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Conducting the Circular Economy transition – the role of circular public procurement

EURAM, Lisbon, Portugal, June 2019

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Abstract

An increasing number of scholars consider Circular Economy as an effective approach to deal with environmental challenges and value creation and achieve a transition towards sustainability. But while many researchers have studied the countless challenges faced by organizations trying to implement Circular Economy, few of them have been interested in the potential role of public procurement to foster its implementation. Yet, management literature has already stressed that public procurement can be an effective policy instrument to advance the transition towards sustainability (Aldenius & Khan, 2017). Consequently, the question we raise in this paper is to determine under which conditions public procurement can represent an effective instrument to accelerate the transition towards Circular Economy. In order to deal with this question, we use a qualitative method focusing on a research project which aims at developing Circular Economy in Paris Region using public procurement. Drawing on results coming from transition studies (Geels, 2002; Geels & Schot, 2007), our research conceptualizes a multi-level approach which outline the required conditions to achieve the implementation of an effective circular public procurement.

Keywords: Circular economy, public procurement, transition, sustainability

Introduction

Over the past years, the concept of Circular Economy (CE) has emerged and is now considered as an economic system that can contribute to the transition towards sustainability (Lieder et al., 2016; Reike et al., 2018). Originally advocated by practitioners and organizations such as the Ellen MacArthur Foundation (EMF) and the European Union (EU), Circular Economy (CE) is now gaining momentum in academic literature, and is increasingly discussed as an effective approach to tackle Grand Challenges (Ferraro, et al. 2015). But so far, there are still many discrepancies in CE conceptualizations, so recently, several scholars have been working on unveiling the historical construct of CE's notion (Blomsma et al., 2017; Murray et al., 2017; Reike et al., 2018), outlining its characteristics and trying to agree on a standard and robust definition (Korhonen et al., 2018a, 2018b, Kirchherr et al., 2017, Prieto-Sandoval et al., 2018).

Many researchers have also studied the barriers that are encountered by organizations which are willing to implement CE (Gregson et al. 2015, Kirchherr et al., 2018) highlighting especially the difficulties experienced by companies in setting up circular models (Ghisellini et al. 2015; Van Beers et al., 2007; Veiga and Magrini, 2009). However, even though several researchers have highlighted the role of Public Procurement (PP) in bringing sustainability (Von Oelreich & Philip, 2013, Preuss, 2009, Grandia, et al. 2015), few works have been carried out on the potential role of Public Procurement (PP) in the transition towards CE.

As a result, the question we raise in this paper is to determine under which conditions PP can represent an effective instrument to achieve the transition towards CE. In order to answer this question, we conduct a qualitative study and focus on the case of PP, analyzing how public and private actors are trying to implement CE by using this policy instrument. In this paper we first present our literature review and show that a multi-level perspective is

particularly suited to our research question, then we present the methodology we have followed and eventually, we present our results which conceptualize a multi-level approach that can be used to achieve the implementation of an effective circular public procurement.

Literature review

Here we present the academic literature of Circular Economy (CE), to understand to what extent this concept can be useful to achieve a sustainable transition. Then, we go through the existing literature on sustainable studies to determine how a multi-level perspective can be relevant to conceptualize the transition towards CE, and eventually, to clarify our research context, we present previous academic works which have been carried out on sustainable and green public procurement.

Circular Economy and sustainable transition

The sharp increase of the number of publications since the year 2000 (Lieder & Rashid, 2016; Reike et al. 2018) shows the growing importance of the concept of CE as a way to attain sustainable development (Prieto-Sandoval et al. 2018). CE can be considered as an umbrella (Blomsma & Brennan, 2017) and essentially contested concept (Korhonen et al. 2018b), which can be seized by heterogeneous actors with different visions and interests. Building on existing CE literature and taking into account sustainable development objectives, several scholars have tried to propose a standard and robust definition of CE (Kirchherr et al., 2017; Korhonen et al. 2018a; Korhonen et al., 2018b; Prieto-Sandoval et al., 2018). Yet, so far, there are still discrepancies as the concept encompasses a collection of older practices like industrial ecology, recycling, cradle to cradle or eco-design (Blomsma &

Brennan, 2017; Korhonen et al., 2018a; Korhonen et al., 2018b; Murray et al., 2017; Reike et al., 2018).

In the CE academic literature, some researchers claim that CE definition and implementation aim at achieving a sustainable transition (Geissdoerfer et al., 2017; Kirchherr et al., 2017; Prieto-Sandoval et al., 2018). Besides several scholars indicate also that a multi-level approach is relevant to analyze the transition to CE and distinguish the micro, meso and macro levels (Kirchherr et al., 2017; Merli et al., 2018; Murray et al., 2017; Prieto-Sandoval et al., 2018). Usually, the micro level corresponds to products, companies, consumers; the meso level to inter-firm interactions, eco-industrial parks; and the macro level to cities, provinces or national areas (Kirchherr et al., 2017; Merli et al., 2018). However, even if this multi-level approach represents an interesting conceptual tool to analyze the systemic complexity of CE; it is not suited to conceptualize the global dynamic of CE and especially the inter-level dynamics that could give birth to a transition towards CE.

Sustainable transition and multi-level perspective

With regards to the transition towards sustainability, a field of research has emerged in the year 2000 proposing different frameworks to analyze how a sustainable transition can occur. This field of research is generally referred to as “transition studies” and is structured around four different frameworks (Markard et al., 2012): transition management (Kemp & Loorbach, 2006), strategic niche management (Raven & Geels, 2010), the multi-level perspective on socio-technical transitions (Geels, 2002; Geels & Schot, 2007) and technological innovation systems (Bergek et al., 2008). According to Geels (2002), in the multi-level perspective on socio-technical transitions “the micro-level of niches accounts for the generation and development of radical innovations”, the meso-level “accounts for stability of existing technological development and the occurrence of trajectories” and “the macro-

level of landscape consists of slow changing external factors, providing gradients for the trajectories” (figure 1).

Geels (2002) explains that niches are essential to transitions because they are protected from market competition and can give birth to radical innovations that will challenge the dominant regime. As a result, changes at the landscape and regime levels can create a “window of opportunity”, especially if at this time, there is much landscape pressure and if niche innovations have developed sufficiently. In that case, the latter will break through and replace the existing regime (Geels, 2002; Geels & Schot, 2007). While socio-technical transitions field has mostly focused on technological innovation, Kemp & Loorbach (2006) precise that in the broader context of transitions, these levels can be interpreted in terms of: micro-behavior, dominant actor networks and institutions (regimes) and societal landscape. This framework is pretty useful to conceptualize how radical innovations developed in protected niches, can thrive and foster societal transitions by opening new trajectories out of the dominant regime. But given that our research focuses on PP, we will now discuss how researchers have studied the link between PP and sustainability.

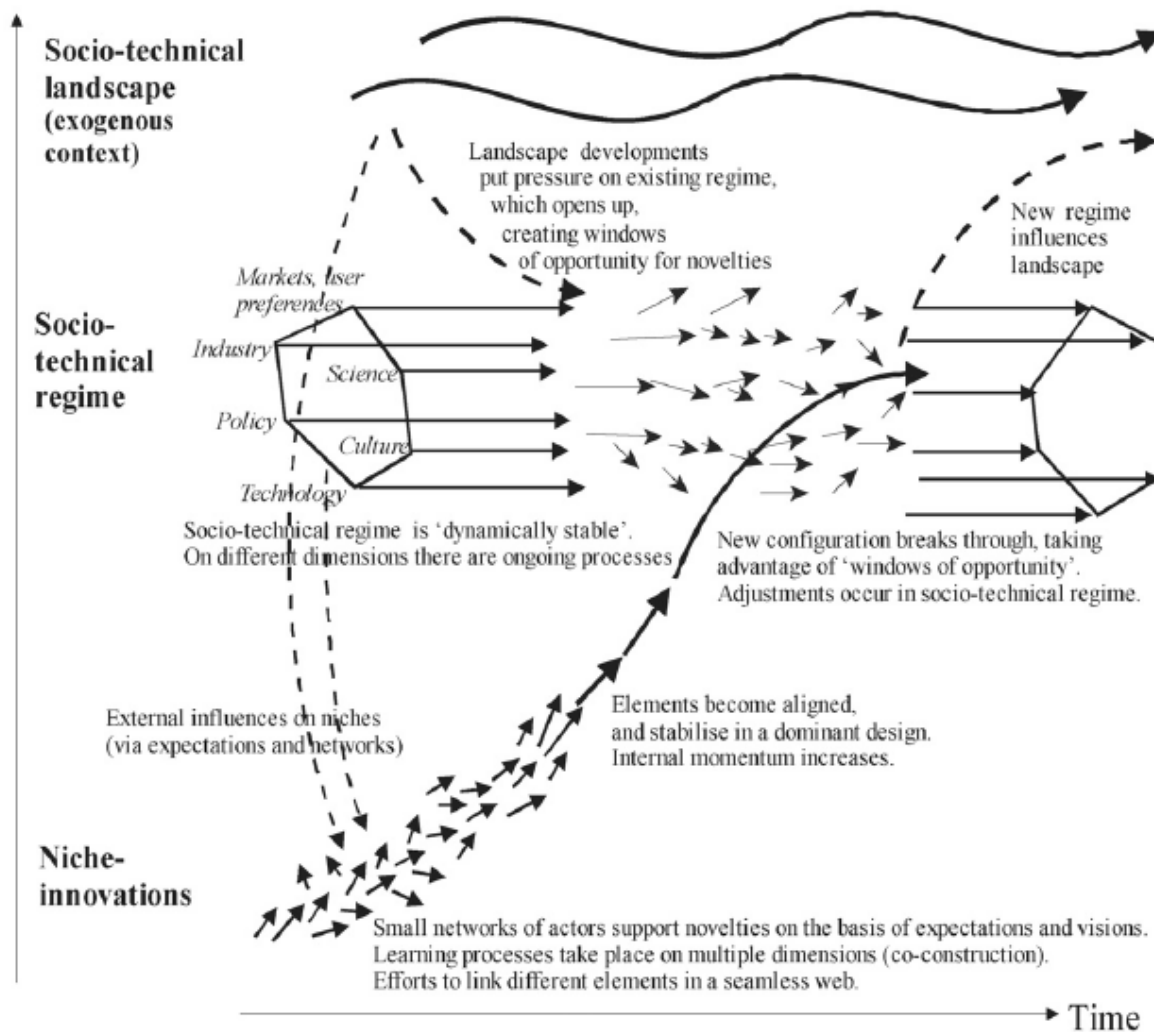


Figure 1 : Multi-level perspective on transitions (Geels&Schot, 2007)

Sustainable and Green public procurement

Public procurement (PP) can be defined as “the acquisition of goods and services by government or public sector organizations” (Uyarra and Flanagan, 2010). PP includes education, leisure, and social services (Walker & Preuss, 2008). In management literature, the terms “Sustainable public procurement” (SPP) and “Green public procurement” (GPP) have been used to point out how PP can be used as a policy instrument for reaching environmental quality objectives (Von Oelreich & Philip, 2013). Some scholars have defined SPP as the act of integrating a concern for broader social and environmental impacts within PP (Brammer &

Walker, 2011; Preuss, 2009), and reckon that SPP has a broader scope than GPP as it takes into account all pillars of sustainability: economic, social and environmental (Aldenius & Khan, 2017), whereas GPP focus mainly on environmental benefits (Testa et al., 2012).

Over the past years, an increasing number of researchers have been studying the barriers and drivers of SPP and GPP (Grandia et al., 2015; Brammer & Walker, 2011). According to Grandia et al. (2015), most of these studies emphasize factors such as lack of financial or human resources, lack of expertise (Brammer & Walker, 2011), policy issues such as missing supporting criteria or scope (Melissen & Reinders, 2012). Other researchers pinpoint the importance of an active top management (politicians and high-level staff) to achieve the implementation of SPP and GPP in planning strategies (Brammer and Walker, 2011). Hitherto, there has been limited research regarding PP and Circular Economy apart from Witjes & Lozano (2016) who have studied the links between Circular Economy, PP and supply practices. They propose a framework which can lead to better collaboration and conflict resolution between public actors and suppliers. According to Witjes & Lozano (2016), this framework can be used to design PP processes which contribute to CE, closing loops and reducing waste production, as well as the amount of raw materials needed.

Methodology

In order to analyze the transition towards CE, we have chosen to use a qualitative method with an instrument-based approach. Indeed some scholars have shown that analyzing the dynamic and evolution of management or policy instruments can represent a relevant approach to unveil socio-economic evolutions and transformations of society (Chiapello & Gilbert, 2013; Aggeri & Labatut, 2010; Lascoumes & Simard, 2011). Besides, those

researchers consider that “mutli-level studies going from regulation debates, instruments of control and public policies to study then their impacts and materialization through management tools and practices in organizations, would be really relevant to understand the way an economic system evolve” (Chiapello & Gilbert, 2013, p. 256).

Some authors have indicated that public procurement (PP) is a policy instrument that can be used to bring sustainability (Von Oelreich & Philip, 2013, Preuss, 2009, Grandia et al., 2015) and which represents a key source of demand for firms in sectors such as construction, healthcare and transport (Elder & Georghiou, 2007, Rolfstam, 2009), with 16.3% of the combined EU-15 GDP (Georghiou, 2004). Therefore, we have chosen to study the evolution of this instrument from the analysis of the design phase (managed by public actors) to the implementation of tools and practices by companies, in order to understand how these actors are trying to integrate CE in their processes (public actors) or obtain public contracts with their CE products and services (companies). In other words, drawing upon previous works on instrument-based approaches (Aggeri & Labatut, 2010), we consider that analyzing the transition of PP towards circular public procurement (CPP) is a good way to analyze the transition of society towards CE. According to the European Commission (2017), CPP can be defined as : “the process by which public authorities purchase works, goods or services that seek to contribute to closed energy and material loops within supply chains, whilst minimizing, and in the best case avoiding, negative environmental impacts and waste creation across their whole life-cycle”.

For our research, we collected data via interviews and workshops within the EcoCirc research project, co-funded by three public actors:

- Val-de-Marne, a public local authority of Paris region, with 1.4 millions of inhabitants and regrouping 47 cities

- Grand Orly Seine Bièvre, a public local authority of Paris region, with 0.7 million of inhabitants and regrouping 24 cities of which some are located in Val-de-Marne
- DRIEE, a public regional administration dealing with issues related to energy and environment in Paris Region

EcoCirc is a two years research project (2018-2020) which aims at developing an innovation ecosystem of CE in Val-de-Marne's area thanks to the implementation of CPP. This project regroups public actors (local authorities, research laboratories) and private companies. The project is led by the Materiaupole, which is a cluster located in the Val-de-Marne's area and regroups start-ups, associations, public local authorities and universities. The focus on Val-de-Marne and Grand Orly Seine Bièvre is justified by their active experience in supporting CE both by initiatives and experimentations within their areas.

During the project, we have worked in partnership with the Materiaupole to set up five workshops dedicated to CPP, from May 2018 to December 2018, with roughly fifteen participants in average (table 1). These participants were mostly purchasers and sustainability project managers working at Val-de-Marne, Grand Orly Seine Bièvre and other municipalities which are members of Grand Orly Seine Bièvre like for instance Orly or Vitry. Besides, some entrepreneurs who invested in CE and are members of the Materiaupole assisted or intervened in these workshops. During these workshops, we have been able to work with public agents to understand their concerns regarding CPP implementation and to foster interactions between them and entrepreneurs.

Table 1 : List of workshops organized / source: authors

Date	Theme	Participants	Duration
May, 2018	Circular Economy and Public procurement	22	3h
June, 2018	Life Cycle Cost in public procurement	12	3h
Septembre, 2018	Sourcingcircular companies	12	3h
Octobre, 2018	ecolabels and Circularprocurement	12	3h
Decembre, 2018	Life Cycle Cost in public procurement	25	3h

We conducted also 21 semi-directive interviews during six months from June to December 2018, with public and private actors dealing with PP, many of whom being part of the EcoCirc project (table 2). The objective of these interviews was to get data regarding their PP practices (either from public or private side), their interest in CE, the barriers encountered to implement CPP (public actors) or win PP/ CPP tenders (private actors), their experiences regarding CPP and their ideas to overcome the barriers they were facing to implement CPP or gain PP / CPP tenders.

- 11 interviews with public agents: purchasers, experts, sustainability project managers from Val-de-Marne, Grand Orly Seine Bièvre and other public local authorities in Paris Region
- 10 interviews with top managers and project managers from private organizations involed in EcoCirc or other CE projects.

Table 2 : List of interviews conducted during EcoCirc project / source: authors

Date	Duration	Position	Organization	Sector
31/05/2018	2h05	Director	Agilcare	private
08/06/2018	1h45	CEO	IPSIS	private
11/06/2018	53 mn	Director	Maximum	private
15/06/2018	2h10	Project manager -Sustainable Development	Val-de-Marne	public
22/06/2018	1h30	Account Manager	UpCyclea	private
29/06/2018	1h15	Manager - Sustainable Public Procurement	Ademe	public
09/07/2018	2h19	Business Manager	Eiffage	private
10/07/2018	1h25	Project Manager - Environment & Waste	Paris Est Marne et Bois	public
12/07/2018	1h18	Head of Public Procurement	Val-de-Marne	public
13/07/2018	2h45	Account Manager	UpCyclea	private
24/07/2018	2h15	Project manager - Circular Economy	Val-de-Marne	public
25/07/2018	1h15	RegionalDirector	Linkcity	private
22/08/2018	1h05	Manager - Circular Economy	Paris' city council	public
29/08/2018	1h10	Manager - Quality& Environment	Val-de-Marne	public
29/08/2018	1h18	Director	Novasirhe	private
13/09/2018	54 mn	Director	Univers et Conseil	private
29/11/2018	1h12	Public Procurement	Est-Ensemble	public
30/11/2018	35 mn	Manager for Sustainable Public Procurement	Ademe	public
03/12/2018	1h02 mn	Head of Public Procurement	Vitry's city council	public
04/12/2018	55 mn	Architect & Partner	Readymader	private
13/12/2018	1h32	Project manager - Sustainable Development	Paris Saclay	public

In order to analyze the data collected, we used an analytical framework built on our literature review (including grey literature like EU documents and French publications). We adapted the multi-level perspective issued from our literature review in order to obtain a framework more suited to the case of public procurement (table 3) .While analyzing our data with this framework, we have been able to bring out fifteen categories that helped us to split and regroup our data (table 4).

Table 3 : Conceptual framework / source authors

Level of analysis	Object	Examples
Agent (micro)	Practices of individual agents (public purchasers, entrepreneurs) regarding CPP	- Individual behaviors and initiatives of public buyers regarding CE - Innovation strategies of small companies which develop CE products
Regime (meso)	Dominant regime of public procurement	- Performance indicators of public procurement processes - Adoption of new rules in the public procurement process to foster the selection of CE products
Landscape (macro)	Political and legal environment	Introduction of a new law regarding CPP

Table 4 : List of categories used to analyze the data / source authors

Level of analysis	Categories
Agent (micro)	Skills Methods & tools Time management Motivation Risk aversion Habits
Regime (meso)	Risk management culture Public-private partnership Transversal organization Supplier's performance Budget management Short-term perspective Suppliers' control
Landscape (macro)	Legal framework Political issues

Analysis and results

Drawing on our conceptual framework (table 3) and categories (table 4), our analysis allows us to identify several dynamics induced by the integration of CE in PP. In the following sections, we explain the impacts of these dynamics occurring at the micro, meso and macro levels.

Analyzing the dynamics of circular procurement, a multi-level perspective

Using a multi-level analysis, we specify the different dynamics generated by the introduction of CE in PP (figure 2). At the micro level, we have identified three individual items which are shaping CPP dynamic. At the meso level, we outline the dominant regime that structures organizational processes of PP in public authorities, and finally we focus on unveiling the institutional mechanisms at the landscape level which exert influence on CPP.

Individual components of the implementation of CPP at the agent (micro) level

At the micro level, there are three main elements which are structuring the dynamic of CPP (figure 2), two in the public sector (cognitive issues, behavioral patterns) and one in the private sector (start-up innovations). In the public sector, the first element refers to cognitive issues such as representations, beliefs and knowledge of public agents regarding sustainable and circular PP. For instance, in terms of representations and beliefs, one of the most shared representations among public agents is that a green purchase is always more expensive than a regular purchase, so many public agents who have great pressure from their managers to reduce costs do not even consider the possibility of buying products from CE. As a result, there is a great demand from public agents to be able to use tools such as Life Cycle Cost (LCC) analysis in order to convince their managers that CPP can be cost-efficient. Because of

this great demand, after having organized a workshop on LCC in June 2018, we have decided to organize another one in December, and so far, this is the one which has reached the highest number of attendees (table 1).

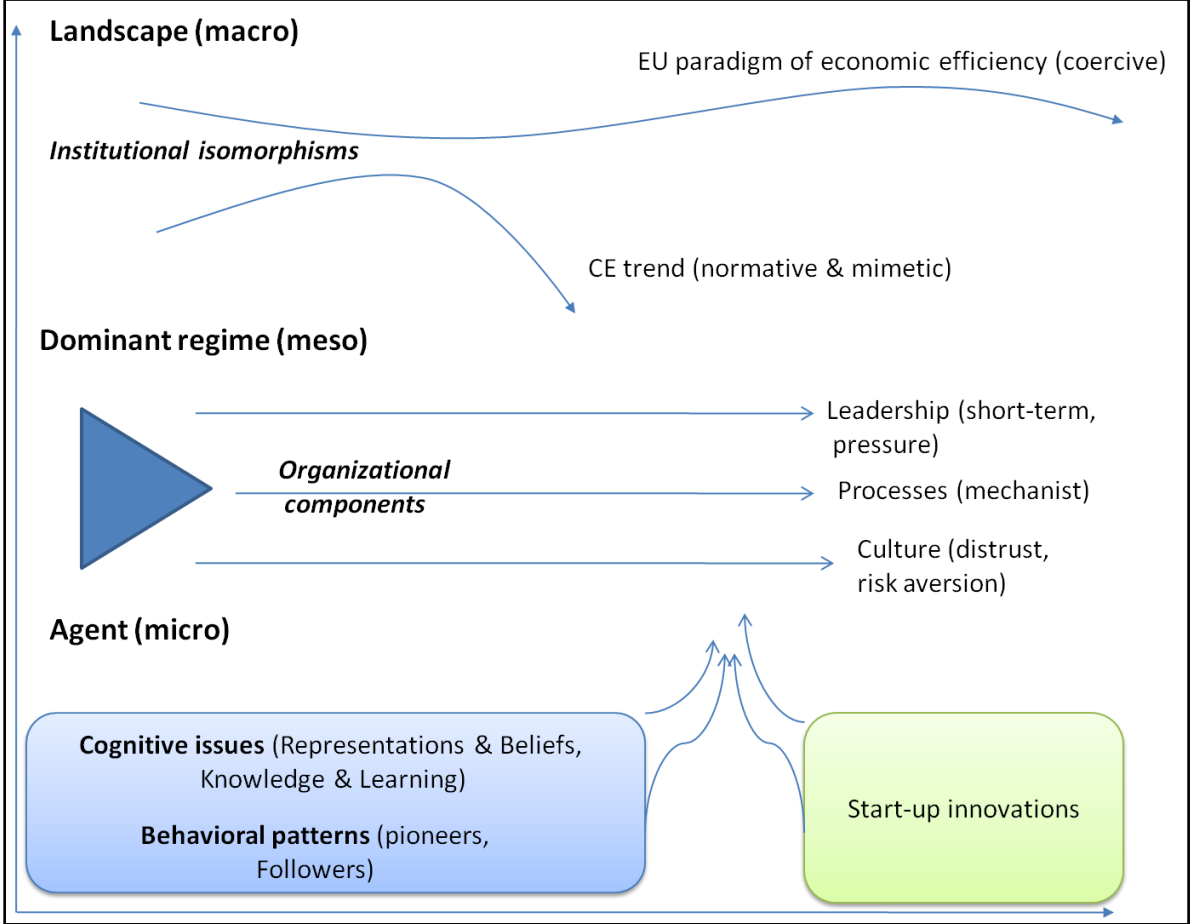


Figure 2: multi-level dynamics of the transition towards circular public procurement

In terms of cognitive issues, we identified also knowledge and learning problems. In academic literature, several researchers have already emphasized the importance of providing public actors with training, methods and tools to help them design Sustainable PP (Testa et al., 2016; Testa et al., 2012). This has been confirmed in our study by actors of public local authorities who explained during our workshops that they needed information regarding eco-

labels, environmental norms and tools such as Life Cycle Cost (LCC) analysis to be able to design circular tenders. These needs in terms of training and skills can also be explained by the fact that the concept of CE is still recent and so are the set of CE related measures which have been included in PP legal framework.

Regarding the second element, it refers to the behavioral patterns existing among public agents, namely the pioneers who are willing to implement CPP practices and the followers who stick to their own habits. On one hand, the pioneers are not afraid to try new tenders with specifications and criteria of CE. Even though they are facing numerous constraints and barriers, they definitely feel like pioneers and decide by themselves to enhance their skills and insert green and circular criteria in their tenders. For instance, a public agent claimed: *“sustainable development and circular economy, we are trying to put it into our tenders. When there are reused materials, we would like to reward them with an environmental criterion”*. But on the other hand, these pioneers are stumbling over their colleagues who behave like followers and are not willing to change their habits or try new practices, as stated here by a pioneer public agent: *“because these are new practices, some technicians we are working with don’t want to change their way of doing things”*.

At the micro level, the CPP dynamic is also fed by a last element corresponding to radical innovations developed by companies and start-up which are engaged in CE. Building on the current CE societal trend, an increasing number of startups are trying to develop CE products and services. For example, at the Materiaupole, the cluster leading the EcoCirc project, several members who have developed CE innovative solutions decided to take part in the EcoCirc project in order to promote their own innovations and increase their chances to get known and selected by public buyers. For instance, start-ups such as Maximum, which is a startup producing furniture using industrial waste and Agilcare, which is producing eco-

designed and removable wood buildings have chosen to take part in the EcoCirc project in order to meet public buyers and gain potential public tenders in the future.

The organizational dominant regime structuring PP (meso level)

The data collected with regards to public local authorities indicate that the dominant regime structuring these organizations results from the combination of three organizational components: processes, culture and leadership. In terms of processes, we consider that public authorities are mechanistic organizations as defined in contingency theories (Burns & Stalker, 1961). This mechanist component relies on routines, tasks, very formal procedures and complex administrative rules. As a consequence, local public authorities are highly hierarchical and rigid structures with organizational routines constituting a barrier to CPP because public agents do not have incentives to question their practices and try alternative ones. Another main barrier generated by this mechanist component is that it prevents agents from developing interdisciplinary practices between different services. Indeed, implementing CE within an organization often requires cooperation between different teams as stated here by a public agent: *“Circular Economy is the first subject which is really cross-disciplinary and that structures a lot of things”*. But due to the force exerted by the mechanist component, several public agents explained how difficult it is for them to work with other services.

Regarding the cultural component, we noticed that several organizational sub-cultures constitute barriers to the transition towards CPP. For example, there is a culture of risk avoidance in legal departments of public authorities because any agent who is interested in trying innovative CPP practices will get much pressure from the legal department to conform to standard procedures. This explains also why during our workshops, several agents expressed risk aversion and systematically discard CPP practices, considering that a circular purchase is likely to be dismissed by Court. We can also mention another sub-culture we can

call the “public service” one. It is characterized by some distrust towards private actors which limits the willingness of public agents to cooperate with companies. Initially, the distance between public and private actors has been enacted in order to meet the requirement of “equal treatment” stipulated in the European legal framework to avoid favoritism or corruption. But now, the distrust fed by this distance between public and private actors represents a real barrier to CPP as Witjes & Lozano (2016) reckon that collaboration between purchasers and producers is a key component of the transition towards CPP.

Furthermore, the distrust towards private companies induced by the public service sub-culture represents also a barrier to CPP because as public agents do not trust companies, they anticipate that the environmental data they will request during a PP process will be false or incomplete, or they expect that private companies will not respect the environmental specifications of the tenders during the utilization stage of the PP process (figure 3). This problem is illustrated here by a public agent talking about the integration of CPP specifications in a tender: *“it’s difficult to impose something to a provider, who could check it? And even if you do it yourself, will your manager support you if you set up a control?”*

The last organizational component of the dominant regime is related to the Leadership style which is used in public local authorities. For example, while carrying out our workshops and interviews, we noticed how difficult it is to get in touch with the public agents involved in PP processes. Most of public agents seem to be under pressure to carry out a lot of tenders which consistently decrease the amount of time available to explore alternative green practices. For example, a public agent who is interested in implementing CPP practices explains that her colleagues *“don’t have time and think that it will represent an extra workload”*. Another aspect of this leadership component is the short-term perspective, which gives priority to any project or action which gets an impact in the short term. This short-term perspective relies mainly on political leaders within public organizations who are pushing to

get visible and short-term achievements in order to gain even more legitimacy and political power. But this short-term perspective represents a real barrier to CPP because the transition to CE needs to be thought on a long-term and strategic perspective.

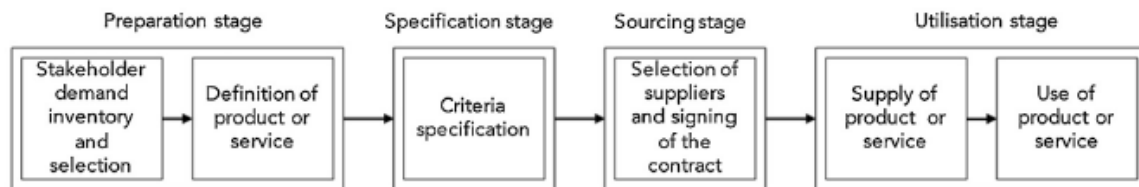


Figure 3: The Public procurement process (Witjes& Lozano, 2016)

Institutional isomorphisms at the societal landscape (macro) level

In transition management studies, the societal landscape refers to exogenous trends which structure society like for instance economic growth, environmental issues, demographic change, cultural and normative values, new social movements, shifts in general political ideology, broad economic restructuring, emerging scientific paradigms or cultural developments (Kemp & Loorbach, 2006; Markal et al., 2012; Geels, 2002, 2007). Here, in our study, we will focus on political and legal trends because they exert the greatest pressure on PP procedures. As a matter of fact, we identified three institutional isomorphisms (Di Maggio & Powell, 1983) which are wielding much influence on public organizations regarding CPP (figure 2).

The first isomorphism is a coercive one which is structured by the EU legal framework relying on “the European paradigm of economic efficiency” (Helfrich & Romestant, 2015). It materializes through the European directives which have been defining the rules for PP in Europe since 1971 (Helfrich & Romestant, 2015). If we take for example the directive 2014/24/UE, it contains 94 articles establishing rules regarding the PP process, such as the thresholds corresponding to the different kinds of procedures, the use of framework

agreements or the award allocation principles. This directive has been transposed in the French law in 2015/2016 and defines mandatory rules that public procurers have to follow all over the PP process from the demand formulation to the preparation and the utilization stage (figure 3).

This 2014/24/UE directive, as well as other EU directives are structured by the European paradigm of economic efficiency, meaning that they are mainly influenced by economic theory which emphasizes market competition principles: value for money (cost-effectiveness), fairness, non-discrimination, equal treatment, transparency and proportionality (EC, 2016). These principles are mandatory in all tenders and shape a coercive isomorphism (Di Maggio & Powell, 1983) in a sense that any public tender that would not respect these rules can be dismissed by Court. On the other side, the trend triggered by CE has shaped two institutional isomorphisms. Compared to the coercive one, these two isomorphisms are more recent because they are related to the emergence of CE.

The first one is a normative isomorphism which is also shaped by the EU legal framework, mainly since the 2014/24/UE directive which has introduced rules favorable to CE. For example, it is since the directive 2014/24/UE that public buyers are allowed to take into account a product lifecycle in the specifications and criteria of a tender. However, in this directive, principles related to CE are not mandatory and public purchasers can choose to implement them or not. For instance, a public buyer can decide to use an eco-label in the specifications of his tenders in order to target companies which produce eco-designed products, but it is not an obligation. So given that this isomorphism wields standardization pressures on public authorities, it can be considered as a normative isomorphism (Di Maggio & Powell, 1983).

Eventually, there is a mimetic isomorphism relying on the CE trend that has been emerging in Europe over the past years and is mediated by CE advocates and consulting companies such as The Ellen MacArthur Foundation. However, given that the European paradigm of economic efficiency relies on a coercive isomorphism, for the time being, it is the one exerting the greatest influence on public organizations and public buyers' practices. This explains why most public authorities give the priority to cost efficient instead of environmental friendly specifications in their PP processes.

Conceptualizing the transition towards circular public procurement

Transitions studies have shown that ongoing processes at the regime and landscape levels can create a “window of opportunity” for radical innovations (Geels, 2002). According to Geels (2011), this transition process can occur when there are “changes in the beliefs of incumbent actors”. In this part, first, we show that CE has been specifically constructed as a rational utopia (Metzger, 2001, Aggeri, 2017) which is currently bringing a momentum to foster the transition towards sustainability, then we analyze the tensions induced in the dominant regime of PP by CE's rational utopia, and eventually we propose a model to conceptualize the required conditions to achieve the transition towards CPP.

Circular economy as a rational utopia fostering societal change

Actually, our thesis is that CE as been constructed as a rational utopia (Metzger, 2001) carrying expectations and visions that contribute to change the beliefs of incumbent actors, which creates a “window of opportunity” for new CE solutions. In other words, it would mean that as a rational utopia, CE can foster the emergence of radical innovations that are able to

initiate new trajectories out of the existing regime and accelerate the transition to sustainability.

Some scholars have already shown that the concept of rational utopia is perfectly suited to analyze societal change dynamics (Metzger, 2001, Aggeri, 2017). In France, the concept of CE has been mainly promoted by the EMF (Ellen McArthur Foundation), the INEC (French Institute of Circular Economy) and the Ademe, a French public agency depending on the ministry of environment. First, in Metzger's terms, CE encompasses a vision articulating a critic of the existing economic model (the linear economy) with a promise of an alternative model (the CE). Besides, like in Metzger's definition of a rational utopia, circular economy contains striking images and representations that can be found in discourses and stories of actors involved in circular economy.

Those discourses and stories refer to attracting images like a "zero waste" society, namely a society without waste, where energy and materials streams would be fully circular, like in Nature (EMF, 2013a, 2013b, 2015a; INEC, 2015, 2018). Finally, the concept of circular economy contains also a rational system thinking (circular loops) (figure 4) and a list of policy measures drawing some kind of ideal public planning to perform the promise of a transition from linear to circular economy. For example, the EMF has designed and promoted a set of tools for implementing CE to companies (EMF, 2015b) and political decision makers (EMF, 2015c).

One of the most visible signal of the impact of this rational utopia has been the sharp increase of conferences, events and networks which have been set up to promote the concept within society. In the case of PP, the political and legal framework has also evolved in France, with a national law which has been voted in 2015 to support a green and sustainable transition. This law claims that all public authorities having an annual budget over than a

million have to implement an action plan towards sustainable and circular procurement. Even if this law does not contain any sanction for disobedient organizations, it represents a real incentive. Furthermore, we can also add that in May 2018, the French government initiated a national action plan to foster the development of CE and inserted in this plan, a chapter dedicated to the transition of PP towards CPP. These elements confirm that the emergence of CE represents a momentum and opens a window of opportunity to foster change within the dominant regime.

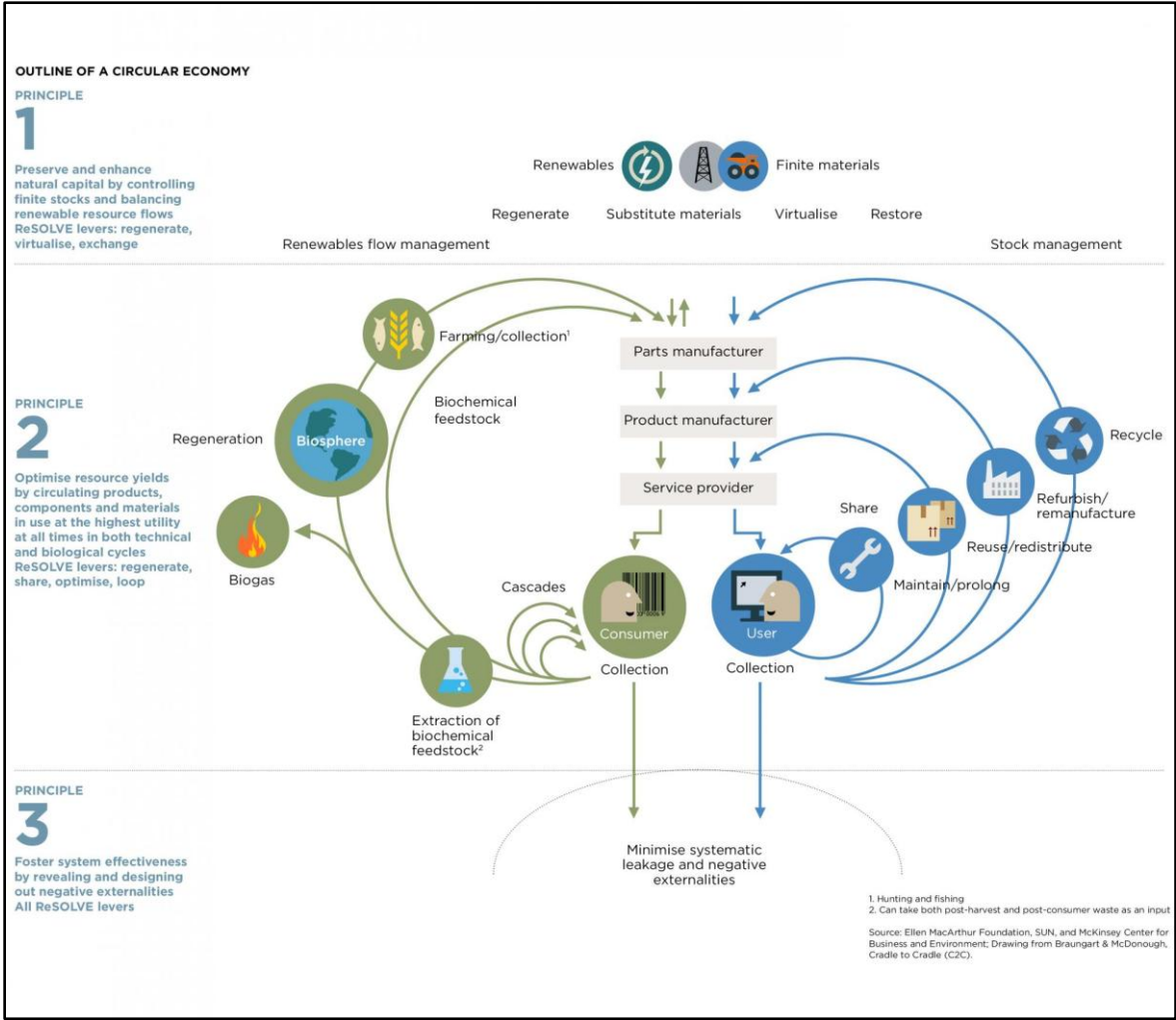


Figure 4: Example of diagram associated to circular economy / source: Ellen MacArthur Foundation

Multiple pressures on the dominant regime

Actually, we observed changes occurring at the landscape and micro-level which are reinforcing each other and lay the foundations for a transition path towards CE. The changes occurring in the societal landscape are shaped by the underlying rational utopia of CE and engender pressures on the dominant regime. These pressures are visible through the recent action plans that have been voted by several public authorities in France to initiate a transition towards sustainable and circular PP. This CE dynamic is all the more remarkable that in France, sustainable PP is not a recent matter. Actually in 2007, a first national has been launched by the French government, several networks were created in France to provide public purchasers with training and technical support with regards to sustainable PP and a specific digital platform called “Rapidd” has been created for them. But in spite of these measures taken at a national level, sustainable PP has faced many difficulties in its development.

But since the emergence of CE, the situation has changed. If we take the case of Paris Region, at least four local public authorities have set up such an action plan (the Yvelines, the city of Paris, Paris Region’s authority and Val-de-Marne), and several others are about to do the same. Besides, all those action plans include items related to CPP, and two of them have even put it as a major chapter of their plan. For example, the plan of the Yvelines contains three main chapters, and the third one is: “Contribute to the protection of the environment and the transition towards circular economy”, while the action plan of Paris Region’s authority contains five chapters with a third one which is: “A leading regional public procurement with regards to environmental and circular economy concerns”.

However, in spite of the dynamic which is fed by CE, there are some resistances coming from the dominant regime, especially the mechanist component. Due to the heavy weight of

public procedures, actions listed in the plans takes much time to be implemented, if it is ever done. For example, in the Val-de-Marne, the action plan was initially supposed to be voted in 2017, but eventually has only been voted in June 2018, and whilst workshops were supposed to take place to carry out the actions from 4th Quarter of 2018, so far they have still not started and even the public agents who have been working on this plan for several months don't know when they will really start. In spite of all these delays, the agents we interviewed estimate that compared to other public policies they worked on, the construction and vote of this plan has been relatively quick. This gives an overview of the difficulties generated by the mechanist regime.

There are also tensions brought to the dominant regime and coming from radical innovations launched at the micro-level. In sustainable studies, these radical innovations come from socio-technical niches (Geels, 2002) and are designed by small entrepreneurs and companies who are trying to provoke a shift in the dominant regimes. In the case of PP, these socio-technical niches also exist but do not constitute the only source of innovation. Actually there are two main sources of innovation; some are coming from socio-technical niches and other from public agent initiatives. This is the conjunction of these two kinds of innovations which is creating tensions in the dominant regime of PP. For example, regarding socio-technical niches, we can consider that the Materiaupole, the leading cluster of the EcoCirc project, is a real niche and source of radical innovations, as it selects, support and protect small innovators, many of whom being involved in CE.

For instance, we can mention Rejoué, a social company which employs low skilled workers to refurbish and resell children's toys, or Maximum which set up a partnership with a chemical large company to collect its plastic industrial waste in order to remanufacture them in office's furniture. There are about thirty other companies like these who are members of this cluster with half of them who accepted to be part of the EcoCirc project. Thanks to her

motivation, a public agent has been able to design and launch a tender with circular criteria, which allowed her organization to designate Réjoué as the tender winner. In the Grand Orly Seine Bièvre, another buyer decided to launch one of the first CPP tender ever issued by her organization. She launched a PP clearly stipulating in the subject matter of the contract that the objective was to purchase furniture in accordance with circular economy principles. Thanks to this initiative, Maximum has been selected to provide this organization with its remanufactured furniture. So the combination of radical innovations designed by start-ups with innovative practices of some public agents is putting pressure on the PP dominant regimes.

A transition pathway towards Circular Public Procurement

The tensions generated in the dominant regime by the dynamics occurring at the landscape and micro levels show that a transition path towards CPP is opening. However, for the time being, the dynamic is still unsteady. Thus, the set of action plans that has been launched towards sustainable and circular public procurement in Paris region is a good indicator of the trajectory initiated by CPP. For example, while analyzing the implementation process of CPP in Val-de-Marne, we have not seen disruptive changes, but rather gradual ones aiming at providing new tools for a sustainable and circular procurement, with new objectives such as “increase the proportion of eco-designed products”, “promote suited purchases from the point of view of their life cycle” or “promote the reuse of materials such as computers and furniture within the organization”. In other words, so far, we have not seen any review of the priorities regarding the criteria that are used to select the providers or within the processes structuring the relationships between the public purchasers and their innovative providers.

The objectives set up by these actions plans are pretty generals and their implementation is stumbling over the principles of the paradigm of economic efficiency (Helfrich &

Romestant, 2015). So in order to advance the transition towards CPP, and drawing upon our research results, we have conceptualized a multi-level transition model which set forth several conditions: training, experimentations, innovation ecosystems and citizens groups' action (figure 5). The complexity inherent to transitions' issues show that a multi-level approach is required and implies that all conditions have to be addressed simultaneously. We have identified these conditions while trying to determine actionable components in the multi-level dynamics of CPP (figure 2). One of these conditions targets the interface between the meso and macro level, while the other ones target the micro-level.

Usually, changes at the landscape level take place slowly and can last decades (Geels & Schot, 2007). So in order to accelerate and reinforce the implementation of CPP, we suggest that the first condition is to take an action at the interface of landscape and regime levels, in order to increase the pressure on local political leaders. As a matter of fact, Citizens and groups and associations could play a significant role, translating the landscape pressure generated by the CE trend to regime insiders, especially political leaders who have the greatest impact on the leadership style of local public authorities. This condition is out of public policies' scope and difficult to plan with a top-down approach, but can be considered as a potential outcome of CE rational utopia which is travelling within society.

Concerning the micro level, we selected three conditions to accelerate the transition towards CPP. Two of them have an impact on public agents' cognitive issues: training and experimentations. We have already explained that training is necessary to enhance public agents' skills and we underline here that this aspect has to be included (which is not always the case) in all CPP action plans launched by public authorities. However, during the EcoCirc project, we noticed that if training is pretty effective on knowledge and learning aspects, it is less effective for changing public agents' representations and beliefs. This is why we reckon that experimentations are necessary in order to materialize CPP practices and convince

skeptics that it is feasible. Besides, these experimentations, which would consist in trying a circular purchase on a specific product or service, will probably constitute best practices that will be then seized by CE advocates to reinforce the rational utopia associated (figure 5). This is for example what the EU is doing by promoting a collection of best practices of sustainable and circular PP via technical documents on its website and reports (EC, 2012, 2016, 2017).

Eventually, the last condition is the emergence and development of innovation ecosystems which will support the creation and growth of CE innovations. In the EcoCirc project, we have noticed that an innovative ecosystem has started to structure around the leading cluster (the Materiaupole) through the construction of inter-organizational relationships, which foster the development of a real pool of innovative solutions. For instance, the start-up “Madame pee” which has developed eco-designed and mobile toilets has started to cooperate with the start-up Weco which proposes a mobile system of water recycling. Together they will try to propose a more complete and circular mobile toilet solution particularly more suited to get public tenders. Currently, this innovation ecosystem is still growing and benefits from the CE trend to acquire new innovative CE entrepreneurs.

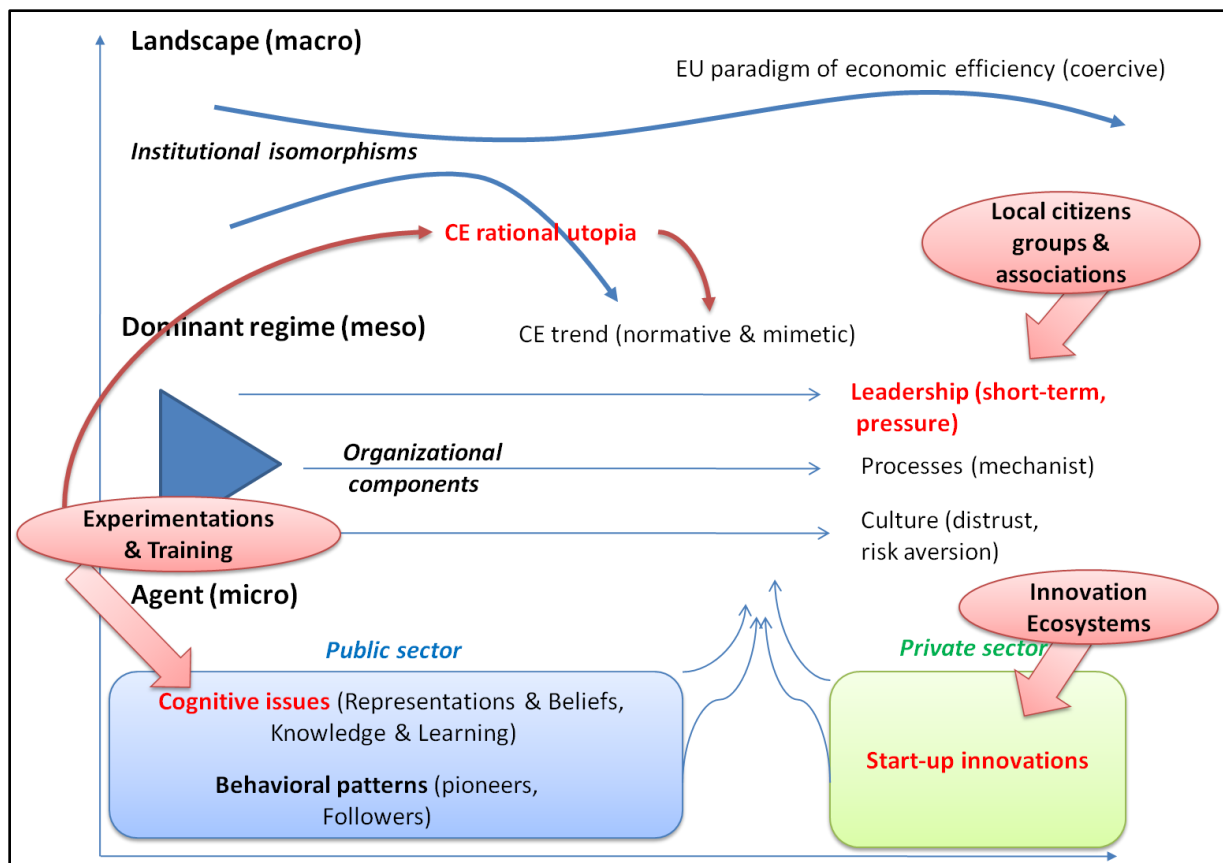


Figure 5: Transition pathway towards Circular Public Procurement

Theoretical implications

Thanks to the multi-level analysis we carried out regarding CPP, our research contributes to the emerging academic field of CE by outlining the dynamics that are structuring the transition towards CPP at the micro, meso and macro levels. At the Agent (micro) level, we have outlined the cognitive issues and behavioral patterns that are structuring public buyers' practices with regards to the design of circular tenders and the role of start-up developing CE innovations. At the regime (meso) level, we identified three organizational components structuring PP dominant regime: processes, culture and leadership. And eventually, at the landscape (macro) level we analyzed the institutional isomorphisms that are shaping the transition towards CPP.

Compared with other multi-level analysis framework proposed in CE literature (Murray et al., 2017; Kirchherr et al., 2017; Prieto-Sandoval et al., 2018; Merli et al., 2018), our research proves that even if the model from the sociotechnical transition studies has been developed to conceptualize technological-based transitions (Geels, 2002, Geels & Schot, 2007), it can be adapted to analyze societal transitions that relies on non-technological innovations. In particular, this model is relevant to conceptualize the inter-level dynamics that are shaping the transition towards CE and the transition pathway which is undertaken by this transition. Conceptualizing the dynamics of the transition towards CPP, our study contributes also to the literature on CE, characterizing the required conditions and the mechanisms through which CE creates an opportunity to achieve the transition towards sustainability. Consequently, our works enter into the research field which has analyzed the links between CE and sustainability (Geissdoerfer et al., 2017; Kirchherr et al., 2017; Prieto-Sandoval et al., 2018).

Obviously, this study has some limits because we focused on a specific case which is public procurement. PP is a pretty relevant instrument because it is at the interface between public and private actors and it represents an important source of the market demand in many sectors. However it has also some particularities that introduced some biases in our study. As a result, it could be interesting to apply the same multi-level analysis to other cases of transitions to CE in order to produce more general results. It could be also interesting to see if there are other kinds of transition trajectories towards CE existing in other sectors of society.

Finally, it could be also interesting to analyze more specifically the mechanisms structuring inter-level dynamics of the transition towards CE in order to clarify all the conditions which are necessary to open a transition pathway. Even if our research has proposed a first conceptualization of these conditions, further works are still necessary to analyze them deeper, identify other conditions which can have an impact on the potential

transition trajectories and determine some possible transition scenarios for CE. As the EcoCirc project is still going on until the end of this year, we hope that we will manage to shed light on some of these aspects.

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