Title: Repair and reuse: misalignments between stakeholders and possible users

Highlights

- This article highlights a discrepancy between the offer of repair services and citizens' expectations.
- Repair and reuse initiatives suffer from a lack of collective dynamics.
- The multiplication of repair proposals does not spur behavioral changes in customers.
- Misalignment between R&R stakeholders prevents the creation of an efficient repair network.
- Defining modes of commitment to repair can facilitate interactions between repair and reuse initiatives and inhabitants.

Abstract:
As part of the circular economy, grassroots initiatives from the social and solidarity economy (SSE) that promote reuse, reemployment and repair could be seen as 'local sustainable initiatives' and as citizen-based contributions to sustainability transitions that require favorable conditions to emerge. Despite a diversity of existing solutions, repair and reuse activities remain limited due to social, institutional and technical lock-ins.
This study relies on two French case studies and mobilizes a theoretical framework that combines pragmatic sociology and science technology studies. The study illustrates that there are different modes of commitment to repair and that repair initiatives appeal primarily to people of the militant mode of commitment. Even though a rather broad range of citizens is somehow committed to the practice of repairing, repair initiatives generally fail to attract this broad range of citizens because the type of citizen commitment that they assume occurs only at marginal levels.

1. Introduction

Different institutional initiatives have recently emerged in France to encourage circular and cooperative economies. The Energy Transition for Green Growth Act was developed to extend beyond recycling strategies consistent with European directives. These strategies include calls for projects from the Environmental Agency, a new law encouraging repair and reparability[1] and providing more space for reuse and re-employment through product repair or upcycling. These top-down initiatives complete, strengthen and frame numerous grassroots, local and national initiatives that have been tested by and implemented within the associative sector or the social and solidarity economy (SSE)[2]. These initiatives sometimes promote reuse, reemployment and repair for a long time (such as the Emmaüs network), as pointed out by (Horne and Maddrell, 2002), (Defalvard and Deniard, 2016) and the French environmental agency (ADEME 2014; ADEME et Harris Interactive 2020; Philgea et Moringa 2016). These efforts could be seen as 'local sustainable initiatives' and citizen-based contributions to sustainability transitions that require favorable conditions to emerge (Pesch et al., 2019). Despite a diversity of existing solutions, repair and reuse (R&R) activities remain limited due to individual, social, institutional and technical lock-ins.

First, the current lack of 'recognition' by institutions and consumers creates difficulties. As a matter of fact the SSE does not necessarily have a positive image, nor do the associations promoting reemployment practices[3], and this may reduce consumers' trust in secondhand products and hamper their willingness to follow reuse principles (Schmidt, 2015). Institutions and local authorities may be distrustful of organizations, which do not share their financial and administrative rationale and are dependent on public aids (Rosanvallon, 2008). These initiatives also suffer from a lack of public sensitivity and weak institutional recognition due to negative representations[4] (Gregson and Crewe, 2003). In addition, a lack of awareness and sometimes negative attitudes among citizens towards donations and deposits of objects for repair/reuse tend to limit the audience of consumers and/or users (Ortar and Gessat-Anstett, 2017; Rumpala, 1999). Second, path dependencies contribute to the underemployment of repair and reuse activities. In fact, the current technological and organizational structuration of waste processing and recycling channels leaves little room or legitimacy for these emerging networks (Pacreau, 2016). In addition, consumers' habits and tendencies are counterproductive to repair and reuse deployment: values associated with ownership and accumulation appear to be important development brakes to new forms of economy (the consumerist "habitus[5]" developed in particular by Herbert and Collin-Lachaud, 2017). Moreover, traditional

[1] Law n° 2020-105 of 10 February 2020 states a simpler access to spare parts and the introduction of a product reparability index aimed at making reparability a criterion of consumer choice. Law No. 2015-992 of 17 August 2015 relating to the energy transition for green growth gives priority to the prevention of waste production; reuse and reutilization are therefore active reduction strategies, making it possible to extend the useful life of manufactured products.

[2] The SSE involves forms of economic activity that prioritize social and often environmental objectives and that involve producers, consumers, and citizens working together. The SSE integrates a variety of groups producing goods and services and providing solidarity services. These groups value people and work over capital in the distribution of revenue and surplus.

[3] We use this term in reference to its sociological meaning: "Individualistic approaches do not take into account the complex socio-technical nature of consumption, its dependency on 'systems of provision" (Brand 2010, p. 217)

[4] Negative representations from individuals are often linked to contamination by the previous owner or by the belief that second-hand stores are designed for poor people. From institutions, the social and solidarity economy is not recognized as a genuine economic actor, notably because it is often dependent on public subsidies.

[5] Habitus is defined as a set of provisions incorporated during a socialization process that unconsciously guides practice strategies (Bourdieu, 2008).

business models (i.e., wealth creation from the sale of products) constrain the product development process: design-to-cost strategies imply the use of low-quality components, and 'irreparability-by-design' methods prevent any form of product maintenance or repair. Market-driven design leads to different types of (planned) obsolescence (aesthetic, technical, technological, etc.), which is a core mechanism of our consumption society that creates ready-to-dispose devices with a constant increase in waste and its associated socioecological issues. It would appear that the lack of development of repair and reuse practices is not due solely to an unsuitable institutional framework but to multiple causes.

This article presents some results obtained through interdisciplinary project Recyluse, which involved research in engineering sciences, geography and sociology[6]. More particularly, it questions the idea that the multiplication of repair proposals will sensitize citizens and bring them closer to repair opportunities and automatically spur behavioral changes. In fact, numerous studies (in the field of energy, for example, (Zélem and Beslay, 2015) emphasize that environmentally friendly offers or a specific infrastructure do not automatically create virtuous behaviors and "new" citizens. For repair activities, we will see that this implicit thought hides the fact that many initiatives do not form a real collective dynamic[7]. Even if bilateral cooperation may be organized, the repair sector is characterized by a lack of synergy between stakeholders. We focus here on (mis)alignment between R&R stakeholders that hampers the creation of networks and efficient arrangements able to satisfy the plural expectations of current/future users, which we have explored. This study highlights the gap between repair project leaders' offers and the expectations of users/customers. In fact, although they originate from grassroots initiatives, R&R initiatives do not truly consider citizens' desires to mend consumer goods and inhibit their capacity to do so. Considering future users as consumers rather than as prosumers or value co-creators effectively involves a top-down, non-integrative approach of designing LSI and environmental changes. This way of designing environmental changes, despite originating from grassroots initiatives, can be characterized as supply rather than demand driven.

One area that is worth exploring is how the new initiatives concerning upcycling, repair and reuse of "waste" conceive the future or current users of their business or activities and whether the representations[8] and associated goals meet inhabitants' and possible users' expectations. In this article, we first present research dedicated to reuse and repair initiatives and practices (Section 2) and second present our methodological and theoretical framework, which combines pragmatic sociology with *science technology studies* (Section 3). Section 4 explores the diversity of R&R organizations in terms of the motivations of project holders, value propositions and value systems in which they operate. Section 5.1 highlights future users' expectations considering this great diversity. These users may be categorized using different criteria (e.g., their commitment to repair activities and their social representations of repaired and used objects). In Section 5.2, we describe people's commitments to repair, considering that R&R initiatives do not truly take into account citizens' desires to mend consumer goods and

[6] The project was a research and operational project targeting a better understanding of the nature of stakeholders' resistance to and interest in repair and reuse (e.g., legitimacy deficits and representation). The project puts into question the collective capacity to build networks of repair and reuse while taking into account local characteristics, path dependence and technical lock-ins.

[7] Collective dynamic means the attempt to create a least multilateral interactions between the different R&R initiatives and then have a consistent offer for the territory and its citizens.

[8] The social representations cover the set of beliefs, knowledge and opinions produced and shared by individuals of the same group with regard to a given social object (Guimelli, 1999).

inhibit their capacity to do so.

2. Repair: a research area to foster

Repair contributes to the design of a new pathway for the object and to an ecology of care **(Jackson, 2014)**. Repairing is a way to restore functions to enable the reuse of secondhand objects or objects whose life has been extended (without a change of owner). Repairing also restores a relationship with an object by extending its lifecycle (repair by/for its owner; repair enabling sale or donation), giving it a second life (transformation and upcycling of an object or of its components/constituents), or selling it through an intermediary (such as a repair and reuse center or charity shop) (Chapman, 2010). In fact, 'repair' has different objectives and meanings (Gharfalkar et al., 2016). Fixing an object may enable it to be restored, conserving and extending the lifetime of its functions for its owner-user to transform it, aesthetically or technically enhance it, or make it worth considering as a form of reappropriation (Chapman, 2010). This plurality of possibilities does not facilitate understanding of the process, which takes new forms occurring in new situations and revealing the creation of new communities (communities of knowledge, know-how and practices where skills can be exchanged, transferred, and strengthened) (Wenger, 1999). However, a growing literature on repair has surfaced in the last few years, and "repair studies append a constantly expanding gallery of portraits" (Denis et Pontille 2019: 285). The activities of repair, fixation, mending, upcycling, and renewal have been studied and dissected (Bond, DeSilvey, et Ryan 2013; Graziano et Trogal 2017; Gregson, et al. 2009; Rosner 2014; Rosner et Ames 2014).

Scientific researchers have dealt with the diversity of initiatives and organizations promoting reuse, which can target specific customers or a larger panel of people. Repair is a process that links a wide range of organizations and individuals: professional and volunteer repairers, third sector organizations, retailers and manufacturers. The repair communities (grassroots movements or planned initiatives) either propose do-it-yourself workshops in which people can seek or share skills and know-how in specific locations (repair cafés, etc.); do-it-yourself tools with online documents; or the repair of donated/discarded objects by paid staff, volunteers or workers who then sell or give them away. Sometimes such communities expand the basic offer of repair or fixing by becoming providers of different immaterial and material services: lending tools, equipment or their premises for repair workshops, or the organization of repair events. In fact, stakeholders acting in this field are increasingly tempted to "create" third places (Oldenburg, 1999; Burret, 2017), mixing their publics and craft activities. These third places, qualified as local sustainability initiatives, can become specific spaces and communities of resistance against the throwaway society (Mitchell, 2018). Nevertheless, acceptance of these spaces has not been without challenges, as they are often considered a vector of social innovation, even if do-it-yourself practices and repair activities are not new (Pesch et al. 2019; Jaefer-Erben, 2015). Such places actually imply and reflect changes at different levels (micro, meso and macro) (Jaeger-Erben et al. 2017). These intermediaries (as we consider that these communities create links between objects and users, between users/consumers/volunteers/donators) can offer reliability, reassurance and guarantees (Chantelat and Vignal, 2002) from the user's point of view because they are supposed to clean and select products. Moreover, their role diminishes worries about contamination, partly because customers never see the previous owner.

These grassroots innovations are expected to motivate citizens to become more sustainable consumers. However, there is a discrepancy between the offer of repair services and citizens' expectations, even when taking into consideration the weak (if growing) tendency to repair and the low frequentation of dedicated spaces (ADEME, 2020). Although some projects (such as Restart in the UK) have highlighted what prevents people from being committed to repair (levels of repair knowledge and skills, lack of access to spare parts, lack of repair documentation and tools, product design often making disassembly impossible, etc.) (Arabi, 2018; Charter and Keiller, 2014), there has been little research on why people engage in repair initiatives. It may be that repair initiatives seem to be supply driven rather than demand driven (i.e., they focus on offering a service without building on a good understanding of what services the people they target are actually looking for). This article attempts to illustrate this discrepancy and the difficulties of establishing this method as a social, environmental practice despite the heterogeneity of the repair offer. Addressing this issue can involve understanding levels of commitment concerning repair activities.

3. Methodology and analytical framework

To explain the weak appropriation of repairing activities, we can separately observe the holders of repairing initiatives and the inhabitants' commitment to repair, and explain what repairing means for each type of stakeholder. In fact, each type of stakeholder has his own professional or lay culture, his own representations of the same object, and above all his own way to consider if it is worth repairing or redesigning. When these stakeholders meet in the same place (an occasion that demands certain efforts because they are not supposed to interact in the current design and consumption cycle), this diversity becomes tangible and not easily bridgeable. How could we analyze the associated possible difficulties of interaction and understanding? Is this a question of not having the opportunity to collaborate or of deeper reasons to be exhumed? In fact, there "are no clear normative rules that unite production, sale and consumption – given that the alternative retailer does not control production and reparation activities" (Goodman and Bryant, 2013). Stakeholders involved over an object's lifetime (design, creation, consumption, etc.) do not appraise it in the same way, and they do not share similar worldviews about consumption and waste. This is why we employed a theoretical framework based on pragmatic sociology and an empirical and conceptual background to analyze actions and interactions occurring in specific contexts (Lemieux, 2018).

3.1. Theoretical framework

A theoretical framework combining pragmatic sociology and *science technology studies* has been employed (Boltanski et Thévenot 2008 ; Callon 1990). Pragmatic sociology makes possible not to analyse interactions from a domination point of view, but to study "the reasons for acting and the moral exigencies that these persons give themselves, or want to give themselves, if not by way of 'ideals' (Boltanski 2009: 20). Human action is seen as deeply embedded in situations. It is recognized that the involvement of people and the creation of organizations dedicated to repair and reuse lean on specific modes of commitment, justifications and values.

In Les Économies de la Grandeur (1987) and the essay titled De la Justification (1991), Boltanski and Thévenot suggest the model of a plural social actor backed by multiple social logics or bounded rationalities. This model

reminds us that we all and, consequently, the actors we meet, position ourselves according to the contexts[9] in which we interact with others. The multiplicity of values involved produces a hiatus[10] that actors manage as best they can, which results in relative inconsistency between actors. Some actors may appear more reliable than others because of their ability to negotiate, demonstrating the importance of negotiation contexts. Beyond the moral aspect of reliability, the ability to adjust between different rationalities may be the main social skill needed in response to environmental challenges of our time. In social situations generating disputes and requiring a form of justice (mediation avoiding a strict relationship of power), every social actor has to justify his or her position, choices and interests, mobilizing higher principles, which Luc Boltanki and Laurent Thévenot (1991) also call orders of worth or "cities"[11]. The authors distinguish six different cities organized around a specific logic and form of coherence: the inspired city; domestic city; city of opinion; civic city; merchant city and industrial city[12]. These cities[13] are defined by specific modes of understanding and ways of solving conflicts and thus constitute many different frameworks in which environmental policies may be designed. Under this form of social organization, building coherence is nearly impossible. As a pragmatic example, one can guess the difficult harmonization between cities as far apart in their logic and values as the inspired city and industrial or commercial city or even between the commercial city and civic city. However, compromises between specific values in social spheres and the superior principle of the good may be established, even if they are often fragile. This theoretical frame constitutes a salient way to understand the offer of repair services, its diversity and the lack of synergy. Reconciling the quest for universality without denying the irreducible singularity of a territory[14] or place is a genuine challenge.

We cross-reference this analysis by seeking to understand reparation practices and citizens' commitments to reparation based on science and technology studies and, more specifically, actor-network theory (Akrich, 1998; Callon 1990). This framework was employed by Bajde (2013: 239), to "delve into the mechanics and the politics

[9] An actor throughout his life acts in different social contexts (family, workplaces, etc.).

[10] This hiatus creates gap of reciprocal understanding and a possible source of conflict because the actors are not omniscient and able to apprehend and accept the values defended by others.

[11] The word 'cities" may appear confusing, while the regular use of "city" refers to social and spatial construction. We prefer however to respect the authors' proposition because this framework enabling to understand the plurality and the strength of worldviews is well-known in the academic literature under this wording.

[12] The term principle (for the "order of worth" or "city") is preferred to the term value, as a value refers to individuals whereas a principle refers to a situation, which is characterized by social interactions and possible confrontation.

[13] The Civic City is founded on representativeness; a social actor claiming this principle speaks on behalf of a social group and justifies its position by defending or promoting a collective interest shared by the members of the group he belongs to. In the Domestic City, the common interest is defined from tradition. Loyalty to a person or the perpetuation of a practice or routine is valorized. The main principle of the Industrial City is efficiency. According to this industrial logic, instrumental rationality is the norm and the main driver is performance. The argumentative logic that characterizes the City of the Opinion is governed by fame and notoriety. It is the opinion of others that determines the greatness of the social actor. In the Inspired City, the common overarching principle is creativity and the ability to innovate and to be true to one's own inspiration. Finally, the Merchant City follows a type of justification appearing in more recent times, and its order of value is based in the fulfillment of the actor's interests and the pure possession of goods. Indeed, this fulfillment is, through the market, the condition required for the satisfaction of the interests of others.

[14] The territory is a notion particularly employed in geography, political science, economics, ecology and sociology. Characterized by physical and natural components, the territory is first an appropriated space (Di Méo, 1987) built from the strategies of actors, their representations and their ways of activating (or inhibiting) territorial resources (Colletis and Pecqueur, 2005). The emergence of a project requires endogenous assets characterizing the territory, exogenous assets facilitating their implementation and the existence or creation of a network of actors (Allais et al. 2017; Gobert et Brullot 2017).

of heterogeneous relations enacting consumption", by Henke (2000) and Graham et Thrift (2007), who set the agenda for 'maintenance and repair studies.' Rather, this approach offers us a framework for understanding what forms of commitment to repair people may have according to their relationships to the object, their appropriation, and their feelings. This approach makes it possible to investigate sociomaterial configurations insofar as a device/an object forms the basis of new local interactions and transformations not planned at the beginning of its life cycle.

While using this crossed analytical framework, it was particularly relevant to base our research on case studies (empirical research) and to collect data using a combination of quantitative and qualitative methodological tools.

3.2. Case studies

We developed a case study research design to explore the commitments of initiatives' holders and inhabitants. The project relied on two French case studies, which were selected due to our previous knowledge of these areas concerning waste management and a willingness in these areas to develop repair activities and create synergies between initiatives. This previous knowledge made our spatial and organizational understanding of the case study and access to stakeholders easier for a limited research period (two years). The two cases are geographically and organizationally very different. This diversity offers us an opportunity to investigate more deeply why associated commitments to repair have been minor. According to Yin's categories (Yin, 2009), our objective was then clearly explanatory.

Case study 1. Coeur de Savoie

The intermunicipal structure of Cœur de Savoie (CdS) (43 rural and urban municipalities, 35,000 inhabitants) is a local authority created in 2014 around the themes of agricultural, tourism and economic development after ten years of cooperation between the four previous communities of communes. Located in southeastern France in the Alps, CdS is a mountainous territory and has supported a sustainable territorial development project confirmed by the positive energy territory label (TEPOS) since November 2015 and with positive energy territorial certification for green growth (TEPCV) since July 2016.

In October 2016, Cœur de Savoie applied for territorial experimentation to address long-term unemployment. Among the six fields of action identified, "waste reduction and recovery and circular economy strengthening" have been highlighted. In fact, Cœur de Savoie is considering the creation of repair and reuse centers at local waste disposal centers, providing an opportunity to generate three jobs.

Case Study 2. Basque Country

The intermunicipal local authority of Basque Country is an administrative organization involving 158 municipalities (including Bayonne, Anglet, Biarritz and Mauléon) and 309,723 inhabitants. Located in southeastern France, this territory is characterized by its coastline, which is very attractive to tourists in the

summer, and a less extensive countryside. Bil Ta Garbi, a specific public organization dedicated to waste management (a syndicate of municipalities that has just one administrative competency and is not a local authority) deploying its activities across the Basque Country, is currently conducting a reflection on a policy favoring the repair and reuse of products at the end of life. The project developed by the syndicate was labelled in 2015 "Zero Waste Territory, Zero Wastage" by the Ministry of the Environment. The project aims to encourage all actors of the territory (project leaders, citizens, businesses, and communities) to drastically reduce waste volumes. The Basque Country is a particularly dynamic territory with regard to the number of actors operating in the field of 3R field (reduce, reuse, and recycle).

3.3. Data collection and analysis method

Our methodology is based on the use of two main tools. We first developed a territorial diagnosis[15] to determine the local repair and reuse landscape, the motivations of people involved in dedicated initiatives, the organizations helping initiative carriers, the projects of repair and reuse centers (resourceries/recycleries[16]), and the relations between projects and stakeholders. We second conducted a survey targeting the inhabitants of the two areas. These two tools were used to obtain information to better understand weak resort to repair services and then triangulate our results (Denzin and Lincoln, 2000).

Diagnosis was carried out by conducting and analyzing semistructured interviews and observations. Face-to-face interviews were conducted with actors directly or indirectly involved in the creation of recycleries or charity shops. A semistructured interview guide with five sections was drawn up: stakeholders were first asked to describe the origins of their ideas and projects and to then explain how they work and if processes have been evolving. The participants were questioned about the extent and areas of repair used in their businesses and were asked to describe the relationships they have built and their future expectations. During these interviews, the researchers identified which resources stakeholders mobilize and what obstacles have been encountered, both organizational and institutional. The interviews were conducted in 2018; lasted ninety minutes to three hours each; and were fully recorded, transcribed, coded[17] and analyzed (Lejeune, 2015). This qualitative methodology is based on a very patient reading of the interviews to better understand the processes at work and the resources used and to identify the narratives elaborated by each stakeholder and possible contradictions between them. A series of noticeable ways of apprehending the repair and reuse universe emerged, which will be explained above (absence of a vision of future customers/users, absence of marketing perspectives related to a consistent message against the consumption and throwaway society, etc.). The reliability of this process was ensured from an in-depth knowledge of the methodology used to conceptualize what stakeholders said, independent of the specific places

[15] Territorial diagnosis is a common methodology used in the social and spatial sciences to better understand the contexts, resources and human relationships of a specific space (territory). The method is particularly employed by spatial planners and consultants of public policies to define the main challenges faced by territories and then propose a plan of action (Jeannot et al., 2003; Landel et al., 2007). The method was here employed to develop a global view of repair activities and governance.

[16] These workshops integrate the sale of secondhand commodities and often repair activities and then encourage reuse.

[17] The coding was intended to achieve maximum generalizability based on the fact that “concepts are abstract of time, place and people and that concepts have enduring grab, whose appeal can literally go on forever as an applied way of seeing events” (Glaser 2001, p. 10).

involved or persons interviewed. (Participant) observation was deployed during meetings we attended or organized to observe relationships[18] (Peneff, 2009; Peretz, 2004) and to consolidate our analysis of the interviews. These complementary approaches delivered abundant qualitative data with which to understand the spread of repair initiatives, existing issues and institutional or associative ways to potentially solve them.

The table below presents the agents interviewed during the territorial diagnosis phase in CdS. Some agents were involved in the initial TZCLD project, while others developed repair or upcycling projects. The interviewees were selected by the researchers as key stakeholders of waste management or because their influence was underlined by other interviewees (snowball sampling).

Table 1. ***Interviews conducted in Coeur de Savoie***

Structure	**Role of the interlocutor**
Company	Carpenter and designer (upcycling activity)
Structures for waste recovery	Codirector - insertion association
	Site director - waste recycling company[19]
	Designer and site director - resourcerie
	Director - waste collection company in Chambéry
	Director - syndicate of municipalities managing household waste
	Director – local insertion association
Public institutions Community representatives Elected officials	Mayor and project leader for zero long-term unemployed initiative, former project manager of a recyclerie
	Waste service manager - Coeur de Savoie
	Circular economy project manager in charge of the zero-waste territory initiative - regional agency
	Business development project manager - regional agency
Repair – reuse initiatives	Recyclerie project manager – La Salamandre
	Bike workshop manager
	Textile workshop manager
	Repair café manager
Territorial association	Director – animation
	Member – restoration and maintenance of trail paths

Table 2 lists the different interviews completed in Basque Country: numerous stakeholders developing and having developed reuse and repair initiatives and public institutions supporting these initiatives.

Table 2. *Interviews conducted in the Basque Country conurbation*

Structure	**Role of the interlocutor**
Company	Director – sail manufacturer
	Environmental project manager and sustainable development manager – large sportswear company
Public institutions Community representatives Elected officials	Mission manager – syndicate of municipalities managing household waste
	Director and mission manager - territorial development organization
	Deputy mayor of Hendaye - community councilor of the intermunicipal structure

[18] One opening meeting organized in Coeur de Savoie and workshops held for the two case studies were used to identify opportunities to overcome technical, organizational and social issues at the micro-, meso- and macrolevels for activities of repair.

[19] We identified two types of private stakeholders: those who collect waste created by households or firms (waste collection company) and those that separate and valorize waste according to predefined value chains (waste recycling companies).

	Sustainable development and social and solidarity economy project manager – conurbation
	Mission manager – social and solidarity economy territorial incubator
	Director of waste - agglomeration community
Territorial association	Members - environmental association
Repair – reuse initiatives	Recyclerie project manager – under development
	Technical supervisor – bicycle repair association
	Director – furniture upcycling company
	Chairwoman and seamstress – sewing collective
	Recyclerie project holder – failed project
	Second-hand market director – humanitarian and charity association
	Recyclerie project holder – repair, upcycling, and multiproduct
	Director – insertion association
	Recyclerie project manager – under development
	Sport recyclerie director – repair, second-hand products, and upcycling

The survey was launched from October 2018 to June 2019 in the two areas. The survey was created on the basis of previous research results (ADEME, 2020). The interviewees were asked to answer thirty-one questions concerning their inclinations to collect discarded objects and reuse items and repair them. Finally, the participants were asked about their knowledge and relations with recycleries. To define categories, information about their age, revenue, gender, involvement in associations or organizations, and professional status was requested. Information about the survey was diffused through institutional journals and websites, mailing lists and social networks. The survey was administered among the population living in the areas studied and not just among the potential users of repair/reuse initiatives. A total of 251 respondents from the Basque Country or Savoie/Isere (the two CdS departments) completed the survey online or I person with a researcher. The sample did not enable the researchers to perform deep statistical exploitation with a crossed analysis by gender, age, and social and professional occupation, for example. However, it was possible to obtain a strong overview of what repair means for different people, how they engage in this kind of activity, whether they work alone or with others, and what expectations they have. In addition, ten complementary interviews with selected respondents were conducted (chosen according to age diversity and different relations to repair practices). These interviews generated insights and data for defining registers of commitment to repair activities as presented below.

4. Repair and reuse organizations: a very diverse universe

The findings presented below first describe what could be retained and analyzed from the interviews conducted with the committed stakeholders of our two case studies. Second, based on the data obtained from the survey performed in the two territories, the inhabitants' expectations are displayed. The results shed light on the difficult convergence between the diverse representations and projections of repair organizations and the practices and wishes of inhabitants.

Repair activities were often more present than the public stakeholders believed, particularly in the Coeur de Savoie conurbation. Related activities (mending, sewing, etc.) have often already been proposed through formal[20],

[20] These entities include dedicated associations.

informal[21], specialized or more integrated channels and are prospering. This plurality reveals that the initiatives and associated organizations are based on different motivations and business models and cannot be seen as presenting a unified statement, as underlined by Graziano and Trogal (2017).

4.1. Motivations of the managers of repair initiatives

From the motivations and business models of the different grassroots initiative managers interviewed, it is clear that very diverse forms and worldviews are present. Traditional charity shops (such as Emmaüs) sell used goods, raise money to accommodate homeless people and apply specific strategies to help vulnerable persons. While some shops have developed repair/overhaul activities when one of their beneficiaries or volunteers has the necessary skills, fixing is a side task relative to collecting, sorting, cleaning and selling products.

Newcomers to the R&R field have two main motives. Some organizations would like to develop noncompetitive activities to create jobs for the unemployed, as was the case for the TZCLD project in CdS. Other organizations first express clear environmental ambitions: finding pathways to rehabilitate what is considered waste, prolonging the lifecycle of goods, or giving them new functions. Often, the organizations call into question the current economic system. In summary, either such organizations consider this system to mainly create unemployment and difficult situations for the jobless and try to tackle this social issue first, or they contest the acceleration of consumption and the increasing production of waste and expect to "play a significant role in resisting the commodification of the everyday" (Graziano et Trogal, 2017). Some of the new stakeholders of repair and reuse are more radical than the previous ones; they do not want to form an acceptable niche in the current economic system and intend to develop and disseminate alternative ways of consuming, moving, sharing, and throwing away.

The combination of both motivations is possible, but our analyses of the stakeholders' discourses often reveal the presence of principal sensitivity, which then motivates the different actions and/or kinds of cooperation sought by managers.

Overhauling is not always a main objective. Generally, promoting reuse is the first targeted goal. Repairing may be a side task that is not formally integrated with the agenda.

> "In regard to furniture renovation and creation with recycled products, there are many people from the outside who come and say: "I have this project, I want to make cardboard furniture," "I want to update my furniture," "I want to create DIY projects." In addition, we give them this room and they complete their workshop. Therefore, we tell them: "you can get stuff from the recycling shop." For example, there is a chair restyling workshop, so people can go and buy a chair for 5 € if they want. They are on their own. We cannot take on extra work." (Head manager of a recyclerie located next to Coeur de Savoie)

On the other hand, repair may be an essential activity. The objective is then to collect "waste" from firms and design products from these objects. Designing and creating from materials and objects that have ended their first

[21] Such activities correspond to special events promoting reuse and repair.

life requires employing skilled people (technician managers). The business models of these kinds of initiatives are often based on the employment of persons in insertion, who learn how to repair and upcycle.

4.2. Repairing as an individual and sharable practice

A part of the R&R community promotes 'do-it-yourself' projects and provides tools, space, and advice for a modest contribution (subscription to the R&R association). As researchers underline, a shift from DIY to DIT (do it yourself and do it together, respectively) or DIO (do it ourselves) cultures (Ratto and Boler 2014) can be observed. This was the case for R&R bicycle workshops held in Basque Country, for example. These communities share good practices and try to overcome technical obstacles that can arise from product design (Mitchell, 2018). Such communities may also advocate and promote specific practices (e.g., cycling) and organize public events, expecting political resonance.

Other R&R communities repair donated or discarded objects with the help of skilled volunteers or social insertion trainees: developing this activity serves as a way to teach workers new skills that can be valorized in the labor market or to valorize an ability they already possess but are unable to exploit. The main objective in the two cases is different. In the first case, it is the ambition of the syndicate of waste management to promote repair and reuse while empowering volunteers. In the second case, restoring people's human and social dignity through the care given to an object or through the money collected by selling secondhand items is targeted. Some R&R communities try to combine the different processes because volunteers can repair in insertion and repair events can involve the different kinds of repairers. Some difficulties can emerge between volunteers and paid staff of the organizations, and as a consequence, new management schemes may be created (steering committee of creation).

> "We have volunteers in the association who are very eager to get involved. However, it has been difficult so far to get them involved. It is actually very complicated to mediate between volunteers and employees because we have a certain work rhythm. The volunteers also like the contact and all that, so they come to say hello, and it takes half an hour when they come to say hello to the whole team. It is nice for them; for us, it is more complicated, but at the same time, we need them. There are many who have truly fought for what we have, who have given a lot, many times. I arrived I created a space where volunteers would have their place and a range of new products." (Head manager of a socially and environmentally conscious clothing workshop)

However, the sharing of skills, pedagogy and dialogue between committed actors is the most essential challenge in each configuration. These aspects are major goals of communities seeking to improve the social and economic insertion of vulnerable workers. Therefore, these communities employ specific staff to accompany them (technical advisors and social workers) and rely on specific tacit and explicit rules. In the context of repair events (such as repair cafés), distinctions between the different roles are more permeable, even if a skilled member is a key and rare player. Sometimes, power relations appear between those capable of repairing (who can assume a leadership position) and those who expect to learn or to get their item repaired. However, the main goal is to facilitate peer-to-peer exchange without judgment and to overcome the difficulties that repair can create.

4.3. Values and justification

Inspiration, worldviews and "orders of values" or cities (Boltanski and Thévenot, 2008) play a major role in the possible coordination of actors for this kind of environmental and human-centered activity. Each stakeholder involved in a recyclerie project would like to make progress in repair and reuse, but different core values drive them[22]. The worldviews of all repair/reuse initiatives and their managers are not the same, as they all identify with the realm of the project, which promotes commitment and adaptability, and they seek to create alternatives to global commercial structures of consumption and waste through their initiatives.

Numerous project managers believe that society has to be radically reformed and particularly with respect to our ways of consuming, producing and wasting[23]. These individuals' main objective is to diminish the effects of human society on the environment and their values correspond to the "civic city" (as it refers to participation, adhesion, etc.) and "inspired city" (creativity). Others would rather be part of a legal environment or collective dynamic and/or do not hesitate to create cooperation with the commercial world. Such individuals seek the support of institutions, particularly local authorities, and take a more institutional approach to ensure the sustainability of their models (Vialleix and Mariasine, 2019). These project managers often interact with local and regional authorities that implement local public policies, and these authorities can play a role in the territory, particularly in waste prevention policy, and value as a common principle the general interest (Gobert et Deroubaix, 2021). The project managers rely on the norm and on their capacity to make decisions while working for a fair redistribution of rights. However, in managing waste, these individuals work closely with the commercial and industrial world (through the delegation of public services) and partly reflect their ways of working (Serra and Buclet, 2019; Boltanski and Thévenot, 2008), which are based on a desire to control their environment, to be functional and to formalize relations. Such individuals must directly or indirectly manage infrastructures that have to be made profitable by reaching certain volumes (incinerators and sorting plants) and do not always want/cannot always integrate alternative initiatives, which have less potential for waste treatment. Table 3 summarizes the different elements taken into account for the analysis of repair and reuse stakeholders.

	Representative stakeholders	Objectives	Main criteria for added value	How objectives are achieved
Civic city	Local authorities	Reducing waste	The collective, general interest	Rule of law, dynamic interventions in the territory
Project city	Initiatives such as recycleries/resourceries (repair and reuse centers)	Promoting do-it-yourself activities	Activity, expanding networks	Concrete actions, relationships
Inspired city	Répar'acteurs who question a society based on consumption and who refuse to be institutionalized, upcyclers	Transforming society	Inspiration, creativity	Reflection and action towards a new vision of society
Market City	Shops selling new products	Creating new markets and	Competition	Products for each client segment

[22] The plurality of local initiatives and objectives structures an extended offer of repair services (Pesch et al., 2019). The issue is then not this plurality but the need to create bridges between these organizations and between them and the public.

[23] According to several researchers, reuse and repair can also be interpreted as ways of challenging the current economic rationale based on an accelerated cycle of production, consumption and disposal (Martínez, 2017, p. 349). These processes would consequently contribute to the construction of political alternatives (Graziano et Trogal, 2017). "Reuse can be understood as a deliberative project of value transformation that challenges dominant paradigms and cultural constructions while building alternative social and physical structures from the 'ruins of modernity'" (Crocker et Chiveralls, 2018, p. 5).

		commercial opportunities		
Industrial City	Companies engaged in the mass production of products	Overcoming problems with technical solutions	Performance, the future	Design and production

Table 3 – Analysis grid of repair stakeholders (inspired by Boltanski et Thévenot ,2008 et Boltanski et Chiapello, 2011*)*

This approach enables us to understand that the practice of reuse is played out along the boundaries of cities insofar as it involves organizational and sometimes technical and institutional innovations. Compromises are possible (access to waste disposal sites, organization of events to promote initiatives, and synergies between initiatives and some firms) but do not lead to a collective questioning of ways of thinking about the object at the end of its appropriation and ways to prevent it from becoming waste to be disposed of. More integrative arrangements should integrate citizens more closely into the process of waste management and of definition and organization of repair and reuse places, according to their skills and preferences.

5. Repair practices, representations and expectations

Knowing and confronting what repairing means for different people and repair initiatives may contribute to our understanding of why the use of different repair services remains relatively modest.

5.1. Representations of future customers/users/publics for repair services

In the discourse used to define the associations between target members and those to whom they propose their services, there may be permeability between roles: that of a volunteer from an association who dedicates his or her skills and time at the service of the association; that of a user of the repair service (often having to self-repair); or that of an end customer looking for a second-hand product that has been repaired or upcycled. The main aims are to attract competent volunteers on the one hand and volunteer citizens able to do repairs on the other. However, clients/users have many different kinds of expectations and are often expected to want to participate, to be active in the process of repair or even to design the process of repair.

Upcyclers are generally looking for customers to whom they can offer a service (either to manage their waste or to upgrade furniture/objects that they no longer like or want to keep).

> "As a matter of fact, there are people who (…) are attached to their furniture, there is liability... There is also the fact that they know that I manage to do things they like aesthetically and that they find pretty. Therefore, think that instead of grandmother's furniture ending up in the garbage dump, it will have, it will have a second life, it will be transformed into something else that can please someone else. Most of the time, what I suggest to people is that when they have a piece of furniture that they no longer like, I ask them if they have a need in terms of furniture or storage to actually transform this furniture... to use the raw material and to transform it into something that is useful to them. To satisfy customers, they are mostly involved in the design process, i.e., in aesthetic decisions." (A professional upcycler of wood furniture)

The recycleries/ressourceries (repair, resourcing and reuse centers) base their business model on representations of their future "publics" but not on customers' expectations concerning repair. These entities often have an ideal view of the future user. According to their objectives, such organizations may either think of their target public in line with public authorities, which give them financial aid and attempt to satisfy their competencies: children,

seniors, disabled people, the underprivilege, migrants, etc.[24] Alternatively, they may think in terms of the specific objects they decide to save from waste while promoting their use: bicycles, sports equipment, etc.

> "Not all our members come to the workshop regularly. Some people just come to buy a bike. We do not have a very high membership renewal rate either: we're at approximately 16-17% each year." (Technical referent of an association promoting bicycle repair)

Often, such organizations divide customers according to their purchase practices and not based on their repair activities.

> "In the morning, they're all pinned to the door. The first are the people who have little money but who are major buyers. We see them every day. Antique dealers, of course, are the first ones too. Afterwards, as the day goes by, and customers change. In the afternoon, we have families or people who have a little more money and who come to go hunting, who often come while on a walk." (Head manager of a recyclerie located next to Coeur de Savoie)

Moreover, such organizations aim to sensitize new publics while extending and sometimes displacing their actions.

> "The mobile workshops involve going to village squares, as close as possible to the inhabitants, in already existing structures, to reach specific audiences such as social centers and disabled people and to organize wheelchair repair workshops in retirement homes..." (A project manager of a recyclerie, Basque Country)

Generally, newcomers to the R&R field base their projects on representations they have about previous stakeholders. Even if they do not want to create competition and affirm that they are on good terms with charity shops, they often emphasize the messiness that prevails there and their ambition to break with this common representation because, according to them, this supposed disorder would prevent secondhand business growth. These individuals search for an image of order (one interviewed project holder wanted to emulate IKEA's spatialization) and attempt to disconnect their projects from spaces dedicated to poor people, and they explain that they wish to create immersive spaces with aesthetic and commercial dimensions. Such individuals strive to change the social representations associated with charity shops and they stage their shops similar to famous retail chains, as they reconstitute home spaces in a friendly and comfortable atmosphere. These individuals organize events and workshops and manage spaces dedicated to coffee/tea gatherings that emphasize conviviality, social cohesion and cocreativity while giving a second life to objects.

The segmentation of the public, regardless of its appetite for repair, has the effect of targeting only those who are already convinced or who are primarily guided by the consumption of secondhand objects. Moreover, this segmentation could be interesting if synergies exist between organizations to cover all repair needs and structure an efficient repair service. As this was not found to the case for our case studies, we deduced that a better knowledge of repair practices and involvement could bring improvements that facilitate encounters between

[24] For example, the Département is an administrative and political district that implements social public policies for the disabled, the elderly, and migrants and that helps NGOs, which try to address the needs of these populations.

supply and offers. However, the proposed approaches focus on production or the business model rather than on the expectations of potential users. It therefore seems relevant to complete this arrangement with a user-centered approach to improve the user interface of the service as advocated for the circular economy (Selvefors et al., 2019).

5.2. Repairing from the citizen's perspective

"Defining repair and repairability is not always straightforward or objective." **(Salvia, 2018)**

What does repairing involve?

During the (in person) interviews and survey, we noticed that using the term "repair" alone without defining it or using synonyms or verbs that qualify the act of restoring functionality to a garment (darning) or piece of furniture or of adding functionality through the transformation of objects/waste (overcycling) can induce negative responses, even though people may have the know-how and hidden abilities to darn, restore or repair. Consequently, the researchers had to define the term (saying 'make minor or more consequential repairs') and, especially, to apply it to a variety of objects (clothes, small household appliances, furniture, and electronic devices) so that people could understand what the term implies and potentially recognize themselves in relation to it. Asking if someone is good at repairing things is inhibitory. In contrast, going into detail about what the act of repair may involve allows respondents to recognize that they are repairing "a little." Individuals' skills may be nonformalized or the result of an accumulation of personal experiences developed in professional situations or in social life. Such skills may also have developed through interactions and exchanges:

> "I can darn socks or sew a button back on, but I cannot replace a zipper" (interview with Charline, 36, Bayonne). "I made a house sheet out of an old sheet. It was not that difficult. It took logic" (interview with Jean, 64, Les Grangettes). "My daughter tried to put an elastic band back on a pair of pants... She succeeded" (Interview with Cecilia, 42, inhabitant of Montmélian).

An overview of repair practices

The interviewees mentioned bringing damaged objects that no longer fulfil their functions to recycling centers (95%), repairing them themselves (75%) or getting them repaired (67%). Some individuals also reuse part(s) of such objects for mending or to create other products. Few individuals admitted to not repairing their damaged goods (10% of the respondents) first due to their lack of specific skills and secondarily due to not knowing any professionals or relatives who can make repairs.

Clothing, bicycles and electrical and electronic equipment are the main objects people try to fix. When making repairs themselves, people rely on their own knowledge, but they also ask relatives. When people are not able to mend an object by themselves, they require the help of skilled family members or friends and specialized crafters. Thus, family members and relations are decisive in facilitating repair activities. From the interviews we were able

to observe that the family environment affects not only on the willingness to reuse products but also the willingness to repair them. The role of family habits (and of the things we learn during our youth) or habitus is fundamental to the capacity to have confidence in one's ability to repair (by oneself or by someone else). "In my family, everyone made repairs. This involved sewing for my mother and using electronic devices for my father" (interview with Judith, Bayonne). Seeing relatives mending and retouching familiarizes individuals with the act of repair and its feasibility.

The family or friendly environment also plays a role through the emblematic figures of DIY activities. Having a "handy husband" or "seamstress grandmother" has not always been the vector for the transfer of skills, but it does allow one to rely on someone to have one's objects repaired. Knowing how to repair is a key skill that is appreciated and much in demand. When such skills are not present in the family setting, they are appreciated in a circle of friends. Thus, above all, making repairs means mobilizing one's close networks.

Different motivations encourage people to resort to repair. First, this action is considered environmentally friendly. Repairing is also seen as less expensive than buying new goods (74%). Moreover, many respondents consider themselves to be against consumer society (74%). In fixing objects, people who repair use their own tools (97%) or borrow them from their relatives (60%). Buying new equipment to repair one object is relatively rare (20%). However, people seldom purchase tools and are interested in having tools or spare items at their disposal in a specific location. People skilled at repair are not particularly keen on sharing their knowledge, while nonrepairers are motivated to learn to repair in specific locations.

The weak frequentation of third spaces dedicated to repair activities (recycleries)

The option to "repair in a specific place like a resourcerie or recyclerie, repair workshop, or repair café" is relatively rare (24%). A minority of respondents claim to be frequent users of these initiatives while 34% never use them and 55% are occasional visitors.

Users spend time in these places to buy products (56%) and to share good practices and knowledge (41%). In addition, these organizations create a convivial atmosphere (30%) where one is likely to access good deals (39%). People who say they are not customers of such shops emphasize that they do not know of these organizations. Whereas people know where they can have their bicycles repaired, they cannot identify places or professionals for restoring their furniture (70%), sports items (63%) or electrical and electronic equipment (58%).

An analysis of the survey shows that even if recycleries or repair cafés suffer from an image problem and are not well known or are perceived remote to potential users, they could serve as places where people can find peers to talk about repairing and exchange advice on ways of fixing items. The following reasons for not frequenting repair places/workshops were given (during the survey):

- Considering oneself as not sufficiently skilled to go to these places: "I do not have all the skills," "I do not know how it works, I have the impression that only good handymen can go there," and "I do not have that sense; it is not mediatized enough and thus not in my arsenal of skills."
- Preferring to repair at home: "I know how to fix it myself."
- Not having an interest in going to these places: "I'm not interested."

- Considering these places to be dedicated to poor people: “I do not feel so disadvantaged as to frequent this type of place designed for people living well below the poverty line.”
- Having no time to go to these places.
- Not knowing where these activities take place: “I only know of repair workshops dedicated to bicycles, but they are located far away. In addition, I do not know of any other places.”

Although they would like to repair their items, potential users do not know of intermediaries or organizations from which they can develop an ability to repair. In fact, R&R organizations are often located far from city centers, and their customers must access them by car. Moreover, our study shows that such organizations are often not highly visible. These difficulties and this lack of visibility exacerbate the discrepancy between what project managers expect from their users and how individuals actually imagine what a recyclerie is and the services one offers.

5.3. Modes of commitment to repair

Nevertheless, we noticed during our research an appetite among certain individuals for relooking and repairing. Our qualitative and quantitative data highlight a commitment to repairing these registers that corresponds to how familiar individuals are with repairing, whether they already make repairs in their daily lives, how objects are viewed in their living spaces and the time they want to dedicate to extending objects’ life spans. In fact, if an economic constraint exists (it is less easy to part with an object when the cost of replacement will have a strong impact on one's budget), this is not the major factor governing the choice to repair promptly or systematically. It is one criterion among others. An individual is not a repairer because he has low income; he usually mends because his family or professional environment has allowed him to acquire a culture of repair and know-how that is sometimes implicit (and not necessarily so conscious that one can declare oneself competent at repairs). This pressure to repair may originate from an economic situation necessitating repairs but that is no longer present. The interviews all indicate the same trend. A person may be an apprentice repairer in search of skills more due to reflections on his/her consumption and the consumer society and a desire to no longer systematically purchase commodities.

It is interesting to note that not all repairers are activists against consumer society, and they are not all ready to engage in collective initiatives. Some of these individuals repair because they have always done so or because they have an object that they want to last. Others want to learn how to repair because they are troubled by the depletion of resources and abundance of waste. Having a culture of repair is therefore not synonymous with a political or associative commitment: it first and foremost reflects a particular relationship to objects and to doing something to preserve them (sewing and electromechanics) (Dubuisson-Quellier and Plessz, 2013; Guiot and Roux, 2010).

The relationships between R&R project managers, providers of repairing skills, discarded items, customers of repair services, DIY repairers and, in general terms, consumers, are structured around objects. These confrontations or successful interactions highlight that the ‘object’ holds numerous meanings and intentions that have to be clarified before it is brought for repair. Otherwise, the trajectory of the object ends, and the possibility of lengthening its lifecycle is lost.

The data collected from the questionnaires and interviews made it possible to highlight "modes of commitment to repair" by taking into account the appetite for repair, the willingness or unwillingness to share knowledge/know-how, and the ability to manage to repair/recover/remodel objects. In association with the ANT these modes explore the relations with the defective objects, while neglecting or repulling them, or on the contrary, while displacing, transforming, enrolling stuff according to the possessed skills. The following modes were then proposed:

- The solitary repairer, who likes to repair, has the tools for this practice but does not wish to share his knowledge.
- The holistic repairer, already identified as a resource in his community and neighborhood, is ready to help and pass on his skills.
- The militant repairer is already involved in these 'third places' or third moments of repair.
- The occasional repairer is in search of skills.
- The nonrepairer is not willing to learn how to repair.

It is possible to highlight the extent to which repairing as a practice must be understood in its broadest sense (and not based on its legal definition). Repairs are often carried out in the home, by close family members and/or by friends. The use of dedicated spaces occurs for specific objects (the complexity of the repair). The failure to repair is not only a question of a lack of desire or skills but also, and above all, of time. The failure to repair is the result of arbitration in terms of the availability of time. It is clear that not everyone wants and is not going to become a repairer. Do-it-yourself activities have its limits and should not be the only objective/actions to be favored.

Our analysis may help militant repairers who try to create specific moments or dedicated spaces for overhauling and mending and reach others according to what they want to develop and which service(s) they would like to see. Knowing the modes of commitment is a way to interest and "enroll" new citizens (Berthou and Gaglio, 2020; Callon and Law, 1982).

6. Discussion

This study provides elements for understanding the social and organizational lock-ins that currently slow the deployment of reuse and repair activities. The formation of niches illustrates the varied and sometimes contradictory worldviews of R&R stakeholders. The current lack of collaboration within and interactions between these different sociotechnical systems highlights that R&R activities are still in gestation, as described by Schot et Kanger (2018). The segmentation of the public, regardless of its appetite for repair, has the effect of targeting only those who are already convinced or who are primarily guided by the consumption of second-hand objects. It therefore seems relevant to complete this strategy with a user-centered approach to improve the user interface of the service, as advocated for the circular economy. While the diversity of repair initiatives could appeal to people exhibiting different modes of commitment to repair, an absence of individual and collective reflexivity about the audience does not have this effect. People do not envision this diversity as a diversity of services, as their enrollment (from passive to active participation or through diversion) is dampened by ignorance.

Hence, our study of two cases highlights the need for local authorities in charge of waste management to draw a clear representation of offers and demands (users' skills but also repair needs) of repairing activities and to animate or help create local networks of repair initiatives. This will make it easier for people to understand the diversity of offers and for initiative managers to know which gaps they can fill and who they could enlist in their models.

7. Conclusions

This article presents the results of an interdisciplinary study dealing with repair and reuse practices and attempts to establish if recycleries/ressourceries/repair cafes may be relevant intermediaries for these activities. The scientific literature illustrates that these organizations have an image problem, although they are trying to change this using traditional marketing tools (IKEA-style layouts and marketplaces) and to distance themselves from second-hand market stakeholders. This would be the main reason explaining that ressourceries/recycleries/repair cafés are only frequented by a low percentage of inhabitants in their catchment areas. However, in this article, we tried to offer a stronger understanding of the expectations of repair and reuse organizations (providers of services or specific opportunities to fix things), which are very diverse in their forms and justifications, and those of local inhabitants and potential users of R&R services. These expectations do not really coincide and no place exists to discuss them and to come closer.

As a limitation of this social and technical research, our sample proved too limited to deepen our statistical analysis. could allow us to define more precisely modes of commitment to repair according the age, gender, revenues for example. This knowledge could then be dealt by local sustainable initiatives to propose a service matching with these features.

As Martin and Gaspard (Martin and Gaspard, 2017) show it, the human and social sciences teach us that there is no miracle solution for changing behaviours, no lever or tool that is universally valid. Researchers and practitioners have to reflect on the complementarity of the tools to be put in place to change a given social practice. The setting up of material infrastructures or specific spaced must be accompanied by work to change people's perceptions of the possibility of using them. The social and human sciences combined with engineering sciences invite us to understand the practice to be developed through a detailed study, necessarily multidisciplinary, of the different factors that contribute to explain a given behaviour and to determine how to change it.

Further research can address the trajectory of items of repair, as 'repairing' is a multifaceted practice that maintains or transforms the original object and its functions. Moreover, parallels to the crafter and maker universes can be explored to identify new ways of viewing R&R activities (Colmellere et al., 2019; Sennett, 2010).

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Conceptualization	×		
Data curation	×		
Formal analysis	×		
Funding acquisition	×	x	
Investigation	×	x	×
Methodology	×	x	×
Project administration	×	x	×
Supervision	×		
Roles/Writing - original draft	×	x	
Writing - review & editing	×	x	×