are distributed across Portuguese municipalities, as shown by Figure 4.6.

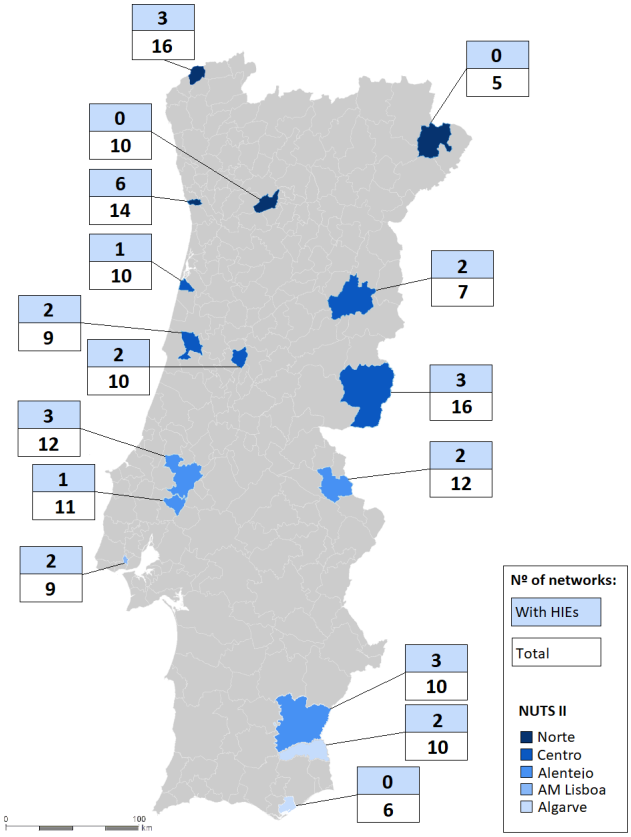

Figure 4.6: Map of Networks

At the same time, it is shown (*vide* Table 4.7) that there are at least four types of stakeholders represented in half of the networks where the presence of HEIs was identified, whereas, in the networks they were not present, at least half include only up to two types of stakeholders - Public sector and specific purposes (non) profit associations. Thus, this can be seen as evidence that HEIs promote the diversity of actors in the networks where they carry out activities (Benneworth et al., 2012; Pinheiro et al., 2015; Uyarra, 2010).

Furthermore, there are significant differences between the number of private actors between networks with or without HEIs (*p-value* = 0,003). Although the average number of private actors between the two groups is the same, at least half of the networks where HEIs are found have at least one private sector stakeholder (median=1). Parallelly, differences are also noted in the number of Business and Industry associations, with 50% of the networks where HEIs are present having, at least, one stakeholder belonging to that category (*vide* Appendix F).

Table 4.7 Differences in the distribution of networks' stakeholders according to the presence of HEIs

	Existence of Higher Educations Institutions			
	No		**Yes**	
	Mean	Median	Mean	Median
Total of stakeholders	24	16	37	24
Public actors	13	11	25	12
Third sector organisations (TSOs)	6	3	4	3
Business and Industry associations	2	0	2	1
Private actors	2	0	2	1
Citizen groups and personalities	1	0	1	0
Political party actors	0	0	0	0

This can be a corroborating element for the reviewed literature on the role of HEIs as promoters of innovation, together with actors from the business or industrial sectors (Gunasekara, 2006; Harrison & Turok, 2017; Lester, 2007; Uyarra, 2010), since they are responsible by a major part of investment in Research and Development (R&D) activities (totalling 1,33% of GDP, in 2018), highly impacting on the total expenditure in R&D in Portugal (DGEEC, 2019). Though, this may be understood as a result of the search for knowledge from local authorities (Bekkers & Tummers, 2018; Cinar & Benneworth, 2020; Pinheiro et al., 2015), in order to overcome societal issues or enhance territorial competitiveness (Arbo & Benneworth, 2007). Insomuch, this evidence may also be assumed to approach the literature on the role of HEIs when looking for establishing partnerships outside academic contexts, in a proactive and voluntary basis (Cinar & Benneworth, 2020).

II. Analyse if the number of policy areas alters when HEIs are present (or absent) in the network

Both graphically and by applying a Kruskal-Wallis test (*vide* Appendix G), there are no significant differences between groups, (*p-value* = 0,434). On average, on both networks with and without the presence of HEIs, the average number of Policy Areas is 3 (*vide* Appendix H). At the same time, half of the networks, with or without HEIs, cover only one Policy Area (median is 1). As such, there are no significant differences between the two groups of networks.

Thus, taking into account the proposal of the reviewed literature which asserts that HEIs mostly mobilized to act in programs or strategies within specific objectives/boundaries (Etzkowitz, 2003; Etzkowitz et al., 2000; Gunasekara, 2006), covering a more restricted field

of Policy Areas, is therefore disregarded through these evidences. On the other hand, one can assert that HEIs are called to integrate governance networks with a vast panoply of objectives, covering several policy fields, (Pinheiro et al., 2015; Uyarra, 2010) similarly to what happens in networks where there is no presence of HEIs.

III. Verify if networks with HEIs operate in distinct geographical areas when compared to those where HEIs are not present

After verifying that differences in geographical scopes assumed by networks that have the presence of HEIs, and those which have not, are significant (*p-value* = 0,039), further evidence was found by assuming the distribution (ratio) of networks' scopes for each group. Thus, it is noted that networks where HEIs are present have predominately broader scopes of action than the networks where that typology of stakeholder is absent (vide Appendix I).

Therefore, is evidenced that networks with HEIs go beyond the scope of municipal action in a greater proportion than networks without HEIs, with 62,6% and 34,2%, respectively. It is also noted that arrangements with the presence of HEIs are mainly involved in Supra-municipal levels. Hence, this evidence approaches the literature concerning the involvement of HEIs with territorial development, characterized by supplanting local/municipal levels, creating a dynamic of commitment at a regional level (Alves et al., 2015; Benneworth et al., 2012; Laredo, 2007), which occurs in this situation since more than 40% of the present HEIs are represented at regional or sub-regional levels (supra-municipal; NUTS II; NUTS III).

IV. Analyse if the prominence of HEIs varies according to voluntary or imposed establishment of networks

When analysing the actors that were responsible for the establishment of the identified networks (initiators) according to the two groups that indicate the presence or absence of HEIs, statistical evidence shows that there are significant differences (*p-value* = 0,000). Thus, when comparing the two groups of networks, it is noted that over 90% of networks created by central imposition (i.e. national government decree) are concentrated in arrangements where HEIs are not present. In the same direction, only 31% of the networks with the presence of HEIs are created by decree.

In a different direction, as asserted by literature, it is noted that governments have become 'plain' users of universities' services (Laredo, 2007). Particularly, almost 60% of the networks involving a university was initiated by local governments, therefore showing their growing interest in working with HEIs (Guerrero et al., 2016; Trippl et al., 2015). At some extent,

the fact that universities are increasingly creating synergies with local/regional authorities is also a sign of their changing role towards a greater societal engagement (Pinheiro et al., 2012).

(Rodrigues & Pinto, 2011)

4.2 Qualitative analysis: interviewing local governments

This section analyses the interviews to (11) local elected actors, assuming an exploratory approach to the qualitative data gathered through a semi-structured instrument. The contents were analysed through an aggregated form, according to the thematic sections defined in the script - I. Coordination; II. Capacity; III. Accountability; IV. Results, impacts and constraints. Hence, this selective analysis (Forman & Damschroder, 2007) seeks to focus on the topics that relate to the interactions involving higher education institutions and municipalities, from the perspective of local elected actors – 7 mayors (*Presidente*), 2 deputy mayors (*Vice-presidente*) and 1 councillors (*Vereador*) – with the exception of one (executive advisor), although assuming relevant roles of executive nature in the mayor's office. That way, it aims to understand to what extent organisational apparatus of universities impact on network governance dynamics.

Due to data protection concerns, interviewees will not be directly identified. Thus, interviews will be identified according to the population density of the municipality they belong, composed of 4 High Density territories (HD) and 7 Low Density (LD) territories. This classification is considered adequate to obtain the desire results – perceptions of local authorities about the impacts of HEIs in local governance networks – assuming an approach that will allow to obtain less generalized but more detailed evidence (Denzin & Lincoln, 2011; Forman & Damschroder, 2007). Therefore, interviews' contents will not identify personalistic features, names of organisations, persons or places. Figure 4.7 represents a diagram with the most repeated words in the interviews – highlighting topics like "Problems", "University", "Development" and "Knowledge" - giving a synthesized image of the issues addressed in during the conversation with local elected officials.

Figure 4.7: Interviews' most frequent topics

A. Perspectives on the presence of governance networks and HEIs' engagement

When questioned about their position towards governance networks, interviewees were unanimous in considering that collaborative arrangements generate better results than a hierarchical model - "Municipal management has changed for the better" (HD1). Respondent's answers were direct, expressing that "Networks are essential for us to be able to implement efficiently" (LD3), since "It is not possible to manage (cities) today except in this way" (HD1). "More informed decision, economies of scale, greater ability to tackle problems" (LD1) are some of the advantages granted to network arrangements, which also "favour the creation of opportunities" (LD4), "adding specific knowledge" (HD3), "exchange of experiences" (LD4) and makes "decision-making processes better informed, more multidisciplinary and more consensual, since it increases participation" (HD2).

Whilst referring to higher education institutions' involvement in governance processes, respondents recognize that "by generating knowledge, investments are attracted" (HD3), and HEIs are "imperative for topics that go beyond the skills of the municipality's staff" (LD7). The engagement of these institutions is "widely advantageous" (HD2), resulting in "improved results that, alone, we would never be able to achieve certain objectives" (LD3). Yet, some concerns highlighted are mostly related to "political barriers" (LD2) and "dysfunctionalities of the networks themselves" (LD3) which generate "overlapping objectives between different actors, at different levels" (HD2).

"Lack of motivation for participation" (LD1), "individualistic posture" (LD7) and "excess of entities" (LD3) are some of the most noted difficulties while interacting with other actors in collaborative arrangements. At the same time, the cultural barrier results of "48 years of dictatorship, where the call for participation did not exist" (LD5), leading to a "lack of critical

mass" (LD6), aggravated by "decades of depopulation" (LD7), although noting that "in recent years, we (the country, in general) have taken a brutal qualitative leap" (HD4).

B. Perspectives on networks' coordination

The answers around the opportunities and/or constraints that the diversity of actors generate for networks' coordination ranged from "depending on the scale of the network and the topics approached (LD1), to "generates more opportunities" (HD3). Although considering that "diversity is always important, but we must work in a complementary regime" (LD4), the interviewees are particularly critique when addressing supra-municipal arrangements, where "diversity tends to generate more constraints, especially in decision making" (LD1). At that level, respondents claim that "sometimes there is a lack of common baseline, and the quality of the work may decrease" (HD3).

Nevertheless, when addressing the constraints presented by the diversity of actors in the networks at the municipal level, opinions tend to diverge to "certain areas, such as education and culture" (LD1), "transports" (HD3) and "spatial planning" (LD2). On the other hand, "youth commissions" (HD1, HD4) and "social network is a good an example in which there is a greater variety of actors, with issues being more discussed and taking longer, but resulting in more consistent, quality work" (HD3).

When questioned if their municipality always assumes prominent role in the leadership of collaborative arrangements, to the exception of one interviewee (LD3), the remaining converged by saying that "No, not always", although assuming that "municipalities have a very important role in diverse aspect" (LD1), mostly at "municipal level" (LD5) and not as much in "intermunicipal" arrangements (HD3). Yet, it is noted that the "role of the municipality should be of strengthening citizen's and mobilizing other partners" (HD2) and "not resting on the role of leading" (LD5), but rather "mobilizing and coordinating other partners" (LD4) and expecting that "partners become more proactive" (HD3). Furthermore, respondents contribute with saying that "leadership (of municipality) should only be activated when there are no responses from other agents in key areas" (HD1).

While debating the "advantageous approach of assuming coordination, to depoliticize the work of (local) networks (HD1), HEIs are suggested as "facilitators in various areas" (LD4), since they are "very proactive with creating proximity partnerships with agents within the territory" (HD2). However, for some, universities' "collaboration depends on the interests" (LD3) and "varies according to the networks, particularly its scale of action [i.e. depending if they are municipal, intermunicipal, regional or international] (HD4). Furthermore, when relating to the openness of relationships with HEIs, interviewees readily recognize vicinity universities

(HD3, HD4) and particularly polytechnic institutes (HD2, LD4, LD7) with whom they affirm to cultivate "continuous work which helps community, businessmen and the school to grow" (LD4). Others refer "usual collaborations in certain areas, such as business and technology" (HD1) or "nature conservation" (LD7). Despite this, there are also criticisms concerning "the leaderships of the institutions that sometimes are a barrier due to their character" (LD1) and "should be more coordinated with municipalities" (LD3).

C. Perspectives on networks' capacity

The main negative aspects that affect networks' capacity referred by respondents are "the struggle for resources" (LD1, LD3), "lack of well-defined goals" (HD3, HD4) and "the absence of trust among the actors" (LD2, HD2, LD4). In parallel, they identified "private initiative" (LD6), technology incubators (HD4) and tourism associations (HD2, LD4) has being the more cohesive networks. On the other side, "social area" (LD2), "Intermunicipal Community" (LD3, LD5) and "national municipalities association" (HD2, LD4) are referred as the least cohesive, since "trust between agents of the networks is low" (LD5) and "actors lack the ability to understand that we need each other" (HD2).

While discussing the trust mechanisms needed for improving capacity of collaborative arrangements, interviewees assert that "commitment to results that benefit society" (LD1) should be the priority of all actors of the community, however, at the local level, "party issues" (HD3) constitute relevant barriers to "sharing of interests and creation of added value" (LD5). At the same time,) and "strong leaders" (LD6, LD7), "resilience and hard work" (LD2), along with "capacity for governance and management" (HD3) and "coherence" (HD1) are characteristics highlighted by the interviewees that could enhance trust among actors. Following, several HEIs are mentioned by local representatives as "essential to generate knowledge, not only with academics but also with local know-how" (LD4), which constitute major partner in "empowering both local and extra-local areas" (LD2). There is also some reference of undergoing collaborations in areas as diverse as "animal genetics" (LD5), "combating school failure" (LD3), nature conservation (LD7) or nautical station (HD3).

Elected representatives were asked if it was easy working with HEIs, having mentioned a "fluid relationship with the polytechnic institute" (LD1), which is somehow "dependent on the leaders, their priorities and guidelines" (LD1). Further, some "have developed several initiatives with HEIs" (LD2), inclusively "serving as an open laboratory for the universities" (HD3), categorizing the involvement of these institutions as "the most important partner in the strategic planning of a territory" (HD2). Other refers that "there was a meeting in the middle of a bridge – municipalities were looking for it and the academy offered applicability" (LD4),

describing the efforts that the municipality has carried out in partnership with a university. Yet, a respondent mentioned that they "have protocols with several Universities, but they do not necessarily occur in a context of networks [indicating specific initiatives for which the HEI was contracted] (LD3).

Despite indicating that "there is a lot of proximity" (LD5), interviewees note the "demand mostly from the municipality in search for polytechnic's services". Inclusively, one respondent accuses that the regional polytechnic "is not focused on the relationship with the territory (LD6). When questioned about the efforts in terms of attributing resources to specific networks involving HEIs, respondents indicated that "yes, but there were no resources channelled in the context a network" (LD2), detailing that there were human resources and infrastructure available for joint use with the mentioned HEI, although no financial resources were canalized for the institution. Other answered saying "It is often more a matter of working in partnership, facilitating logistics, and then the dissemination of results" (HD2). Moreover, explicit supporting was also mentioned "there is an investment applied to creation of practical knowledge" (LD7), and "yes, in several areas relevant to urban development" (HD4) and enumerating countless examples. Network capacity is enhanced by "knowledge that has been applied in various activities, namely in the areas of sustainable aging and education" (HD1), having "brought very positive results not only to the municipality, but also at the intermunicipal level" (LD3). It is also noted that "the application of knowledge as action that the municipality develops are in the DNA of collaboration with HEIs" (LD7).

D. Perspectives on networks' accountability

Local representatives were questioned about the different levels of autonomy between voluntary and centrally imposed relationships, having responded that "imposed ideas are not necessarily bad" (LD1), while others stated that "the networks created by the municipality work better" (LD3) and even that "autonomy depends mainly on the dynamics of the networks themselves" (HD1). Other opinion criticizing centrally imposed networks said that "within the local networks, those resulting from the law are the ones that work less well [giving as example the Municipal Council of Education] (LD6).

Commenting on the initiatives of civil society for creating networks, respondents affirmed "there has been some, especially in the social area" (LD1), although "the fact there is little critical mass means that the municipality always has a standing role in the process" (HD4). Another respondent said that "it is very unlikely" (HD1), since there is a "culture of individualism, and lack of time on the part of the population" (HD1), and a third asserted "It is very difficult. Unfortunately the engine always has to be the municipality" (LD6). In the same

sense, most municipalities have implicitly or explicitly indicated that the current legal, administrative and financial frameworks do not favour municipalities applying resources to meet the needs of networks. Among the most mentioned areas, financial ones stand out, followed by legal and human resources. A well-known claim several municipalities referred was that there is no intermediate body, democratically elected between the central Public Administration and the local Public Administration, which is a generator of problems.

When asked what mechanisms enable information sharing, transparency and accountability in the contexts of collaborative arrangements, and to the exception of (HD1), all respondents have admitted having basic and unsophisticated mechanisms, mainly informal [during the networks' meetings]. Furthermore, respondents reinforce that there is a need of "being informed, having good services, good support offices to understand and read well what is discussed, to think well what is discussed, because if so, things are more difficult to go unnoticed" (LD1), recognizing that "Information must be of quality" (HD4). Yet, concerning citizen's awareness, interviewees said that "the citizen, the more vulgar, focuses on the results and on the media exposure of those results. In fact, many times, people do not know what is going on" (LD1). It is known Portugal is laggard in civic and political culture, therefore the majority of the respondents have clear notion that "it is a path we have to take, because I don't think (...), on the part of the citizen, there is a deep knowledge of much of what is done in a network" (HD2) and "Unless there is a big public exhibition, people don't care" (LD7). However, some have contested affirmatively "it is visible and recognized" (LD3) and "Citizens wants results and network members tend not to give much publicity to the network's activity" (HD3).

Chapter 5

Discussion and findings

Data concerning the creation of networks in the Portuguese context showed that these arrangements have widely emerged in the last two decades. This is mainly related as a result of New Public Management's strategies that were implemented during the 1990s decade (L. Mota et al., 2014; Tavares & Rodrigues, 2015), also coinciding with European financial frameworks that pushed for reforms towards more efficient, collaborative and place-based governance solutions. Networks' formal statutes and internal rules were mapped and showed that most local governance networks in Portugal are created by the initiative of Central Government (*Decreto-Lei*), with local executive bodies (i.e. Mayors, Deputies, Councillors) broadly assuming the structure of coordination, constituting the leadership for most of the networks analysed.

At the same time, these arrangements are vastly formalised through national norms, followed by a relative percentage of networks that assumed local government formalization, by designing municipal regulations for the networks. Municipalities and other local stakeholders can also entail bottom-up networks and adapt national directives to their specific context. Whereas the national degree level alone would suggest lower commitment of local governance networks, the existence of municipal regulations and the adaptation of national directives suggest higher commitment to the specific activities of local governance networks. In this sense, while observing both quantitative and qualitative analysis results', one can assert that centrally imposed networks may tendentially result in less positive incentives for commitment, due to centrally-defined structures and processes, not enabling the participation of relevant local stakeholders that could result in rigidities, lack of motivation and excessive bureaucratic focus. On the other hand, arrangements established voluntarily by municipality or other local actors, offer higher predisposition to commitment, since they stimulate participated processes, diversity of stakeholders and more flexible approaches to problem-solving, positively impacting

motivation and willingness of local communities to move forward to new challenges.

Networks identified in municipalities under study (n=167) are composed mostly by public actors, with some representation from the social economy sector (i.e. non-profit specific associations), and fewer stakeholders originating from business and industry associations and private actors solely. The representation of HEIs is very scarce, compared to the globality of stakeholders mapped in the networks. The environment created by municipalities is favourable to cooperation with HEIs, allowing their intervention without necessarily imposing control over network coordination. However, perceptions from the local representatives interviewed depict municipalities has sovereign leaders of collaborative arrangements, prominently assuming coordination. Yet, elected members subject to interviews recognise the impacts of having HEIs as partners in co-creation of local and regional policies. Furthermore, municipalities assume that they effectively mobilize resources for working with HEIs in the context of network arrangements and concretely apply knowledge-based strategies in local policy. While working in networked arrangements with other stakeholders at multiple levels, HEIs assign distinctive characteristics to the work developed by local governments, as noted by some interviewed mayors.

Literature suggests that assuming the capacity of engaging in strategic partnerships with a wide range of activities and stakeholders, local governments will have a better performance tackling cross-cutting and multisectoral issues (Provan & Milward, 2001). As such, it will enhance their capacity to steer complexity and avoid fragmentation between different policy areas and actors. A prominent hypothesis put forward by Granovetter (2005) bases on the idea that "strong ties" characterize a dense network of actors, who are mutually connected to each other. In parallel, these "ties" rely on deliberations that actually formalize the creation of the network, defining its characteristics (i.e. type and number of actors, policy field, number of interactions, etc.) and statutes. In parallel, local elected representatives that were interviewed are unanimous in considering that networking results in better results than a hierarchical model. The stated benefits can be summarized as i) local networks' increased capacity to tackle problems; ii) networks' allow capturing investments, generating economies of scale and knowledge; iii) more informed decision-making, allowing to collect specific knowledge, favouring more consensual decisions by enhancing participatory decisions; iv) results are achieved with greater reach, more comprehensive and on a larger scale.

Municipalities perceptions over networks' accountability is very much constrained to internal mechanisms of reciprocity between stakeholders – as for example, reporting activities and results – and not much linked to public accountability, lacking on citizen communication, with few or no mechanisms directed to disseminate networks' activities among actors outside the network (Rodrigues & Pinto, 2011). Local representatives are aware of these constraints,

justifying the facts with the laggard civic culture that resulted from almost half century of dictatorship and repression of civic rights and freedoms. In a different direction, local actors interviewed have noted that a high number of actors of multiple sectors tend to affect networks' coordination which consequently results in negative pressures on networks' responsiveness and capacity to deliver efficiently. In parallel, HEIs are mentioned as sometimes not having adequate approaches to societal problems presented in the networks. Although recognized for introducing and promoting good practices and evidence-based work strategies, HEIs lack the ability to assume the role of elected actors, from whom visible results are demanded. Hence, to a certain extent, universities are criticized for having too much flexibility regarding the need to implement policies/solutions within a time window that is compatible with political agenda.

The perception over the concept of innovation is evolving, at least in two ways: the geography of innovation is expanding; and it has become a collective endeavour in which HEIs play a significant role in the process of developing peripherical or low-density territories (Alves et al., 2015). It no longer focuses only on metropolitan or urban areas but is also recognized by the capacity of local governance arrangements to mobilize scientific inputs from Higher Education Institutions. In Portugal, polytechnic schools/institutes are generally seen as key stakeholders in regional development (Taylor et al., 2008). However, due to the economic recession of the last decade and the consequent budgetary cuts (Tavares & Rodrigues, 2015), HEIs needed more than ever to demonstrate their potential by enhancing their social and cultural impacts in order to match their own goals with the needs of their communities, contributing to a more integrative, networked and sustainable territorial development (Alves et al., 2015; Amaral & Magalhães, 2005).

Polytechnic institutes/ schools are frequently referred by local representatives, particularly from low-density territories. Zhang et al. (2016) found evidence that uncompetitive regions are more intensely engaged in entrepreneurial activities than competitive regions, although generating less outcomes. Moreover, academic knowledge is more strongly bounded within a certain distance in weaker regions, while geographical distance seems less of a barrier to academics in successful regions. Hence, these findings contribute to the debate of universities' impacts on socio-economic development, providing insights into the relevance of exchanging knowledge across different regions (Guerrero et al., 2016). Hence, it is important to highlight the role of HEIs as major employers, with effects on the fixation of qualified people in the regions they operate. For the Portuguese context, impacts of polytechnic institutes goes far beyond economic dimensions, namely in aspects not easily quantifiable, such as sociocultural benefits and equality of access to higher education for these regions (Alves et al., 2015).

The main deficiencies constraining networks' performance and HEIs collaboration in local

contexts are related to the lack of motivation to participate, the absence of critical mass and the politicization of issues. At the same time, municipalities and HEIs have different publics, and different natures – whereas one is elected, is not – which can cause tensions and difficulties in relationships between these two institutions. Furthermore, the lack of global vision of the whole, fostered by individualism, difficult reconciling everyone's interests. Rodríguez-Pose (2013) goes further and exposes the main barriers that difficult cooperation between HEIs and political authors, starting with lack of collectively held new cultural–cognitive understandings of regional actors' roles in globally oriented knowledge economies; missing structural innovative governance elements underpinning collective search efforts. Misunderstanding of opportunities for exploiting regional knowledge and driving innovative regional economic development; Local actors' failures to collaborate collectively to develop high-end positions in emerging high-technology niches; and failing to mobilize collective resources to underpin innovative economic development. Yet, critical success factors identified fall mainly into two areas: i) coordination and cohesion, and ii) human factor, knowledge, skills, and individual attitudes of the network's representatives.

Overall, current interaction between universities and economic development can be conceptualised as emerging from political processes, suffering changes in the organisation of the innovation process. Particular benefits are referred, concerning information and cooperation associated with social capital networks both to industry and to universities and from the institutional arrangements in which they operate (Provan & Milward, 2001; Trippl et al., 2015). Constraints are diverse – from the motivations for creating the network, to the accountability demands that impose.

Chapter 6

Final Remarks

Universities potentially contribute to regional economic development in a number of ways: research, creation of human capital through teaching, technology development and transfer, and co-production of a favourable milieu. We find that the research and technology creation functions generate significant knowledge spill overs that result in enhanced regional economic development that otherwise would not occur. Yet, the magnitude of the contribution that universities' research and technology development activities play is small compared with other factors such as the distribution of government spending (Goldstein & Renault, 2004). This research sought to provide an overview on the involvement of higher education institutions in local governance, especially those working in complex and demanding settings, characterizing fundamental aspects of such environments, while focusing on the dimensions that mostly need to be strengthened so as to allow to set strategic directions for the allocation of resources and adequate strategies to cope with the challenges of a globalized knowledge-based economy.

Since universities are not also expected to undertake fundamental research but also to contribute for innovation and development within their regions. Therefore, they have been undergoing several changes at the organisational level to respond to this "new" change of innovation. Accordingly, future research could follow this approach in order to gather information concerning the changes that are taking place in the third mission activities of universities at organisational level and the extent that these changes follow the evolving innovation of territories. Additionally, deepening research on this field could provide evidence on how local governances networks are accommodated in this transformation process. Although not directly addressing local networks, there is a growing literature involving the role of higher education institutions in regional development and innovation worldwide, particularly in the last two decades.

Despite the strategies of decentralization assumed in recent years, Portuguese local authorities remain "under the radar" of central government. The efforts to widen the competences of municipalities are clear, though legal diplomas that display a certain political will to decentralize the country. Yet, these efforts fall into a void when there is no financial support to keep up. Therefore, a scenario in which municipalities refuse to assume the competences that derive from the "decentralization law" may leave the process halfway, compromising future developments that could pave the way for political and administrative regionalization. Because universities do not sufficiently understand particularities of social innovation systems, their engagement tend to be focused on creating new technologies (Göransson, 2016). Moreover, universities may not be able to distinguish different innovation mechanisms, which leads to the creation of policies (such as technology transfer offices) that give priority to technological innovation rather than social innovation (Cinar & Benneworth, 2020). Thus, it is understood as scientifically pertinent deepening the research on the impacts of the existence of higher education institutions in local governance networks involving municipalities, focusing on the characteristics and dynamics of their interactions with the local political power in horizontal governance arrangements.

Notwithstanding the vast research on the impacts of regional presence of HEIs in terms of economic and innovative perspectives, this research aimed at filling a gap concerning to the impacts of such institutions on local governance networks, assuming the perceptions of political executives' bodies of municipalities, in the Portuguese context. Hence, this study does not explore conceptual frameworks of universities' innovation roles *per se*, since they do not feature concise governance impacts in the context of collaborative arrangements (i.e. networks). Some of the limitations of this study rely on the inadequacy of the quantitative dataset, since it was not designed for analysing relationships between stakeholders, which would have been a major contribute for understanding within-network dynamics. Hence, relationship directions were needed to complement the mapping of actors and establish their relationships' density. Also, precise date of joining for each HEIs present in the networks would have been useful for evaluating their commitment and stability within the network.

Members of HEIs could have also provided good contributions to the research. Hence, considerable time and resource constraints aggravated by the restrictions on contacting with potential interviewees, due to COVID-19 pandemic, limited the analysis to municipalities and their correspondents to a number of 11 interviews. Although sufficient, the expected sample of 16 interviews was not achieved, with one municipality refusing to take part on the research project and other 4 assuming different motives, such as agenda of political actors, municipality events and others.

A future research on this subject could additionally focus on HEIs perspectives' over

their involvement in local and regional policy-making processes, and specifically in governance networks. For instance, a broader cast of interviewees, members of HEIs, namely responsible for governance boards, administrators, and other positions in charge of innovation, cooperation and technology transfer. Thus, this would provide contrasting perspectives on the perceived impacts of HEIs on governance networks and local-regional development, in general.

However, by focusing on institutional and external aspects of cooperation, through the formation of governance arrangements at the municipal scale, crucial aspects concerning the roles of Portuguese local leaderships are largely disregarded. Mayors carry a decisive weight in most part of the processes of forging links between governance networks, assuming coordination and promoting effective orientation to local politics, particularly in the case of highly centralized countries such as Portugal (Nelles, 2013; Teles, 2013). At a large extent, mayors are responsible for "centralizing" the agenda and implementation of policies approached within networks' boundaries.

As a conclusion, the need for more empirical evidence is highlighted. There are a lot of challenges that require more in-depth case analysis, focusing on how to deliver policies efficiently in multicontextual governance arrangements such as networks. Future research should be devoted to the characterization of local governance networks considering their different nature, identifying the networks targeted at ensuring policy advise and formulation, and the pones focused on policy delivery tasks. This distinction might be fundamental to understanding the identified patterns.

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Appendices

Appendix A

Core variables (quantitative analysis)

Table A.1 Core variables

Variable	Descriptive	Values
Typology	Classifies networks according to their type (or form) of entity, adapted to the Portuguese legal framework.	1 - Specific purposes (non) profit association 2 - Inter-municipal community 3 - Municipal councils/commissions 4 - Municipal/Inter-municipal companies 5 - Others
Date of establishment	Indicates the year that the network was formerly established. Data was collected considering mainly specific regulations for each network and general law-decree (when the first was not available).	Minimum – 1990 Maximum – 2019

Creation through specific funding programmes	Indicates if the network was established in the context of specific funding (e.g. European Union funds, Fundação para a Ciência e a Tecnologia financing, others)	1 - Yes 2 - No
Geographical scope	Contextualizes the geographical boundaries or jurisdiction where networks develop their actions.	1 - Sub-municipal 2 - Municipal 3 - Supra-municipal 4 - NUTS III 5 - NUTS II 6 - International
Actors responsible for establishing network	Classifies networks according to their nature, indicating why or by whom were they created.	1 - Central government imposition (decree) 2 - Local government initiative 3 - Initiated by other actors
Structure of coordination	Identifies the set of actors responsible for the leadership structure of the arrangements.	1 - None 2 - Local government 3 - Others actors 4 - Managed by a specific structure
Degree of formalization	Ranks networks according to the presence or absence of legal form/regulations at different levels.	1 - Not formalized 2 - By national decree only 3 - By municipal regulation 4 - By own regulation only
Frequency of meetings	Indicates the number of times that network members meet. When specific regulations where not available, general rules defined by national law (decree) were assumed.	Minimum – 1 Maximum – 24

Number of stakeholders	Quantifies the number of actors present in the networks with voting rights (deliberative power). Includes a range of actors, classified according to their sectoral representation.	- Public actors - Third sector organisations (TSOs) - Business and Industry associations - Private actors - Citizen groups and personalities - Political party actors - Higher Educations Institutions / Research Centres
Presence of HEIs in the network	Indicates if there are Higher Education Institutions with voting rights present in the network.	1 - Yes 2 - No

Policy Areas	Classification of the scope of work developed through networks, by total number of policies addressed and by specific area. Adaptations made for the Portuguese context, matching Eurostat - Government expenditure by function[3], if applicable.	1. Agriculture (GF0402) 2. Environment, nature conservation and climate change (GF05) 3. Trade and markets (GF0411) 4. Culture and heritage (material and immaterial) cultural and natural (GF08) 5. Sports (GF08) 6. Education and Training (GF09) 7. Employment, entrepreneurship and support for productive and business sectors (GF0401) 8. Energy production and energy efficiency (GF0403) 9. Forests (GF0402) 10. Infrastructure and equipment (including construction and management) (GF06) 11. Research and Innovation (no class) 12. Sea and fisheries (GF0402) 13. Mobility and transport (GF0405)

[3] *European Commission Eurostat > Data > Database > Database by themes > Economy and finance > Government statistics (t_gov), available at* *https://ec.europa.eu/eurostat/Statistics-explained/index.php/Government_expenditure_by_function_%E2%80%93_COFOG*

14. Spatial Planning (GF0103)
15. Social and Youth Policy (GF10)
16. Health and Welfare (GF07)
17. Security and Civil Protection (GF03)
18. Taxes and Fees (GF0101)
19. ICT and NTIC (per se), Innovation and Competitiveness, Administrative Modernization (no class)
20. Tourism (GF0407)
21. Citizenship (GF0602)
22. Enhancement, animation and territorial promotion (cross-border included) (no class)

Appendix B

Informed Consent

Projeto DECIDE - Governação Territorial Descentralizada

Universidade de Aveiro
GOVCOPP, unidade de investigação em Governança, Competitividade e Políticas Públicas

Projeto financiado pela
FCT - Fundação para a Ciência e a Tecnologia

Coordenação do Projeto

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Informação para os Participantes

Obrigado por aceitar participar no nosso estudo. Esta folha de informação descreve os objetivos do estudo e fornece uma descrição do seu envolvimento e dos seus direitos como participante.

1. Finalidade do estudo O projeto DECIDE pretende compreender e dar a conhecer as redes de formulação e/ou implementação de políticas públicas, compostas por diferentes tipos de agentes, nas quais os municípios portugueses estão envolvidos. Sendo cada vez mais frequentes em Portugal, em áreas como a Educação, a Economia, ou a Proteção Social, reconhece-se a este tipo de instrumentos de governação grandes benefícios, mas também alguns desafios.

2. Uso da informação Usaremos a informação recolhida para redigir relatórios e documentos sobre o projeto, artigos científicos e livros sobre redes de governação em Portugal.

3. Métodos de pesquisa O método escolhido para recolher informação para este estudo é a entrevista estruturada presencial. O nosso objetivo é construir e formalizar uma narrativa de análise baseada no conhecimento público e profissional dos entrevistados sobre estas matérias. Será pedido o consentimento ao entrevistado para o uso de um gravador de voz para registar a conversa de modo a proporcionar uma análise mais fidedigna do seu conteúdo.

4. Confidencialidade Os registos deste estudo serão mantidos em confidencialidade. Nenhuma identidade individual será usada em relatórios ou publicações resultantes do estudo. As pessoas naturais entrevistadas receberão códigos que serão usados em todos os registos e relatórios verbais e escritos. As instituições ou organizações envolvidas serão citadas, sempre que necessário. De igual forma, serão dados códigos a todos os arquivos digitais, transcrições e resumos e estes serão armazenados separadamente de qualquer nome ou outra identificação direta dos participantes. Apenas os investigadores envolvidos na pesquisa terão acesso aos arquivos e aos registos digitais ou de áudio.

5. Disponibilidade do estudo Se desejar, poderá receber uma cópia dos documentos finais desta pesquisa, que disponibilizaremos aos participantes neste estudo, para que tenha a oportunidade de sugerir correções ou alterações, se necessário.

6. Participação voluntária A sua participação neste projeto de investigação é voluntária. Pode recusar responder a qualquer pergunta que lhe seja colocada e solicitar que seja desligada a gravação a qualquer momento. Poderá também se retirar em qualquer momento da entrevista, por qualquer motivo e sem qualquer prejuízo.

Nome e assinatura do(s) entrevistador(es):

Nome:_____

Assinatura:_____ Data _____

Nome:_____

Assinatura:_____ Data _____

Nome e assinatura do entrevistado:

Nome:_____

Assinatura:_____ Data _____

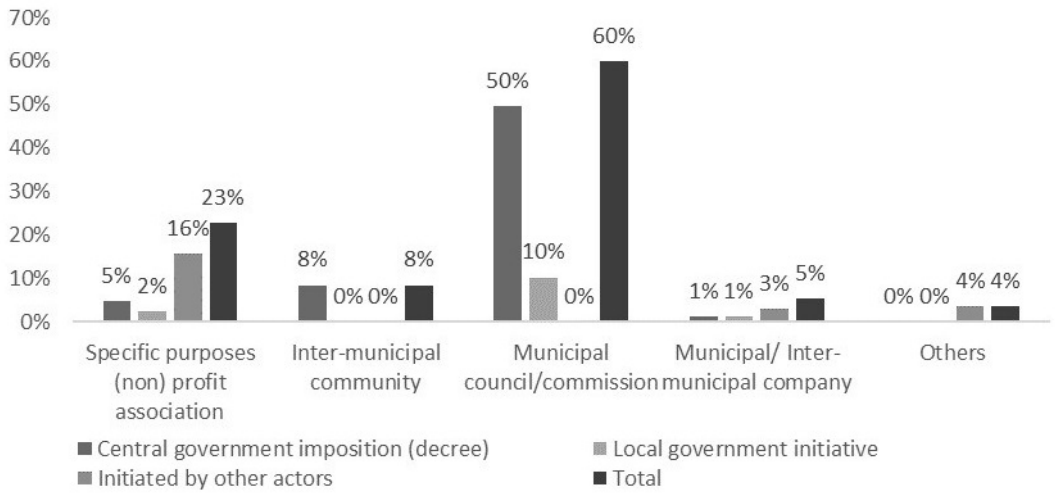
Appendix C

Stakeholders' distribution by typology of network

	Specific purposes (non) profit association	Inter-municipal community	Municipal council/commission	Municipal/ Inter-municipal company	Others
Public actors	38,4%	7,0%	8,2%	3,7%	2,7%
Third sector organisations (TSOs)	17,7%	0,0%	78,5%	3,8%	0,0%
Business and Industry associations	52,3%	0,0%	40,2%	4,2%	3,3%
Private actors	60,7%	0,0%	27,5%	5,8%	6,1%
Citizen groups and personalities	11,9%	7,5%	77,6%	3,0%	0,0%
Political party actors	0,0%	2,6%	97,4%	0,0%	0,0%
Higher Educations Institutions	46,7%	0,0%	31,7%	11,7%	10,0%

Appendix D

Reason for establishment, by typology of network



Appendix E

Normality tests and statistical procedures

Step 1

To check the normality visually, histograms were used and/or QQ-Plots of the variables to be investigated if there are differences between groups. To prove it, Shapiro-Wilk and Kolmogorov-Smirnov (KS) adjustment tests were applied with Lilliefors correction (Zvi Drezner et al., 2010).

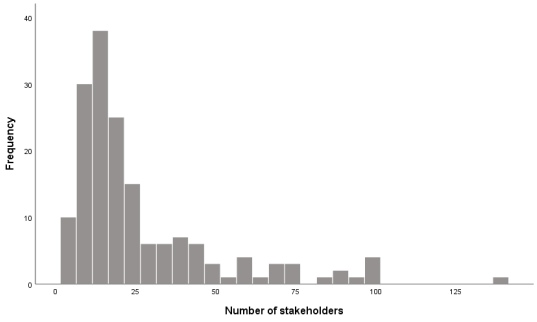


Figure E.1: Histogram of number of stakeholders

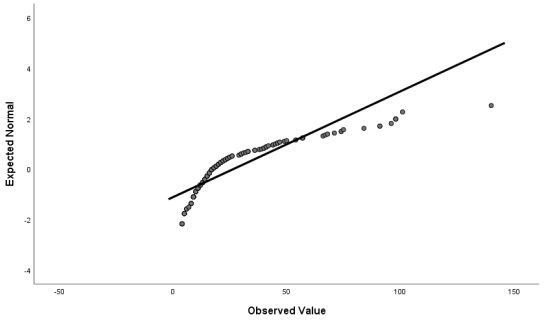


Figure E.2: QQ-Plot of number of stakeholders

A detailed analysis of the histograms presented allows us to affirm that there is no normality in the selected variables, based on the lack of symmetry in the respective histograms. QQ-plots also show a departure from the straight line resulting from the equality of theoretical and empirical quantiles. In order to prove what was previously explained, normality tests are shown in table below, which attested to what was mentioned, since the *p-value* of both

variables are below 0.05, so H0 is rejected, that is, the hypothesis of normality is rejected.

In effect, the lack of normality in the selected variables results in the impossibility of applying statistical inference methodologies whose assumptions include the existence of normality in the data.

Table E.1 Results of normality tests

	KS with Lilliefors correction	Shapiro-Wilk	Decision
Number of stakeholders	,000	,000	Reject H0
Number of Policy Areas	,000	,000	Reject H0
Note:	$p\text{-}value \leq 0.05$ Reject H0;	$p\text{-}value > 0.05$ Not Reject H0	

Step 2

Since there is no normality in the two previous variables and the rest are categorical, non-parametric tests will be applied to make the comparison between groups. Since these samples are not paired samples, that is, the samples under analysis are not different measures of a single individual, Kruskal Wallis test for independent samples will be used (McCrum-Gardner, 2008).

Appendix F

Differences between groups: number of stakeholders

Table F.1 Kruskal-Wallis test for presence and absence of HEIs in Stakeholders

Test statistics [a,b]						
	Number of public actors	**Number of Third sector organisations (TSOs)**	**Number of Business and Industry associations**	**Number of private actors**	**Number of citizen groups and personalities**	**Number of political party actors**
p-value	0,283	0,835	0,049	0,003	0,273	0,096

Note: a. Kruskal Wallis Test. b. Grouping variable: Existence of Higher Educations Institutions

Appendix G

Differences between groups: number of policy areas

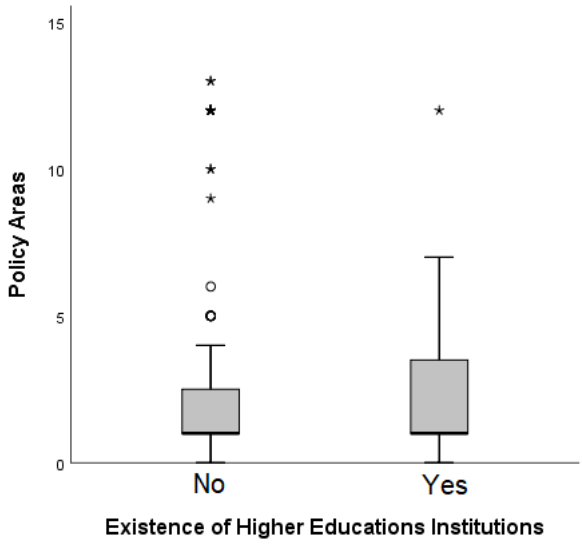


Figure G.1: Boxplot of presence and absence of HEIs in Policy Areas

Table G.1 Kruskal-Wallis test for presence and absence of HEIs in Policy Areas

Hypothesis test			
Null hypothesis	**Test**	**p-value**	**Decision**
Median for 'Number of Policy Areas' are equal for both the presence and absence of HEIs	Kruskal-Wallis Test (independent sample)	0,434	Not to reject the null hypothesis

Note: Asymptotic meanings are displayed. The significance level is ,050.

Appendix H

Differences between groups: number of policy areas (average and median)

	Existence of Higher Educations Institutions	N	Mean	Median
Policy Areas	No	135	3	1
	Yes	32	3	1
	Total	167		

Appendix I

Differences between groups: geographical scope

		Existence of Higher Educations Institutions			
		No	Yes	No (%)	Yes (%)
Geographical Scope	**Sub-municipal**	0	1	0,0%	3,1%
	Municipal	89	11	65,9%	34,4%
	Supra-municipal	16	14	11,9%	43,8%
	NUT III	19	1	14,1%	3,1%
	NUT II	4	2	3,0%	6,3%
	International	7	3	5,2%	9,4%