

**PUBLIC PERCEPTION ABOUT
REALLOCATION OF ROAD SPACE FROM
CARS TO PEDESTRIANS:** the case of Arroios
Municipal Market in Lisbon

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To my families

“A vida é a arte do encontro embora haja tanto desencontro na vida”

Vinícius de Moraes

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The completion of this dissertation represents the achievement of a three-year journey. Three years since the beginning of the master's degree, reconciling classes, exams, assignments and work. It definitely was not easy and sometimes it even seemed like it wouldn't be possible. But I was never alone and, from the first moment of this walk I was blessed with the company of amazing people.

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ABSTRACT

The spread of the mobility model based on the use of individual motorized transport has brought some detrimental consequences for society, more prominently, congestion, air and noise pollution, road unsafety and intensive land use. As cars are more space consuming than other modes of transportation, cities have adapted to accommodate the utilization of these types of vehicles, causing an unbalance on the way space is allocated in the urban environment.

One way to promote more equilibrium in the uses of land is to reallocate some of the space appropriated by cars to other uses. When the reallocation of space is aimed at favoring a soft transportation mode such as walking, this conversion in the purposes of an area, i.e., pedestrianization, can bring several benefits to the environment it affects, such as improvements on accessibility, road safety and creation of more spaces for sociability and development of diverse activities, but it can also foster economic growth through the increase of footfall, sales and rent.

Having these premises in mind, this dissertation explored a road space reallocation scheme that was finalized in April 2021 in the city of Lisbon, Portugal. The intervention turned over 1000 m² of road space and parking into area extensions for the sidewalks, urban furniture, parking areas for bicycles and scooters and extra space for restaurants and cafes' terraces. The first reaction registered concerning the changes was the protest of a few merchants of the area, asking for the complete reversal of the works done by the municipality.

Through the application of two different questionnaires, one directed to business owners and the other to users of the area, the present work sought to investigate how, over two years after the intervention was concluded, its various users perceive the changes, how their views have eventually evolved over the years and which impressions they share about the way the area currently is.

The data collection for the research happened mostly on-site, with a few online responses, and its results showed that, despite not being able to reach a success status, the changes the intervention brought are generally seen as beneficial from most of the sample analyzed. Respondents recognized benefits such as the better organization of traffic and improvements in road safety, for instance. Alternatively, the most constant focus of debate was the reduction in the parking spaces supply around the market, which, according to some business owners, harmed their commercial activities.

The analysis of the different types of respondents made it possible identify how some characteristics influence their perceptions. Among users, visitors and residents were, respectively, the ones more favorable to the intervention, while car users were the opposite. Regarding the business owners, it was possible to observe that the longer they were running their commerce in the area, more prone they were to perceive the changes negatively.

KEYWORDS: road space reallocation; pedestrianization; public perception; case study; questionnaire.

RESUMO

A disseminação do modelo de mobilidade baseado no uso do transporte individual motorizado trouxe algumas consequências prejudiciais para a sociedade, com destaque para o congestionamento, a poluição do ar e sonora, insegurança viária e o uso intensivo do solo. Como os carros consomem mais espaço do que outros modos de transporte, as cidades se adaptaram para acomodar a utilização desses tipos de veículos, causando um desequilíbrio na forma como o espaço é alocado no ambiente urbano.

Uma forma de promover maior equilíbrio nos usos do solo é realocar parte do espaço apropriado pelos carros para outros usos. Quando a realocação do espaço visa favorecer um modo de transporte leve como a caminhada, essa conversão nas finalidades de uma área, ou seja, a pedonalização, pode trazer diversos benefícios ao meio que afeta, como melhorias na acessibilidade, segurança viária e criação de mais espaços de sociabilidade e desenvolvimento de diversas atividades, mas também pode fomentar o crescimento econômico através do aumento de tráfego, vendas e arrendamentos.

Tendo estas premissas em mente, esta dissertação explorou um projeto de realocação de espaço viário que foi finalizado em abril de 2021 na cidade de Lisboa, Portugal. A intervenção transferiu mais de 1000 m² de logradouro e estacionamento em extensões de passeios, mobiliário urbano, parques de estacionamento para bicicletas e trotinetes, e espaço extra para esplanadas de restaurantes e cafés. A primeira reação registada em relação às mudanças foi o protesto de alguns comerciantes da área, pedindo a reversão total das obras feitas pelo município.

Através da aplicação de dois questionários distintos, um dirigido aos comerciantes e outro aos utentes da zona, o presente trabalho procurou investigar como, mais de dois anos após a conclusão da intervenção, os seus vários utentes enxergam as mudanças, como as suas opiniões eventualmente evoluíram ao longo dos anos e quais as impressões que eles têm sobre a forma como a área é atualmente.

A coleta de dados para a pesquisa ocorreu maioritariamente no local, com poucas respostas online, e seus resultados mostraram que, apesar de não conseguir alcançar um *status* de sucesso, as mudanças trazidas pela intervenção são geralmente vistas como benéficas pela maior parte da amostra analisada. Os entrevistados reconheceram benefícios como a melhor organização do trânsito e melhorias na segurança viária, por exemplo. Alternativamente, o foco mais constante de debate foi a redução da oferta de vagas de estacionamento ao redor do mercado, o que, segundo alguns comerciantes, prejudicou suas atividades comerciais.

A análise dos diferentes tipos de respondentes possibilitou identificar como algumas características influenciam suas percepções. Entre os utentes, os visitantes e residentes foram, respetivamente, os mais favoráveis à intervenção, enquanto os utilizadores de carro foram o inverso. Em relação aos comerciantes, foi possível observar que há quanto mais tempo eles tinham o seu comércio, mais propensos eles eram a perceber as mudanças de forma negativa.

PALAVRAS-CHAVE: realocação de espaço viário; pedonalização; percepção pública; caso de estudo; inquéritos.

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INTRODUCTION

Amongst the challenges urban areas have been facing in the last decades, the ones associated to transportation can be especially relevant when taking into account its latent influence in society's daily dynamic. Thus, the problems related to urban mobility can take a big toll on citizens' quality of life (ECDGE, 2004).

Nowadays, some of the most noticeable complications faced in the urban transportation arena can be directly connected to the extensive use of individual motorized transport, with common ramifications such as air pollution, noise, traffic injuries and congestion. The overdependency on the car as the main means for mobility can be very detrimental for urban living and its most prominent consequence, i.e., congestion, produces major economic, environmental and social costs (ITF, 2021).

According to Wiersma et al. (2020), the start to the current car-dependent model can be traced back to the post-Second World War. In general terms, the authors argue that Western cities have been transformed in order to foster the wide-spread use of the car. This adaptation changed the spatial distribution of activities in the cities, increasing even more the dependency on this mode of transportation. This phenomenon is particularly intensive in the US, and, to a lesser degree, it also has influence on European urban environments.

The predominant use of private transport can be easily observed when analyzing the numbers of modal share for passenger transportation in cities. In a 2019 European Union report specifically on motorized transport (EUROSTAT, 2021A), the average modal share for private vehicles was 83.2%, way ahead of its compared alternatives, buses (8.8%) and trains (8.1%). In Portugal, the scenario points to a slightly more accentuated use of the car, with 89.3% of split for this mode and poorer numbers for buses (6.1%) and trains (4.6%). In Lisbon Metropolitan Area, the 2017 IMob survey, this time accounting for soft modes, also showed the car as the main means of transport, with 58.9% of trips. In comparison, active modes (walking and bicycle) represent 23.5% and public transport accounts for 15.8% (INE, 2018).

In 2021, another study in the European Union restated how dominant the car is when it concerns to urban mobility: "regardless of the day (work or non-work), the private car is mostly used (as a driver or as a passenger) in all the 13 Member States¹ covered. The share ranges from 57 % of the total daily distance travelled in Romania to 81 % in Slovenia" (EUROSTAT, 2021B, p.1). The researches show how complex and comprehensive the dominance presents itself to be, varying very little among the analyzed countries despite the relevant cultural and economic differences between them.

¹ Belgium, Denmark, Germany, Greece, Croatia, Italy, Latvia, Netherlands, Austria, Poland, Portugal, Romania and Slovenia

With the predominance of the car as the preferred transport mode, the use of the land in cities also changed in order to accommodate this demand. Summing up the transformation that took place in the end of last century, ECDGE (2004, p. 14) wrote: “as car ownership and use have increased over the past 30 years the reaction to the pressure created by additional traffic demand has often been to increase the level of supply, in other words provide additional road space”. Frequently, this supply-demand model is still used in infrastructure developments nowadays and its consequences are flagrant in the way space is allocated in the urban realm.

In accordance, ITF (2021) adds that when it comes to the area required to move on, the car is the transportation alternative that consumes the most space. This is clearly reflected on many cities, where the transport infrastructure is largely devoted to private vehicles: on average, cars take five times more space per traveler than pedestrians (Figure 1).

	Space used at average speed (m ² x hours/vkm)	Average vehicle occupation rate	Space used per traveller (m ² x hours/km)	Difference compared to walking
Walking	0.3	1	0.3	1
Bicycle	0.6	1	0.6	2x
Motorcycle	1.7	1.05	1.6	5x
Car	1.8	1.3	1.4	5x
Bus (12 m)	7	17	0.3	1.4x

Figure 1 - Space consumed by type of vehicle compared to walking (Adapted from Héran & Ravalet, 2008)

Taking a look at the land use distortions brought by car dependency, parking plays an important role. The area necessary for accommodating parked vehicles is considerable, taking up around 20 to 30% of urban road space (Litman, 2012). Complementarily, ITF (2021) argues that the provision of both on-street and off-street parking require the use of significant land resources, contributing significantly to the social costs associated with owning and using a car.

Furthermore, amongst the effects of car dominance in cities, some of the easiest ones to verify are associated to land use, i.e., how usually most of the space in streets is taken up by motorized vehicles, either for them to move or park. Berlin, for instance, despite being a city with relatively low motorization rate and with only 17% of all trips made by car, has 58% of its public street space allocated for the automobile (39% for driving and 19% for parking). Pedestrians get 33% of the space (Agentur für clevere Städte, 2014). The case of Berlin is symbolic of how even in cities that reach more balanced modal shares the path to a more equal distribution of space is not simple.

Observing how unevenly road and parking space is distributed between transport modes, ITF (2021) advocates that this allocation should be reviewed by Governments. Since cars take disproportionately more space than their modal share, they are the most privileged in this equation and the call for a redistribution gets louder and louder, especially when in face of relevant benefits: by reallocating road and parking space to public transport, cycling, and walking, mobility options for non-drivers are

increased, promoting a shift towards more space-efficient modes of transportation. This helps achieve both equity and efficiency objectives by encouraging users to reduce their reliance on cars.

In summary, the comprehensive use of the car as means of transport and the space it consequently takes on the streets, for moving and parking, makes this mode highly impactful on the urban arrangement. As previously mentioned, this scenario brings many harmful consequences for the cities and their inhabitants. Those ramifications of driving carry along external costs, that is, the price paid by society as a whole for the activity. Yanocha (2020) divides these costs in two: environmental and societal. The environmental costs are greenhouse gas emissions, contribution to climate change and noise pollution, while the societal costs are related to infrastructure maintenance, road injuries/fatalities, traffic congestion/lost time, land for roads/parking and division of community/social fabric, resulting in negative impacts for accessibility, the environment and quality of life.

In its publication about reclaiming the streets in favor of people, ECDGE (2004) presents the many negative impacts that the increasing motorized vehicle dominance causes on urban quality of life (Table 1).

Table 1 - Impacts of car dominance in urban environments (ECDGE, 2004)

Impact	How it takes place
Economic Efficiency	Traffic congestion, pollution and accidents result in significant direct and indirect costs.
Urban space “loss” and visual intrusion	The infrastructure necessary to accommodate motorized transport – roads and parking – takes up valuable city land, spoiling, threatening and diminishing the quality of existing open spaces.
Air pollution	Air pollution resulting from combustion engines causes effects on climate change, health problems and building decay.
Road safety	Cars are accountable for a large number of deaths on roads each year, with most fatalities happening in urban areas.
Severance	Congested urban roads cause severance of communities which can have a social cost.

In accordance with many authors’ argumentations, part of the solution for this car-dominance problem can be achieved by reallocating some of the space currently assigned to private vehicles, favoring the use of other transport modes and therefore providing more viable transport options (Tenn & Hagen, 2021). For Holden, Gilpin & Banister (2019, p. 4), the reprioritization of the street space in favor of modes like walking, cycling and public transportation over the car matches the relentless “loud call for a transition to sustainable urban mobility”.

Going in the same direction, Cairns et al. (2002) affirm that the reduction of road space for general traffic along with its reassignment to other modes of transport such as cycling, walking, buses, trams and high occupancy vehicles, for instance, points to a more efficient use of the road network while also significantly increasing the attractiveness of these more sustainable alternatives.

Taking the car road space reduction as a way to help on the urban mobility, one could argue that taking space away from private vehicles would only worsen traffic-related issues, increasing its density and causing more congestion and delays for all road users, negatively affecting public transport users and cyclists too, for instance. Research, on the other hand, suggests that this a narrow understanding: studies have revealed that when travel is faster, safer and cheaper people tend to travel farther and more frequently, i.e., when a transport mode conquers more quality over another, users tend to choose the improved one. Finally, as very well documented, the expansion of road capacity in congested transport systems ends up inducing traffic growth, as more people seek for the car since the conditions for its use has improved (Cairns et al., 2002; Downs, 2004; Speck, 2012; Altieri et. al., 2020; Tenn & Hagen, 2021).

According to the Victoria Transport Policy Institute (2008, p. 1), “Road Space Reallocation involves shifting more road space to specific transportation activities and managing roadways to encourage more efficient and equitable transportation”. Looking towards a street quality improvement from which citizens could truly take advantage, space reallocation favoring walking can bring great potential.

Taking street space from cars in order to redirect it to a soft mode such as walking has become increasingly popular in the last decades, as the walkable environment regained its relevance. This movement is associated to the reconsideration of the pedestrian spaces’ importance among urban planners: in the 1960’s, leading thinkers like Jane Jacobs, Jan Gehl and William H. Whyte had great interest in pedestrian areas and questioned the dominance of the car (Yassin, 2019).

This conversion of an area into a place designed for walking, i.e., pedestrianization, can address different issues in a city and become part of the solution to problems such as congestion, suburbanization, pollution, etc., increasing street livability (Yassin, 2019).

The interventions that provide more space to walking consequently narrowing the cars’ area can be bring new dynamics to a street. Widening a sidewalk or extending the curb by painting the road, for instance, are examples of changes that have potential to present new vivacity to the urban environment, improving accessibility, mobility, road safety and creating more areas where sociability and numerous activities can take place (Yassin, 2019).

Accordingly, Soni & Soni (2016) detail that the benefits brought from pedestrianization range from social, economic and environmental through transportation and health related improvements. In the case studies analyzed, after the pedestrianization the authors found evidence of a variety of improvements, to cite a few: significant growth in pedestrian flow, reduction in car use, congestion, parking, road injuries and crashes, increase in public transportation, livability and social interactions. It’s also relevant to highlight the economic benefits related to the increase in footfall, sales and rent (Hass-Klau, 1993; OECD, 1978).

Although the literature provides an extensive record of studies that show how beneficial pedestrianization interventions can be to the area where they take place, they still are a target of heavy criticism when first proposed. By the moment reallocation projects are suggested, there’s usually a big debate around them, and the ones that pose themselves against the changes often dominate the discussion. This agitation might increase uncertainty and bring more opponents, which can shift the initial plans (Keseru et al., 2018). Once the intervention goes forward, though, Hagen & Tenn (2021, p. 3) concluded that “despite considerable resistance to the process of pedestrianization, especially among retail businesses, acceptance and positive endorsement often follow implementation”.

Having in mind the discussions that street space reallocation projects incite, this work aims to analyze the implications caused by the intervention that took place around Arroios Municipal Market, in Lisbon,

Portugal. On the area in case, the changes implemented reconfigured the streets, transferring space from cars to people and also presenting some traffic calming resources. The permanent intervention, completely finalized in May 2021, faced some criticism when announced and during implementation. Now, almost two years post conclusion, the motivation is to try to understand the perception of retailers and inhabitants about the changes that took place around the market and how they impacted their lives.

1.1. OBJECTIVES

The objectives of this thesis are related to the analysis of the street space reallocation project that took place around Arroios Municipal Market in Lisbon, understanding which kind of alterations were made, their impacts on the affected area and, mostly, the perceptions from different project stakeholders about the changes implemented.

In order to build a solid theoretical basis and a consistent research, this work seeks to select and reunite scientific works that define and explain the main concepts necessary to understand the themes approached in the thesis, present a full description and explanation of the pedestrianization initiatives implemented in the study area and understand the stakeholders' impressions regarding the intervention through the development and application of questionnaires targeted at residents, visitants, workers and business owners.

The research developed aims to specifically analyze how, over two years after the completion of the intervention, its users perceive the area nowadays, primarily seeking to grasp how their views evolved over time and how the different types of users face the changes implemented by the municipality, retrieving their main inputs about the process.

1.2. STRUCTURE OF THE WORK

The present master thesis is structured in six chapters. After the presentation of the work and its contextualization developed in the *Introduction*, there's the *Literature Review*. This second chapter is divided in two broad sections, *Road Space Reallocation*, where the most relevant concepts on the theme are presented and defined, and *Empirical Evidence*, composed by the case studies that support the theory with real life applications.

The third chapter is the *Case Study*. In this section there is a presentation of the program that originated the intervention around Arroios' Market, "A Rua é Sua", and the design with the first ideas it brought for the road space reallocation initiative and its main objective, a description of its area and how its positioned in its neighborhood and city, a report of some of the first reactions from the merchants to the intervention and first characterization of the study area, presenting how it's currently used.

The fourth chapter is the *Research Methodology* and its main role is to show how the research was prepared and developed, going through the conception of the questionnaires, the main structure of the survey for users and business owners, and the way the response collection took place.

Chapter five, *Results and Analyses*, presents the outcomes from the questionnaires' application, divided by the type of result (quantitative or qualitative) and target audience (users and business owners). Concurrently, the results are analyzed in light of the resources brought by the different sources provided by the research

Chapter six, *Conclusions*, is a summary of the whole dissertation, presenting how the objectives that steered the building of the work were met and answered through its development and research results.

2

LITERATURE REVIEW

VTPI (2019) considers that road space is a scarce public resource and its right-of-way one is of the most valuable assets municipalities have. Being more space intensive and bringing more crashing hazard, automobiles naturally take more space than other transport modes, and since the conventional transport planning tends to allocate most of road space resources to motorized vehicles' traffic and parking, there's a flagrant unbalance.

In the portrayed context, VTPI (2019) defines *road space reallocation* as the shift of space currently dedicated to motorized transport traffic or parking to accommodate other modes like sidewalks, bicycle lanes, bus lanes, High Occupancy Vehicles (HOV) or train lines. In some cases it comprises the reduction of the overall street width to free up space for other uses, it's a way of prioritizing more efficient modes of transport and higher value journeys.

In other words, the reallocation of road space is a way to manage travel demand by encouraging alternatives to the private vehicle through the application of push and pull measures (Beetham, 2014). For Banister (2008), the reassignment of the space must exclusively benefit car alternatives such as bus priority lanes, pedestrianization or cycle ways.

The redistribution of space also plays an important role in changing the perception about the use of streets, to understand them as places that can accommodate more than vehicular traffic, and may also foster recreation, social interaction and safe walking and cycling (Banister, 2008). According to Cairns et al.(2002), road space reallocation can be planned or unintended, permanent or temporary. For instance, a local disaster may force a capacity reduction in a road, or, in the long term a footpath may be widened. But, in the end, the purpose of these redistributions is to try to grant a more efficient or equitable use of the road, whilst also making alternatives to car more attractive.

In opposition to the reallocation of road space away from cars, Goodwin (1999) discusses two main arguments: the first one is from retailers who argument that it will negatively affect their business and the second is from traffic engineers and planners who assume that the changes will provoke congestions in the surrounding areas. Both arguments are dismissed by literature: for the retailers, there's evidence that reallocation of street space can actually boost trade and vitality for shops (Hass-Klau, 1993; Yoshimura et al., 2022; Castillo-Manzano et al., 2014). As for the concern about congestion, a notable work by Cairns et al.(2002) shows how, just like traffic tends to increase a certain period after an infrastructure expansion, it tends to "disappear" after a reduction of road space.

The phenomenon which takes place is that general traffic in fact reduces after road space capacity constraints, and has been thoroughly studied by Cairns et. al. (1998), who coined the term "disappearing traffic" (or "traffic evaporation"). These terms represent the opposite of the definition of "induced

traffic”, when the volume of vehicles increase after the provision of additional road infrastructure (Melia & Calvert, 2021).

In a comprehensive analysis of 70 case studies in 11 countries concerning road capacity reduction, i.e., temporary closings of roads, permanent pedestrianization schemes, modal filtering initiatives and capacity reductions favoring bus lanes, Cairns et al. (2002, p. 13) found out that the congested roads’ users adapted to contingencies and the outcome was actually the opposite of what could have expected, with significantly lower traffic levels and problems far less serious than predicted. About the fears and complications raised prior to the reductions, the authors conclude: “the findings suggest that such problems are, in reality, rarely as bad as predicted, and that, with careful planning and appropriate implementation, reallocating road space to more sustainable modes of transport can result in a variety of complementary benefits”.

In its report for “reallocating space for better cities”, ITF (2020) brings two important recommendations that point in the same direction. When reallocation initiatives take place they should account for diverse uses and users and people should be prioritized over vehicles. Such changes bring great paradigm changes in the planning and designing of streets, though, i.e., opening space for other vehicles and sometimes for non-transport uses and aligning the speed limit to the characteristics of the street, all in order to better accommodate a broader variety of safe uses to the public space, including mobility options. Moreover, in favor of making people the center of reallocation projects, it’s necessary to think first how the space in cause can better serve the population, not the vehicles. For that end, it’s important to evaluate how people’s mobility needs can be fulfilled and assess the access brought by the transport systems.

The shift in priorities expressed through a street space reallocation initiative has the potential to foster a powerful change in a whole area. Depending on the purpose and intended results for an intervention, different kinds of users will be affected, and its vital that their inputs and space fruition are taken into account. Projects that seek to improve the mobility of pedestrians, for example, must thoroughly understand the context in which they are inserted and examine through those kinds of interventions which one is more appropriate for an implementation that helps the people that walk in the venue.

2.1. CONCEPTS OF ROAD SPACE REALLOCATION

The transference of space from private vehicles to other modes of transport represents an impactful change in a street, altering its design, sometimes the way it’s been laid out for years and adapting the way people, vehicles and goods move. Reassigning more space for bicycles, pedestrians or public transport, for instance, serves for distinct objectives, and depending on the needs associated to the cases analyzed, the best solution has to be carefully chosen.

In favor of that choice to be effective, it’s necessary to comprehend the work alternatives associated to the reallocation of road space. When these interventions prioritize the pedestrians, they may be placed under the general concept of *pedestrianization*, which, in turn, may be promoted through different alternatives such as shared spaces and curb extensions. It’s important to note that these concepts are not mutually exclusive, on the contrary, they are often complementary. As an example, a project that involves the construction of curb extensions might contribute to a pedestrianization scheme that in the end will be a part of a shared space.

2.1.1. PEDESTRIANIZATION

In the present context of urban mobility, walking is oftentimes neglected as an actual mode of transport since it's hardly ever explicitly treated as one. This way, in spite of being one of the simplest forms of movement and easy to be performed by most, walking has been somewhat overlooked in the planning of roads, where the vehicular flow ended up prioritized (Zileli, 2022).

As pedestrians and walking began to draw some attention for mobility studies, specific terms to address their needs started gaining some traction, *walkability* was one of the most prominent of them. The concept of walkability emerges as a consequence of the increasing importance of non-vehicular transportation and fuels the design of pedestrian-centric streets (Forsyth, 2015; Zileli, 2022).

Walkability is described by Southworth (2005) as the degree to which the constructed surroundings make easier and promote walking, granting comfort and safety for pedestrians, connecting individuals with diverse locations in a reasonable amount of time and energy, and fostering visually stimulating experiences in their trips within the system. For Speck (2012), walkability refers to the extent to which the design of an urban environment allows its residents to lead productive and enjoyable lives without needing car ownership. While cars are still permitted, they should be utilized at slower speeds, as an optional tool for freedom rather than as a necessity or prosthetic device that people depend on to function in their daily lives.

Along with walkability, other kinds of proposals aim placing the pedestrian in the center of planning and design. One of these initiatives, called Complete Streets, was brought by the United States Department of Transportation.

The idea behind complete streets captures the essence of multi-purpose spaces, with a design thought out to be an enabler of safe access to all users, pedestrians, bicyclists, motorists and all transit riders (Pérez, 2021). This way, the conception behind complete streets doesn't necessarily aim at a specific kind of user, instead it preconizes a broader approach, planning, designing and building streets that foster safe access for all users.

Synthesizing, the U.S. Department of Transportation characterize complete streets as streets that are planned and maintained in a way that ensures safe and accessible use for all types of users, regardless of their age, physical abilities, or mode of transportation. This includes drivers, pedestrians, cyclists, and public transportation riders. (DOT, 2015B)

The change of the planning focus from individual motorized transport to pedestrians requires accommodating these users' needs, increasing attractiveness and convenience for them and improving their infrastructure, again, making the conception people centric. The promotion of a sustainable transportation through pedestrianization has positive effects on the population's quality of life to the extent that it can bring more circulation of people, better air and streetscape quality, and also new impulse for commercial activity (Whelan, 1994; Parkhurst, 2003; Zileli, 2022)

When taking into consideration pedestrians' needs, the reallocation of space in their favor can be called pedestrianization. For Hass-Klau (1993), pedestrianization consists on the removal of existing street traffic along with adequate pavement treatment, urban furniture and other design related details. For the cases in which specific vehicles are allowed, there's the inclusion of controlled access for public transport, emergency services and delivery vehicles, for instance.

In a more direct approach, VZYCM (2021, p. 1) summarizes pedestrianization as "the removal or restriction of vehicular access into a street or public space; prioritizing said space for pedestrians". Monheim (2003), on the other hand, understands that pedestrianization should be interpreted as an

integrated approach with the way through which a city works, responding to the transformations in society, instead of an isolated technical measure.

According to Soni & Soni (2016) there are three kinds of pedestrianization: full-time pedestrianization, part-time pedestrianization and traffic calming. In the first scheme, pedestrians have full priority over vehicles, only emergency services are allowed, but the provision of other kinds of services may be permitted during specific times and locations. In a part-time pedestrianization, in favor of the minimization of access, the transit of vehicles can only take place during specific times and there's no on-street parking. Lastly, for a traffic calming intervention there's no restriction to the access of vehicles, although they are slowed down by a distinct set of measures, and usually the sidewalks are widened and on-street parking is reduced.

Complementarily, the U.S. Department of Transportation define traffic calming as the combination of measures that reduce the safety risks provoked by motorized vehicles by slowing them down, improving conditions for street users. Examples of these interventions are vertical deflections, such as speed humps, speed tables and raised intersections, horizontal shifts and street narrowing. Another approach to traffic calming is through "road diets", which involve the reduction of width or the number of lanes for cars in favor other transport modes or to the implementation of left turn lanes (DOT, 2015A).

The designs and concepts that seek to provide more space for pedestrians are many and can take place in a various number of ways. Therefore, for the better understanding of the changes implemented through pedestrianization schemes it's relevant to characterize some of these interventions.

2.1.2. SHARED SPACES

The concept of a shared space can be differently analyzed by researchers. While some associate it to a strategy of traffic calming, the UK Department for Transport defines it as "a design approach that seeks to change the way streets operate by reducing the dominance of motor vehicles, primarily through lower speeds and encouraging drivers to behave more accommodatingly towards pedestrians". The most recent definitions, though, focus on the "space" part and are more concerned about the creation of streets as vital spaces for public life (PPS, 2017, p.1).

Shared spaces are often connected to the Dutch concept of *woonerf*, residential yards or living courts, which are streets that underwent traffic calming measures in order to improve safety in residential areas, mostly aiming at children's well-being. As consequence of the implementation of "obstacles", traffic calming devices and landscaping, for instance, cars are obliged to move slowly, in the Netherlands the maximum speed in the *woonerfs* is 15 km/h, resulting in a more peaceful coexistence between cars and pedestrians (Soni & Soni, 2016).

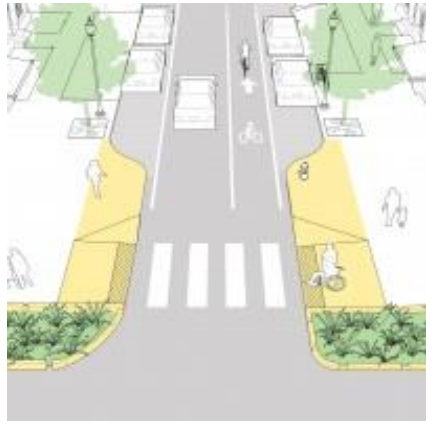

In a shared space the objective is to reduce the segregation between the different modes and stimulate simultaneous use of the same space by slower and smaller non-motorized vehicles along with larger and faster motorized ones. By eliminating clear separation structures this type of design aims to create a sense of space and make multiple uses possible in the same area (Zileli, 2022)


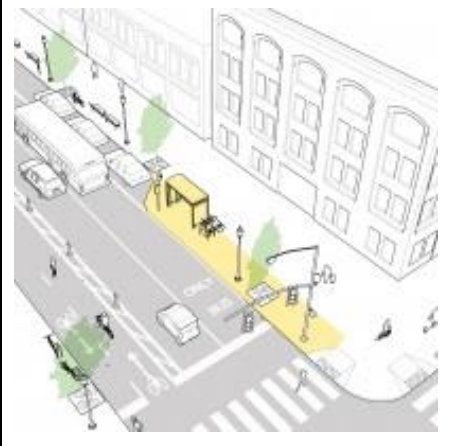
2.1.3. CURB EXTENSIONS

Also known as bulb-outs or neckdowns, curb extensions expand the sidewalks or the curb-line into the parking lane, reducing roads' effective width and broadening the space of pedestrians. When positioned at the beginning/end of streets, these interventions increase the visibility of pedestrians and motorists at intersections and prevent parking close to the corners (FHA, 2010)

NACTO's Urban Street Design Guide defines curb extensions as interventions that narrow the roadway, through physical or visual elements. They contribute to the safety of pedestrians shortening crossings and also provide additional space on the sidewalks, making room for street furniture, planting and trees. Besides the overall support for traffic calming, the curb extensions may take different forms and applications (Table 2).

Table 2 - Types of curb extensions (image and contents adapted from NACTO, 2012)

Type of extension	Name	Description
	Gateway	Usually used at the beginning of an intersection, these extensions can mark the transition to a lower speed or residential zone, hence its name referencing the passing to a new area.
	Pinchpoint	Pinchpoints, or chokers, are applied midblock as a part of traffic calming measures, decreasing speed, adding more public space and eventually facilitating crossing.

	<p>Chicane</p>	<p>These offset extensions create a chicane effect that considerably lowers traffic speed while also contributing to the provision of public space.</p>
	<p>Bus bulbs</p>	<p>In these interventions the curb extension aligns the bus stop with the parking lane, adding space to the former and facilitating passengers' boarding.</p>

Beyond the cited benefits, curb extensions also provide more visibility for pedestrians and motorists and reduced illegal parking close to corners, crosswalks and bus stops. As a counterpoint, they can be more expensive than other measures and might make it more difficult to implement further changes on the streets' layout (SFBS, 2015). If the changes need to be more flexible, curb extensions can also be done with interim materials. In this case they might be demarcated by temporary curbs, bollards, planters or paint (NACTO, 2012).

2.2. EMPIRICAL EVIDENCE

Starting from the established theoretical basis, eight case studies were selected in order support the concepts presented with empirical evidence, concretely presenting how they were used. Almost the totality of these case studies took place in Europe, except for one, from the United States. There is a variety of interventions, from projects that affected many streets and their surroundings to smaller ones, that sought to study a single intersection, but they all bring different insights and contributions to the study of interventions that benefitted the pedestrians.

The studied interventions were implemented in cities of different sizes. There are country capitals, where mobility discussions are more relevant and profound, like Oslo and Brussels, but also smaller cities, such as Albany, Oregon, in the interior of the United States, where car dominance plays a massive role in transportation. With this variety it's possible to grasp many angles on the analyzed subjects. A

summary with the information from each intervention is presented on Table 9 (appendix's section 7.1. *Case Studies' Summary*). Right below, on Table 3, there's the main information regarding the analyzed studies' authors, cities where they took place and objectives.

Table 3 - Case studies' authorships, localization and objectives

Authorship	Localization	Objectives of the study
Hagen & Tennøy, 2021	Oslo, Norway	Understand how the users of the city center and the commuters adapted to the interventions and what impacts they caused.
Castillo-Manzano et al., 2014	Seville, Spain	Analyzing the citizens' satisfaction about the pedestrianization schemes.
Szarata et al., 2017	Cracow, Poland	Verifying the changes in the commerce from the business owners' perspective and the perceptions of the consumers about the area's accessibility.
Hickman & Sallo, 2022	London, UK	Analyze and assess the project development and delivery, understanding the public participation and how different parts of society see the intervention.
Melia & Shergold, 2017	Brighton, UK	Analyze the impacts caused by the pedestrianization scheme on traffic volume, users' modal choice and perception and the views of important stakeholders such as business owners.
Boveldt et al., 2022	Brussels, Belgium	Analyze the impacts of the pedestrianization scheme and how it affected users' travel behavior and what are their views on the accessibility, functioning and design of the area.
Johnson, 2005	Albany, US	Quantify the benefits related to safety brought by the implementation of curb extensions, and how it affected motorist behavior.
Sdoukopoulos et al., 2021	Serres, Greece	Assess of the traffic calming interventions implemented in the city of Serres, in terms of level of perceived public satisfaction, road safety, air pollution, speed and traffic flows.

An important aspect on the interventions' analyses regards the location in the city where the interventions take place, in the core of the city center or in a suburban residential area, for instance, since these factors have great influence on the results. More commonly, pedestrianization projects start in city centers, where usually there is more commercial activity (Castillo-Manzano et al., 2014). Therefore, most of the case studies selected regard changes implemented in central areas, but there are also examples that bring insights for cases that are outside that sort of zone.

It's possible to observe that the interventions that took place in city centers usually affected a broader area, with changes being implemented in a few streets and squares. Since those are areas typically more crowded and get a big influx of workers and visitants, the alterations had great impact on traffic, taking space away from cars (Hagen & Tennøy, 2021; Szarata et al., 2017).

Whenever a municipality designs a plan for the reallocation of road space, there are a few objectives in mind, and the motivations can be clear problems the city is facing and/or goals that are being pursued: reducing the emissions of greenhouse gases (Hickman & Sallo, 2022; Hagen & Tennøy, 2021), improving sustainable mobility (Castillo-Manzano et al., 2014), improving urban environment's quality (Hickman & Sallo, 2022; Hagen & Tennøy, 2021; Szarata et al., 2017), improving road safety (Hickman & Sallo, 2022; Johnson, 2005) and/or minimizing the impacts and negative externalities of motorized vehicle's traffic (Boveldt et al., 2022; Hagen & Tennøy, 2021; Sdoukopoulos et al., 2021; Melia & Shergold, 2017). Despite being some of the most studied consequences related to pedestrianization, the growth in pedestrian volumes and its impact on commercial activity (Cairns et al., 2002) was not found at core of the analyzed projects.

In order to meet the objectives set by their mobility plan or policy, for instance, the municipal governments from the case studies chose different paths. Given the scale and proportion of each project, all of them took space that was originally destined for cars, frequently through the removal of parking spots and road closures. But, although the reached outcome was the same, the approach varied, especially when it regarded the form through which the processes were conducted.

Though, before any construction work starts, the population's reaction to the changes proposed for their cities can have a relevant role. Among the empirical evidence analyzed it's fair to say that most of the times the pedestrianization proposals were faced with at least some opposition. Initial resistance was fueled by fears that restrictions to cars would negatively affect the area's accessibility and attractiveness (Hagen & Tennøy, 2021; Sdoukopoulos et al., 2021) or cause losses for businesses, originating even a strong anti-pedestrianization movement in one case (Castillo-Manzano et al., 2014). In Brighton, there was a split among business owners, while representatives of jewelers and other specialist shops opposed the pedestrianization, representatives of cafes and restaurants were in favor of it (Melia & Shergold, 2017), while in London the stance on the pedestrianization opposed, on one side, local business owners and residents, in favor, and the taxi trade, on another, against (Hickman & Sallo, 2022).

In Oslo, where there were significant modifications, the length of the construction works caused a whole set of externalities that directly affected the area and consequently the perceptions of the impacted citizens about the changes (Hagen & Tennøy, 2021). In London, on the other hand, the pedestrianization of Bank Junction went through a lighter process. In a gradual implementation, the city banned car traffic during specific hours on weekdays, only permitting motorized access for buses, leaving the intensive works for after this trial (Hickman & Sallo, 2022). Brighton followed a similar process, using removable bollards for traffic restrictions and reestablishing full access after commercial hours (Melia & Shergold, 2017). As a direct consequence of the road closures, the pedestrianization schemes imposed drastic changes in traffic, restricting access and parking and altering driving patterns (Hagen & Tennøy, 2021).

In the spaces pedestrianized after the road closures there were positive modifications for the urban environment, to cite a few: installation of urban furniture (Hagen & Tennøy, 2021; Szarata et al., 2017), extended space for cafes and restaurants (Szarata et al., 2017), greenery and improved access to public transports (Boveldt et al., 2022). For the cases that did not involve a full street reappropriation, the measures taken were most prominently the widening of sidewalks and the construction of pinch points and curbs (Sdoukopoulos et al., 2021; Johnson, 2005).

After the implementation of changes that caused so many impacts in its cities, it was important to analyze their results and the population's perception about them. This way, all the studies presented had at least one of these two global objectives and, depending on their context, they also sought results regarding changes in modal split, commerce turnover, traffic volume, pedestrian safety and air pollution.

For evaluating people's views and perceptions, most studies conducted surveys and/or interviews designed for the target audience they wanted to investigate. In this part, Oslo's study is the most complete one, with extensive photo-documentation and around twenty thousand responses collected from eight different questionnaires at three different moments of the intervention, before, during and after (Hagen & Tennøy, 2021). Studies like the ones developed by Boveldt et al. (2022), Melia & Shergold (2017) and Castillo-Manzano et al. (2014) were also able to accompany the development of the analyzed implementations, therefore it was also possible to conduct "before surveys" and obtain a baseline input for the population's routine, impressions and sometimes their expectations for the projects soon to be developed, which strengthened the comparison afterwards.

On a different approach, Hickman & Sallo (2022) designed semi-structured interviews to selected actors involved in the changes in London. The distinctive factor for this case is exactly the variety of the chosen interviewees, with the participation of politicians, urban planners, transport planners, relevant community members and directly involved association representatives, for instance.

Joining those two last approaches, Melia & Shergold (2017) chose to conduct on-street surveys targeting all pedestrians and, for key stakeholders like business owners, there were face-to-face interviews. In the same direction, also aiming to distinguish the responses from the different parts involved, Boveldt et al. (2022), Hagen & Tennøy (2021) and Szarata et al. (2017) designed different questionnaires for visitors, business owners, workers or residents, depending on the scope of their work, which made possible to understand how each group was affected but also retrieve specific information from them, inquiring retailers about impacts on their businesses' revenues, for instance.

After the completion of the works from the interventions it was possible to investigate, having as starting point the objectives set for the study, which results they originated. In general terms, eventual negative aspects are suppressed by the positive outcomes: footfall and revenue increase for business owners (Hagen & Tennøy, 2021; Castillo-Manzano et al., 2014) decrease in private vehicle's modal share and travel speeds (Boveldt et al., 2022; Hagen & Tennøy, 2021; Sdoukopoulos et al., 2021; Melia & Shergold, 2017), better experiences from walking, cycling and public transport (Hickman & Sallo, 2022; Hagen & Tennøy, 2021), improvement in road safety (Hickman & Sallo, 2022; Sdoukopoulos et al., 2021; Johnson, 2005), improvement in accessibility perception (Boveldt et al., 2022; Hagen & Tennøy, 2021; Szarata et al., 2017) and overall people demonstrate more enjoyment from being in the new areas (Hagen & Tennøy, 2021; Sdoukopoulos et al., 2021)

As for the negative views and consequences, they come mostly from car users. They report reduction in perceived accessibility (Boveldt et al., 2022; Hagen & Tennøy, 2021) more difficulty to park (Hagen & Tennøy, 2021; Szarata et al., 2017) and they are the majority of surveyed people who have negative views on the pedestrianization schemes after their completion. The rest of the respondents mostly have more positive views on the space reallocation after its done (Hagen & Tennøy, 2021; Sdoukopoulos et

al., 2021; Melia & Shergold, 2017; Szarata et al., 2017; Castillo-Manzano et al., 2014; Boveldt et al., 2022), among those are the business owners, who don't want to go back to the way it was before the changes and in some cases even ask for further pedestrianization (Melia & Shergold, 2017; Szarata et al., 2017)

Another important point to address after the analysis of the results is that, aside from some opposition turning into support for pedestrianization, most of the fears brought up prior to the implementation didn't materialize after the project was executed and some of them were not even mentioned in the "after" surveys (Melia & Shergold, 2017; Castillo-Manzano et al., 2014), proving that, in accordance to the literature, prior reaction can be exaggerated and how indeed approval usually follows implementation (Hagen & Tennøy, 2021; Keseru et al., 2018).

3

CASE STUDY

The case study analyzed in this work is part of a series of temporary and permanent interventions executed by the City of Lisbon to create more space for people to enjoy the city, paving the way for the development of more outdoor activities and incentivizing the use of active modes of transportation. The program, “A Rua é Sua”, which literally translates to *the street is yours*, was launched in 2019 and, during the time it went on, promoted changes in over one hundred areas in Lisbon, with different scales and characteristics (CML, 2020C)

3.1. “A RUA É SUA” PROGRAM

For its first interventions, the initiative presented by the municipality was already designed focusing on the reallocation of street space from vehicle traffic to people, although, initially the interventions were all temporary and only happened once a month on *Avenida da Liberdade*, one of the most important and famous avenues of Portugal’s capital city. This way, on the last Sunday of each month, from May to December 2019, the avenue, which had vehicle traffic on its central lanes and on a pair of segregated side lanes, one on each side, had the central ones closed for vehicle traffic and completely open for people to enjoy activities of leisure, sports, local markets, street food and cycling, for instance (LISBOA, 2020).

However, in the context of the Covid-19 pandemic, the initial concept of *A Rua é Sua* was altered, expanding its scope. As from July 2020, the municipality’s program, in partnership with the parish councils (“*juntas de freguesia*”), began promoting a broader set of initiatives that sought to provide more space for people on the streets (supporting social distancing measures), promoting active mobility, more access to local commerce, more outdoor space for restaurants, more leisure areas and attempting to tackle the effects of heat islands through the creation of shaded areas. In summary, the municipality of Lisbon, through the integrated actions from the program, had an objective of giving back public space to its citizens (CML, 2020A; CML, 2020B; CML, 2020C).

More than 100 interventions were announced for the new phase, focusing on:

- Provision of more space for citizens to walk safely and comfortably, suppressing car traffic and parking;
- Support for local commerce, creating more space for the development of its activities;
- Creation of exclusively pedestrian or coexistence zones for better appropriation of the public space;

- Promotion of ephemeral and permanent urban art interventions in public spaces, so citizens could enjoy the streets without cars (CML, 2020B).

In accordance with these objectives, the effective actions proposed involved the clearing and widening of sidewalks, taking space away from car traffic and/or parking, lowering of the maximum speed in many streets and the placement of obstacles (usually bollards and urban furniture). It's also important to point out that a common mean to develop these interventions was the use of tactical urbanism elements, even in the ones considered permanent (CML, 2020C).

For the choice of the areas that would foster the program initiatives, the municipality took under consideration two main factors: populational density and the occurrence of heat islands (and their intensity). Among the first intervention proposals announced there was already the one for the area around Arroios Municipal Market, for which was determined a permanent intervention. In this preliminary sketch the focus was the removal of parking spaces in order to benefit pedestrians and restaurants, and the improvement of the connection for pedestrians between the Market and Alameda Dom Afonso Henriques.

3.2. MUNICIPAL MARKET OF ARROIOS INTERVENTION

3.2.1. AREA DESCRIPTION

The Market takes its name from the neighborhood in which its located, Arroios. The zone occupies a central area in the city of Lisbon (Figure 2), with good accessibility through public transport and, as from the last few years, it's becoming increasingly culturally diverse (JFA, 2019; Público, 2019).



Figure 2 - Arroios neighborhood's location in Lisbon (XREI Portugal)

The Market itself is close to Almirante Reis Avenue (Figure 3), an important axis in Lisbon, and Alameda Dom Afonso Henriques, a busy connection for public transportation, linking two metro lines and many buses. The area immediately around the Market is characterized by mixed use buildings with a variety of commercial activities on the ground floor: cafes, restaurants, local stores, supermarket, beauty salons, among others, and, of course, the traditional commerce inside the market.

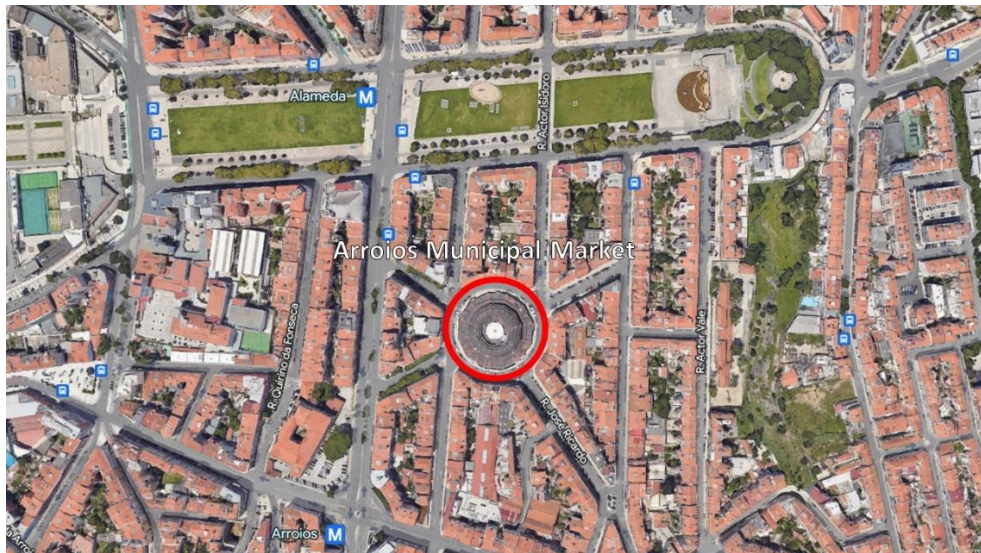


Figure 3 - Market's location (Google Earth - Adapted)

3.2.2. PROJECT OF THE INTERVENTION

As for the intervention itself, the proposal from the municipality sought to requalify the area around the Market by removing obstacles to the pedestrians' mobility, organizing the parking and optimizing conditions for the promotion of active mobility, providing "more space for pedestrians, more trees, new restaurant terraces and urban art" (CML, 2020B, p. 2). According to the information made available by the city hall, the objectives of the improvements were:

- Solving the circulation problems in the area caused by heavy traffic;
- Eliminating abusive parking;
- Widening of sidewalks (more 1174 m² for pedestrians), guaranteeing safe movement;
- Redesigning the geometry of intersections in order to reduce traffic speed and improve accessibility to the market;
- Increase the space for urban furniture and installation of shaded terraces, including the planting of 14 trees;
- Enhance the site with urban art in a space currently used for improper parking, giving it a new identity;
- Rearranging the parking for the public and merchants in the ring around the market through the creation of loading and unloading areas, passenger pick-up and drop-off spaces for temporary stops and eleven more rotating parking spaces in an adjacent street (CML, 2020C).

In the project designed by the municipality for the area, it's easy to observe how impactful the changes are, especially for pedestrians and cars, with relevant space increase for the former and also relevant traffic and parking alterations for the latter (Figure 4, Figure 5 and appendix, section 7.2 *Project of the Intervention*). The yellow areas marked in the project are the most prominent in the intervention, since they are the ones setting the curb extensions' limits, i.e., the new spaces gained by pedestrians and they are also the ones planned to get the urban art pavement painting.

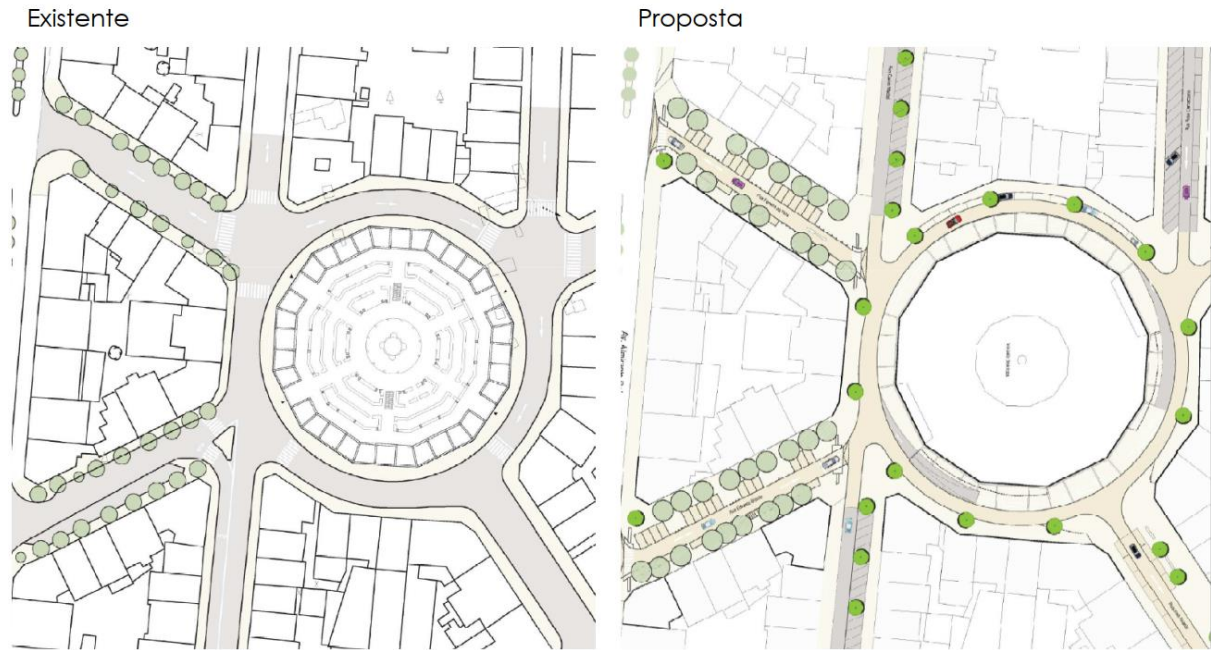


Figure 4 - Intervention's design proposal (CML, 2020B Adapted)

In addition to the pedestrianization alterations, the project detailed the exact locations for the already mentioned spaces for loading/unloading and passenger pick-up/drop-off, parking spaces for people with reduced mobility, existing and proposed terrace areas and the distribution of the parklets and other urban furniture. There's also a representation of the rearrangement of parking and the trees planned to be planted in the adjacent street, José Ricardo. According to the municipality, on top of the existing parking supply nearby the Market, on-street and in public parking lots, the intervention would grant eleven more parking spaces.

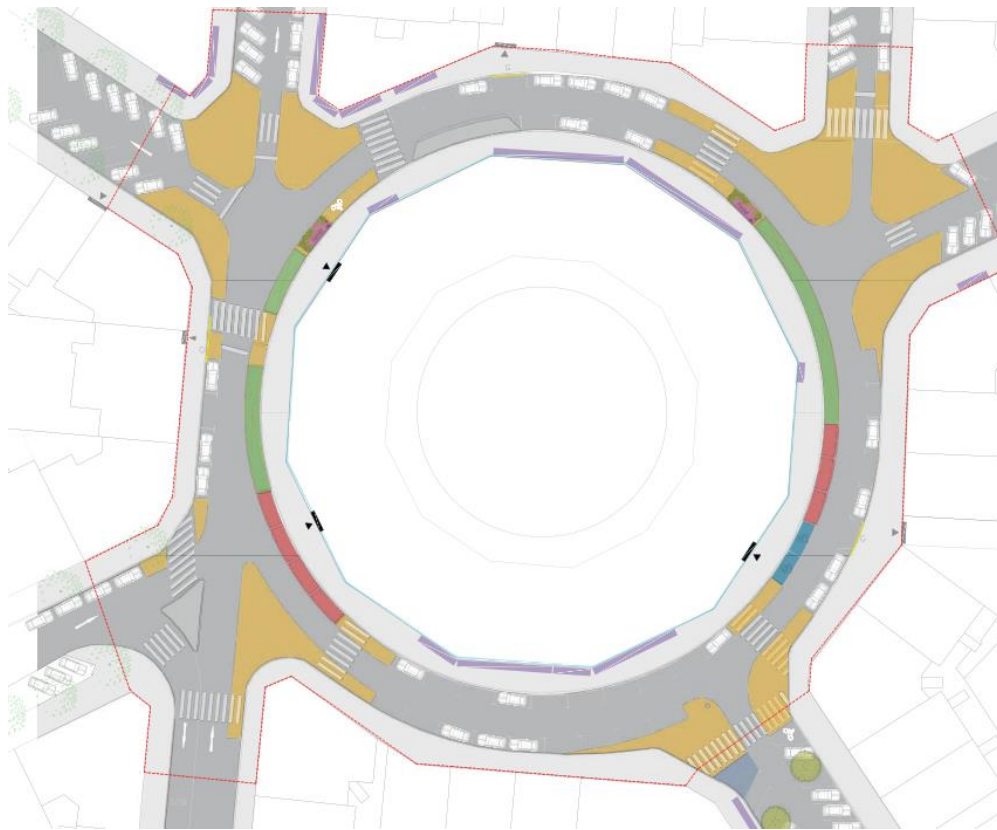


Figure 5 - Intervention design proposal (CML, 2020B, Adapted)

3.2.3. BUSINESS OWNERS' REACTION

Since the beginning of November 2020, when the workers from Arroios' Parish Council started painting the first markings on the asphalt to set the new limits for traffic, the intervention met resistance. Along with the markings, the first changes effectively done were the removal of a few parking spaces and the placement of bollards. These alterations were enough to enable the protest from some merchants from Market and adjacent streets (Público, 2020).

According to the news reports from the newspapers "Público" and "Correio da Manhã" from mid-November 2020, around 20 merchants and business owners gathered outside the Market to show their dissatisfaction regarding the changes led by the municipality. Their main complaint was about the removal of parking spaces and that, up to that moment, the new markings on the streets had only worsened the traffic, especially for the trucks that supply the businesses, since the road width had been reduced. Another point they make is that clients that come by car cannot leave their cars on the street and do a quick stop at the Market without forming a big queue of vehicles. Less than two weeks since the beginning of the alterations brought by the intervention, the merchants complained that "it was impossible to park", "all the clients were going away because they couldn't park their car" and that the municipality were "killing their businesses" (Público, 2020; Correio da Manhã, 2020).

On José Ricardo Street, where eleven more parking spaces were created to compensate the removal around the Market, there were also complaints. The change from parallel to angle parking increased the number of spots but decreased the space for traffic, and that reduction, according to the business owners from that street, made difficult the circulation of larger vehicles, like garbage trucks, and added that when a car needs to stop, it disturbs all traffic behind it since there's no more space to go around. For

them, the modifications in parking in that street “announced the death of all commercial activity” (Público, 2020).

Finally, merchants and business owners complained that at no point they were heard about the changes. As a form of protest, they created a petition asking for the intervention’s reversal but it did not reach much support (Público, 2020; Correio da Manhã, 2020).

3.3. STUDY AREA

The presentation of the case study and the characteristics of the intervention design proposed for the space around the Market give an indication of the area affected by the changes. But, in order to make it clear and better analyze the space, before the beginning of the works related to the research itself, it’s important to define the limits and characterize the study area.

This way, for the purposes of this work, the area target of the study is the same one defined by the municipality of Lisbon in the intervention project design (Figure 5), involving, therefore, all commercial venues:

- in the Market and directly connected to the street
- on Ângela Pinto Street (the one surrounding the Market)
- technically located in the adjacent streets but directly connected to the changes from the intervention.

3.3.1. USES OF BUILDINGS

In sequence of the delimitation, it was possible to observe how the study area is strongly linked to the commercial use, with the majority of buildings fostering a commercial activity, with predominance of food and beverage services, i.e., cafes and restaurants. From the 19 buildings in the area right around the Market, on Ângela Pinto Street, 14 are either mixed use or exclusively commercial, only two are residential and three were empty (Figures 6 and 7).

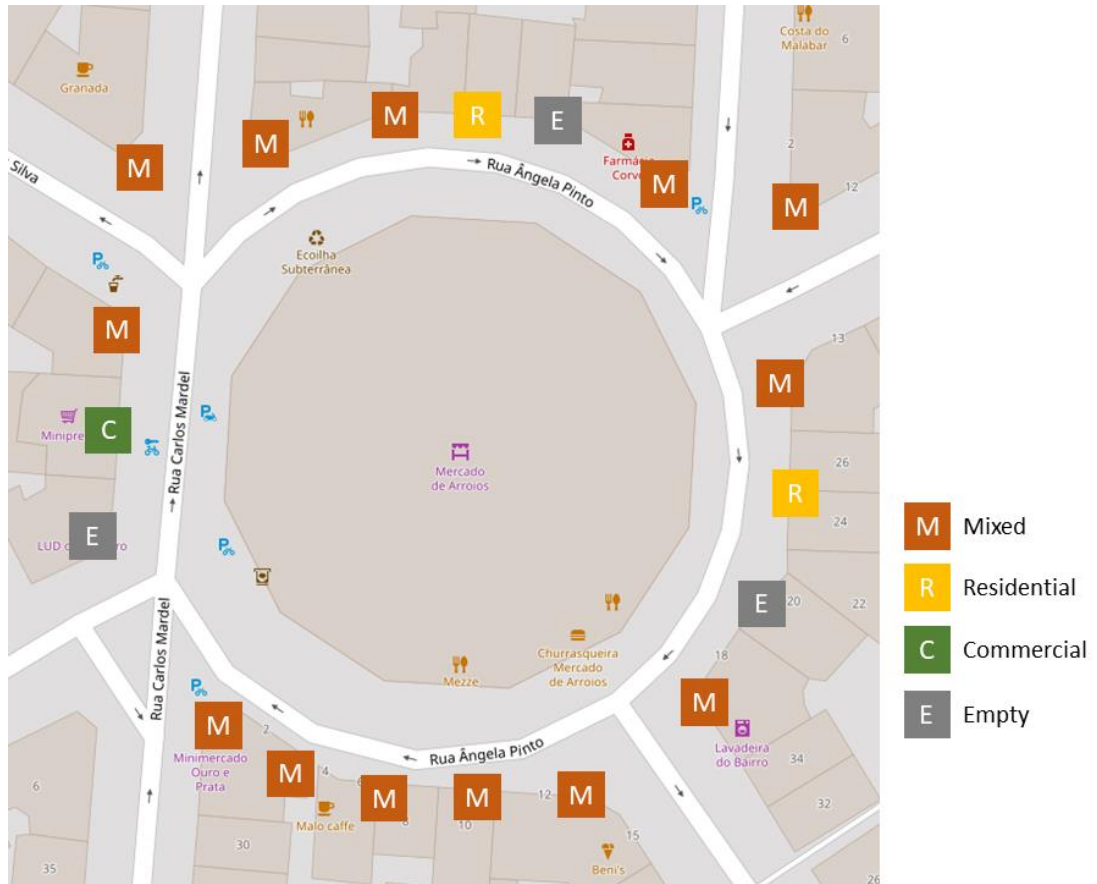


Figure 6 - Map representation of uses of the buildings around the Market

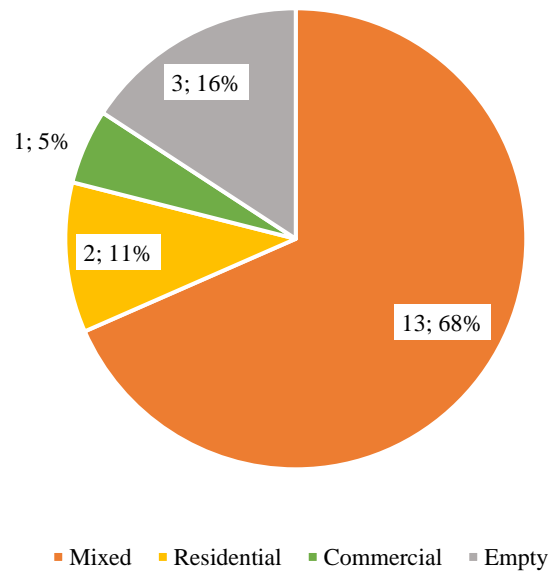


Figure 7 – Uses of buildings on the study area

When it comes to the commercial activities, added to the ones around, there are also the ones that are part of the Market of Arroios, which have a relevant presence in the area. For this research were taken into account all the venues that hosted commercial activities and were in direct contact with the street, and therefore with the intervention. This way, spaces as the ones destined for the provision of public services and a church, for instance were not taken into account as commercial venues, as well as the merchants inside the market, but in the case of these last ones, they were heard and are a part of the research as users.

This way, 42 different lots connected to the street were counted undergoing some commercial activity. For a better visualization of the way the commercial venues on Ângela Pinto Street are distributed, they were placed under three major categories, according to the relevance of their presence around the market: restaurants/cafes, beauty and supermarkets/mini markets, the rest of the venues could not be categorized under an specific type and were marked as “others”. Under restaurants/cafes are all food and beverages establishments, under beauty are barbershops and beauty parlors, under supermarkets/mini markets are all stores that sell food and other household goods and under others there is a wide variety of establishments, such as insurance company, architecture office, flower shop and so on. The distribution of the businesses in line with these criteria is shown in Figures 8 and 9.

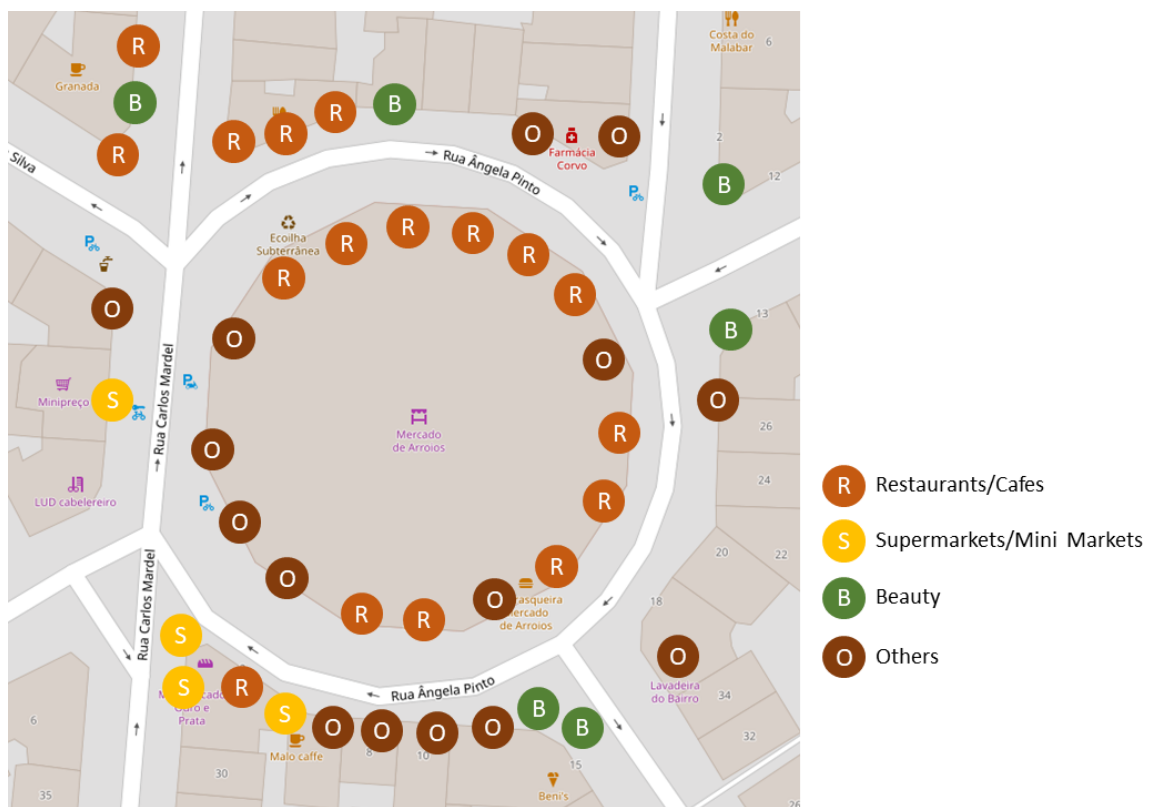


Figure 8 - Map representation of the commercial activities in the study area

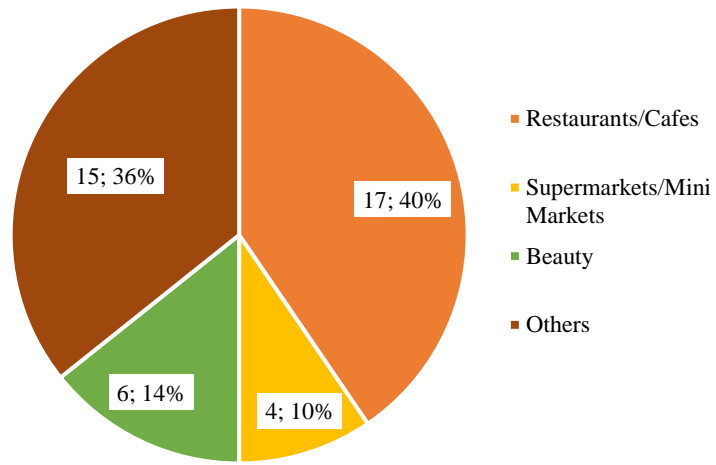


Figure 9 - Distribution of commercial venues by type

4

RESEARCH METHODOLOGY

As presented in the Introduction, in order to better understand the impacts caused by the intervention around the Municipal Market of Arroios, this work seeks to retrieve the opinions and inputs from the people who live and make use of the area, be it as a visitor, a resident, a worker or a merchant, trying to grasp how they feel about the changes brought by the municipality of Lisbon more than two years after their completion.

To accomplish the objectives of the research, two main data collection methods were used: surveys and interviews. For the survey, two questionnaires were developed, according to the sort of input wanted from the respondents: one for users and one for merchants/business owners. While in the first one the questions inquired about the impressions about the area, regarding comfort and road safety, for instance, in the second one the objective was to understand how the intervention affected the merchant's or business owner's commercial activity. The application of the questionnaires, specially to business owners, naturally developed into a semi structured interview, in which the questions guided the talk and the great deal of information given in-between was registered by the surveyor during the interaction. This also happened to the users, but to a lesser degree, since the contact with them was typically shorter.

In order to complement the information retrieved from the questionnaires, there was also an interview with the administrator of the Arroios' Municipal Market. Also developed as semi-structured, this interview helped to obtain different perspectives from the rest of the respondents' and address a few matters brought up during the questionnaire's application process.

4.1. QUESTIONNAIRES

4.1.1. USERS

In the questionnaire developed for the users the overall objective was to obviously understand their perspectives on the changes made by the municipality and how it affected their interactions with the space, but it was also important to identify and distinguish different kinds of users, since their characteristics can play a relevant influence on the way they relate to the intervention.

The full questionnaire applied to users is presented in the appendix, section 7.4. *Users' Questionnaire*. In synthesis, the first questions identify the user regarding to three main aspects: gender, age and classification regarding the area, options being resident, visitor, worker and/or business owner, with the possibility to choose two options, if applicable.

In sequence, there was a *yes or no* question that inquired if the user already knew the area before the intervention. From this answer, depending on the capacity of the user to compare the area from a *before and after* perspective, there were two possible sets of following questions. For the users that knew the area before the changes promoted by the municipality, the questionnaire developed on its full extension. At one point, though, when the respondent selected the mode of transportation they most commonly took to get to the area, there was a differentiation from car users to the rest, since for these users there was an inquiry about difficulties to park, while for the users of other modes there was another point of view, the difficulty to walk around the area.

As for the users that did not know the area before, the questionnaire was shortened, directing them to the questions that did not involve a comparison between the different moments and only retrieved their opinions concerning the area as they knew it.

4.1.2. BUSINESS OWNERS

The creation of questionnaires aimed at business owners followed a structure similar to the users' one, i.e., with identification, perception of impacts and opinions about the changes, but in this case directed to the commercial activity.

This way, the first questions identified the type of commercial activity developed and for how long they had been working on that location. From that identification, then, it was possible to separate the business owners that knew the area before the intervention and those who did not, directing them to different sets of questions, just as occurred with the users. This way, following the same logic, the questions that required any comparison with the period prior to the intervention were only available to part of the respondents, while the remainder could be answered by everyone.

4.1.3. RESPONSE COLLECTION

The collection of answers to the questionnaires took place in eleven different days, during weekdays, weekends, and holidays, between April and July 2023 (Table 4), and it happened slightly differently for users and business owners. Regarding the information about the commercial activities, it was collected exclusively in presential manner, in visits to each establishment, while for users the obtention of responses could be presential or online.

Table 4 - Visits to the study area for response collection

Response collection visits (2023)			
Month	Number of days		
	Weekday	Weekend	Holiday
April	0	1	1
May	1	3	0
June	1	0	0
July	1	3	0

Due to the characteristics of the commercial activities, some businesses were obviously easier to enter and actually be able to get a few moments to talk to the owner or the person in charge. On the other hand, food and beverages' establishments proved to be a challenge. Only after a few visits, with a better understanding of the way the commerce worked there, the approaches and consequently the application of questionnaires became more effective, paving the way for the research development.

After a brief presentation about the research, the business owner or person in charge would say if they were available to answer the questions, if the response was positive, all the questions were read out loud to the respondent and, when necessary, proper clarifications were made. As each question was answered, the responses were registered by the surveyor on the online form. While answering the questions from the survey, the respondents would typically make comments and go further on different topics regarding the intervention. In these moments the semi structured nature of the data collection played an important role, since oftentimes there was a lot of relevant information being presented in-between questions. Those valuable inputs were written down in the spaces intended for the open-ended questions and later organized.

Due to the nature of the questions, ideally the owner would be the right person to answer the questionnaire, but during the data collection, in a few situations when this person was not available, a worker or a person in charge with enough knowledge of the business could be the responder.

For some establishments it was not possible to obtain answers for the questionnaire, which was always due to one of two reasons: the person in the establishment refused to contribute or, during different visits, it was never present someone capable of providing the information the questionnaire required.

When it comes to the users, answers were collected in two different ways. There were on-site approaches to passersby, in which the surveyor would register the answers, and online responses to the questionnaire form. The access to the inquiry was granted through the link or QR code present in pamphlets (Figure 10) distributed to passersby around the Market or left in the mail boxes of the houses in the study area. Along the many days of on-site data collection, it became clear that the most effective way to obtain responses was really the one-on-one approach in the study area, specially targeting shoppers. For the cases in which the answers were registered without the surveyor's assistance, there was a description of the work for which the information was being collected, the objectives of the research and guarantee of anonymity for the answers.



Figure 10 - Response collection pamphlet

In summary, the information wanted, target audiences and the methods to obtain the information from the people are organized in Table 5:

Table 5 - Data collection's targets, information sought and obtention method's summary

Target audience	Users	Business owners
Target audience description	Residents, workers and visitors of the study area	Owners of commercial establishments located inside the study area
Information sought	Perceptions and opinions regarding the changes in the study area, comparing, if possible, with the way it previously was, and evaluation of objective aspects of the intervention	Perceptions and opinions exclusively about the effects brought by the intervention to the commercial activity developed around the Market
Data collection	Filling in online inquiry through on-site surveys with passersby on weekdays and weekends and distribution of flyers to the houses in the study area	Filling in online inquiry from the answers collected from business owners through in person visits to the commercial venues

4.2. INTERVIEW WITH THE MARKET ADMINISTRATOR

As the application of questionnaires to merchants and users developed, it was possible to identify a few topics that were constantly brought up during the interaction with the respondents and got registered for the results of the work. Many of these points regarded situations that took place before the intervention, and although it was possible to obtain a few answers from news reports or even talks with the own respondents, it would be a relevant added value to have the inputs from a professional that had a deep knowledge of the study area and its surroundings.

This way, as a part of the research, the Market Administrator was contacted, in order provide a more institutional view on a few matters approached in the questionnaires' results, in the format of a semi structured interview. Nowadays, Arroios Municipal Market is under the supervision of the Parish of Arroios, represented on-site by the Administrator. He has worked in many of the city's municipal markets and has been in charge of the Market of Arroios since 2013. The conversation was conducted in order to specifically address the issues that had been mentioned by users and specially, merchants.

5

RESULTS AND ANALYSES

The questionnaire developed for users got 105 responses, while business owners' one got 33 out of the 42 commercial establishments counted within the criteria presented on section 3.3.1. *Uses of buildings*, making up a response rate of almost 80% for this last target audience. It's worth noting that all 42 establishments were visited at least once and the lack of a few answers was due either to refusals or inability to answer from the people in the commercial venue at the moments of the visits, as referred in section 4.1.3. *Response Collection*.

5.1.1. OBSERVATIONAL ANALYSIS OF THE AREA'S USE

Before starting the research *per se*, with the creation and application of the questionnaires, there was a previous phase of observation of the study area. In order to better understand the dynamics of the space and acquire some baseline knowledge about it, a few visits were made to the area around the market since the case study was chosen, in October 2022. This way, before the research phase properly started, the area had already been “informally” observed in several occasions during the week and on weekends and a photographic-documentation was being built².

When the research activities properly started, there were three exploratory visits. These three visits lasted around an hour and took place on a weekday afternoon in March 2023 and on a Saturday morning and a holiday morning in April 2023. During these first contacts with the area for the research four main aspects were observed: how people appropriated the public space, how businesses appropriated the public space, how drivers moved and parked and how commercial activities were distributed.

Besides using the extra space provided by the intervention to expand their walking area and shorten the distance to cross the street, people also appropriate the space by sitting on the benches (Figure 11) and parking bicycles and scooters. As for the businesses, the ones that usually benefit directly from the use of the public space are restaurants and cafes, which occupy part of the sidewalks, part of the street (through parklets) and some of the area provided by the intervention to place tables and chairs for clients to eat outside (Figures 12 and 13). In the case of a few food and beverages establishments, the outdoor space is the only option to accommodate the clients since there's not enough space indoors.

² All pictures taken from the study area and referenced along the work are associated to their location in a map in the appendix, section 7.3. *Figures' Location in the Study Area*.



Figure 11 - People sitting on the benches installed for the intervention



Figure 12 - Restaurant's terrace on the sidewalk



Figure 13 - Cafe's terrace on the reallocated road space

When it regards the cars, it was possible to observe that the traffic in the area flows at relatively low speeds and it's quite easy for pedestrians to cross the street at the many crosswalks. One relevant aspect, though, central to the discussions in this work, is parking. The reduction of the number of parking spots in the area around the market was the main mechanism to create more space for people in the intervention context. During the visits to the area, regardless of the day of the week it was possible to see cars illegally parked, be it on the areas reclaimed by the intervention or even double parked (Figures 14 and 15).



Figure 14 - Cars illegally parked on the area of the intervention



Figure 15 - Parking irregularities on the intervention area

The fourth main aspect of the observation concerns the commercial activities. They are predominant in the area, occupying the ground floor of most of the buildings and being responsible for drawing in most of the area's footfall, with many people shopping in the stores or eating/drinking in the cafes and restaurants. It was clear to see that the majority of flux of people and vehicles is concentrated on the front portion of the Market, that is along with Carlos Mardel Street.

5.2. QUANTITATIVE RESULTS

5.2.1. USERS

The answers to the first questions of the users' questionnaires provided basic information about the respondents, showing that regarding gender there was a majority of males (Figure 16), regarding age, people between 25 and 44 years old (Figure 17), and regarding the classification as a user of the area, residents (Figure 18). In this last case, it was possible to select up to two alternatives, and the results were the following: 41 residents, 40 workers, 26 visitors and 14 business owners, in a total of 121 responses.

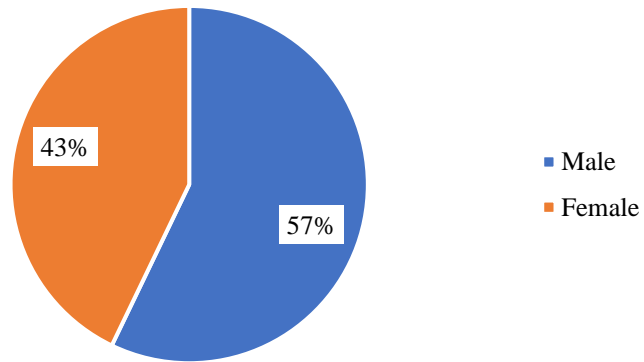


Figure 16 - Users, results from question 1, "Which gender do you identify with?"

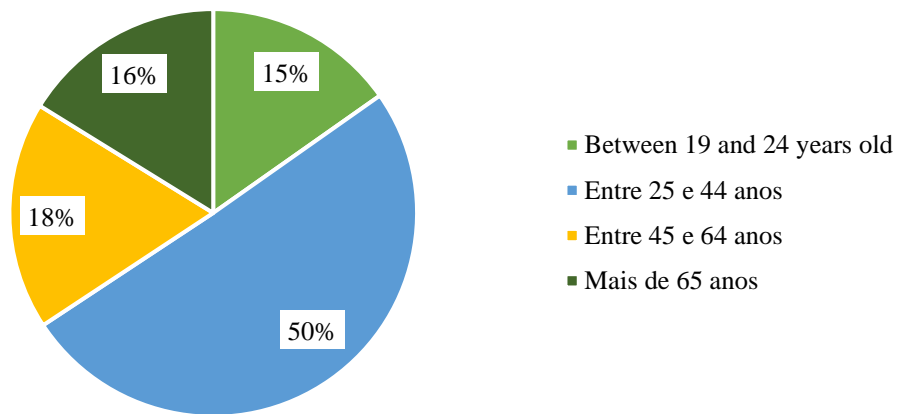


Figure 17 - Users, results from question 2, "How old are you?"

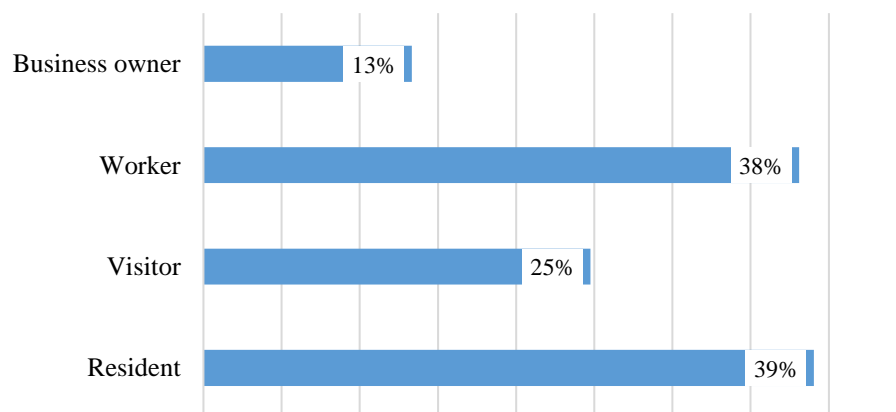


Figure 18 - Users, results from question 3, "As a user of the Arroios Market area, what is your classification in relation to the space?"

Most of the respondents, 59 in total, knew the area before the intervention (Figure 19) and, when it was announced or during its execution, they usually didn't consider if the changes would benefit or harm the area (Figure 20). After the completion of the works, only a few of them reported a change in the frequency of their visits to the area (Figure 21).

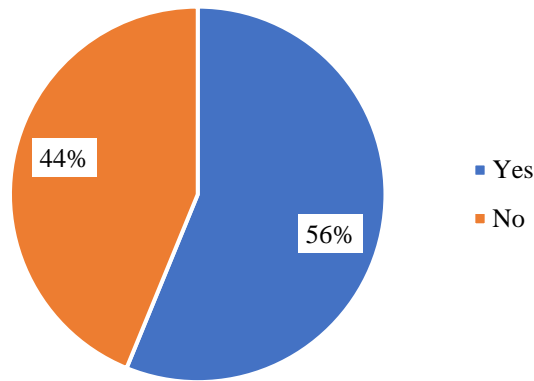


Figure 19 - Users, results from question 4, "Did you already know/frequent the Market area before the requalification intervention in April 2021?"

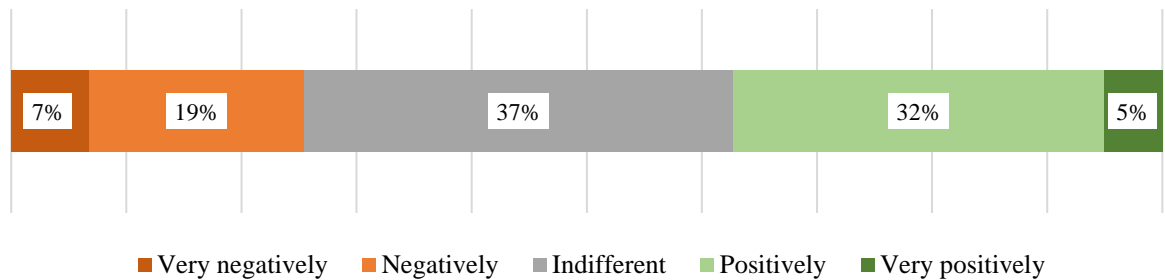


Figure 20 - Users, results from question 5, "Regarding the time when the intervention was announced, or during its execution, evaluate how you believed the changes would affect the space:"

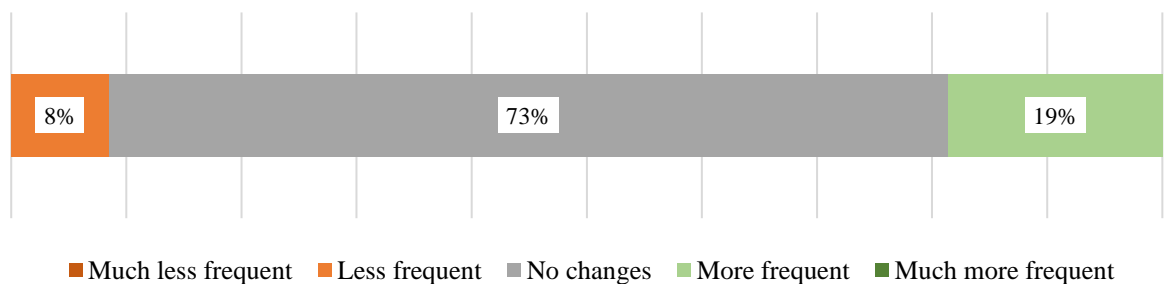


Figure 21 - Users, results from question 6, "Compared to the previous period, evaluate the frequency of your visits to the area after the completion of the project:"

To get to the intervention area the respondents take the following transport modes, in this order: i) on foot; ii) by metro; iii) by car (Figure 22). When it regards the drivers (total of 21), the wide majority reported that finding parking after the intervention became more difficult or much more difficult (Figure

23). On the other hand, for the users who take other modes of transportation (84 in total), most told that it got easier or much easier to walk and/or cross the streets around the market (Figure 24).

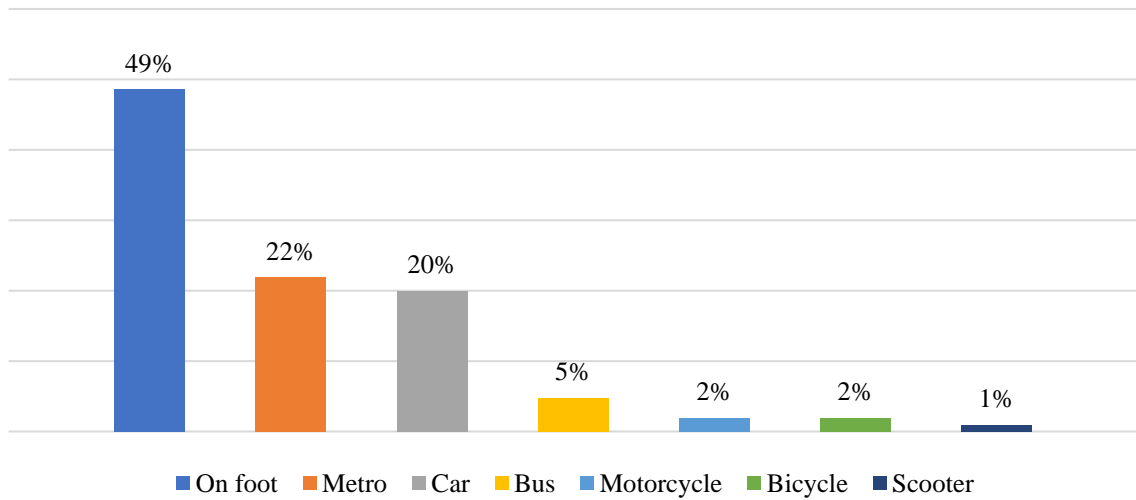


Figure 22 - Users, results from question 7, "What is the means of transport that you most commonly use to get to the area?"

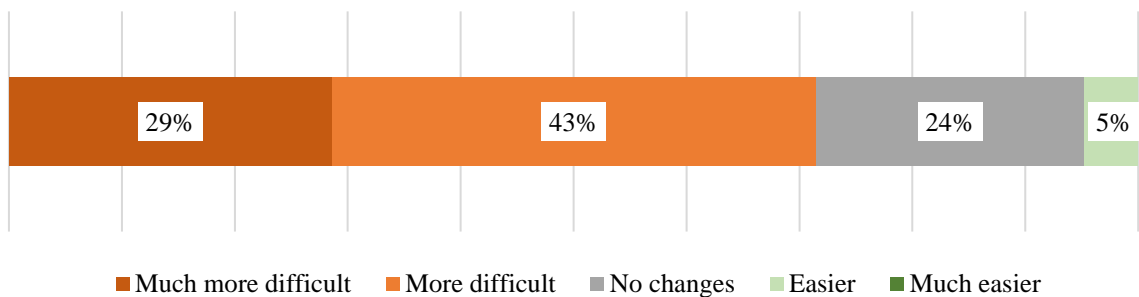


Figure 23 - Users, results from question 8, "Compared to the period before the intervention, evaluate your difficulty in finding parking around the Market today:"

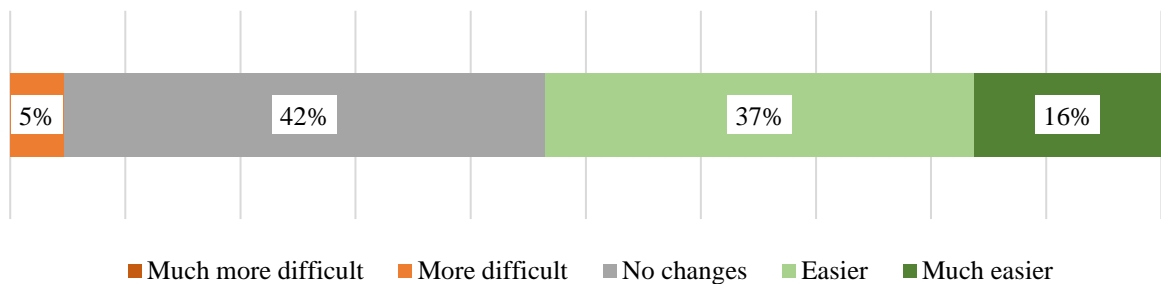


Figure 24 - Users, results from question 8, "Compared to the period before the intervention, evaluate your difficulty in getting around on foot and/or crossing the streets around the Market today:"

As for the respondents' level of satisfaction about aspects such as comfort, road safety and overall public space quality, the majority considered themselves satisfied with the way the study area is (Figure 25). In the same direction, most of them thought that the area should be kept the way it is (Figure 26). Finally,

the implementation of interventions that transfer space for cars to pedestrians in other parts of the city reached an average score of 3.64 of support in a scale from one to five (Figure 27).

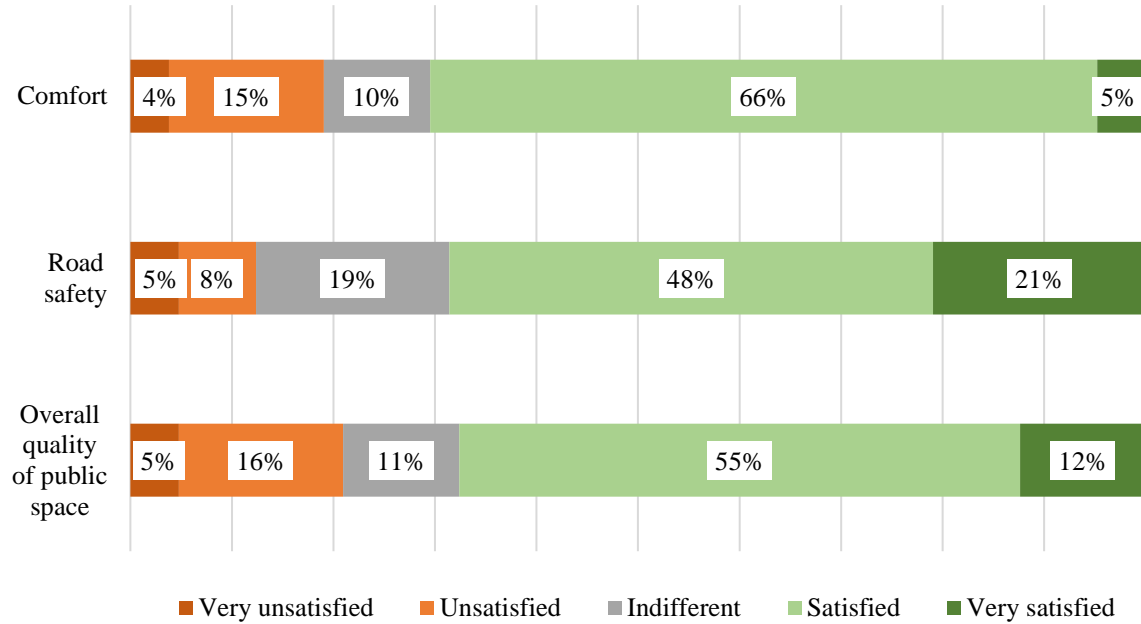


Figure 25 - Users, results from question 9, "How do you assess your level of satisfaction with the following aspects of the area after the intervention?"

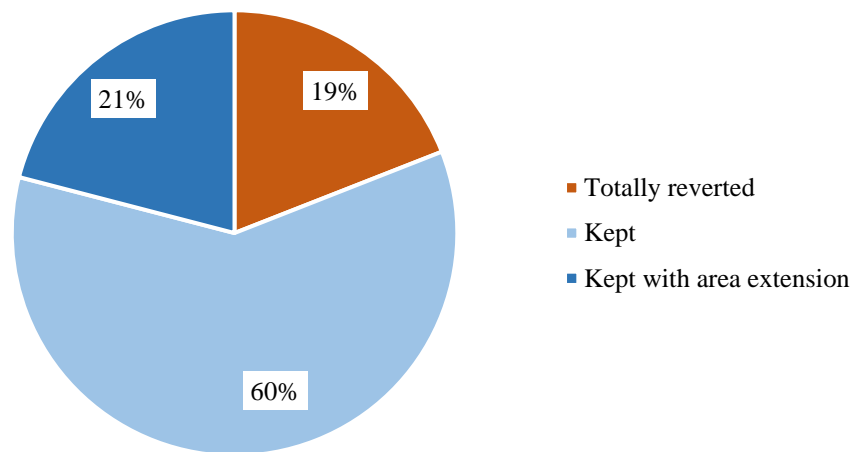


Figure 26 - Users, results from question 10, "Regarding the changes brought by the Municipality to the surroundings of the Arroios Market, what do you think should occur? In view of the current configuration of the space, the intervention should be:"

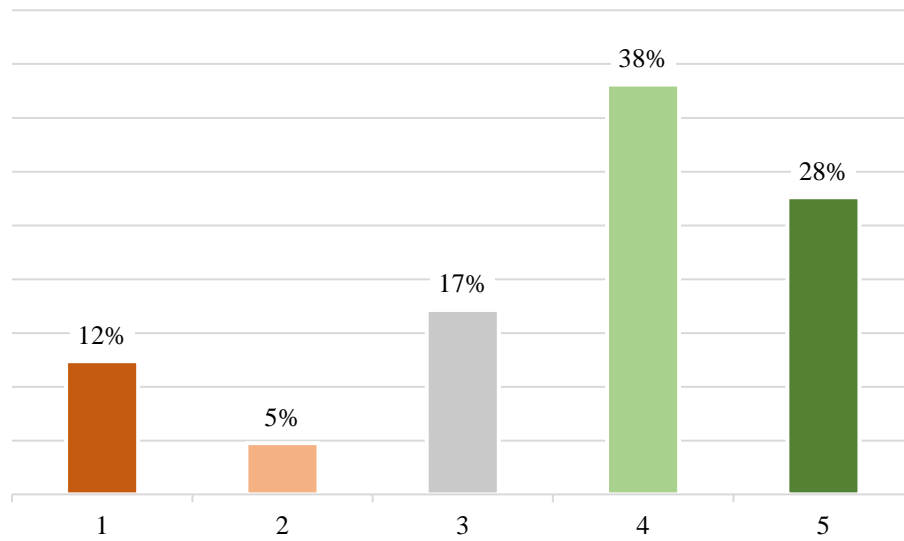


Figure 27 - Users, results from question 11, " In your opinion, should this type of intervention that transfers space from cars to pedestrians and other means of transportation be implemented more in the city? Please rate according to your level of agreement:"

5.2.2. USERS – CATEGORICAL ANALYSIS

The direct results from the research help to build a generalist idea of the way the sample responded to survey. Though, inside the sample there are many forms to organize and analyze the data retrieved. In the case of the users, two categories were worth exploring, types of users and mode of transportation used. Inside these portions, it proved to be valuable to observe how differently residents, visitors and business owners/worked responded to some questions of the questionnaire, just as it was important to distinguish car users from the rest, and therefore, understand how these aspects influenced on their perception of the road space reallocation initiative.

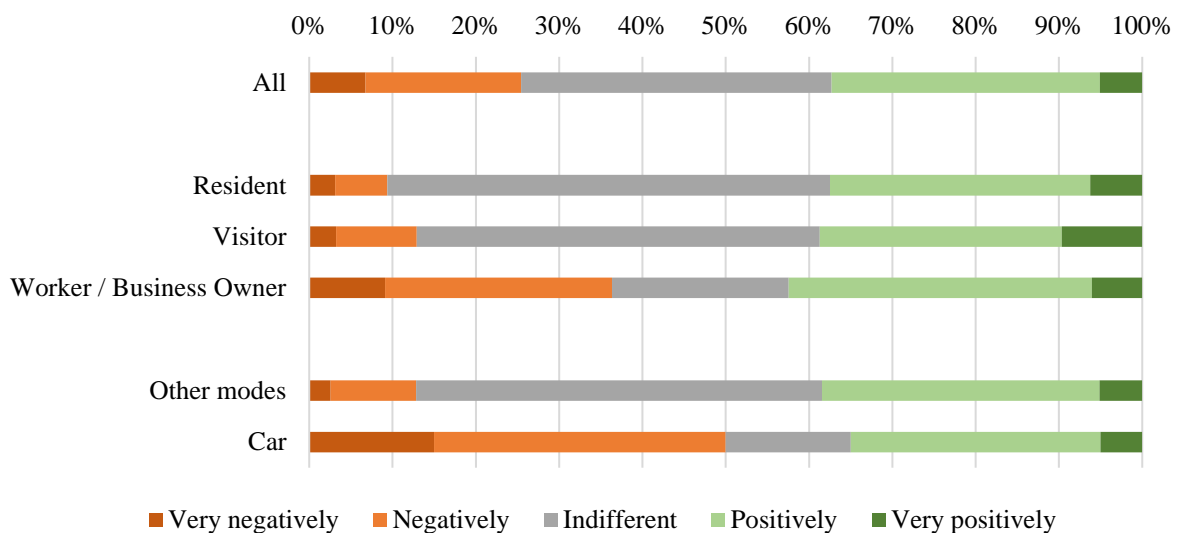


Figure 28 - Users' categorical analysis, results from question 5, "Regarding the time when the intervention was announced, or during its execution, evaluate how you believed the changes would affect the space:"

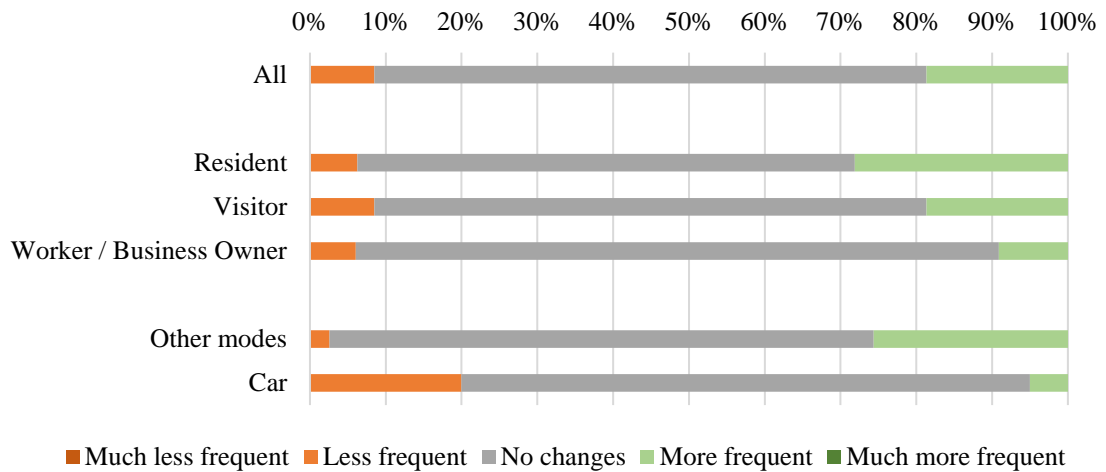


Figure 29 - Users' categorical analysis, results from question 6, "Compared to the previous period, evaluate the frequency of your visits to the area after the completion of the project:"

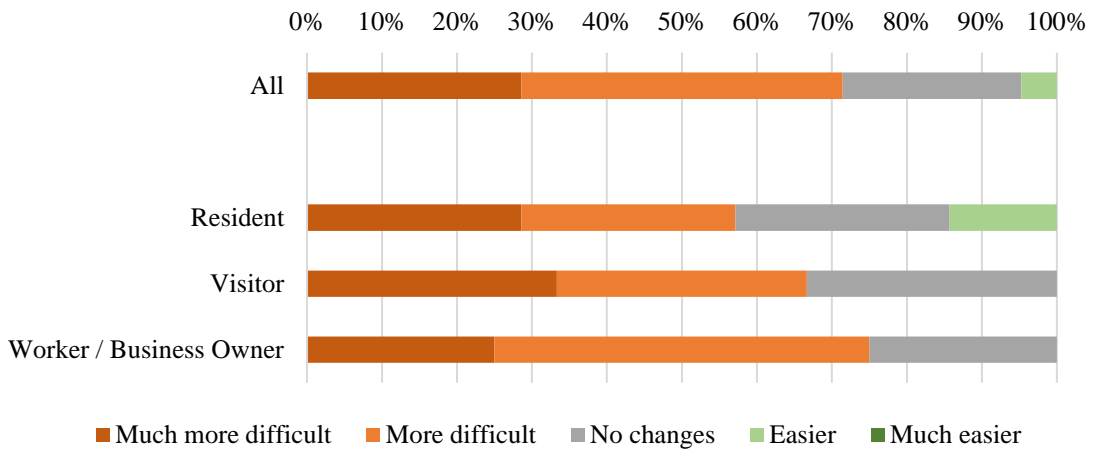


Figure 30 - Users' categorical analysis, results from question 8, "Compared to the period before the intervention, evaluate your difficulty in finding parking around the Market today:"

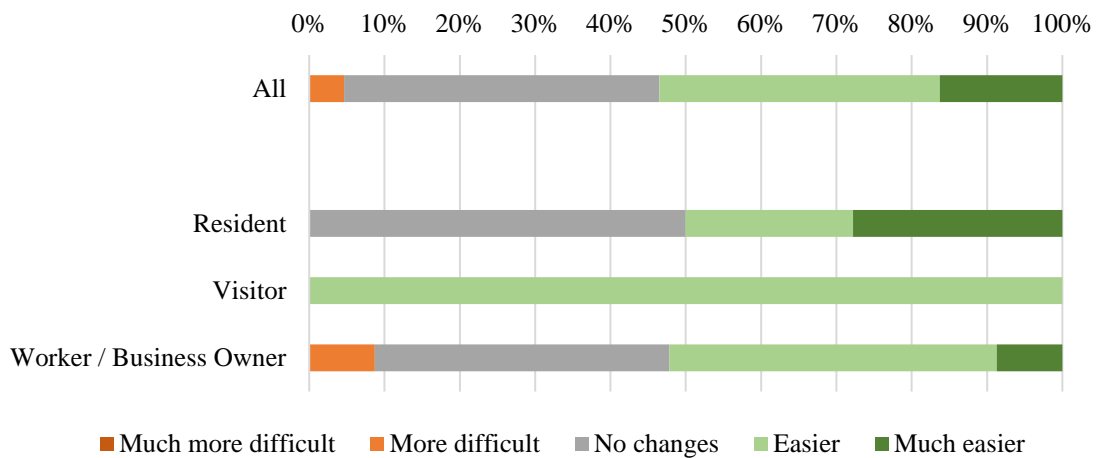


Figure 31 - Users' categorical analysis, results from question 8, "Compared to the period before the intervention, evaluate your difficulty in getting around on foot and/or crossing the streets around the Market today:"

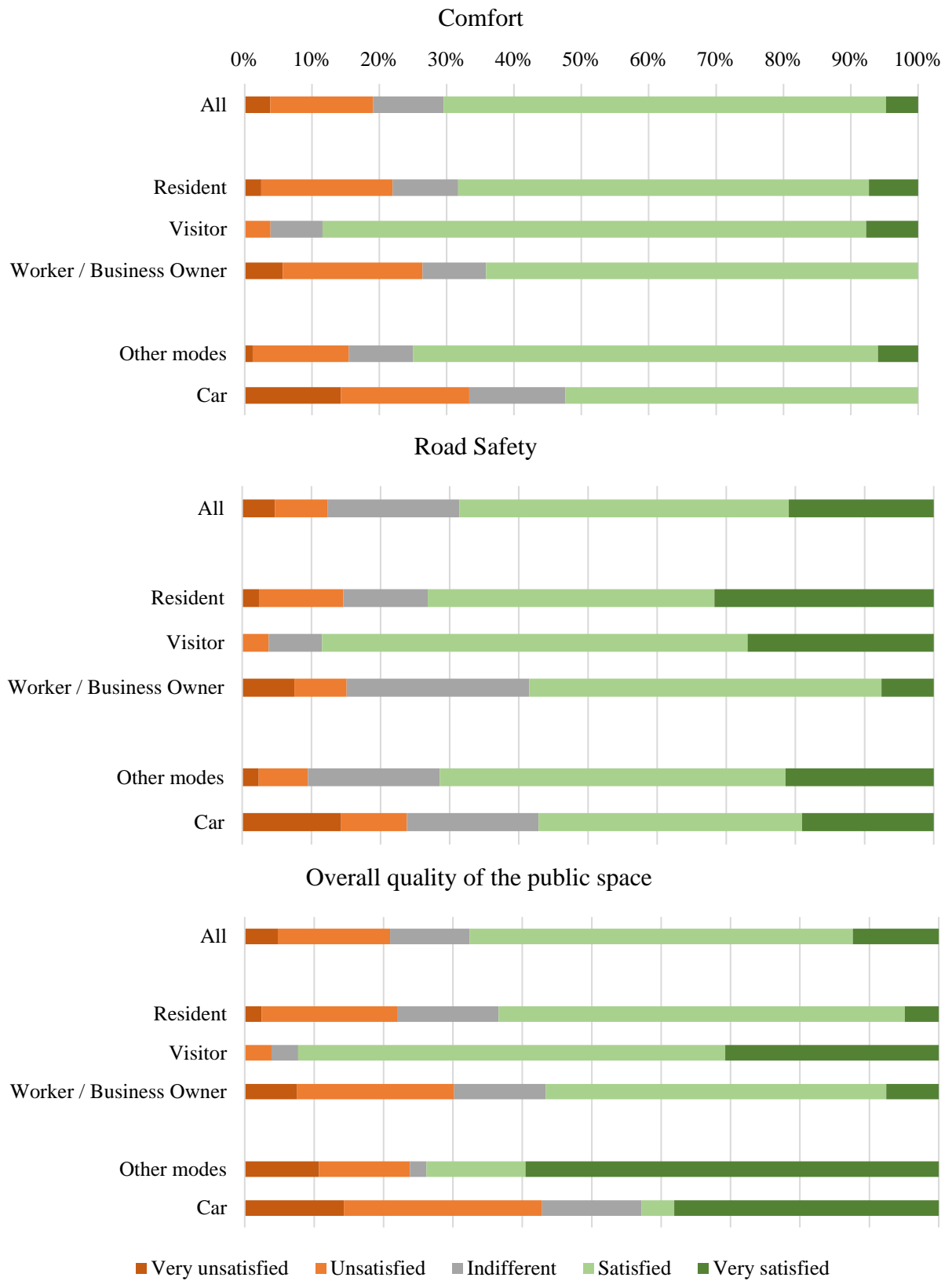


Figure 32 – Users' categorical analysis, results from question 9, "How do you assess your level of satisfaction with the following aspects of the area after the intervention?"

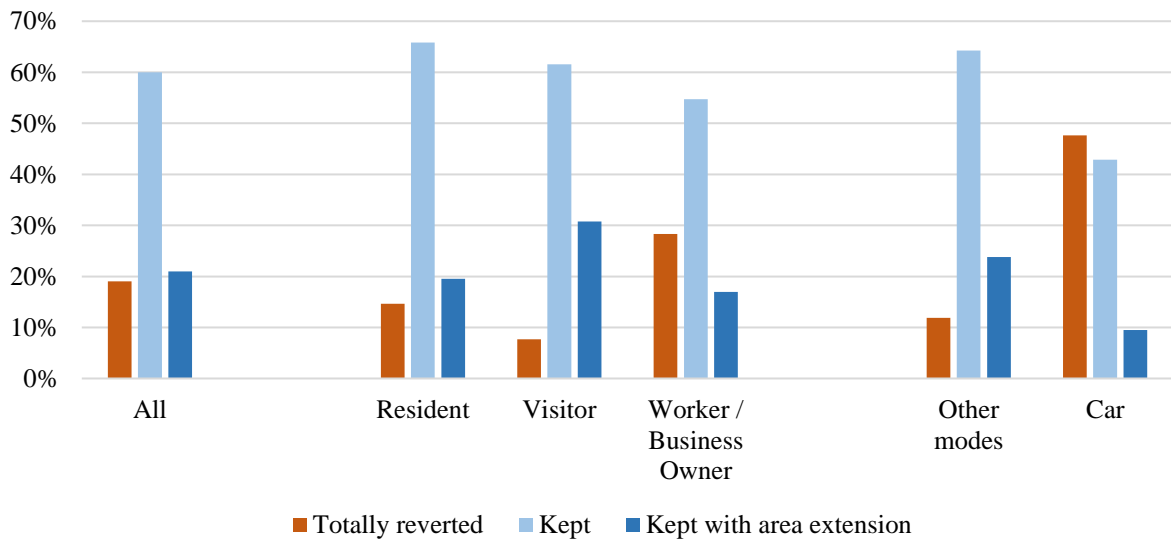


Figure 33 – Users’ categorical analysis, results from question 10, "Regarding the changes brought by the Municipality to the surroundings of the Arroios Market, what do you think should occur? In view of the current configuration of the space, the intervention should be:"

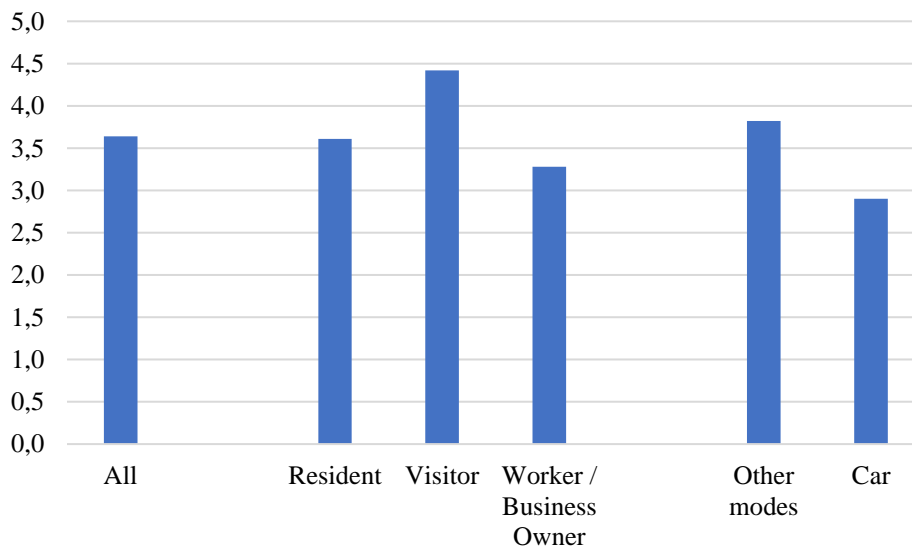


Figure 34 - Users, results from question 11, " In your opinion, should this type of intervention that transfers space from cars to pedestrians and other means of transportation be implemented more in the city? Please rate according to your level of agreement:"

In general terms, the perception of the users about the intervention is positive, especially when compared to the views of business owners. Observing the research results differentiating the types of users, i.e., residents, visitors and workers/business owners, it’s possible to note that usually visitants and residents see the intervention more positively than the people that work in the area, which would be expectable knowing the overall picture of the business owners opinions.

According with what could already be observed in the merchants’ questionnaire, the users who identified themselves as workers or business owners tended to disapprove the intervention way more than the average, expressing more frequently that they would like it to be reverted and disagreeing that these

kinds of changes should be taken to other parts of the city. As it could also be expected, the respondents who chose the car as their means of transportation followed this same logic, expressing overall discontentment with the intervention way more than the average (Figures 33 and 34).

Compared to workers/business owners and even residents, the visitors are the ones with the most positive views regarding the intervention, and it's worth considering that only 4 from the 26 from the survey already knew the area before the intervention, that is, most of them had no reference from the space prior to what it is now but appreciated the space they knew. The visitors, followed by the residents, were the ones most satisfied with the intervention's comfort, road safety and overall quality (Figure 32), also expressing the highest desire to have it kept or extended and having these kinds of interventions in more parts of the city (Figures 33 and 34).

Another aspect worth noting in these analyses regards parking. While all other portions of the sample widely agree that parking worsened in the area after the intervention (Figure 30), among residents was the only respondent who used the car and reported that parking for them actually had gotten easier. Even though it was only one answer (14% of the sample observed in this scenario), it represents something addressed by some business owners and workers, who at certain moments said that the residents "were the only ones benefitted by the parking alterations".

Comparing car users with the ones the take other modes, it can be seen how the modal choice directly influences on the perception of the users about the road space reallocation initiative, in the case of the people that take cars, negatively impacting their views regarding the intervention. These respondents consistently see the changes through a more negative lens, predicting worse outcomes when it was announced (Figure 28), reporting less visits to the area after its completion (Figure 29) and demonstrating overall bigger dissatisfaction on its aspects (Figure 32). But, more flagrantly, car users were the portion of the users' sample that reached the highest desire to have the intervention reverted (Figure 33), 48% (the average was 19%, users who took other modes, 12%) and, regarding the accordance with having these types of interventions more spread over the city, these users scored the lowest level (Figure 34), 2.9 out of 5 (average 3.64, users of other modes of transportation, 3.82)

As for the eventual change of perception from users, Figure 35 shows that among the respondents that initially inferred that the intervention would bring negative effects to the area, 27% now believe that the changes should be kept or even extended.

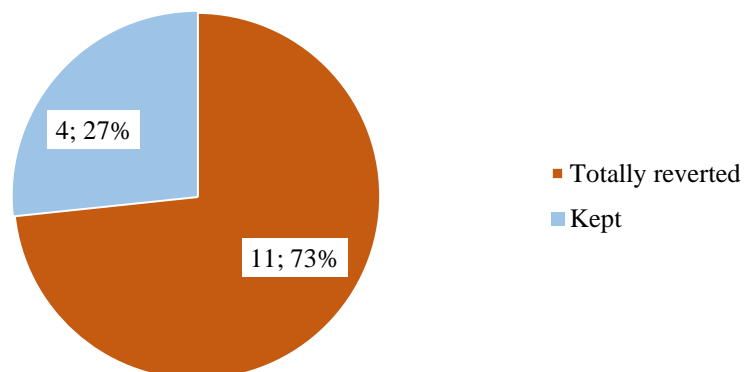


Figure 35 - Results from question 10, respondents who initially saw the intervention as bringing negative outcomes to the area

5.2.3. BUSINESS OWNERS

The results from the questionnaires answered by business owners show, in accordance with the information brought in section 3.3.1 *Uses of buildings*, show a predominance of restaurants and cafes also among the respondents (Figure 36), and the biggest part of the commercial establishments represented in the research already worked in the study area before the intervention, concluded a little over two years ago (Figure 37).

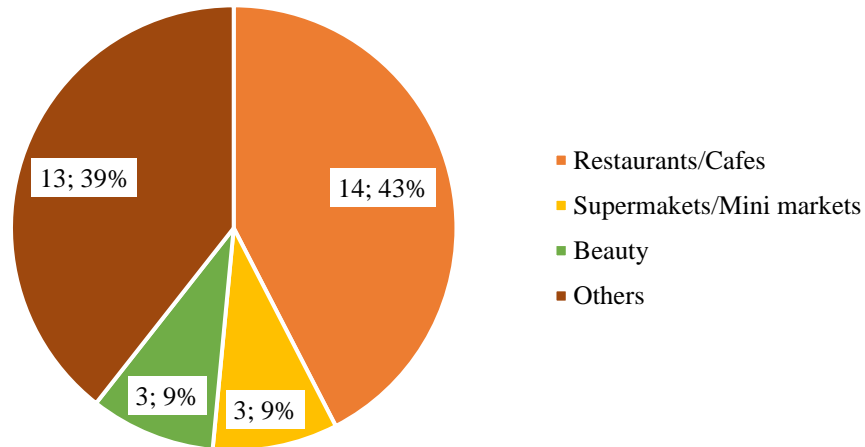


Figure 36 – Business owners, results from question 1, "What is the classification of the commercial activity developed?"

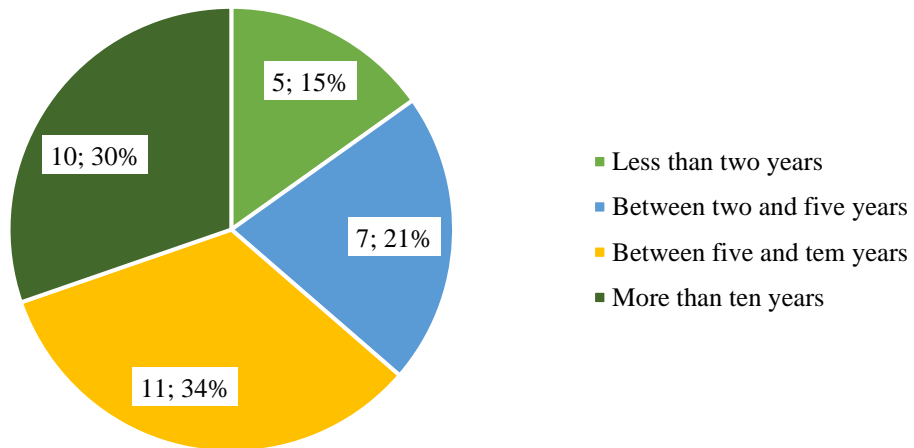


Figure 37 – Business owners, results from question 2, "How long has the business been running on this location?"

When the intervention started taking place around the Market most respondents thought it would negatively affect their businesses (Figure 38), but when it comes to identifying an eventual change in the flux of people in the area, the answers are quite balanced between those who observed an increase, decrease or no alteration at all (Figure 39).

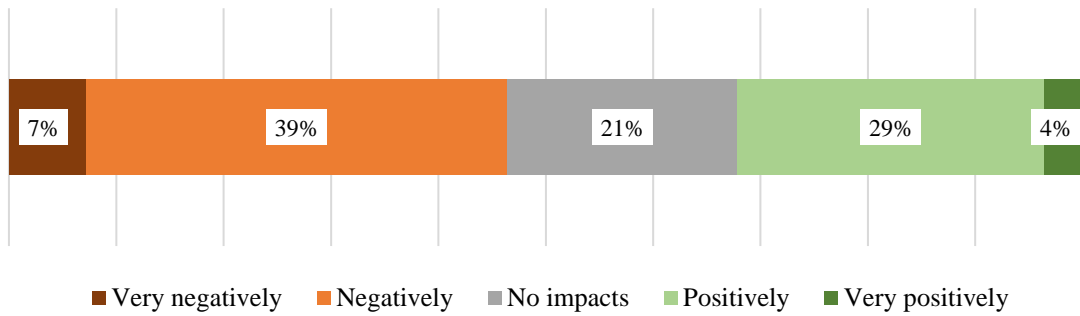


Figure 38 – Business owners, results from question 3, "As for when the intervention was announced, or during its execution, evaluate how you believed it would affect your activity:"

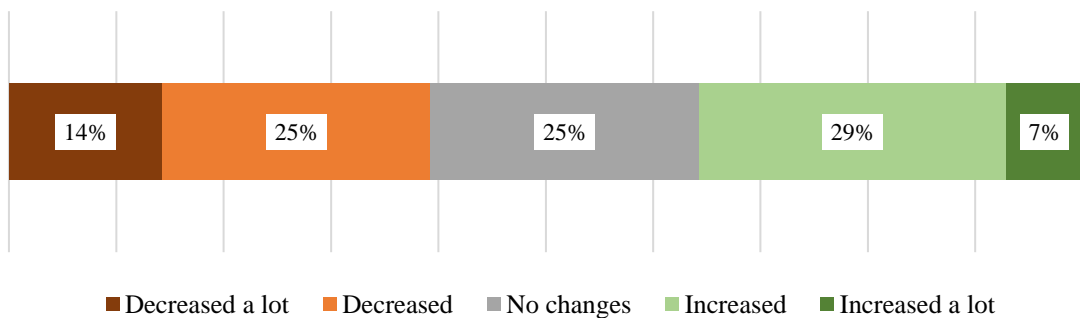


Figure 39 – Business owners, results from question 4, "About the movement of people in general and clients after the intervention, you believe that it:"

The difficulty to park, a recurrent theme for this part, almost reached a consensus, only a small portion of the respondents reported that for their clients there was no change in this aspect compared to the period before the intervention, the wide majority said it got more difficult or much more difficult and no one mentioned it became easier (Figure 40).

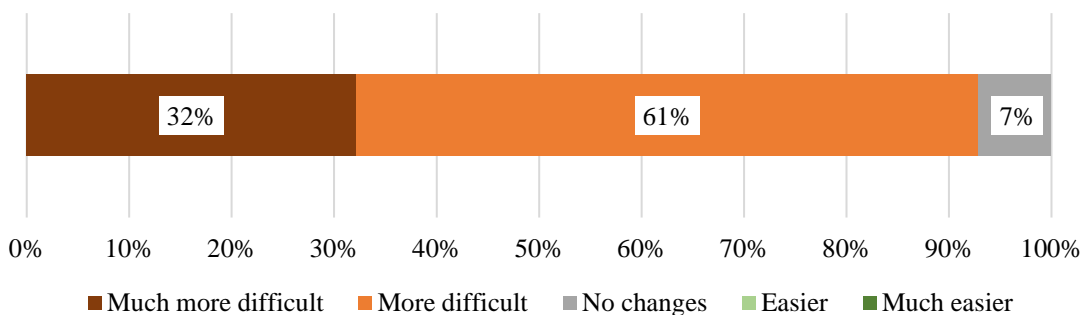


Figure 40 – Business owners, results from question 6, "Comparing to the period before the intervention, evaluate the difficulty for your customers to find parking currently:"

For the concluding question, when asked what they would choose to do about the changes brought by the intervention, by a small difference, most would like to keep it the way it is or even expand it (Figure 41).

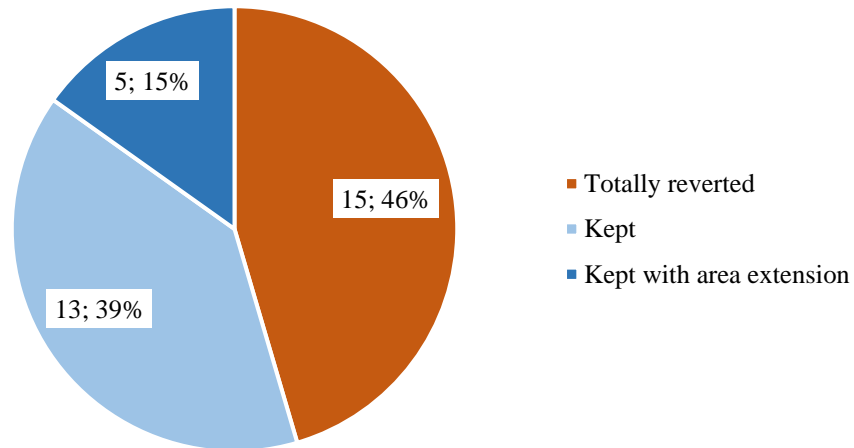


Figure 41 – Business owners, results from question 8, "Regarding the changes brought by the Chamber to the surroundings of the Arroios Market, what do you think should occur? In view of the current configuration of the space, the intervention should be:"

5.2.4. BUSINESS OWNERS – CATEGORICAL ANALYSIS

When it concerns the business owners, the analysis of different subsets of respondents can also provide valuable insight when looking at the studied sample. In the case of the merchants the distinctions made regarded for how long the business had been working on that location and the type of commercial activity developed.

As for the commercial activity developed, the distinction was made between the food and beverages' establishments and the rest, since, in theory, the expansion of the space available for the people would potentially benefit their businesses by directly providing more space to set their tables outside. This way, the objective was to observe if the changes were better perceived by these business owners.

In another perspective, during the on-site response collection, it could be observed that the business owners that had been working on that location the longest were, oftentimes, the ones to stand more strongly against the intervention. Thus, an analysis considering this seniority aspect was also made.

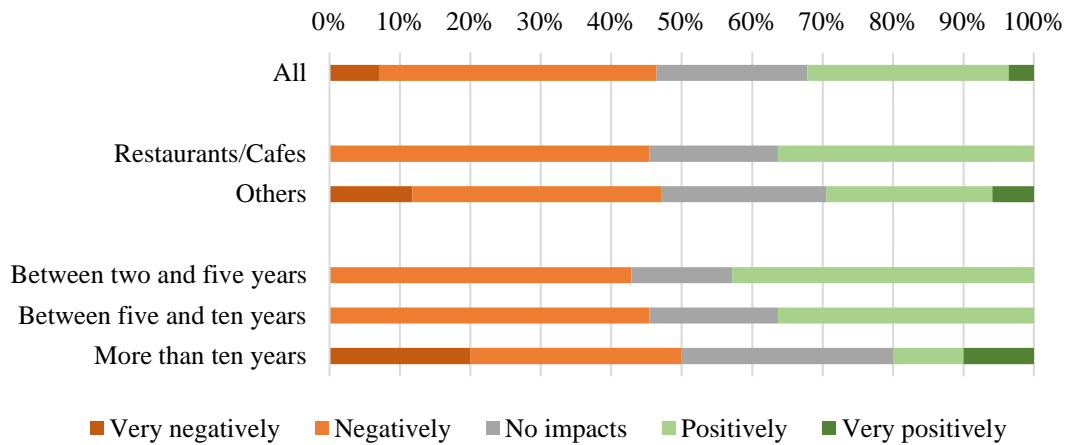


Figure 42 - Business owners' categorical analysis, results from question 3, "As for when the intervention was announced, or during its execution, evaluate how you believed it would affect your activity:"

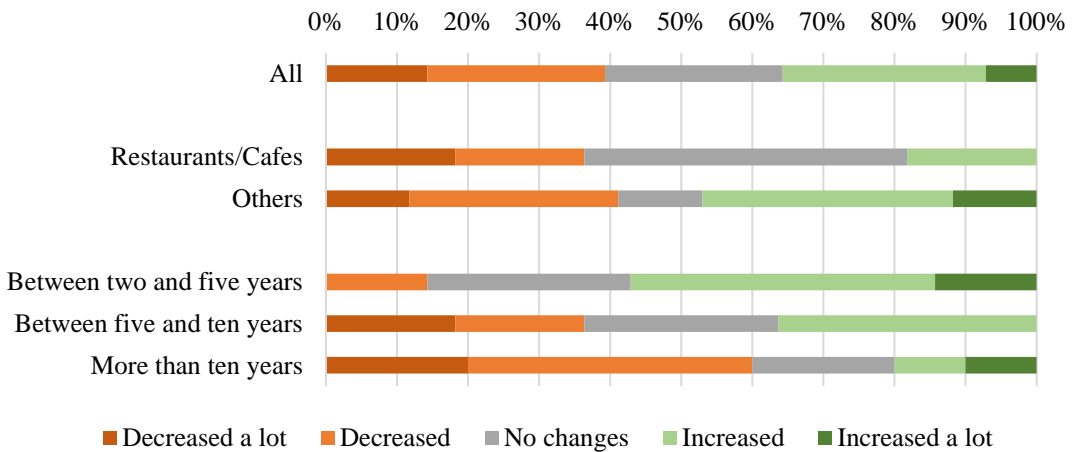


Figure 43 - Business owners' categorical analysis, results from question 4, "About the movement of people in general and clients after the intervention, you believe that it:"

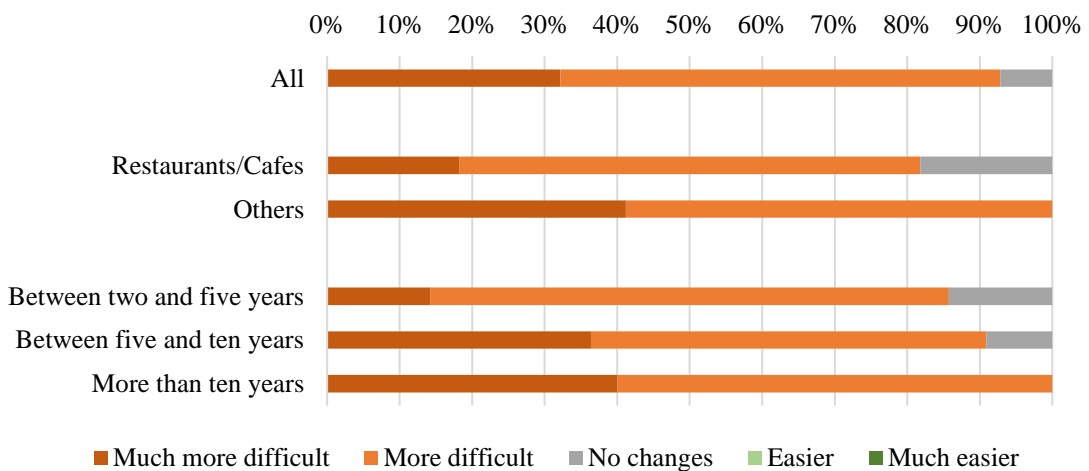


Figure 44 - Business owners' categorical analysis, results from question 6, "Comparing to the period before the intervention, evaluate the difficulty for your customers to find parking currently:"

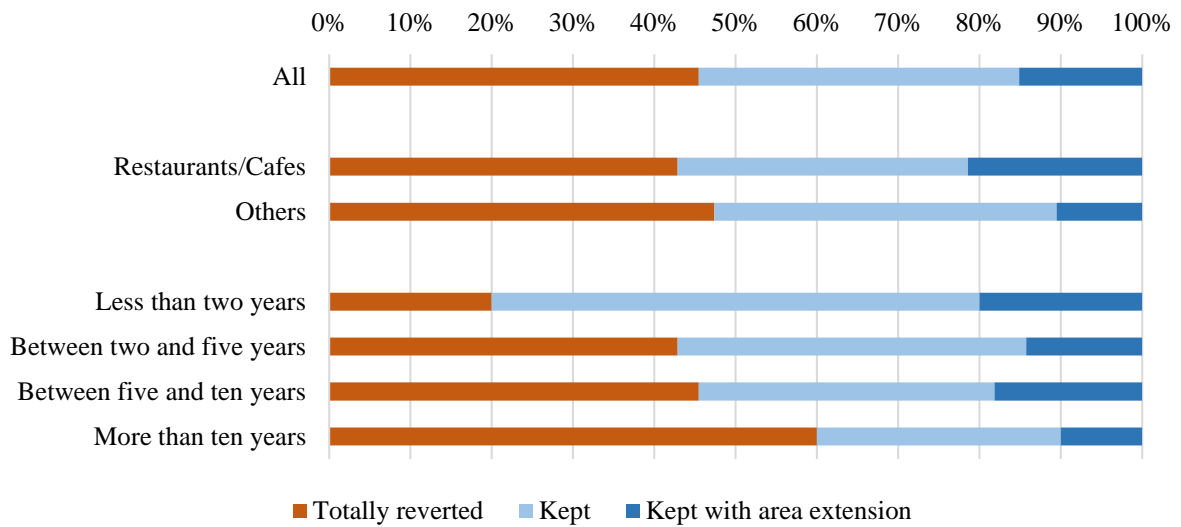


Figure 45 - Business owners' categorical analysis, results from question 8, "Regarding the changes brought by the Chamber to the surroundings of the Arroios Market, what do you think should occur? In view of the current configuration of the space, the intervention should be:"

Observing the restaurants and cafes in comparison with the others commercial activities, a relevant difference cannot be seen, although the first ones usually demonstrate slightly more favorability to the changes brought by the intervention. This can be seen on Figures 42, 43, 44 and 45, in which the food and beverages establishments always score less in the negative aspects of the questions, pointing out a more positive view on the intervention and a lesser negative perception of the difficulty to park, for instance.

Looking at Figures 42, 43, 44 and 45 it's also possible to observe how the positive answers consistently grow as the *seniority* of the business decreases. The clearest example of this tendency takes place on the results from question 8, in which, while 80% of the business owners with less than two years in the area (therefore, after the intervention) want it to be either kept or extended, and 60% of the ones with more than ten years want it totally reverted.

In another perspective, in order to detect some kind of change in the perception from the business owners regarding the intervention, Figure 46 shows that, specifically among the respondents that thought that the intervention would affect the area negatively or very negatively, 31% ended up declaring that they would like it to be maintained the way it is.

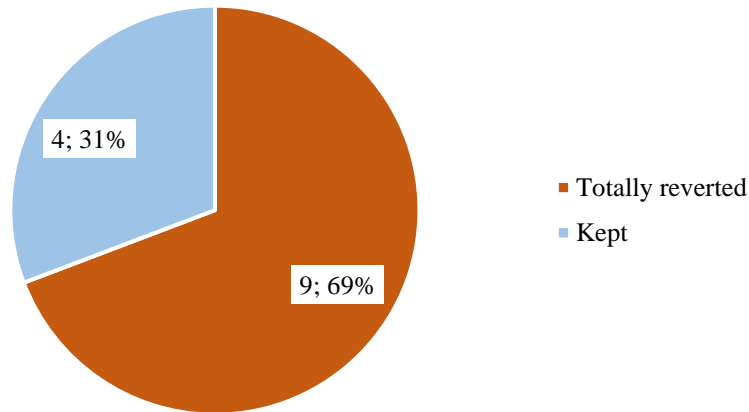


Figure 46 - Results from question 8, respondents who initially saw the intervention as bringing negative outcomes to the area

5.3. QUALITATIVE RESULTS

As previously explained, beyond the more direct restricted questions, for both questionnaires there were also unrestricted questions, in which the respondents were invited to expose their impressions more freely, being able to approach matters that eventually weren't covered by the survey but could bring important insights to better understand the impacts brought the changes that took place around Arroios Municipal Market.

For both users and business owners, even though there was a wide variety of answers, it was possible to identify that a few impressions and opinions were connected and could help to explain the reason behind some of the quantitative results, these in case were selected and highlighted.

5.3.1. USERS

In the questionnaire developed for the users, there was only one open-ended question, which asked the respondents to give additional suggestions, criticisms, or observations about the intervention. There were 80 answers and the ones highlighted are presented on Table 6, divided into topics brought up.

Table 6 - Qualitative questions - highlighted answers (users)

Question	Highlighted answers
13. Additional suggestions, criticisms or observations regarding the intervention:	<p>Overall quality of the space</p> <ul style="list-style-type: none"> - It's a place in which it's easy to walk and it's enjoyable to sit and meet friends; - It's a good area for residents to socialize and improves the accessibility for people with limited mobility;

	<ul style="list-style-type: none"> - It's easier to move around the area with strollers and to walk the dog; - The street art is colorful and brings life to the area; - Changes benefitted a lot the restaurants and their clients, putting a lot of spaces to better use; - The quality of the space is good but it's now noisier and more crowded at night; - It's good to have extra space to leave bicycles and scooters; - The area should have more green, shadowed spaces and places to sit; - Sidewalks should be repaired, there are unlevelled spots and holes, causing problems for pedestrians; - There hasn't been proper maintenance in the space, the paint is fading away, the benches are loose and the removed bollards left a part of their structure that now represent a hazard for older people to trip and fall; - The restaurant terraces so close to the street are dangerous for the people seated; - Painting the floor does not change anything for users; - The paint on the floor causes visual pollution and the area would be better off without it.
	<p>Parking and traffic</p> <ul style="list-style-type: none"> - The area improved for residents because it became easier to park and more organized now; - Traffic is safer and travel speeds are lower, but there should be more parking control, since cars are constantly parked in the wrong locations; - Parking control was only effective in the beginning, it was later neglected; - The space should be improved, with more well-thought changes and the creation of an underground parking; - Before the intervention traffic was more disorganized but it made drivers more careful; - These kinds of interventions are good but should not affect parking; - Scooters don't follow traffic rules and represent a risk for pedestrians, causing accidents;

	<ul style="list-style-type: none"> - Traffic signage should be improved; - People already have enough space, there should be more parking.
	<p>Security</p> <ul style="list-style-type: none"> - The benches are often taken by people using and selling drugs, which brings insecurity to pedestrians, especially during the periods of less commercial activity; - Insecurity due to reports of robberies and inefficiency of police support.

The additional inputs from the users center around three main aspects: parking, security and quality of the space, especially what concerns to the maintenance. As far as it goes for parking, it was the most recurring topic in the talks during the application of the questionnaires, and it's naturally often mentioned in the open-ended questions.

From both quantitative and qualitative results, but also the interactions during the application of questionnaires, the outcomes from the research show that the users are largely satisfied with the intervention. They usually tend to appreciate the easiness to walk, improvements in the accessibility for people with reduced mobility and people with strollers, the provision of spaces to sit and the availability of outdoor space for restaurants. It's also important to note their attention to the social aspect of the intervention, recognizing it as place to socialize and meet friends.

As far as it concerns the traffic reordering, although some users report more difficulty to park or even the desire to have the intervention reverted, there's also the perception that the changes improved the organization of the vehicles in the area, making room for walkers, clients in the restaurants and improving the perception of road safety.

Nonetheless, the users, despite demonstrating an overall approval of the area, could easily point out that there was plenty of room for improvement. The main topics pointed out regarded the maintenance of the area, the security issues and the lack of greenery, for instance.

Maintenance was brought up a few times, and the complaints usually had to do with the conservation of the benches and the pavement paintings fading away, but also the structural problems of the sidewalks, which did not go under any changes from the intervention. When it concerns security, some of the users complained that the area has been a target of robberies and the presence of drug users and sellers, especially in the benches, making the area more insecure, and since the police haven't been able to properly assist the area, it has become a bigger problem. As for the greenery, it was an aspect present on the intervention project, which stated that there would be fourteen trees around the Market, but they were never planted.

5.3.2. BUSINESS OWNERS

In the open-ended questions of the business owners' questionnaire, they were asked to, on question five, point out the main changes they observed in the area after the intervention and, on question seven, share additional comments, criticisms, or suggestions regarding the intervention.

Amidst the 33 responses collected, the answers that could be highlighted from the questions mentioned are shown in Table 7, divided themes addressed.

Table 7 - Qualitative questions - highlighted answers (merchants)

Question	Highlighted answers
<p>5. Which were the main changes you observed in the area after the intervention?</p>	<p>Parking and Traffic</p> <ul style="list-style-type: none"> - Parking arrangement and organization improved; - There's more turnover of cars due to the new parking arrangement and the flow of people is constant; - Clients avoid going to the area due to the lack of parking and fear of getting parking tickets; - More difficulty for merchants and clients to find parking. <hr/> <p>Presence of people and clients</p> <ul style="list-style-type: none"> - Increase of footfall in the area; - There are more tourists; - The customer base used to be the same before the intervention, now it's always different. The decrease of the first kind of client was compensated by the increase of the second and the addition of terrace area; - There are less clients, but it may have to do with the pandemic; - The intervention killed the commercial activity inside Arroios Municipal Market. <hr/> <p>Security and maintenance</p> <ul style="list-style-type: none"> - More insecurity due to the presence of people using drugs (drinking and smoking); - The area became dirtier and full of drug users and drug dealers;
<p>7. Do you have any comments, criticisms, or suggestions that you would like to make regarding the addressed intervention?</p>	<p>Parking and traffic</p> <ul style="list-style-type: none"> - More space for people and less for cars is beneficial, car traffic should be banned around the market; - Difficulty to park forced to change means of transportation, from car to metro;

	<ul style="list-style-type: none"> - More plants, chairs and activities for kids, but it shouldn't affect parking; - Parking should be better organized because some merchants take all spaces and there's nothing left for clients; - There should be more parking but preserve the space for restaurants' terraces; - Not enough parking for clients and merchants; - Big vehicles (mainly trucks that supply the commercial venues) go through a hard time to move around; - The narrowing of the street makes it impossible to double park, which keeps clients away since prior to the intervention it was a common practice; - The area should be "clean", without the paintings and with more space for cars; - Residents take most parking spaces and there's none left merchants and their clients; - Money would be better spent on the addition of parking; - There should be more parking.
	<p>Security, maintenance, improvements, and communication</p> <ul style="list-style-type: none"> - The area needs trees and more open spaces for people; - The merchants were never consulted or even heard by the municipality; - Lack of maintenance of the whole area, especially when it comes to the paintings and urban furniture; - The changes are for tourists and immigrants; - The Police should pay more attention to the area and give it faster and better support; - The area is insecure and it does not feel safe to leave work later at night.

During the questionnaires' application, the business owners were usually more emphatic in their critics. The most mentioned topic was the lack of parking and its detrimental consequences to the commercial activities. In the opposite direction, there were a few mentions that the parking rearrangement made the area more organized and provided more customer turnover.

As for the quality of the public space, the business owners also complained about the lack of maintenance and the insecurity. And, as it can be seen on the last table other important point brought up

by the merchants regarded their involvement in the whole process of the intervention (or the lack thereof).

The respondents “against” the intervention, where the most emphatic on the opinions, in some cases totally rejecting the changes. Obviously, the most common complaint had to do with parking, as it could already be expected from the answers highlighted on section 5.2.2 *Merchants*. For this portion of the sample, mostly formed by the merchants that have had their businesses there for the longest time, there’s almost a consensus that there was a big decrease in the supply of parking in the area around the market. As mentioned on section 3.2.2. *Project of the Intervention*, the municipality indeed reduced the number of parking spaces in the ring immediately around the market, but to compensate, eleven more were created on the adjacent street, José Ricardo (Figure 47). Additionally, there are many parking spaces in the remaining streets around the market (Figure 48) and two public parking areas 400m away, on Praça do Chile, and 450m away, on Alameda Dom Afonso Henriques.



Figure 47 - Parking on José Ricardo Street



Figure 48 - Parking supply on some of the streets around the Market

But, although there's this supply of parking close to the market, they say that the parking situation for their clients became much more difficult. One point is that many of their clients are elderly, and for this group of people having parking just by the shops or cafes they are going is very important. With the changes, this possibility became increasingly hard, which helped to drive them away. Another point is that the intervention reallocated more than 1000 m² from cars to pedestrians which, aside from the suppression of parking spaces, also reduced the traffic area. According to this group of merchants, this also drove some clients away, since it was a common practice for them to leave the car double parked and quickly go shopping or drink a coffee, for instance, which became impossible to do without getting a ticket or disturbing the traffic in the area.

Because of the many aforementioned reasons, the majority of merchants easily said that it became more difficult to park after the intervention, and even many of those who reported to like the changes agreed. From this increased perception of parking hardship, some merchants and users admitted a modal change when possible, leaving their car at home and choosing to go on foot, by bicycle, public transport, or motorcycle, for instance. This point is particularly interesting because, even though some respondents perceive it as a problem or inconvenience, the modal shift is actually a desired outcome of many road space reallocation initiatives.

In this context of complaints from the merchants about parking, there are three notes that are important, point in the same direction and help to clarify some aspects of this situation: in one occasion, during the visits to the area, it was possible to check that the car parked in front of a store belonged to that same store's owner; during the questionnaire application three other merchants reported that the difficulty to park around the area is, in part, caused by the own merchants, who keep their cars parked for long periods in the best spots around the market; and finally, the market administrator ratified that, since they are the first ones to arrive in the area, the own merchants occupy parking spaces (including loading and unloading areas) and end up taking it away from their own clients.

As for the movement of clients, the majority of respondents, 39.3%, thought it decreased or decreased a lot after the intervention (Figure 3). During the application of a questionnaire one of the respondents said that the intervention "killed the commercial activity inside Arroios Market", and while some of respondents recognized that there was an increase in footfall, they usually stressed that it did not improve

their commercial activity. Although the merchants from inside the Market were not specifically part of the research scope, some of them were heard as users of the area, workers and/or residents. The stalls in the Market are only half occupied and, during the visits to the area, it was possible to see that it was never really crowded, not even on Saturdays, supposedly one of the best days for their businesses. But, at first, none of this can be necessarily linked to the intervention.



Figure 49 - Municipal Market of Arroios - Inside

The talk with the Market Administrator helped to clarify some of the questions raised. According to him, when he started working in the Market in 2013, almost all the stalls were occupied. Over the last ten years a lot of factors contributed to the difficulties the merchants face nowadays, namely:

- the retiring and, unfortunately, death of a few merchants (due to their average age, those are relevant factors);
- the profusion of temporary lodging services (*Alojamento Local*) in the neighborhood of Arroios which drove away some old residents and changed the type of customer in the area. Since the usual public of the Market is commonly composed of elderly people and/or people that have been living in the area for a long time, this change took a big toll on the Market's activity;
- resistance and/or inability of the merchants to incorporate new practices in their businesses to try to adapt to the changes their labor activity is undergoing;
- the responsibility to take care of the Market passed from the Municipality of Lisbon to the Parish of Arroios in 2014. This last one, with less resources, could not assist the Market's and its merchants' necessities as the Municipality could.

Therefore, for the administrator, the decrease in the number of merchants and clients in the Market was gradual and cannot be attributed to one single factor and, as far as it concerns the intervention, although it did not improve the situation, it did not make it worse either.

The change in the type of people who now live close to the Market, mentioned by the administrator, also came up as answers to a few questionnaires. But, this time, the alteration was brought up, specially

by the merchants, as a perception of the increase in the number of tourists in the area and a bigger diversity in the clients they receive.

An issue brought up by both merchants and users was the insecurity. Despite not being possible to directly link this public security topic to the intervention, the respondents reported that perceived an aggravation of this matter after the changes. The most common complaint is that there are drug users and dealers are constantly in the area and often occupy the benches installed in the front part of the market.

Finally, one important matter to address regarding the intervention was the communication, from the public power to the public, in this case. Specially during the interactions with merchants, regardless of their opinions about the changes, there were many complaints about this matter. For the merchants the topic was obviously relevant, since the changes promoted by the municipality had direct effect on their livelihoods. The respondents that mentioned this issue said that they were never heard by the municipality, not before, to share their opinions and concerns about the changes, nor after, when they protested to try to get them reversed. In the talk with the administrator he confirmed that there were no contacts with the people that work on the Market, and some of them only knew there was going to be an intervention when saw the first markings being painted on the pavement.

This gap in the information exchange between the municipality and the citizens became flagrant in a few interactions with respondents, particularly the ones who knew the area for a long time and were a part of its dynamics, and they didn't know the purpose of the intervention, even though it meant to help to keep social distancing in occasion of the Covid-19 pandemic, for instance. For that lack of communication with the citizens, many only still see the changes as a "waste of money", or dismiss it for just being "useless paint on the floor", when the municipality itself had promotional material about the intervention explaining its reasons and objectives (see section 3.2.2. *Project of the Intervention*).

6

CONCLUSIONS

Having in mind the objectives set in the beginning of the dissertation, the work developed through the research primarily sought to analyze how the different stakeholders involved in the road space reallocation project implemented perceived the changes brought by the municipality of Lisbon to the surroundings of the Arroios Municipal Market, also trying to grasp how their views of the area evolved with time, impacting the way they relate to the space nowadays.

The first searches about the intervention showed results similar to what is present on section 3.2.3. *Merchants' Reaction*, that is, there was an overall impression that the changes brought by municipality had raised big dissatisfaction on the merchants of the Market and around it. But the totality of the results from the research show that, although loud, those first reactions are only a part of the story, since, from the commercial establishments consulted for the study, the majority (54%) actually reported that the intervention should be either kept the way it is or even extended, if the users are taken into account, these number go up to over 80%.

This way, although the intervention cannot be declared a success, since most people do not present themselves to advocate for it, it's safe to say that the first impressions left by the media coverage are far from the truth and the road space reallocation initiative is positively seen by a comfortable majority of the respondents. As exposed by the results, the main detractors of the changes could be expected: car users, who are directly affected by the reduction of parking spaces, and a part of the business owners, who also feel directly affected by the traffic and parking alterations.

Parking was indeed the main weakest link from the intervention, drawing most of the discontentment related to it. Additionally, other aspects raised by the respondents that harm the acceptance of the intervention are the lack of maintenance of the area and the insecurity caused by drug consumption, and none of those can be directly connected to the realization of the road space reallocation, since they concern the municipality assistance to the public space and the police support, respectively.

On the other hand, the development of the research made it possible to uncover the inputs from segments of the stakeholders that had not yet been investigated. As it could be observed, visitors, residents and the newest business owners are usually favorable to the intervention, looking at it as a comfortable space to be, accessible to various types of users and safer from the vehicle traffic.

Setting apart the results and inputs from both questionnaires it's possible to observe how differently the same aspects of the intervention affect the two research targets. For instance, regarding parking, while it's a recurrent theme that brings some animosity from merchants, for users it does not come up so often

and, although some admit the troubles concerning the parking in the area, they tend to look at this topic through the lenses of a better traffic and parking organization.

Concerning the evolution of the respondents' perceptions over the time, it can be mainly observed amidst the business owners. From the thirteen merchants who believed that the intervention would negatively affect the area, almost 70% said that they would like it to be totally reverted (the same aspect scored 46% if considered all merchants and 19% for the users). The same tendency took place among the users, the same analysis in that sample registered results around the same 70% business owners scored. Some interactions with these users and a few registries in the open-ended questions point that a better communication from the municipality could have helped with this matter initial resistance matter.

As for the perception differences between the various users, the questionnaires developed a good job delivering results who make the different points of view clear. Between users and merchants, the discrepancies are easy to observe, from the way they perceived the area, of course, but also from the way they face the same events, the traffic organization being the most flagrant aspect, and in the same groups of respondents (merchants and users) it was shown that there were clear discrepancies to observe.

In accordance to what was shown on the literature review, the implementation of road space reallocation initiatives favoring people over cars can deliver great improvements to the area it affects and bring benefits to the various parts of a community. And, although there are evidence proving that even the ones that initially are against that sort of intervention can change their minds over the course of time, it's key that at first the proposed changes are connected to its area's reality, so that the alterations can effectively bring improvements noticeable to all.

In this way, the pedestrianization measures that took place around Arroios Market are pointed to the same direction of the benefits presented by the literature, that is, the expansion of area for pedestrians over cars' in order to create more areas of socialization for citizens, diminishing the harmful effects of air pollution, bringing more road safety, providing more space for outdoor activities and overall creating more lively areas, for instance.

The many interactions with respondents along the research provided simple and precious insights for the development of better implementation strategies. As it could be expected, the involvement of the stakeholders in the decision-making process can be very effective in solving, before-hand, issues that would come up in the future, and even if full support is not reached, by hearing their questions and complaints it's possible to at least try to explain the intentions, objectives and methods of an intervention. After the work is done it's also important to hear the feedback from the population and give the area the proper assistance to maintain it and take care of it the best way possible.

Nevertheless, the room for improvement is also true for the research itself. One point that could have permitted several new sets of analyzes would be to have a formal registry of the opinions of the stakeholders about the way the study area was prior to the intervention, that is, knowing their views when not impaired by the effects naturally caused by the realization of the intervention itself. Despite the fact that the choice of the case study for the dissertation happened several months after the intervention had been concluded, having a set baseline study would have made way to hefty comparisons and analyzes.

As the questionnaires' application delivered the first results to be analyzed, it was possible to observe that there was more important information that could have been asked. For instance, it would have been helpful to ask the business owners how the use of outdoor space for food and beverages establishments was before the intervention, and be able to count the effective gains brought by the space reallocation. Addressing the economic aspect, the business owners could have been inquired if the intervention

caused any changes in their turnover, instead of having this aspect only marginally brought up in the question about the changes in the movement of clients and people in the area.

When it regards the amount of the sample covered there could also be clear expansions. In a more robust research it could be possible to analyze a broader study area, involving more merchants, targeting different aspects for the vendors inside the Market, or even others not directly connected to the intervention area, perhaps those in other streets, inquiring about their impressions on the changes, but also if, from what they have observed, if they would like for changes like that to come their businesses, for instance, and the same could be inquired to the users of a wider area, under their perspective. The program that implemented the alterations around Arroios Market also had other permanent interventions, and from what was observed during and after the research, an analysis of these kinds of pedestrianization schemes in Lisbon through the lenses of effectiveness, public approval and public participation could be rich angles to explore.

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7.1. CASE STUDIES' SUMMARY

Table 8 - Case studies' summary analysis

Case Studies	Objectives of the intervention	Objectives of the study	Evaluation Methodology	Changes implemented	Intervention impacts and consequences
Oslo, Norway (Hagen & Tennøy, 2021)	Reach more livability in the city center, reduce greenhouse gas emissions, and make the use of other transport modes more viable.	Understand how the users of the city center and the commuters adapted to the interventions and what impacts they caused.	Document studies, photo-documentation, and surveys. The surveys happened at three different moments, before, during and after the interventions, targeting city center business employees and commuters.	Cut-off of on-street parking; Changes in the driving pattern; Widening of sidewalks; Pedestrianization	Increase in the use of public transport and bicycles; More difficulty to park; Increase in the average money spent per costumer Improved accessibility perception and experiences related to walking and cycling Car users' perceptions worsened More enjoyment from being in the city center

Seville, Spain (Castillo- Manzano et al., 2014)	Promotion of a more sustainable mobility, using measures involving pedestrianization of streets, it sought to develop transport alternatives to cars	Analyzing the citizens' satisfaction about the pedestrianization schemes.	Surveys: at three different moments, through closed questionnaires, design to retrieve respondents' opinions but also the frequency of their visits to the area (subjective and objective dimensions).	Modifications in the accesses to portions of the streets; Complete closure for cars with the area transformation into a pedestrianized zone; Full pedestrianization in some portions.	Increase in the visitation frequency, purchases and consumption in food and beverages establishments; Most respondents considered that the implemented changes contributed positively to areas' livelihood; The negative aspects brought up during the debates were not explicitly mentioned during the surveys.
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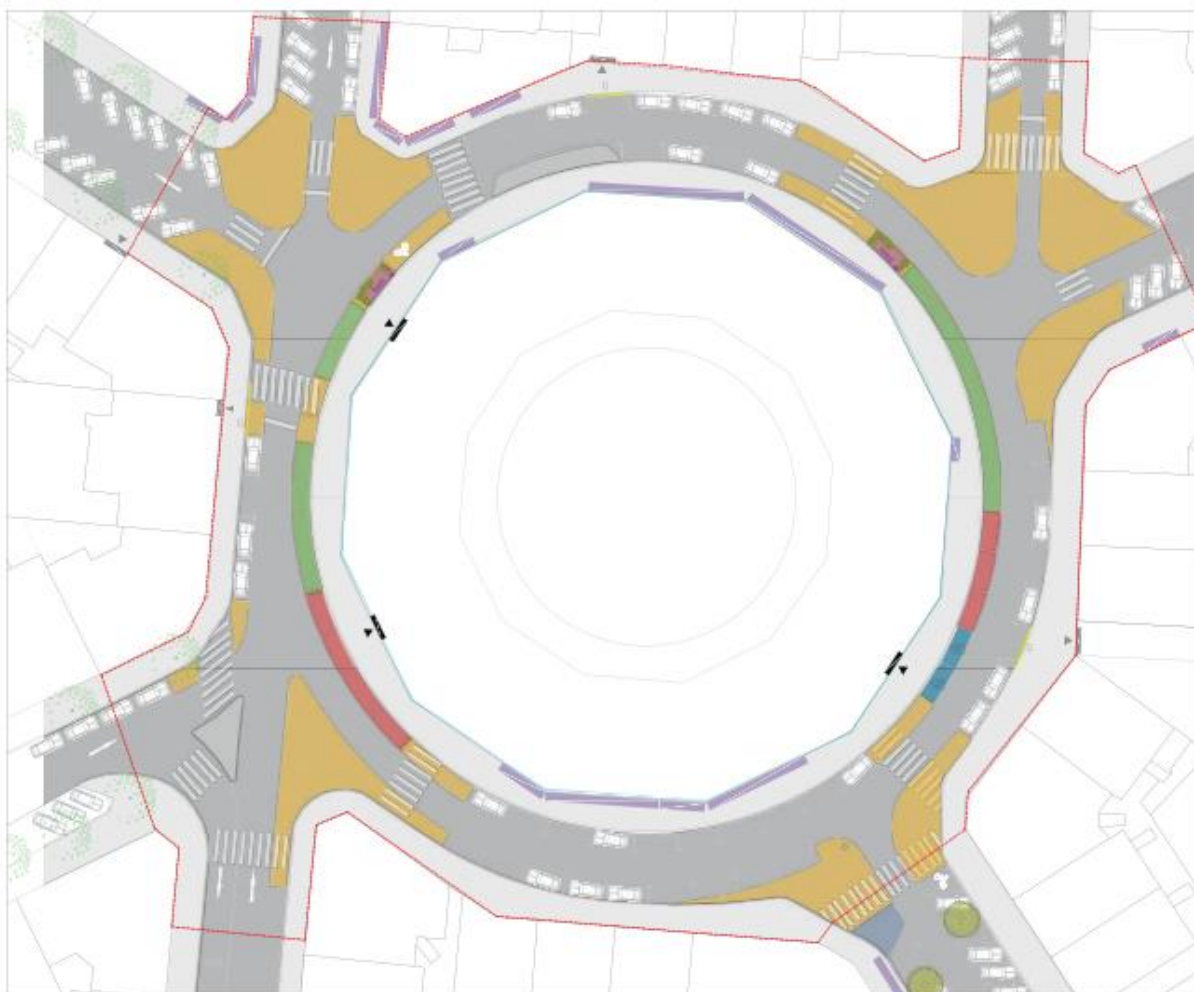
Cracow, Poland (Szarata et al., 2017)	Improving the quality of the urban realm in the city's historical center.	Verifying the changes in the commerce from the business owners' perspective and the perceptions of the consumers about the area's accessibility.	Surveys targeting three different groups: business owners who worked in the areas before the changes, the ones who opened their businesses after and the consumers.	Both areas were went under full pedestrianization changes; Szczepanski Square and Small Market Square served as parking areas until 2008 and Grodzka Street had traffic restriction measures implemented in 2013.	The largest part of the owners of did not record any changes of income or could not see any relationship between the implementation of change and their income, some declared a drop and a smaller portion, an increase; 95% of the costumers affirmed that the accessibility to the areas was not a problem and most also approved the spaces; The unsatisfied complained about the lack of greenery and lack of parking (Godzka) Most business owners also approve the interventions and would not like to go back.
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<p>London, UK (Hickman & Sallo, 2022)</p>	<p>Reduce traffic accidents, contribute to road safety and improve the overall quality of the public space.</p>	<p>Analyze and assess the project development and delivery, understanding the public participation and how different parts of society see the intervention.</p>	<p>Semi-structured interviews with selected interviewees (according to impacts of the project and the different viewpoints they could bring)</p>	<p>The implementation was gradual, at first there was a ban of motor traffic from the junction between 7am-7pm on weekdays, exception for buses. A more concrete intervention in the infrastructure, changing the pavement, for instance, was planned.</p>	<p>Traffic casualties dropped by half; Time gain for the buses that went through the junction; The levels of pollution (NO2) fell at the junction and in its surroundings; Positive perception for cyclists, pedestrians and bus users.</p>
<p>Brighton, UK (Melia & Shergold, 2017)</p>	<p>The Council was concerned that the rising traffic levels in the area could “detract” its character. Change intended to reduce traffic while maintaining the access for those who needed.</p>	<p>Analyze the impacts caused by the pedestrianization scheme on traffic volume, users’ modal choice and perception and the views of important stakeholders such as business owners.</p>	<p>Traffic counts, before and after street surveys and face-to-face interviews.</p>	<p>Making use of removable bollards, some of the streets in the area were completely closed for traffic during most part of the day (11 a.m. - 7 p.m.).</p>	<p>Relatively small decrease in traffic volume and increase in cycling; The majority of people approached for the survey were in favor of the changes and supported further pedestrianization measures; The perception of “too much traffic” worsened; Registered support from local businesses, with few objections. Most fears revealed prior to the interventions were not materialized.</p>





<p>Brussels, Belgium (Boveldt et al., 2022)</p>	<p>Decision of the Brussels City government to enlarge its central pedestrian zone, in order to minimize the impact of car traffic in that area.</p>	<p>Analyze the impacts of the pedestrianization scheme and how it affected users' travel behavior and what are their views on the accessibility, functioning and design of the area.</p>	<p>Longitudinal survey at two different moments, before and after the works. Target at three different groups, residents, employees of the businesses in the area and visitors. First two online and the third face-to-face.</p>	<p>There were three different moments: first there was a road closure, then a provisional traffic plan was laid out and finally the full pedestrianization, with the removal of parking spaces, new surface materials, urban furniture, bicycle parking and many route adaptations.</p>	<p>The use of the car and bus dropped among residents, metro and tram remained stable; Visitors began using the car and metro/tram more often; Commuters coming in bicycles almost doubled, cars increased and public transport dropped; Growth on the overall support for pedestrianization and car-free areas (except among car users).</p>
<p>Albany, US (Johnson, 2005)</p>	<p>Provide safer conditions for pedestrians and reduce accidents at an intersection.</p>	<p>Quantify the benefits related to safety brought by the implementation of curb extensions, and how it affected motorist behavior.</p>	<p>Data collection from video camera placed to register the approaching vehicles and pedestrians.</p>	<p>Contruction of curb extensions and marking of advance stop bars and striped crosswalks.</p>	<p>Great reduction of the number of vehicles that pass directly at the intersection without yielding to the pedestrian; Cars began yielding sooner if compared to intersections without the curb extensions.</p>

Serres, Greece (Sdoukopoulos et al., 2021) 2014-2019	As a part of a sustainable mobility agenda, the municipality began the promotion of measures to combat the negative externalities generated by the use of private cars, mainly noise, congestion, road accidents, air pollution and environmental degradation.	Assess of the traffic calming interventions implemented in the city of Serres, in terms of level of perceived public satisfaction, road safety, air pollution, speed and traffic flows.	Before and after study focusing on level of acceptance, traffic accidents, emission of greenhouse gases, travel speed and traffic flows.	Implementation of pinch points, curb extensions and raised crosswalks; Road closure and pedestrianization measures; Creation of Shared spaces / woonerfs.	Significant reduction of traffic flows in the traffic calmed areas, small increase in the adjacencies; Decreased travel speeds; Great reduction of accidents; Most survey participants reported great satisfaction with the interventions, considering them important steps towards a more sustainable mobility.
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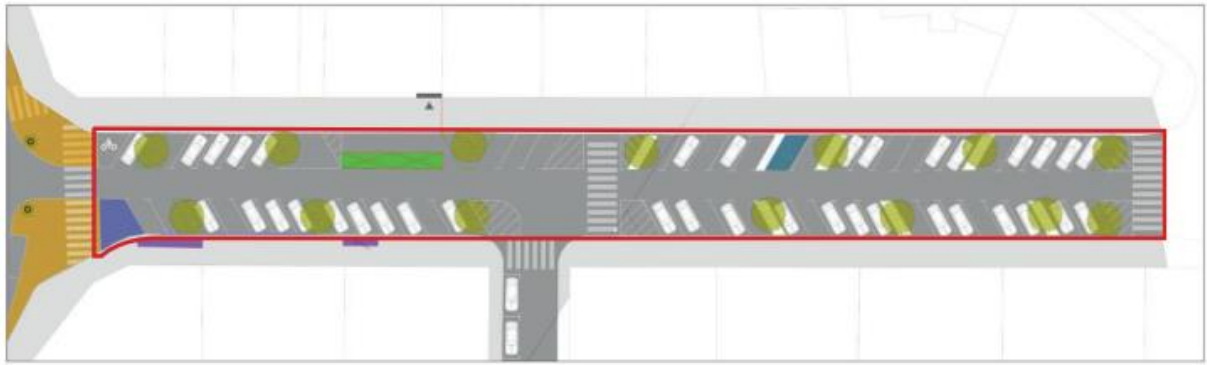
7.2. PROJECT OF THE INTERVENTION







LEGENDA:

-  - Área de intervenção
-  - Lugares de Cargas e Descargas
-  - Lugares de Tomada e Largada de Passageiros
-  - Lugares Mobilidade Reduzida

-  - Área Pedonalizada
-  - Parklets e Mobiliário Urbano
-  - Esplanadas Existentes
-  - Área de Esplanadas Propostas
-  - Caldeiras e Arborização

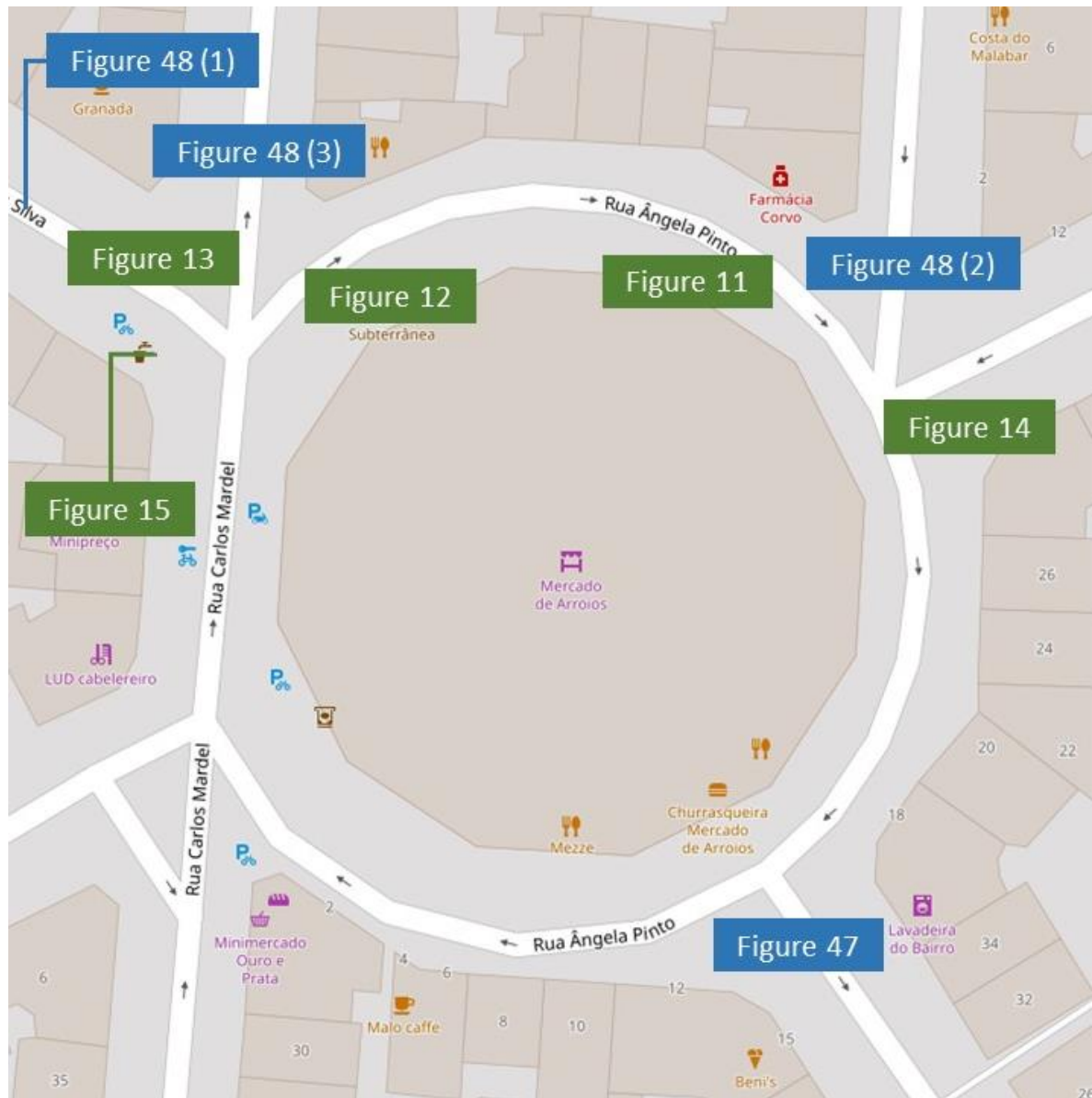


LEGENDA:

-  - Área de intervenção
-  - Lugares de Cargas e Descargas
-  - Lugares de Tomada e Largada de Passageiros
-  - Lugares Mobilidade Reduzida

-  - Área Pedonalizada
-  - Parklets e Mobiliário Urbano
-  - Esplanadas Existentes
-  - Área de Esplanadas Propostas
-  - Caldeiras e Arborização

7.3. FIGURES' LOCATION IN THE STUDY AREA



7.4. USERS' QUESTIONNAIRE

Opinião dos utilizadores: espaço público ao redor do Mercado Municipal de Arroios

O preenchimento deste inquérito leva em torno de 7 minutos.

No âmbito da realização da tese "Perceção pública sobre a realocação de espaço urbano de carros para peões: o caso do Mercado Municipal de Arroios em Lisboa", busca-se a opinião de moradores, visitantes e colaboradores de estabelecimentos comerciais localizados nas imediações do Mercado a respeito das intervenções feitas pela Câmara de Lisboa, finalizadas em Abril de 2021.

O projeto consistiu na realocação do espaço urbano que rodeia o Mercado, expandindo o espaço dos peões, proporcionando novo mobiliário urbano e criando novas áreas para circulação de pessoas, acomodação de trotinetes e bicicletas e esplanadas para estabelecimentos de restauração.

A partir de todas as mudanças ocorridas na área do Mercado, este inquérito tem como objetivo recolher as opiniões e impressões de diferentes partes interessadas sobre os impactos trazidos pelo projeto.

Todas as respostas desse inquérito são anónimas e os resultados serão utilizados exclusivamente para o desenvolvimento da tese do mestrando Vitor Cordeiro, aluno do Mestrado em Planeamento e Projeto Urbano pela Faculdade de Engenharia da Universidade do Porto.

* Required

1. Com qual género se identifica? *

- Masculino
- Feminino
- Outro
- Prefiro não dizer

2. Qual a sua idade? *

- Menos de 18 anos
- Entre 19 e 24 anos
- Entre 25 e 44 anos
- Entre 45 e 64 anos
- Mais de 65 anos
- Prefiro não dizer

3. Como utilizador da área do Mercado de Arroios, qual a sua classificação em relação ao espaço? *

Please select at most 2 options.

- Morador
- Visitante
- Trabalhador
- Proprietário de um estabelecimento comercial

4. Já conhecia / frequentava a área do Mercado antes da intervenção de requalificação em Abril de 2021? *

- Sim
- Não

5. Em relação à altura quando a intervenção foi anunciada, ou durante a sua execução, avalie como acreditava que as mudanças afetariam o espaço: *

Muito negativame nte	Negativam ente	Indiferente	Positivame nte	Muito positivame nte
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Em comparação ao período anterior, avalie a frequência das suas visitas à área depois da conclusão do projeto: *

Muito menos frequentes	Menos frequentes	Sem alterações	Mais frequentes	Muito mais frequentes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Qual o meio de transporte que mais comumente utiliza para chegar ao local? *

Caso utilize mais de um meio de transporte, considere aquele que cobre a maior parte da deslocação.

- A pé
- Trotinete
- Bicicleta
- Autocarro
- Metro
- Motociclo
- Carro
- Outro

8. Em comparação ao período antes da intervenção, avalie a sua dificuldade para se locomover a pé e/ou atravessar as ruas ao redor do Mercado atualmente (se não conhecia a área anteriormente, favor pular esta pergunta):

Muito mais difícil	Mais difícil	Sem alterações	Mais fácil	Muito mais fácil
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Em comparação ao período antes da intervenção, avalie a sua dificuldade de encontrar estacionamento no entorno do Mercado atualmente:

Se não conhecia a área antes ou não utilizava o carro, favor não responder esta pergunta.

Muito mais difícil	Mais difícil	Sem alterações	Mais fácil	Muito mais fácil
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Como avalia o seu nível de satisfação com os seguintes aspetos da área após a intervenção? *

	Muito insatisfeito	Insatisfeito	Indiferente	Satisfeito	Muito satisfeito
Conforto	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Segurança viária	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Qualidade geral do espaço público	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Em relação às mudanças trazidas pela Câmara ao entorno do Mercado de Arroios, o que acha que deveria ocorrer? Tendo em vista a configuração atual do espaço, a intervenção deveria ser: *

- Totalmente revertida
- Mantida
- Mantida com extensão da área

11. Na sua opinião, este tipo de intervenção que transfere espaço dos carros para os peões e outros meios de transporte deveria ser mais implementada na cidade? Avalie de acordo com seu nível de concordância: *

Avalie de 1 a 5, sendo 1 "discordo totalmente" e 5 "concordo totalmente".

1 2 3 4 5

12. Sugestões, críticas ou observações adicionais a respeito da intervenção:

Enter your answer

7.5. BUSINESS OWNERS' QUESTIONNAIRE

1. Qual a classificação da atividade comercial que desenvolve?

*

- Restauração (incluindo cafés, pastelarias e padarias)
- Estética (salões de cabeleireiro e outras atividades ligadas à beleza)
- Mercados, frutarias e supermercados
- Outros (seguradoras, talhos, escritórios em geral e etc.)

2. Há quanto tempo o seu negócio funciona neste local?

*

- Há menos de dois anos (pós-intervenção)
- Entre dois e cinco anos (pré-intervenção)
- Entre cinco e dez anos (pré-intervenção)
- Mais de dez anos (pré-intervenção)

3. Quanto à altura quando a intervenção foi anunciada, ou durante a sua execução, avalie como acreditava que ela afetaria a sua atividade: *

- | Muito negativamente | Negativamente | Sem impactos | Positivamente | Muito positivamente |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. Sobre o movimento de pessoas em geral e clientes após a intervenção, acredita que este:

*

Diminuiu muito	Diminuiu	Sem alterações	Aumentou	Aumentou muito
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Quais foram as principais mudanças que observou na área após a intervenção?

*

Enter your answer

6. Em relação ao período antes da intervenção, avalie a dificuldade para os seus clientes encontrarem estacionamento atualmente: *

Muito mais difícil	Mais difícil	Sem alterações	Mais fácil	Muito mais fácil
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Tem algum comentário, crítica ou sugestão que gostaria de fazer em relação à intervenção abordada? *

Mobiliário, estacionamento, comunicação e fiscalização das autoridades...

Enter your answer

8. Em relação às mudanças trazidas pela Câmara ao entorno do Mercado de Arroios, o que acha que deveria ocorrer? Tendo em vista a configuração atual do espaço, a intervenção deveria ser: *

- Totalmente revertida
- Mantida
- Mantida com extensão da área