BSc Civil Engineering Thesis

Car-Dependency of Historic and Antiquated Towns: A Case Study of Todi

5th of July 2024

Student:

Philip James Kirchin (S2665913)

Internal Supervisor:

Dr. Ir. M. Baran Ulak PhD (Assistant Professor)

External Supervisors :

Dr. Ir. Massimiliano Gioffrè PhD (Associate Professor)

Arch. Alessandro Bruni PhD

UNIVERSITY OF TWENTE.

Acknowledgements

The following report concludes my studies for the Bachelor's degree in Civil Engineering at the University of Twente. The project lasted 10 weeks, most of which were spent at the location of the case study in collaboration with the University of Perugia.

I will start by thanking Massimiliano Gioffrè without whom the project would not have been possible. He was crucial in giving me opportunities to speak with important people regarding the topic as well as with the formal use of the Italian language. I should also thank Alessandro Bruni who provided the technical aspect of being a supervisor, specifically contributing to the shaping of the thesis' contents. From the University of Twente, Baran Ulak was the supervisor and deserves appreciation for keeping me in line with the objectives and requirements of the thesis. In addition to this, this project had the fortune of receiving as much collaboration as possible from the local people both through the survey and the interview. For the realisation of these activities, recognition should go to Gilberto Santucci employee of the press office of the municipality, who helped spread both surveys. The architect Marco Spaccatini for helping me identify potential strategies in the area. The manager of Bus Italia in Todi, Latini Nazzareno, for helping me through an interview. The committee "Vivi il Centro" for making me a part of a meeting with citizens discussing such issues. Finally, I would like to thank the Mantilacci family that hosted me during my permanence in Todi.

I conclude by stating that I hope this thesis will prove useful to this town as well as others in an attempt to achieve more sustainable travel methods.

Philip James Kirchin

San Donato Milanese, Italy, July 2024

Abstract

Mobility in central Italy is constrained by several physical and psychological characteristics of the area. Geographically the area is filled with hills and mountains upon which many cities are built, including the case study. In addition, the country is one of the biggest proponents of car usage with statistics placing Italy around the top often suggesting the mentality of its population is built around car ownership. In this thesis, the research objective is to analyse the travel characteristics of the citizens of Todi to create a list of possible strategies to employ to better improve access to the centre with a view to sustainability improvement.

To achieve this objective, four main steps were taken. Firstly, a literature review was performed where travel options were analysed and discussed, similar towns' systems were identified and compared to the town of Todi to see if replicability was possible and lastly, accessibility principles were applied and analysed to see if the town suited such an approach.

The second step of the process was a survey conducted with the people who access the centre both daily and on vacation. This step helped the process gain a realistic understanding of what the situation is in the town. Within the two surveys (For citizens and tourists), around 400 people gave responses leading to a high level of confidence in the data. Results from the survey indicated characteristics that link to the literature review aforementioned, which helped in the realisation of the analysis.

The third step entailed a discussion with the management in charge of the public transportation service. Topics discussed mainly focused on public transportation and characteristics that have to be dealt with in a municipality such as the case study. This interview leads to more correlation between the survey and the literature review providing ample direction when compiling the next step. An example is the car-heavy mentality which came through in all of the three data collection phases.

The last step resulted in a SWOT analysis of the aforementioned data collected. The table that emerged suggested the use of strategies that as well as being specific to the town have possible ramifications in other towns of the same nature. In essence, the analysis conducted on this town led to a theoretical framework that could be interpreted elsewhere.

Executive Summary

The problem statement being tackled in this thesis has various backgrounds and motivations. Firstly, historical impacts have laid grounds for urban planning which is heavily contrasted with what is currently needed from the city of today. In addition to this, morphological characteristics mean that some travel methods are negated making others more crucial. The purpose of this thesis is to be able to create a town where these travel characteristics are slightly modified and to create an environmentally friendly town.

To achieve such an objective, a SWOT analysis was created from a three-step methodology that included a literature review, two surveys and an interview with an expert. What resulted from the SWOT analysis were many strategies that identified as many possible problem areas and created room for improvement. These possible strategies were collected within the following macro themes: People-centric mobility, economic resilience of the historic centre, public transport and spatial awareness.

People-centric mobility relates to the concept of deviating from the traditional car-heavy mentality as a way to think about mobility and pivot towards mobility that prioritizes people (Trombin, Pinna, Musso, Magnaghi, & De Marco, 2019). To achieve this, methods are going to include the adoption of mobility hubs and electric sharing vehicles in key areas of the town such as the station, central square and “Tempio della Consolazione”. With a wide range of popularity among young people this would also function as a means of becoming more advertisable economically for the city. In addition, this would help address sustainability goals and create a better environment in the centre.

Economic resilience is closely related to the amount of businesses being open in the centre. It is a known fact that businesses have been shutting down due to lower financial stability (Vivi il Centro, 2024), but with the implementation of the accessibility point through “Via Ciuffelli” restaurants and bars have opened. This suggests that another access point can create a similar phenomenon.

Public transport is the key area regarding travel from the fractions to the centre. The biggest issue of the town being too sparse is a difficult topic to tackle and is easy to understand how commuters would prefer using their car. The strategy put forward regards a closer look at the already existing “Telebus” that through a few variations could become the optimal strategy to connect the whole town.

Lastly, spatial awareness could provide a useful solution to the most debated issue among citizens. Currently, parking weighs heavily on the historic centre and consequently the environment and touristic appeal. Thus, areas in and around the walls could be better exploited for such purposes. To then enter the centre, escalators or other such innovative solutions can be applied. One primary location is in “Via San Carlo” but others are also present.

Sommario Esecutivo

L'enunciato del problema affrontato in questa tesi ha varie cause. In primo luogo, gli impatti storici hanno gettato le basi per una pianificazione urbana che è in forte contrasto con ciò che è attualmente necessario alla città di oggi. Oltre a ciò, le caratteristiche morfologiche fanno sì che alcuni metodi di viaggio risultano impossibili, rendendo altri più cruciali. Lo scopo di questa tesi è quello di riuscire a creare una città in cui queste caratteristiche di viaggio siano leggermente modificate e di creare una città rispettosa dell'ambiente.

Per raggiungere tale obiettivo, è stata eseguita un'analisi SWOT a partire da una metodologia di tre fasi: Una revisione della letteratura, due questionari e un'intervista con un esperto. Ciò che è risultato dall'analisi SWOT sono state molte strategie che hanno identificato altrettanto numero di problemi da risolvere e hanno creato proposte di miglioramento. Queste possibili strategie sono state raccolte all'interno dei seguenti macro temi: mobilità incentrata sulle persone, resilienza economica del centro storico, trasporto pubblico e pianificazione spaziale.

La mobilità incentrata sulle persone si riferisce al concetto di deviare dalla mentalità tradizionale basata sull'uso dell'auto per orientarsi più verso una mobilità che dia priorità alle persone (Trombin, Pinna, Musso, Magnaghi, & De Marco, 2019). Per raggiungere questo obiettivo, i metodi includeranno l'adozione di aree dedicate alla mobilità e quindi di veicoli elettrici "sharing". Le varie aree verranno posizionate in punti chiave della città come la stazione, la piazza centrale e il Tempio della Consolazione. Essendo popolare nelle generazioni giovani, questa aggiunta attribuirebbe alla città più pubblicità positiva verso i giovani ma anche dal punto di vista della sostenibilità.

La resilienza economica è strettamente correlata al numero di attività commerciali aperte in centro. E' un fatto noto che certe attività hanno chiuso a causa di bassi ricavi finanziari (Vivi il Centro, 2024), ma con l'implementazione del punto di accessibilità attraverso Via Ciuffelli, quest'area è stata riempita di bar e ristoranti. Ciò suggerisce che un altro punto di accesso potrebbe creare un fenomeno simile.

Il trasporto pubblico è l'area chiave per quanto riguarda gli spostamenti dalle frazioni al centro. La caratteristica principale del territorio è di una città sparsa e questo crea difficoltà nell'implementare un sistema che passa in tutti i quartieri. Di conseguenza, la gente tende a prendere il proprio veicolo per viaggiare. La strategia proposta riguarda un approfondimento sul già esistente "Telebus" che attraverso alcune modifiche potrebbe rappresentare il modello ideale per collegare l'intera città.

Infine, la pianificazione spaziale potrebbe fornire una soluzione al problema più discusso tra i cittadini. Attualmente il sistema di parcheggi pesa molto sul centro storico e di conseguenza sull'ambiente e l'attrazione turistica. Pertanto, le aree appena al di fuori delle mura potrebbero essere sfruttate meglio per tali scopi. Da tali punti, scale mobili o altre innovazioni potrebbero connettere il centro con queste parcheggi. Una sede che offre spunti molto attraenti è Via San Carlo e sono presenti anche altre aree.

Table of Contents

1. Introduction

The country of Italy is well known around the world for its tourism in the coastal and mountainous areas. These locations are well sought after for their particular advantages which render them the preferred destinations for different groups of people.

Through the spine of Italy lie many historical towns that are well known for their churches, castles and squares. Towns like Florence and Assisi have stood the test of time and still attract a lot of tourism from both Italians (Istat, 2023) and foreigners (Luggage Hero, 2021). There are plenty of other towns of the same nature that, to the unknowledgeable traveller, represent hidden gems which are equitable in style and grace to the aforementioned cities. It also needs to be stated that such towns all lie along the hilly region of the Apennines, which means that there is a vast presence of topological issues to be dealt with. This, along with the fact that historically, these areas were much less peaceful meant habitats were built strategically to defend from attacks. Such topography is not the best when talking about transport infrastructure or in terms of spatial planning. In addition to this, towns were built with another mindset and were not easily adaptable to the current regime.

To counteract these opposing characteristics, urban mobility and accessibility systems have to be studied thoroughly so that the people who access the places daily have their expectations met. For such reasons, the thesis will undergo heavy stakeholder collaboration through surveys and interviews. Following stakeholder collaboration, background data regarding closely related effects will be reviewed and compared to towns of this type. The objective of the thesis will be to analyse one such town to better understand issues that plague these cities as well as provide possible strategies to be employed.

In order, the report will provide context for the town of the case study, chapter 3 will provide the research objectives and the questions being answered. In chapter 4, a literature review of the most relevant aspects will be conducted. Chapter 5 shows what the methodology is to provide answers to the research questions. Chapter 6 reveals the results of the survey and interview and finally, chapter 7 details the SWOT analysis and subsequent strategies table.

2. Context

This chapter is going to detail key characteristics of Todi and how they relate to other nearby towns.

2.1. History

This town, among others, has had a tumultuous past which meant that adequate measures for its safety had to be taken. This past can be led back to the fact that the area had a large number of different populations inhabiting it. Specifically, Todi was first founded by an italic population called “Umbri”, from where the region of Umbria gets its name, it was then populated by the Etruscans and, not long after, by the Romans (Imperi, 2023). During this period, the city had an initial set of walls that enclosed it. In the medieval ages though, a new wall was built to include a growing population of around 40.000 people and comprises a lot of the buildings that can be seen today (Imperi, 2023). This time also saw the city being part of the Duchy of Spoleto for a brief period but was then part of the papal states (Imperi, 2023).

As time progressed into the present day, Todi and other nearby towns have seen the rise of a migratory effect by their people. For various reasons, such as preservation of the centre and lacking transportation connections, people started to leave the inner town to the bigger cities. Not only were they leaving for the bigger cities but expansion of the city led to construction on the valley around the borough. This has led to the current situation where inner circle inhabitants are severely reduced to very small numbers compared to what they boasted in the medieval period.

2.2. Current situation

The situation thus, is one of ageing towns both from the perspective of the population leaving for more opportunities as well as from the infrastructural view point which are majorly founded on medieval structures (Albeit with opportune restructuring projects). It is with this fact in mind that a full analysis of one of these towns is required, to set an example for these types of hill-top towns. The main points to cover are the main accessibility points, the spatial planning within, the macro state of travel connections (By train, by car or other) and population statistics and their sentiment, with a view of conforming to a more touristic population entering the city: Firstly, the accessibility to Todi can be reconducted to a few main exit or entrance points, as can be seen in *Figure 1*.

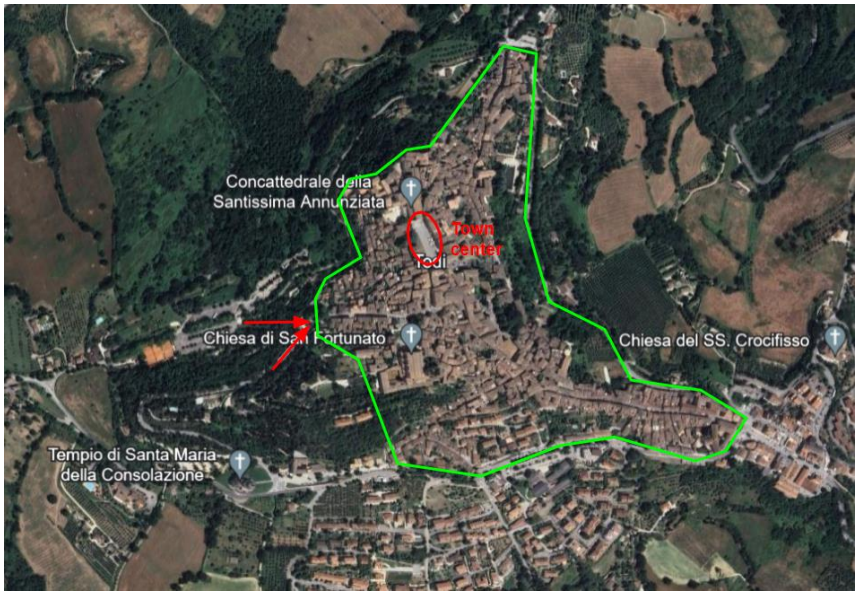


Figure 1: Aerial view of Todi (Google Earth)

In *Figure 1*, a map of Todi is displayed with the main entrance marked in red. Both cars and public transport are provided through this section by means of a lift system that allows people to leave the cars at the bottom of the hill and access the centre on foot, a free bus service is also provided and finally, car travel within the centre (During the allowed days) is possible. Within the centre, parking areas can be found in and around the square and at a feasible walking distance for all, but these places are limited and often occupied which has seen some discontent from the population (Andreucci, 2022) (Stravos, 2023). Along with the parking places issue, much has been debated in the town regarding car entrance to the town. Surveys suggest that not much can be agreed upon regarding how it can be handled, although there is a general agreement that currently it is believed to not be a favourable solution (Toppetti, 2024). The survey mentioned gives a good outlook on percentages of people that go to the centre while also discussing why, when and how.

The spatial planning has maintained the style of medieval planning with much of the most important buildings being kept in the central square (Municipality, church, …) while shops are kept to a bare minimum. In particular, in the square, there are a few bars and clothes shops but all others are kept within the small streets around the square. This leads to the inevitable moment where the square remains empty for a prolonged period. Furthermore, many commercial areas have been built on the valley next to the town in places such as “Ponterio” and “Pian di Porto”. Meaning a decentralisation effect has been ongoing. *Figure 2* shows the spatial planning in the town of Todi where all the touristic elements are displayed as well as housing for the residents. Many shops are also collocated below many of the buildings with housing along the main streets that go through the town centre (InformaGiovani-Italia, 2018). The figure below thus, shows the abundance of touristic opportunities that are available to the public which needs to be made more accessible so that tourism can flourish.

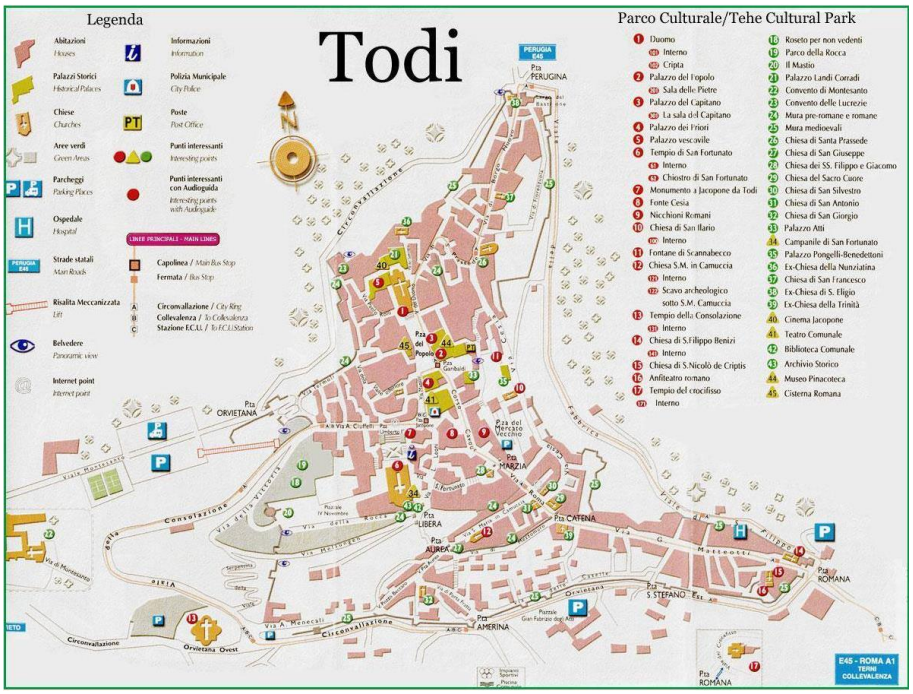


Figure 2: Spatial planning of Todi in the inner walls (InformaGiovani-Italia, 2018)

Todi as a town is well connected on a macro scale. Along with regional roads passing next to the town, it is also between the two main cities (Perugia and Terni) of the region Umbria which makes it a trafficked area. *Figure* 3 shows where the highway E45 connects compared to the town as well as the train station. Currently, many roads can be taken from the highway to reach the town where, as stated above, only one entrance point can be crossed. The train station accessibility to the town is through one of the aforementioned roads. In addition, the train tracks, which up until now have been left unused, are being renovated and repurposed so that a train connection will once again be made available (Comune di Todi, 2023). This aspect of mobility for the town represents a strong point as travel on a regional level up until now has been close to non-existent. *Figure 4* shows what the railway line will look like once it is going to be revamped and as it can be seen, Todi will be one of the stops (Rete Ferroviaria Italiana, 2024). Due to this aspect, public transport service, although already passing through, might need an increase in capacity.

While it may be well connected on a macroscale, the territory that includes the whole municipality is sparse and distant within. This creates high levels of car dependency due to a public transport system that can not pass through every neighbourhood for efficiency reasons as well as an inability to use active methods. *Figure 5* shows the entire Todi territory. On an international scale, the town is far away from any nearby airports. The closest is “Aereoporto dell’Umbria S. Francesco d’Assisi” but it only travels to a few cities, while the second closest is in Rome or Ancona which are both two-hour drives.

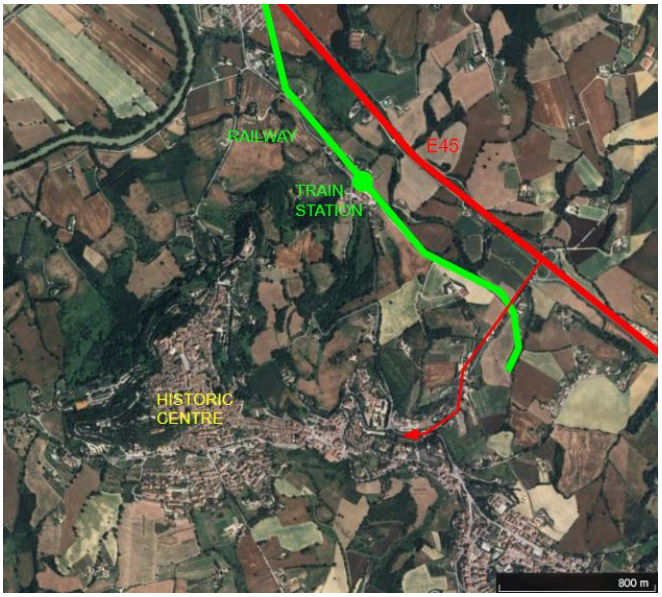


Figure 3: Highway connection and train station (Google Earth)

Figure 4: Central railway through Umbria (overpass turbo, 2024)

Figure 5: Todi extended territory (Mancini, 2013)

Finally, the population will be addressed. Currently, it can be seen that the population is ageing with the average age increasing consistently while a high percentage of people migrating. The average person is then becoming older which could pose an issue for the city. Along with the statistics, the method for this project will also include the stakeholders heavily meaning their opinions will be key to figuring out solutions beneficial to all (Tuttitalia, 2024).

3. Research Framework

This section will delineate the problem and objective that will be conducted in the paper. This objective will be reached through a specific framework that will be implemented during the duration of the thesis.

3.1. Research Motivation

Before this section, much has been discussed about the town of Todi and the conditions that render it in need of improvement. This paragraph section will focus on the motivation of the research paper.

The world of transportation as it is been known up until now is changing. Cars have been the driving force in this development but new emerging principles of urban movement are beginning to take shape. With this in mind, struggling yet culturally important towns can be the recipients of these innovations and ultimately provide a better experience for the citizens. To this point, the thesis is going to be a step towards the ultimate goal of detailing a new accessibility system for towns with specific morphological characteristics.

Cultural affinity is also a driving factor as this problem scope encompasses cities that, similarly to Todi are rich in history and aesthetics. As this would be a favoured location to visit for tourists, reliable mobility becomes quite an important aspect to redefine. This town, particularly, has been chosen as an exemplary proposition of the new system as it is likely to be receiving more tourism as a consequence thus showcasing how urban movement can improve the town overall. This end goal is to prove that dedicated planning can lead to an operational system for the people that is able to address the less than favourable geographical and morphological characteristics as wells as the high car usage which along with creating environmentally negative situations creates more space within the centre square.

3.2. Research Objective

Problem Statement

Accessibility for both citizens and tourists is difficult in Italian hill-top towns due to historical areas' preservation and morphological inconsistencies.

Research Objective

The research objective is to hypothesize adjustments to the mobility systems of Italian hill-top towns by analysing the current accessibility to the historic centre of Todi.

3.3. Research Questions

This chapter focuses on the construction of research questions based on the research objective as well as the scope that will encompass the thesis.

Main Questions

1. **What are the mode preferences of people living in historic towns similar to Todi based on literature?**
2. **What do the inhabitants of Todi prefer as a method of transportation?**
3. **How does the public transport entity describe the current mobility situation?**

The first question describes how data gathered from published articles can provide a useful background to the project regarding many of the characteristics in the centre of Italy. Firstly, significant car-free development projects realised in similar towns will be discussed. Through this analysis, comparisons and generalisations can be uncovered. Secondly, car ownership in this area will be investigated so that a view of modal preferences is initially outlined. Lastly, accessibility principles are briefly explored to focus strategy development further.

The second question focuses on the citizens of Todi and their mobility habits. To this end, data regarding how the inhabitants arrive at the central square and how they regard their way in terms of satisfaction levels. Personal data about car ownership will be linked to data found in the literature review. Motivations behind access to the centre and at what particular hour of the day will detail the frequency of entry. Lastly, personal suggestions regarding the most pressing concern will be analysed.

The third question points to the mobility entities involved and their views on accessibility. Firstly the current public transport service is requested including the various motivations. Personal views, through years of experience regarding possible applications of mobility. Finally, possible limitations to new implementations are requested.

Research Scope

This thesis project will have to be limited to the town of Todi and more specifically the historic centre shown in the problem context. Thus, the strategy creation will revolve around the accessibility to and from the centre. Travel to other factions in Todi will be mentioned as well as the macroscale connection. Although the thesis will be mainly aimed at Todi, aspects surrounding characteristics that are extended to other similar towns will be discussed.

On a research basis, the thesis will be based on a stakeholder analysis of the main users of the historic centre. So, as mentioned in the paragraph above, the survey will be answered by the inhabitants of the centre and people who live beyond the walls but work within the boundaries just stated. In addition to this, touristic opinions will also be counted, although through the use of different surveys.

4. Literature Review

For the thesis objective, an analysis of other towns as well as other contributing factors is required. Examples of papers implementing accessibility measures in similar cities have been written and as such offer plenty of suggestions on what steps should be taken in this thesis. In addition to this, it is necessary to provide literature on other aspects such as the psychological relationship with car usage as well as the receptiveness to change in an important sector such a mobility.

4.1. Car Ownership

As time has passed, car ownership in many countries has seen a big increase. None more so than in Italy, where it is statistically known that car ownership is high (FIAB, 2024). This section analyses why such a phenomenon is more prevalent in this country and what can be implemented to change the current status quo.

Litman (2002), defines car dependency by a few characteristics. Specifically, a wide range of comfort effects felt by society, land planning being car-centric and the absence of viable transportation alternatives (Litman, 2002). While another paper, explains that it is an event whereby people feel obligated to own a car due to it being the only way of getting around, whether it be a realistic or a perceived obligation (Jeekel, 2014).

By these definitions, the situation of the region in Umbria can be better understood. Both of these extenuate already existing characteristics of the region, some of which were described in the context section, like the topography of the land being crossed by the Apennine chain, as well as the history of the cities being mostly fraught. This has led to the situation currently where statistically car ownership has reached increasingly high numbers (FIAB, 2024).

Another paper highlights to what extent would car sharing be an option for people compared to private car usage in the country of Italy (Burlando, Ivaldi, Saiani, & Penco, 2020). This paper concluded that the main upsides of owning a car stood the sense of ownership as well as comfort and independence, while points against pertained to cost, stress levels and lack of responsibility. It followed by stating that demographic characteristics were also key points, specifically, younger people were more likely to use a car-sharing service than older people as they are more likely to be connected to technological advancements. A list of subsequent modifications to the management of the car-sharing systems was carried out, with the main points being that commodity and flexibility were to be addressed as much as possible to equate what the private car can offer as well as more of a reliance on the positive effect car sharing already offer which means lower costs, lower stress levels. Along with this, an expansion to the smaller cities is also needed. As this study was conducted in major cities where these services a much more present, it stands to the fact that these effects are exacerbated in this region (Burlando, Ivaldi, Saiani, & Penco, 2020).

Similarly, a study was conducted on the comparison between car travel, public transport and cycling to conclude which was best in large-scale urban environments like Milan, Barcelona and Helsinki. The

survey asked questions regarding commuting preferences and behaviour over a certain distance and time limit. The study, thus, found that car driving remained the main form of commuting for people of these cities due to flexibility, convenience, comfort and social status, among others, but it was confirmed that public transport commuters found their daily journey more satisfiable due to healthiness, low-stress levels and sociability. These findings suggested that while driving is the most used, the overwhelming positive effects have been reduced in big cities. Although driving remains the primary method, the small amount of data collected for cyclists reveals that this active method is strongly appreciated by over 90% of its users while only 34% of drivers liked their method. It must be stated that the three cities are metropolis which makes them more accommodating for any transportation method. It is still crucial to know what the modal preferences remain even in these types of cities (Woods & Masthoff, 2017).

It is now important to focus on a possible change in the travel routine of the average person and why each alternative is currently not being considered. As its already been stated, the car remains the main mode of transportation for a normal commute to work or perhaps study. Stradling (2011) refers to this issue as having three-fold factors: Obligations, Opportunities and Inclinations. Changes to travel patterns lead to these three factors being changed and consequently, a cost being added. Whether it be time, money and energy (in the form of stress, concentration,…), they all makeup several reasons why humans decline a change in pattern to remain comfortable, flexible, independent and at a high social status (Stradling, 2011). Conflicting opinions regarding urban buses due to them being unreliable, low in social status and perhaps unsafe.

Innovations are then needed in urban mobility to make it so more and better alternatives are provided to the normal person. Not only should this be an option but maybe a distinction between urban travel and regional/national travel is needed to be specified. It has already been pointed out in the ***context***, that macro-level travel to Todi will also be available by train and not only by car. The task then becomes how is travel from the station to the centre handled so that the automobile is not needed. Like it is mentioned below Perugia deals with it with a series of escalators or the mini metro.

4.2. Similar Towns

As mentioned in the introduction, Todi is not one of a kind as plenty of other older cities are built on the top of hills throughout Italy. Thus, similar issues have been tackled by urban planners and civil engineers of the past. Perugia and Spoleto, for example, hold two innovations which need better analysis.

Perugia's public transportation plan runs on two main infrastructural systems, the mini metro and the escalators (Naldini & Papa, 2014). The mini metro is an urban railway system that crosses the entire city of Perugia with 7 stops along the way that pass through key points of the city such as the train station (Fontivegge) which connects to national trains. Two other stops remain within walking distance from the centre. As *Figure 6* demonstrates, it has a maximum capacity of 3000 passengers per hour per direction. The structure of this mini metro resembles a wagon of a train and it can hold up to 50 people. This system is very beneficial because this mini metro does not come into contact with roads or train tracks as it runs on its own.

From 2008 to 2022, the system has had an annual usage of around 2.5 million people totalling around 38 million people using the service. Daily uses equate to 8.300 people (Umbria Journal, 2023). It is believed that this service has seen a reduction of car usage of 30 million trips over this period, due to the car occupancy statistics being 1.16 in the city (Umbria Journal, 2023).

Figure 6: The Minimetro in Perugia (Naldini & Papa, 2014)

The second urban transportation system is based on escalators, specifically a set of 5 that connects 6 different parking garages to the historic centre, shown in *Figure 7*. Along with parking areas, a few of the escalators are connected to important bus stations like for example Sant'Anna station, which also functions as a train station and thus connects many of the cities in Umbria. As it was mentioned before, currently trains are not in function so bus services are provided as a temporal measure. This service is very clever in bridging the gap between lower altitudes and the higher points of the city and it does so by allowing the user to still be able to use the car or public transport.

Figure 7: The escalator system (Naldini & Papa, 2014)

The town of Spoleto is similar to Perugia in its innovative urban mobility applications as it also uses a system of escalators. *Figure 8* shows the map of escalators that go through the town. There are three lines (Green, red and light blue) that connect parking areas and bus/train station.

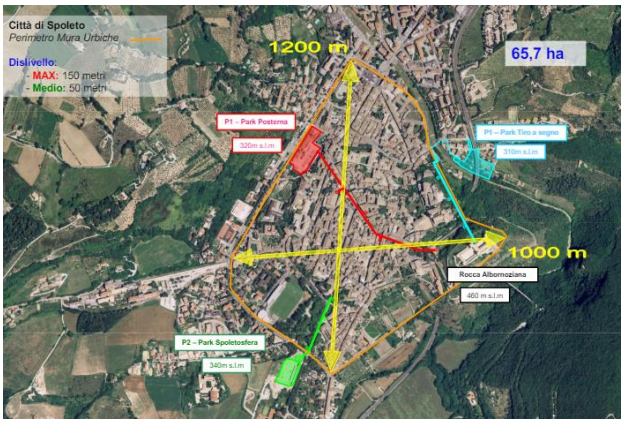


Figure 8: Map of the escalator system in Spoleto (Concetta, 2017)

What has then been understood from the towns of Perugia and Spoleto is that these are both very innovative and successful strategies in overcoming the issue of the topography of the land that sits beneath the cities. Although no official statistic on usage is retrievable, it has been suggested that plenty of people every day use these systems in both cities. It is also important to add the massive environmentally positive outcome of such strategies as they decrease the use of cars very much. It must be said that they both are not entirely car-free which means that urban mobility strategies will be looked at. Indeed, plenty of other northern European towns have addressed such an ideal and implemented it. Many of these towns have a historic centre that is almost completely car-free (Expect for logistic transport) but these do not share the same constraints as the one being tackled in this case study whether it be due to the morphology or the topography of the land. This in turn means that of these northern cities, the main aspect that can be inferred regards the urban mobility in car-free centres and not the accessibility to the centre itself.

The cities of Copenhagen and Amsterdam, as well as the rest of the Netherlands, are world renowned for the extensive bike infrastructure that is present (Thoem, 2024) (Yanatma, 2023). This is due to a dedicated cycling infrastructure program and government attention to environmental ideals. To be more specific, these cities are fitted with dedicated bike lanes on every urban road as well as other infrastructural incentives (Such as right of way, bike parking, promotional offers from companies such as OV-fiets (NS, 2024) and Swapfiets (Swapfiets, 2024), taxes and restrictions for cars and urban planning) making car users are heavily discouraged from using the automobile and switching to a more active habit (Pucher & Buehler, 2008). Taking this back to the town of Todi, it is difficult to see an appropriation of this method in the historic centre. Although the roads are spacious and it would improve the speed and travel times, there are drawbacks due to the number of hills that make up the town while also the road infrastructure is not set up for the wheels of bikes.

Accessibility measures are also limited to above-ground projects as it has been analysed that the soil within the hill is not adequate to sustain any sort of underground project and it has already undergone works to stabilise the hill (Cencetti, Conversini, & Tacconi, 2005).

4.3. Accessibility Principles

For the execution of a sustainable urban mobility system, the most recognised method to abide by such principles is through the 15-minute city application. This is because the research objective looks to tackle accessibility and mobility daily which requires the citizen to be able to access each essential function on foot or by other active means (Moreno, Allam, Chabaud, Gall, & Pratlong, 2021). The town of Todi is peculiar in its layout of having a dense historic centre with a declining number of services. All of these are being outsourced out of the city walls to the factions around the centre. The town thus needs a new reframing of the concept for it to be useful.

A research paper discussed how cities such as Milan have the potential to become 15-minute cities if walking, bike paths and micromobility systems are provided (Abdelfattah, Deponte, & Fossa, 2021). Although such papers suit a design approach, investigation into what has worked under different conditions could lead to a better understanding of what the town of Todi needs. This paper establishes that the most probable courses of action to achieve a 15-minute city are through a particular brand of urban planning and a better dedicated digital sector. For a better urban planning regiment, the ideal is to create areas where the person is inclined to travel through all of it. In a sense, instead of hard markers between roads and pavements, the two should be merged and slow eco-friendly micromobility solutions should be prioritised. From the digital standpoint, the aim is to adopt more digital services to reduce the amount of important trips.

The case study has different conditions and thus they have to be addressed. Principally, the open space concept is something that currently is being applied but can be improved as many of the areas are still being trafficked and occupied by cars whether it be for travelling purposes or parking reasons. Thus, these areas can be changed to make room for micromobility solutions. E-services are also a stumbling block as the population is quite old compared to a metropolis like Milan (Tuttitalia, 2024), meaning the digital branch will have to be improved more if it is to become more accessible for older people to use it (Burlando, Ivaldi, Saiani, & Penco, 2020).

Currently, the extended limits of the municipality will still need to rely on car travel as topography and the current infrastructure will only allow for car or bus use. The focus area could then be the historic centre and make it so each area of the centre is reachable within 10 minutes from the moment the car is parked or the bus arrives at its stop.

Close attention will also have to be given to the connection between the train station and the historic centre as by 2026, the implementation of the train will need a service that connects the two areas. Currently, the bus service employed only passes scarcely and is a general bus service that goes through many of the nearby towns. Many towns have applied a dedicated shuttle service that coordinates arrival times to the stations with the bus hours. For example, the Marconi Express connects the airport of Bologna to its central

station in the city and it does so through a two-stop shuttle on rail and is environmentally friendly (Marconi express, 2024). Other shuttles are not necessarily on rail and use a bus service for example in Eindhoven where the bus connects the centre and the airport through two busses that pass every 10 minutes (EindhovenAirport, 2024).

4.4. Final Literature Framework

This last paragraph recounts the three previous paragraphs into one aimed discussion about the town of Todi.

The three main topics discussed (micromobility innovations, car ownership and accessibility principles) combine to form a basis for the thesis project being carried out. In fact, over the years, car usage has increased every year where once the situation revolved around a family having one car, now each member of the age in the family has their car. Through this process, bigger cities have not felt this pressure as much as smaller cities such as Todi. Such towns have restricted space due to them being built without cars as a priority but rather a town defences, as mentioned in the context. This unsustainable situation has led to numerous issues felt currently in the town: Oversaturation of cars limits accessibility to the town, less parking possibilities as well as population migrating. In addition to this, debates have started with many of the people within the city walls preferring to have more space for cars while people who live outside the town but commute to the centre regularly want more space for cars themselves either within the walls or outside provided better accessibility through other means.

The culmination of these points leads to a new way of regarding mobility in these cities. No longer should it be car-centric but more person-centric. Specifically, the aim is to make the person reach his destination in as little time as possible. Currently, as mentioned in the context, accessibility is focused on one point where both lifts and cars can access the town. This does not satisfy the requirements of a smart city as reaching each possible destination within the city will not then fall under the 15-minute threshold. Thus, more accessibility points are likely needed, perhaps exploiting disused paths or filling currently unused space for parking.

Once accessibility points are added, micromobility solutions will be prioritized. As it was stated in the research objective, the aim is to create a car-free centre. Thus, travel within the city will now have to be changed to a new eco-friendly solution that is also able to deal with the infrastructure within the town, the hills that run through it and the older demographic which makes up most of the town. Knowing that the area of the historic centre is quite reduced, the scope could be expanded as far as the station for the applicability of innovative mobility solutions, thus creating more incentives to use public transportation for longer distance travel.

Some other aspects will also be of concern. For starters, there is an aspect regarding how the city treats the balance between tourism and the inhabitants of the town. As stated in Kadar (2013), differences in inhabitant and tourism disputes stand to the urban planning that goes into the preparation when expecting tourism. The paper follows two main cities, Prague and Vienna, and how one of them was successful in

giving tourists a better experience compared to the other one. Firstly, public space in Vienna was ample and enough to satisfy both local people and tourists. On the other hand, Prague was not able to give the same experience. This is because Vienna has a long history of preservation and urban ramification which meant that tourists were able to pick from more routes to make their journey within the city. Differently, Prague focused on their accessibility areas to a few medieval pathways much like in the town of Todi thus restricting many people to a small amount of space (Kadar, 2013). A sidenote is also provided regarding economic development and how there should be balanced growth.

Another sidenote, which will also be mentioned in the survey, regards the mobility of commerce in such towns. Another town in Lucca provides the thesis with some useful background as to how it should be handled via the use of sustainable methods. In particular, it rewards the operators who use such methods against how it is usually handled. It does so by checking access to the town's "Ztl" (Limited traffic zone) (Btrini, 2019).

One last piece of background information reflects upon the planning policy obstacles that need tackling in these types of cities. Such towns in fact should have more of the following: A planning focus on the built environment and how to use it as a point of strength; Striving for a balance between locals and foreigners; Expanding the concept of economic vitality which is not only through touristic but emphasis on the locals' maintenance (Pellegrini & Micelli, 2019).

What is indicated from this analysis, is that people might need to change their overview of urban travel. Comfort has been prioritized up until now, but changes are imminent for a more sustainable outlook as well as economic sustainability for the town. Ultimately this combination of mindset changes will also lead to a growth in tourism possibility as car-free areas will give more chance for the centre to be travelled and explored.

5. Methodology

In this section, an explanation of what the thesis project entails is given through a description of each of the steps and how they reconnect to the main objective. The steps taken are both qualitative and quantitative, whereby a first background knowledge acquisition will be contrasted with a survey conducted with the people of Todi. From this framework, it will then be possible to create a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis and consequentially a strategies table.

5.1. Key Activities

For starters, each main question offered in the chapter above has its methodology to arrive at the answer. For the successful completion of the project, the motivation behind each step of the process is given.

The first step is a literature review which is resolved through the consultation of background information in terms of modal behaviour and car ownership, while also tackling what other cities have done to innovate in this sector. As it is mentioned above, Perugia and Spoleto are two excellent examples to discuss. What is to be concluded from these other cities regards the change in the population's daily behaviour meaning how much success it has had and where perhaps it has not worked well enough.

The second step implies the use of a survey to understand the characteristics of the people who go to the town of Todi. The use of public a survey will be needed to receive all the information as well as give the respondents a chance to share what they believe is the issue and what they would like to see from a possible car-free project. This will be useful to create a list of requirements. This will be the main source of data because it will be specific to the people of the town and how they get to and from the historic centre.

The third step is similar to the second question regarding the methods but ultimately aims at different information being collected. Specifically, it revolves around the fact that the mobility entities have a different point of view through which to answer each question. This other type of interview will lead to a more precise answer on feasibility and stricter requirements.

The last step is a compilation of all that is learned in the previous steps. Meaning, that a SWOT analysis will be implemented and then further analysed into a table of strategies. The creation of this table will entail discussions surrounding such strategies' applicability in this town and elsewhere.

Research Model

An outline of how the aforementioned steps link together is provided. This framework for the research project, which is depicted in *Figure 9*, will be applied such that overall each research question links together to achieve the objective of the thesis.

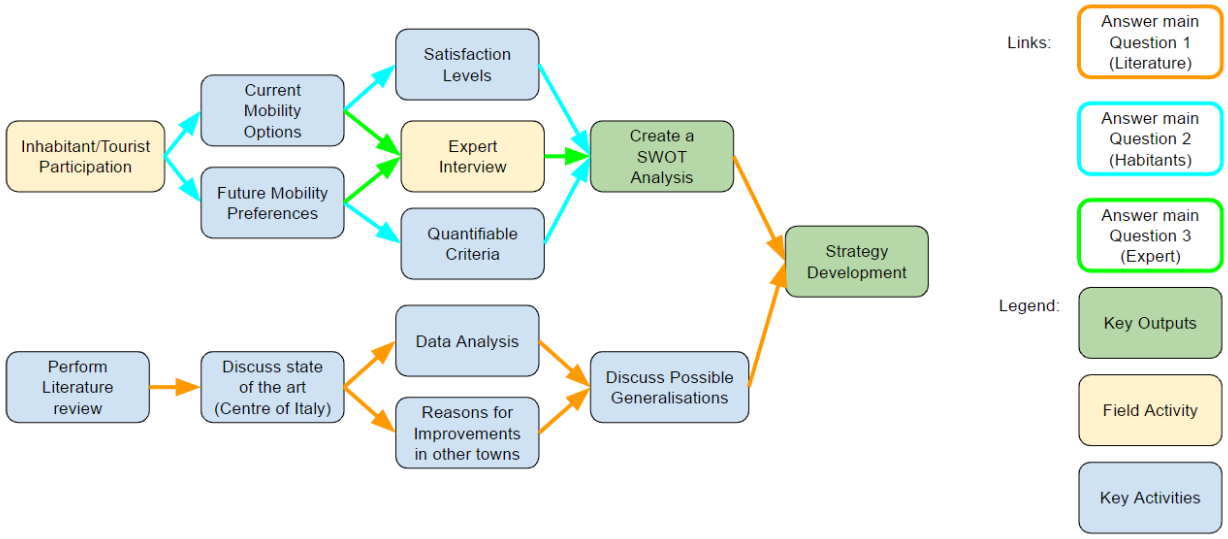


Figure 9: Research model diagram

The boxes in the image display the activities that are going to be key in the development of the project filtered by type: Specifically, the yellow boxes include field activities, the blue ones regard the project development itself and the green box talks about the final desired output. For each box, the links are identified by the question being answered. Thus, each of the main questions and the respective sub-questions will be used to answer each activity's objective. Possible generalisation is linked to and from the final desired output as this topic will be mentioned once the project is finished as it could give some interesting details as to how the topic of accessibility can be generalised for these types of towns.

5.2. Background Information

The research objective, as stated above, looks to reflect on the mobility and accessibility methods used by the people going to the centre of the town of Todi. To achieve this, background knowledge of the area is required to get acquainted with some of the prevailing issues in the area as well as some of the potential areas of exploration. Such knowledge is classified into three main categories: Car ownership, similar towns and 15-minute cities.

Car ownership is the main topic discussed as it is the biggest point of concern when it comes to mobility as literature shows that Italy has one of the highest amounts of car usage percentage in Europe. Thus, if sustainability goals are to be satisfied, this area needs improvement. Connected to this is the relevant innovations chapter which dwells on sustainable urban alternatives to car usage. Lastly, a theoretical perspective on achieving a better accessibility system is defined by the 15-minute city chapter. Through this chapter, boundaries are created to create a better solution space.

5.3. Data Collection

Following on from the background knowledge, data collection is the next step. This is done through the use of two surveys, one referred to the people who commute daily or almost to the centre, while the second one is directed to tourists. From these surveys, the objective is to understand what method these people use to access the town. Questions are then asked about why they use such methods and how much they appreciate them. Similarly, tourists are asked about the same things but with some slight modifications. From these surveys, problem areas will be identified and analysed further.

The advertisement of the surveys will be done through two different methods due to the different nature, as shown in *Table 1*. Firstly, the survey to the daily commuters will be provided through local news outlets to maximise the best receptiveness. The second survey is shared through the use of flyers, displayed in *Appendix C*, in hotels around the area as well as the company in charge of the lift system. The first survey will run from the 11th of June to the 23rd of June while the second survey from the 20th of June to the 25th. It has to be stated that responders will be firstly questioned about the privacy policy and that the data be protected under the 7th article of the GDPR norm (GDPR, 2024).

Table 1: Survey advertisement

News Outlet/Hotel	Link/Location
1st Survey	
Iltamtam	https://www.iltamtam.it/2024/06/11/studio-di-universita-olandese-sulla-citta-di-todi/
Comune di Todi	https://www.comune.todi.pg.it/it/news/sondaggio-per-studio-universitario-su-mobilita-nella-citta-di-todi
Tuttoggi	https://tuttoggi.info/todi-al-centro-di-una-tesi-di-laurea-in-olanda-chiesto-un-sondaggio-ai-cittadini/834253/
LaNazione	https://www.lanazione.it/umbria/cronaca/accessibilita-del-centro-un-questionario-99955afb
Facebook	https://www.facebook.com/share/p/8i9nHjPy94QKiFnW/
UmbriaDomani	http://www.umbriadomani.it/todi/todi-caso-di-studio-per-luniversity-of-twente-316122/
OrvietoNews	https://www.orvietonews.it/cultura/2024/06/11/accessibilit-nei-centri-storici-medievali-todi-caso-di-studio-per-l-university-of-twente-109196.html
Printed Newspapers	See *appendix C*
2nd Survey	
Fonte Cesia (Hotel)	Historic Centre
Europalace (Hotel)	Ponterio
Bramante (Hotel)	Outside the walls
Villaluisa (Hotel)	Outside the walls

Tuder (Hotel)	Outside the walls
Bar Pianegiani	Historic Centre
Pizzeria Italo Todi	Historic Centre
Un Bacio a Todi	Historic Centre
Gran Caffe Serrani	Historic Centre
Deli	Historic Centre
Le Sorelle	Historic Centre
Bar Biganti	Historic Centre
Ristorante Jacopone	Historic Centre
Vineria San Fortunato	Historic Centre
Osteria Valle	Historic Centre
Pane e Vino	Historic Centre
Tempio di Santa Maria della Consolazione	Historic Centre
Caffè Ristorante della Consolazione	Historic Centre
Le Scalette	Historic Centre
Ascensore Centro Storico	Historic Centre
Ufficio Informazioni Turismo	Historic Centre

Along with the data collection for the survey, several conversations with various parties will be used for data collection. To be more specific, interviews with a manager of the bus service in the municipality of Todi will also be implemented. This interview, as previously stated, will be set against data provided from the survey so that the main discussion points picked up from the results can be contested and explained.

Data Validation

The collection of the survey responses will be validated against another survey conducted previously by a committee of the town (Vivi il Centro, 2024) as will the second survey directed at the tourists to reinforce the main issues with accessibility. Through this method, statistics that result from the survey can be compared to the ones received from this other survey. However, there are some limitations as the two surveys have differences which means validation is analysed for the general information questions.

5.4. Survey Structures

One of the main sources of information for this project is the population entering the centre of Todi. Thus, a questionnaire was created to detail all the main issues surrounding travel within and to the centre. Two different versions were created, one for the daily commuters and one for the tourists. The main structure of the survey was divided into four parts as can be seen in *Tables 2-5*, with a few details differing for each survey.

General Information

Table 2: General Information questions

Daily Commuters Survey	Tourists Survey
1. What is your gender?	1a. What is your gender?
2. What is your age range?	2a. What is your age range?
3. Where do you live?	3a. Where do you live?
4. Housing arrangement?	4a. What is the size of your holiday group?
5. How many vehicles does the family own?	

This section explored the identities of the people who accessed Todi and are interested in an improvement of the city's mobility issues. Anonymity is respected thus the profiles only detailed the sex, age and housing arrangement were asked. Housing arrangements included the location of the home as well as the number of people living in it and the amount of cars owned. Precision on the location of the house is vital to define the boundaries. This information will also be important to decipher how far the outreach of the town is meaning whom the accessibility measures should accommodate better if no comprehensive solution is found. Tourists weren't asked about the housing arrangement but rather about the vacation group size. *Table 2* details the question discussed in this section.

Destinations and Activities

Table 3: Destinations and Activities questions

Daily Commuters Survey	Tourists Survey
1. Why do you go to the centre of Todi?	1a. Are you only visiting Todi or is it part of a longer trip?
2. Logistical aspects regarding business supplies are:	2a. How do you find the urban planning in the historic centre compared to other towns you have visited?
3. How often do you go to the centre of Todi?	3a. When did you go to the historic centre?
4. Describe the activities performed in the centre in the various periods of the day	

The destinations and activities section of the survey revolves around the importance of the centre to the people. To collect this information, questions were raised about the main objectives people had by going to the centre. They were then questioned about when each journey was usually undertaken and how often would they travel to the centre every week. The collection of this data would then give out the importance of the centre and what could be lacking from the perspective of essential services provided (Moreno, Allam, Chabaud, Gall, & Pratlong, 2021). Questions were also raised to the shop owners about how their supply

chain satisfaction levels are, knowing the supply points around the town. Tourists answered similar questions but did not need to answer shop owners' points of view and were asked about their objective view on the organisation in the centre compared to other Italian towns which can be seen in *Table 3*.

Type of Transportation

Table 4: Type of Transportation questions

Daily Commuters Survey	Tourists Survey
1. Describe the motivations that lead you to choose your method of transportation	1a. Describe the motivation behind the selected method of transportation
2. What is your full evaluation when using your vehicle considering the following: Parking time, cost of parking, walk paths and infrastructure	2a. What is your full evaluation when using the car considering the following: Parking time, cost of parking, walk paths and infrastructure
3. What is your full evaluation when using a two-wheeled vehicle considering the following: Parking time, cost of parking, walk paths and infrastructure	3a. What is your full evaluation when using public transport considering the following: Waiting time, walk paths and infrastructure
4. What is your full evaluation when using public transport considering the following: Waiting time, walk paths and infrastructure	4a. What is your full evaluation when using a two-wheeled vehicle considering the following: Parking time, cost of parking, walk paths and infrastructure
5. What criticism regarding the accessibility is most significant?	5a. What is your full evaluation when using multiple methods considering the following: Parking time, cost of parking, walk paths and infrastructure
	6a. What criticism regarding the accessibility is most significant?

The next group of questions surveyed the citizens and tourists about their travel methods. Thus, each usually used method of transportation will need to be listed by each person to get a clear view of the modal preferences. Once that is known, satisfaction levels will be asked to determine what the problem areas are and thus what most needs to be tackled. Combining all the questions up until now, a correlation between living situations and modal preferences will go a long way in defining what can be concluded of the conflicts of interest. Lastly, each group of people were asked about their biggest critique regarding accessibility. *Table 4* shows such questions.

Other Information

Table 5: Other Information questions

Daily Commuters Tourists	Tourists Survey
1. What is your opinion on the free bus service? (e.g. Lines A and E)	1a. What is your opinion on the free bus service? (e.g. Lines A and E)
2. Feel free to leave suggestions as to how to improve the accessibility to the historic centre.	2a. Feel free to leave suggestions as to how to improve the accessibility to the historic centre.

The last group of questions opens up the space for both groups of people to have their say on the matter. Firstly, the newly integrated bus lines were asked to be graded (Comune di Todi, 2024). Secondly, general comments are asked of the citizens as many citizens have voiced different opinions about what is needed more attention (Vivi il Centro, 2024). *Table 5* displays the general comments questions.

5.5. Data Elaboration

This section details the development of a SWOT analysis and the subsequent potential strategies to be deployed to improve the mobility to Todi as well as within.

As stated by Puyt (2020), the SWOT analysis is to be used as a means for strategic planning and strategy creation. Thus, the thesis project aims to develop a framework that will prove useful to mobility overseers. Such a method involves the delineation of characteristics of the area through classification in one of the four categories: Strengths, weaknesses, opportunities and threats. Strengths represent the category of already existing attributes that render the town better, while on the other hand, weaknesses are characteristics that do not currently favour the area. Opportunities and threats represent external factors that can either improve or worsen, respectively, the area.

The classification of current compared to possible characteristics is crucial to then define the strategies table. To be more specific, the table will be then classified into four more categories which are the product of a current characteristic and external factors. Thus, the top left squares indicate how opportunities and strengths can be combined to create a possible strategy. The top right will then merge opportunities with weaknesses. On the bottom side, threats will then be merged with both strengths and weaknesses, in their respective squares. Current characteristics can not be merged likewise external factors. The culmination of these strategies is given through the product of the literature review and stakeholder participation.

The framework follows an already conducted SWOT analysis of the mobility service of the city of Lisbon. It too was created from an already completed mobility survey in 2017 (UPPER, 2023).

6. Results

This section explores the responses of the survey participants from both the first and the second type.

6.1. 1st Survey Results

The survey yielded 448 total responses of which 61 did not agree to the privacy policy of the survey, thus amounting to 387 effective responses as shown in *Figure 10*. The survey itself had a great collaboration rate as 178 comments were also written meaning many of the people feel strongly about this topic.

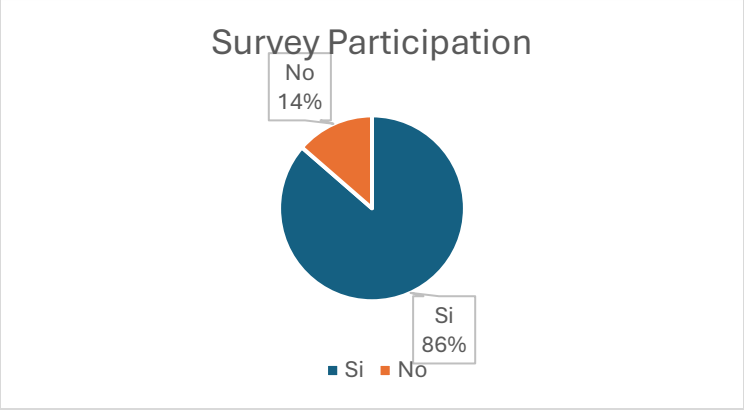


Figure 10: Survey participation

The starting point for the analysis is each of the singular questions. Thus, from the general information bracket of questions, the profile of people living in the town can be compared to what was found in TuttItalia (2024). So the average age is between 50 and 69, as can be seen in *Figure 11*, with the percentage being 49.5% and the second most being between 30 and 49 at 27.5%. The committee's survey, Vivi il Centro (2024), also supports these claims. Responses were also equal in terms of gender identification with half being male and the other half female.

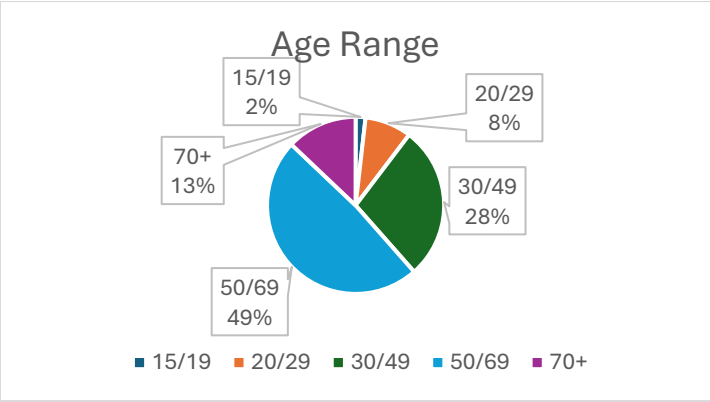


Figure 11: Age ranges of respondents

The next question regards the living situation the respondents find themselves in. The biggest percentage of people live in a house with another person with the second most being either a three or four-person home. This is in line with the previous question regarding the age of responders meaning these houses are usually composed of a married couple who have either one or two children or perhaps they have become old enough to leave the house and live independently. Such a graph is displayed in *Figure 12*.

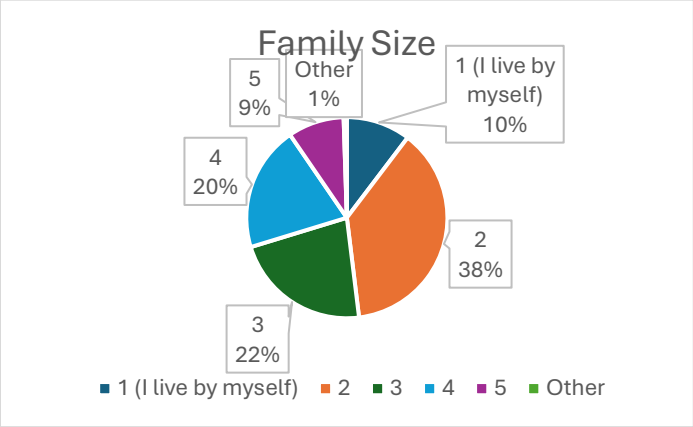


Figure 12: Housing arrangement

Thus, from these questions, a sample of the whole population can be inferred with a few variations like for example a good percentage of people are over 70 or between 20 and 29, as well as a sizeable percentage of people living on their own. It can then be analysed that of the people with the age between 20 and 29. Plenty of them live in households with 2 or 3 other people suggesting they are probably living with their parents as there is no university nearby where it might be suggested that student housing becomes a factor. Lastly, on the identities, the 70+ age group lives in a household with another person predominantly, meaning these are couples whose children have left the house.

Time of arrival to the centre differs for every activity, thus when asked about when people were more likely to arrive. Analysis of the responses concluded that while people tend to either go to the centre for work or pleasure, on average every part of the day there is a similar amount of influx. An interview conducted with Nazzareni (2021) (Organiser of bus services in Todi) revealed such a phenomenon in their buses, such responses are compiled in *Appendix A, questions 7 and 10*. When the answers for when they access the centre were filtered to respondents who go only once or twice a week, the outright most checked activity was pleasure or shopping with work considerably dropping intuitively. Interestingly, differences in time access did not sway, meaning the centre is still accessed at every hour even removing people who go to work, only just more infrequently. One key activity that perhaps needs attention is the culture around accompanying someone to the centre. From the survey, the fourth most performed activity is taking somebody else to the centre and then directly going home or wherever. When planning for a car-free centre this will become one of the key areas to discuss as it will not be something possible to do for the outside inhabitants of Todi. *Figure 13* displays such activities.

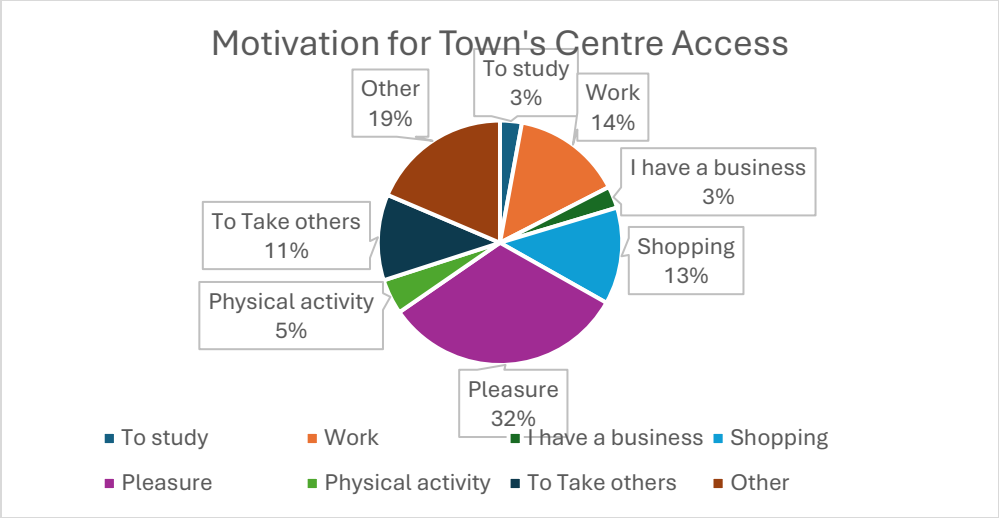


Figure 13: Activities in the centre

One more general review of the answers regards what the motivations behind using a car are. The survey allowed the respondents to give their reasoning behind using certain methods. In this case, being that the car is the most used, two main answers were given and they were comfort and necessity, with necessity being slightly more answered. This suggests that people feel obligated to use the car while there is also a percentage of people who know that there are more ways to travel but still identify the car as the one they use the most.

Housing Location

After analysing patterns in the answers, the housing location played the biggest role in the choice of the method of transportation even though some aspects remained equal for each individual.

For starters, the respondents living location is nearly evenly split between the historic centre, the nearby neighbourhoods and fractions within the municipality. Other housing locations are too very small percentage meaning a few aspects might be considered. Aspects that remained equal when comparing answers from each living location is the ownership of cars. To be more precise, the vast majority of people own either two, three or four cars and such percentages don't waiver too much. Although these are the ownership statistics a few interesting details when discussing methods of transportation, as can be seen in *Table 6.*

Table 6: Methods of Transportation

	Total	Centre	Outside the Walls	Fractions of Todi
Car	78.18%	75.00%	76.19%	81.62%
Motorbikes	10.13%	7.14%	15.24%	11.03%
PT	34.29%	28.57%	39%	37.50%
Walking	42.60%	56.25%	48.57%	29.41%

The high percentage of people walking suggests that within the town centre, mobility is achievable without any form of urban mobility innovations. As it currently stands, *Figure 14* shows the walking time from one end to the other to be around 16 minutes without accounting for the slopes involved, the person's ableness as there is a larger old demographic in the town (Tuttitalia, 2024), it does not include the car parking time loss and finally the fact that the parking areas will most likely be kept to outside the walls.

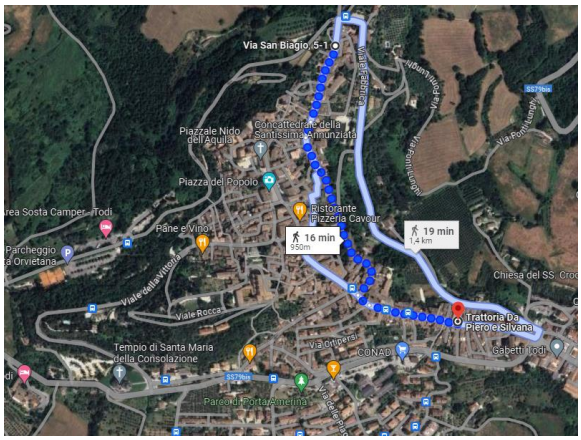


Figure 14: Walking time within Todi (Google Maps)

In addition to this, *Table 6* indicates highly understandable statistics. For starters, car usage is more prevalent when you live outside the centre, supporting some of the claims in the literature review. Secondly, motorbikes are not used as much but as can be seen in *Table 3*, levels of appreciation are quite high relative to the car. Public transport is lacking for the people living in the centre but slightly higher for outsiders going to the town which is quite self-explanatory. Again walking is highly understandable as people living in the centre are doing it compared to those who live in the fractions of Todi. Car satisfaction levels also do not differ too much with perhaps a slight difference for the people who live in the historic centre. Specifically, those who live in the historic centre are more likely to be much less satisfied than those who live outside the walls. This is reflected in the percentages in *Table 7*. Another aspect that should be pointed out is that two-wheeled vehicles did not receive any leeway either way as most respondents were indifferent when asked about the satisfaction levels (Indicating they do not possess such vehicles) and of the people who gave an opinion, the answers were evenly split between satisfied and unsatisfied. About public transportation, people who live in the centre have very differing opinions as there is a similar amount of people for each answer with a bigger majority opting for the satisfied answer. Differently, people living outside the centre are much more in favour of the current public transportation service. The second to last question asks about the satisfaction levels of the two new bus lines which have received widespread positivity at a much higher rate than any of the aforementioned travel methods.

Table 7: Satisfaction levels by Housing location

	Centre		Outside the Walls		Fraction of Todi	
	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory	Satisfactory	Unsatisfactory
Car	28.57%	58.93%	28.30%	56.6%	27.63%	59.21%
Motorbike	28%	24%	43.21%	20.99%	22.54%	33.33%
PT	46.08%	34.31%	52.52%	27.27%	40.28%	34.72%
Lines A and E	63.93%	7.38 %	79%	11%	63.76%	14.09%

It may not be too clear but a small divide between centre-living people and outsiders is starting to be seen. This is also understandable as different locations require different needs to be met and different services being accessed at different levels of expedience. For example, a motivation laid out by a few of the respondents regarded the trip to the supermarket, which was once possible in the centre but not anymore: "Necessita per fare la spesa per il B&B dato che al centro storico non esiste più né forno ne macellaio ne mercato sono quindi costretta a prendere la macchina per fare la spesa in periferia" and "Se devo fare la spesa sono costretto ad andare in auto e il centro storico chiuso di sabato pomeriggio è un problema. Spesso sono costretto a fare la spesa presso esercizi commerciali in periferia anche se non sono quelli che preferisco." (Survey). This aspect is one of the few that needed attention, due to it not conforming to the accessibility principles discussed in the literature review.

The main critiques as to why many people regarded what travel means they use as unsatisfactory are plenty: Travel times, parking costs, absence of parking and macroscale connections. Firstly, travel times are mainly due to the inefficiency of parking the car, meaning that a lot of time is lost not necessarily in getting to the centre but rather parking the car and then either using the lift service or the free bus service. This connected to the cost of the parking area for the lift (which is 22 euros a month (PerugiaToday, 2022)), makes the proposal less appealing to the daily commuters to the centre. The absence of parking is then more connected to the lack there in the centre, as what usually occurs (Through personal experience as well) is that people tend to drive up to the centre in the hopes of finding a parking space in the centre and are inevitably pushed to either the lift's parking system or the other parking area near the "Tempio della Consolazione". Lastly, macroscale connections are worthy of mention as there are a few who complain the only way to get to Rome is by car, which is true and will be discussed further on.

Shop Owners

This section will also discuss what the shop owners in Todi think about the logistic issues in providing the shop with the needed products. Specifically, question 8 of the survey details that currently the solution is not working with 14 owners out of 18 having negative reviews about the current system. This will need to be taken into account and considered in the finalisation of strategies. *Figure 15* displays what the shop owners think of the logistical supply system.

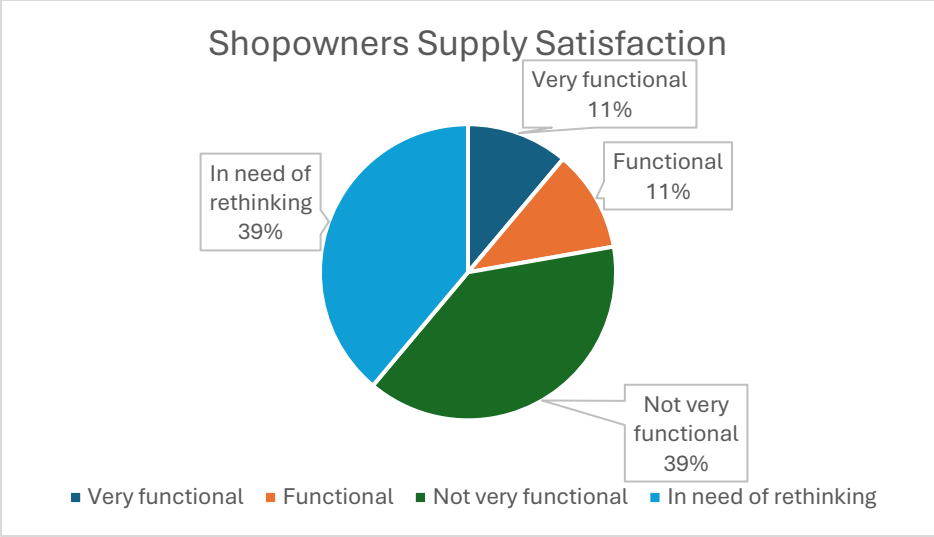


Figure 15: Shop owners' logistical satisfaction

Open Answers

Lastly, general remarks about the situation are provided. The most general complaints are the following: A better plan regarding the bus service, more parking areas, a clearer accessibility system and a better monitoring system for the ZTL.

The bus lines have been repeatedly lamented for their lack of efficient service, with plenty of people complaining that the service does not pass through their particular town or perhaps it is not supplied after hours and at the correct frequency. More parking areas are overwhelmingly the most requested implementation people would like to see. A clearer accessibility system is also mentioned, particularly something resembling Spoleto and Perugia, as mentioned in the literature review. Lastly, access to the centre is preferably better monitored as on many occasions a high amount of cars have caused issues with some parking in areas where it is not allowed.

Frequently mentioned locations

When answering the survey, respondents often replied by citing locations within Todi which are of importance. In this section, these locations, listed in *Table 8* are explained both in terms of meaning to the town as well as generalisability in other similar towns. *Figure 16* shows where these are located in Todi.

Table 8: Todi locations

Link to *Figure 12*	Location
1	Piazza Garibaldi
2	Piazza del Popolo
3	Chiesa di San Fortunato
4	Via Ciuffelli

5	Giardini Oberdan
6	Porta Orvietana
7	Tempio della Consolazione
8	Porta Romana
9	Via Roma
10	Parcheggio del Mercataccio
11	Via San Carlo/Area Simoncino
12	Via del Borgo Nuovo
13	Porta Perugina
14	Viale della Fabbrica

Starting with the first numbers (1-2), these areas indicate the centre square of the town. When mentioning these areas the main suggestion was to reprise a parking area within “Piazza del Popolo” and to allow for a more lenient parking regulation in “Piazza Garibaldi” for citizens outside the walls. These two areas are highly prevalent in towns such as this and when discussing generalisation they will be key.

Labels 6, 8 and 13 indicate the doors of the city and are also highly important in central Italy due to their history. Currently, “Porta Orvietana” is the only one with access to the town, while the other two are only exit points. The area between “Giardinetti” and “Chiesa di San Fortunato” is one way, meaning cars can only come in through this street, “Via Ciuffelli”. This results in high traffic scenarios in other areas such as “Via Roma” prompting people to ask for either the conversion of an existing road to a two-way system or an hourly-based management of right of way.

The next area highly discussed regarded the section prolonging from “Via San Carlo/Area Simoncino” to “Viale della Fabbrica” as many responders have suggested this section can be turned into a car park and a more suitable accessibility point. The last debated area is the “Via del Borgo Nuovo” as many residents have complained about the lack of public transport routes through this area.

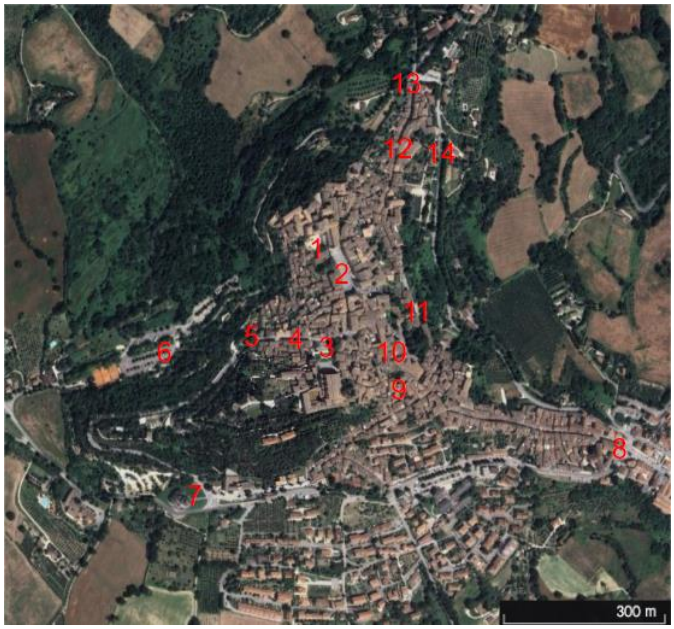


Figure 16: Key map areas

Areas mentioned in comments that are not located on this map are the station, Ponterio and Cappuccini. The latter two are nearby neighbourhoods where the main issue discussed is the lack of public transport available. The station, on the other hand, has been primarily discussed because of the current disuse which will be remedied as mentioned before. *Figure 17* shows these other locations.

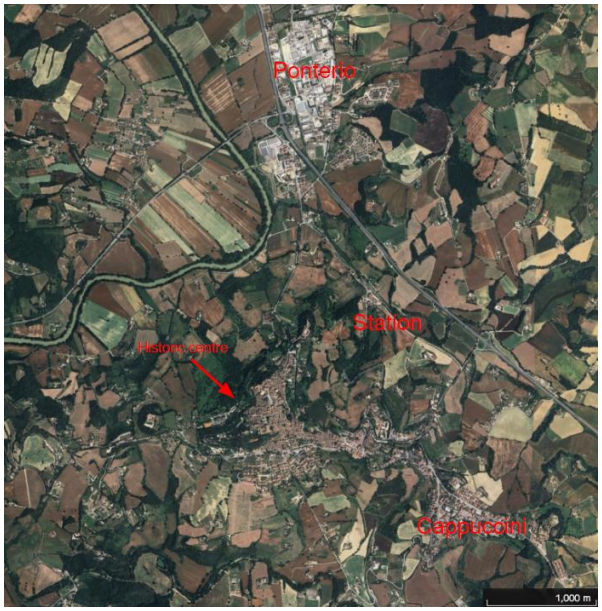


Figure 17: Outer key locations

6.2. 2nd Survey Results

In the second survey, the target audience was shown in the methodology, the publication of this survey was through main hotels of the city as well as restaurants. The number of responses was 15 and all the responses can be seen in *Appendix B*. Of the 15 responses, the vast majority is from Italy with just one person being foreign. This is both positive and negative as foreign tourists are more likely to have an objective viewpoint of the town's urban planning and accessibility characteristics. At the same time, Italian tourists are likely more knowledgeable about similar towns in the centre of Italy perhaps providing a more experienced outlook on the situation. To this point, *Appendix B, question 6* asks about how many cities the vacation group is visiting. Meaning, that tourists who are visiting more places can provide information as to how they find organisations comparatively in more cities, as can be seen in *Figure 18*.

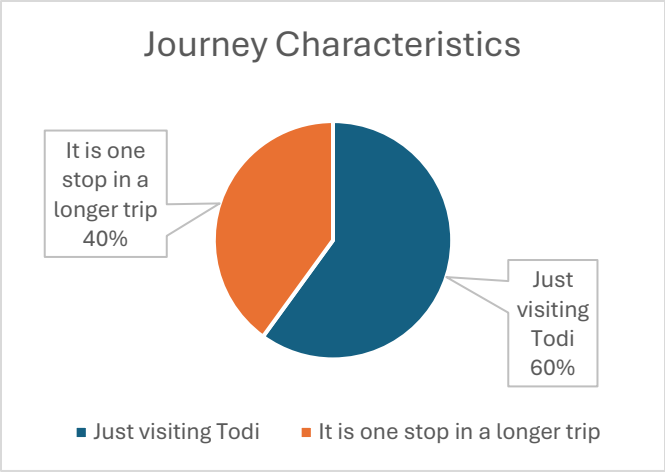


Figure 18: Journey characteristics

This question is directly correlated to the next question about urban planning and suggests that the town of Todi is comparatively quite sufficient in this sector with a few contrasting opinions as can be seen in *Figure 19*. This result suggests that the town's urban planning is sufficiently organised making it tourism-friendly, which could be the case. There is to say, though, that tourists are more likely to be more accepting of walking and are perhaps not feeling the issues of daily commute to the centre.

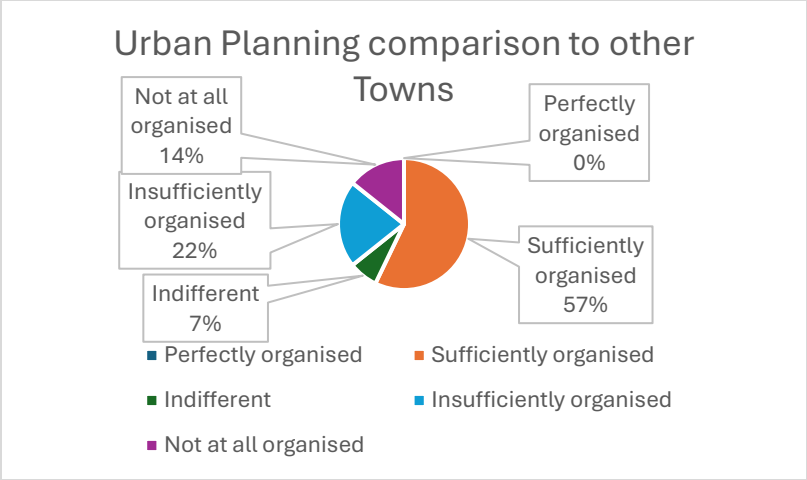


Figure 19: Urban planning

When discussing satisfaction levels of travel methods, *Appendix B questions 11-14*, suggest that what is felt by the daily commuters is also felt by the tourists with cars having mostly negative satisfaction levels and public transport being rather positive. However, it is key to reiterate the low response rate for this survey renders these answers not as trustworthy. *Figure 20*, on the other hand, displays a nearly unanimous sentiment regarding parking issues, with it having 9 out of 15 responses, which is in line with the daily commuters beliefs.

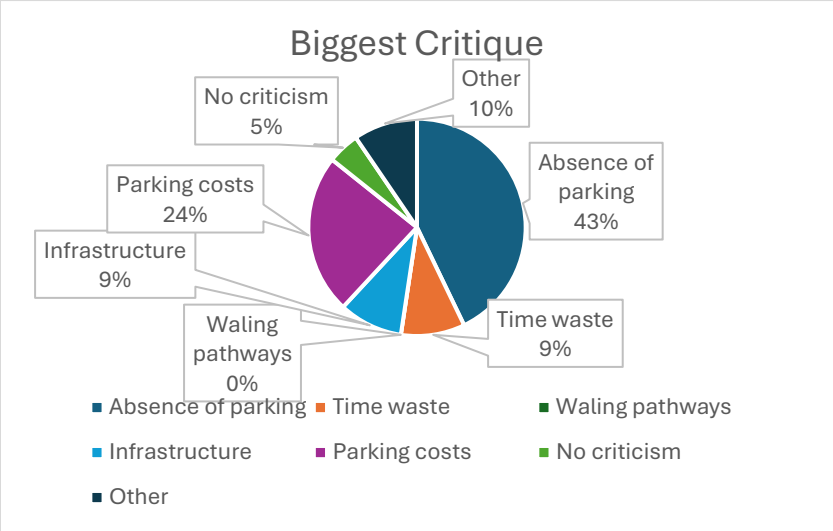


Figure 20: Biggest critique of the accessibility

Finally, general comments from the tourists discuss nearly the same issues as the daily commuters: Firstly, low parking possibilities were mentioned as well as macroscale connections to airports which will be seen in the future as was mentioned previously.

6.3. Interview Summary

On June 20th, an interview with the public transport institution was conducted. The interview was semi-structured with a few pre-planned questions being asked and the rest of the time spent talking based on the answers. The interviewee in question was a manager of the bus service in Todi and thus the discussion mainly revolved around the bus system.

- **Bus service planning:** Four main lines connect the town of Todi, lines A B C and E. A and E are the recently added ones which circle the town's walls and B and C extend out further reaching important fractions in the municipality. Of the lines, bus usage is particularly fixed to lines A and E which has seen a lot of time slots being filled with people. To be more specific, as was mentioned before, Nazzareno stated that no peak usage times were meaning at each possible trip there is a similar amount of people.
- **The reason behind lines A and E's success:** The reason for the high usage of line A is the modification it received. The line would stop just below the centre meaning people would have to walk up and now with A's extension it is being more trafficked. Line E's electric component renders it more endearing while also passing through the centre as well. Both lines pass every 15 minutes.
- **Low usage for lines B and C:** A few reasons were stated that were at the core of the problem. The area of Todi is too sparse for them to implement a normal line that passes through every neighbourhood and it is not efficient to have a line that satisfies this. Where it does pass, reasons for low usage stem from the car-first mentality, as mentioned in the literature review, and the negative stigma against public transportation.
- **Telebus planning:** To account for these issues they instated a "Telebus" which is the only active bus line if booked by someone, a day in advance, which is rarely used as well.

On another note, it was stated that bus lines do not need to be overthought as the town itself is small, efforts need to be redirected in rendering it more efficient and advertisable. Further on, with the station being reopened he delineated that the bus line already passing through that point, would again be stopping there and thus giving a direct connection of public transport from Todi to Rome or Milan.

- **Parking rationalisation:** Discussing the parking situation, and prioritising a rationalisation of the parking system is believed to be the most positive solution to progress to a possible environmentally friendly future. To be more specific, initial car-free measures are to be based on demographic needs. Thus, allowing old people or families to have cars still in the centre while young people or perhaps the second family car to be parked outside the walls.
- **Accessibility increase:** Lastly, it was discussed the possibility of more accessibility points in the town and it was stated that more accessibility points could be useful but too many would not be a positive implementation as the town centre is small enough to have two or a maximum of three "mechanised paths", in other words, pedestrian accessibility measures.

7. Detailed Strategy Creation

This chapter presents the final product of the thesis which will be a SWOT analysis and with the added explanation.

7.1. SWOT analysis

This chapter details the SWOT analysis for the accessibility based on knowledge recovered from the survey, literature review and the context.

Table 9: SWOT analysis

Strengths	Weaknesses
• Touristic opportunity (Luggage Hero, 2021) • Cultural importance • High number of bars and restaurants in the centre (*Figure 2*) • Macroscale connections through the implementation of the railway station (Survey) • Appreciated bus lines A and E (Survey) • High level of action by the municipality, considering recent events (Second lift and bus lines A and E) (Comune di Todi, 2024) • The highway exit is less than 10 minutes from the centre (*Figure 4*) • Relatively low cost of monthly parking (PerugiaToday, 2022) • The lack of hotels within walls means tourism accommodation is concentrated outside the walls (*Table 1*) • Neighbourhoods just outside the walls appreciate public transport (Survey) • High walking percentages within the centre (Survey)	• Topography and conformity of the greater land • Car heavy mentality (Survey) • Poor urban planning (Survey) • Ample space within the municipality does not allow for comprehensive PT service • Financial limitations • The high amount of second-owned houses means less sense of community (Peppicelli, 2019) • Cultural importance means infrastructure, buildings and institutions need to be preserved • Piazza Garibaldi car park decreases tourist value • Car park near "Tempio della Consolazione" connected to the centre through too sporadic bus lines which means people tend to go on foot • Lack of communication between the municipality and inhabitants (Vivi il Centro, 2024) • Lack of service provision (Inhabitants may need to venture out for daily needs) • Low satisfaction levels of logistic supply for businesses (Survey)

Opportunities	Threats
• Paths in disuse that lead to and from the centre can be repurposed • Vast green spaces around the walls can be repurposed • Commercial activity reprisal is possible, due to the same event happening for the opening of Porta Orvietana • Better parking strategy plan (Survey) • Mobility hubs concept • Citizens in favour of better accessibility options (Survey) • Lack of peak influx of people (Except for events) (Nazzareno, 2024) • The small town requires a minor amount of accessibility strategies (Nazzareno, 2024)	• Immigration of the population • Ever-increasing car ownership due to comfort • Ageing population • Reluctance to adapt to sustainable goal • Commercial activity weakens due to lack of financial viability • High-occurring phenomenon of driving family members or similar to and from the centre • Differing opinions on central square usage (Survey)

Table 9 demonstrates what Todi has as strengths, weaknesses, opportunities and threats. Strengths associated lie in the touristic and cultural importance the town has. It is the home of many important events throughout the year, it has plenty of visiting spots and has a high foreign appreciation, thanks in part to the great dining culture that surrounds the main square. Due to this, it can be considered that the town will not be left without visitors. These tourists are also most likely staying outside of the walls meaning there is no added pressure of more cars being parked in the centre and it also pushes better accessibility measures to the centre. Nearby railway station that has been closed for up to 6 years, will be reimplemented and will thus connect Rome (Directly) and Milan (Through connections) (Nazzareno, 2024). It is also connected to the equivalent of a highway in the region which makes for a high accessibility possibility from cities beyond the fractions of Todi. The survey concluded that lines A and E are highly appreciated among users for near-urban travel. The implementation of the aforementioned bus lines as well as a new lift means the municipality is actively looking at solving the issue of accessibility given the economic constraints. Monthly parking costs in the parking areas are relatively lower compared to other towns in Italy and lastly, the survey suggests that walking within the centre is highly feasible while public transport for people who live close to the city walls is highly appreciated.

Weaknesses of the town stand in great part to the topography and conformity of the land and how it is planned. This means that often people are forced to make certain choices instead of being given the choice of multiple ways to travel. This in turn leads to a car-heavy mentality which does not suit the intimate nature of the town's historic centre. The search for economic betterment has led to the prioritisation of houses being dealt to foreign owners who do not often live in the town, leading to the phenomenon of desertification. Small value has been given to the landmarks of the city to comply with the percentage of

car ownership and their needs. Thus, a better preservation culture needs to be reinstated to improve touristic availability. Only one car park makes access to the city easier (The lift's car park), on the other hand, the car park near "Tempio della Consolazione" seldom provides adequate accessibility as people are either forced to walk or wait for the bus. Through the survey, it has been suggested that communication between the municipality and the citizens is lacking. Finally, with the town's shops being cut, daily services are not supplied in full in the centre.

Opportunities, contrary to some of the weaknesses, lie in the openness of the land and how it can better be used to access the centre. Such land can house car parks or mechanised pathways for example. The size of the historic centre also suggests that accessibility paths are not necessarily requested in high amounts, perhaps the position becomes more important. Various interviews alluded to the fact that once the Porta Orvietana access route was opened, economic activities flourished in that area. Along with that, parking rationalisation can be an opportunity to drive down the presence of cars in the centre as well as less car ownership in the long term. This can also be helped by the provision of mobility hubs which offer different modes of transport (More sustainable methods) which could connect the centre, station and parking areas. The survey also indicates that they are willing to listen to accessibility proposals as they are growing restless of current options which leaves space for innovative designs to be suggested. Lastly, the lack of peak influx of people suggests that accessibility measures do not necessarily have to be planned particularly and a standardised system will be preferred.

Threats, finally, are connected to the demographic of the town. In particular, it is ageing due to the immigration of the younger population which might lead to the desertification of yet another historic town. Car ownership has been on the rise since its inception at the start of the 20th century, such aspect of mobility has become an integral part of life and it is difficult to imagine life without the use of cars daily. This has to be combatted in some way, to achieve a more sustainable future. Car usage also is not the main reason why car ownership is high but rather the lack of other choices. With this frame in mind, accompanying other people to the centre becomes ever-present. Commercial activity is weakening as it has been stated that many shops within the centre have had to close due to a lack of customers (Survey) (Nazzareno, 2024). Lastly, a threat that needs attention regards the contrast in opinions. As it has been suggested in the survey results, where people live affects heavily what you would like to see in the centre, with people living in the centre wanting more cars in the centre, while outside people perhaps want to see more parking outside the centre.

7.2. Strategies

To complete the SWOT analysis undertaken in the previous chapter, strategies have to be developed by combining external factors (Opportunities and threats) with existing attributes (Strengths and weaknesses). *Table 10* displays hypothetical strategies that can be applied such that the objective of the thesis is fulfilled. This section will go through each strategy reasoning why it could be effective.

Table 10:Strategy development

Strategies	Strengths	Weaknesses
Opportunities	1. The train station can adopt a mobility hub to connect the centre to the station as well as the area of Ponterio 2. The new access point can lead to an economic reprisal of a particular area, similar to Porta Orvietana (Nazzareno, 2024) 3. Unused paths and areas can be redeveloped to make accessibility and new parking measures 4. A lower amount of accessibility measures makes it so tourists have easier accessibility options 5. Lack of peak influx of people means the public transport system can be standardised throughout the day 6. Citizens hoping for better accessibility plan renders them more favourable towards an innovative possibility	7. A sparse population means a more efficient public transportation system can be employed by focusing "Telebus" to create bus connections (Cooperativa Mobilità Trasporti, 2024) 8. Piazza Garibaldi can be converted into a mobility hub so that urban mobility is facilitated 9. Near green areas being repurposed means better preservation of the historic centre 10. A mobility hub placed near "Tempio della Consolazione" can connect the town quicker to a car park 11. Coordinated development of access points and economic focus on these points can lead to progress (Kadar, 2013) 12. Services that are not offered in the town, suggest mobility hubs being built also where they are offered 13. Mobility hubs could prove useful in raising the low satisfaction levels of the supply chain for businesses
Threats	A. The prevalence of hotels being outside the walls favours people-centric accessibility measures for tourists B. Increasing car ownership can be diminished by a well-employed public transport system C. The ageing population should be accommodated and thus aspects of public transport can be set to such goals D. Appreciated bus lines if improved further can reduce car usage	E. Refocused "Telebus" can replace the phenomenon of the parental "chauffeurs" (Carver, Timperio, & Crawford, 2013) F. Economic investment in the centre can entice the immigrating population to remain G. Expansion of bars and restaurants through other areas of the town can provide economic progress H. Economic development can reverse the ageing population I. Communication and information campaigns can help car ownership decrease as well as opinion on sustainability matters

People-centric mobility (1, 8, 10, 12, A): For starters, the train station of "Ponterio" being reopened will grant a great opportunity to create a modern area dedicated to transportation of all kinds. For example, train arrivals and departures can be coordinated with the bus service of the town. In addition, electric car charging stations can be placed in a nearby car park as well as electric sharing vehicles. To coordinate with key areas in the historic centre, other such mobility hubs where e-sharing vehicles can be left could be placed in "Piazza Garibaldi" or at "Tempio della Consolazione" and also in nearby neighbourhoods where other services are provided such as supermarkets and other commercial activities. The definition of a mobility hub, as it is been mentioned, is the prioritization of people-centric mobility as opposed to car-centric mobility through sustainable forms (Aydin, Seker, & Ozkan, 2022).

Economic development (2, 11, F, G, H): Economic resilience is another macro theme that can be addressed. To be more specific, to combat the decreasing and ageing population (Tuttitalia, 2024), economic opportunity for younger people is a possible avenue that solves the issue. Stakeholder participation has stated that "Via Ciuffelli" gained economic progression due to it being the key access point to the centre, a similar effect can be achieved through another access point.

Spatial planning (3, 9): Spatial planning is another facet that could perhaps lead to growth. Specifically, the presence of rarely used walk paths stretching from "Tempio della Consolazione" to the central square as well in "Via San Carlo" offer areas to be exploited in terms of people-centric mobility. The area below "Via San Carlo" has been widely commented on by citizens suggesting it could be repurposed into a car park and thus facilitate an escalator system or similar. This strategy would also favour a better preservation of the historic centre and its importance as it would diminish the entrance of cars and consequently environmental damage.

Public transport (5, 7, B, D, E): Public transport is a key attribute that has been widely discussed in the various stakeholder collaborations. Firstly, survey results showed that the current system in place is achieving high levels of satisfaction. It lacks slightly when discussing neighbourhoods which are further away from the historic centre. To this end, an already existing service called "Telebus", which is based on a booking system, can be implemented such that each area is travelled. A strategy with this objective could revolve around an annual based service whereby people who either work or study in Todi can subscribe to this service at the start of every year so that the routes, connections and timetables of this service can be planned carefully, along with the use of the already existing daily booking system. On the other hand, due to the service being very satisfiable when connecting the historic centre through lines A and E, a reduction in car parking within the centre would allow for the bus service to flourish even more while also decreasing issues in mobility within the square seen as roads in such towns are not meant for the bigger vehicles

The people-centric mobility policy also suggests that their accommodation should also be prioritised. To be more precise, tourists arriving should not be overwhelmed with too many instructions to follow as to how to access the historic centre. This suggests that the accessibility strategy should be uniform for each access point. Similarly, citizens and their particular cases should be accommodated. For example, for the older generation of people wanting to access the centre, a solution in the mobility hubs should be installed.

Similarly, businesses have lamented dissatisfaction with how their businesses have to be supplied. For such reasons, the implementation of mobility hubs and a reduction of car travel in the town could provide a chance for businesses to be supplied more easily. Additionally, the citizens, as seen through the survey conducted are very much in favour of an innovative accessibility plan, thus giving a new proposal more backing (4, 6, 13, C).

8. Discussion and Limitations

What emerged from the strategies development is a consensus on how new mobility systems can perhaps reinvigorate declining towns in the centre of Italy. It is believed that a simultaneous application in all of the aforementioned fields would be optimal although some of the areas could overlap. One such example is that economic development will come thanks to the strides made in the accessibility and mobility within the town. It is a stronger argument, though, that due to financial limitations, simultaneous progress is best for the town.

What is a key aspect that will be tackled is a reduction in car usage for inner city movement when putting forward strategies involving the "Telebus" and the mobility hubs. Car ownership is perhaps the most important aspect of the thesis as it is what first drove issues for accessibility and caused saturation in the centre. It is also often a necessity for the citizens who have now grown accustomed to daily car usage due to the lack of other possibilities. Along with the historic centre being too saturated for cars, the environment (Both in terms of sustainability issues as well as the landmarks) is being damaged and an intervention is needed. A reduction thus, is initially achieved through a spatial planning strategy which will then be complemented by the "Telebus" and mobility hubs. This would function as an initial turn towards more sustainable methods of transportation and lead to a more active outlook of travel due to the use of escalators or lifts to get to the centre. This strategy would then be co-opted with policies regarding parking directives. In essence, parking would be pushed into these other outer car parks little by little and through demographic selection.

The idea of public transportation being the main transport method for travel outside the walls and in the various fractions has many variants. It can be introduced for mainly the school and work commuters in Todi and then the design problem would be to optimise the number of outgoing buses, what route to follow and possibly most importantly the timetables as different jobs require different timelines. In any case, the optimisation of buses could be directly correlated by direction or rather by population density. Financially speaking, the idea of a yearlong subscription should be tested against the cost of keeping a car for one year and perhaps some car owners might decide against car use for such reasons. After analysing this service, a decision could be made on the current lines. It might be suggested that these bus lines could become redundant and unnecessary and might be rerouted (Nazzareno, 2024).

The overarching message of these strategies is the prioritization of the historic centre and its tourist appeal. The more clean and spacious centre, then it would lead to an increase in tourism. In addition to this, as Kadar (2013) analysed, Prague and Vienna have differing reviews due to how the tourist is accommodated. For example, while Prague concentrated on one main accessibility point, Vienna provided more which represents what Todi is versus what it can be. Along with tourism, the adoption of more sustainable methods of travel will also put Todi's name in higher stead among other towns such as Perugia and Terni.

Among similar other towns, the analysis conducted in this thesis proves to be quite beneficial. To be more specific, the area being full of hills and consequently, hill-top towns means that municipalities are equal in the extension of the territory of Todi. This suggests public transport strategies should be similarly put in place. Being that they are hilltop towns as well, focus on accessibility and inner mobility strategies should also be a common factor. The population should be analysed equally but it is more probable than not that these areas have similar car ownership percentages and satisfaction levels.

In the realisation of this project, a few limitations have to be included. For starters, the sample of survey respondents 448 is quite low compared to the population of Todi and thus might not encapsulate all the people's opinions. On the flip side, it does suggest who actively feels strongly about this topic meaning the most interested stakeholders participated. Another aspect is the provision of the surveys. It was mainly dealt with through Facebook and online newspapers, which could exclude a healthy amount of citizens. For example, the older generation is less likely to have answered an online survey. Limitations of the realisation of the project stand to the time available to collect information. Perhaps, with more time being given, more answers and interviews could have been taken such as the size of the research objective. On a different note, permanence in the town to personally analyse the area was achievable but not for the entire duration of the project leading to most of the communication with experts being carried out online. Collaboration with people in the area was otherwise extensive which provided the thesis with ample data to focus on.

9. Conclusion

The objective of this thesis was to determine a few possible strategies that would aid in fixing accessibility issues that are currently present in the town. To achieve this, three main sources of information were identified and used: Literature review, surveys and interviews.

The literature review contributed to a better understanding of the area's issues concerning high vehicle usage as well as possible solutions arising from similarly built cities. The surveys provided more closely related information regarding the case study itself. Data that proved useful are identified in chapter 6 and one such example is the difference in travel methods given the different locations. Finally, the interview discussed the results of the survey providing reasons for certain results as well as providing advice as to possible improvements of the city's accessibility. The data was then combined into a SWOT analysis that resulted in the provision of possible strategies that could prove useful. The main solutions revolved around public transportation, spatial planning, economic opportunities and people-centric mobility. These four themes are the product of the steps mentioned above.

The solution for public transport is the focus of the "Telebus" service to the citizens, by applying year-round subscriptions. This would be effective in such a town due to the lower level of density of the area compared to a metropolis where the service being standardised is necessary. Through this rerouting of the bus system, the town also achieves a level of social sustainability positivity as people would more often than not travel to the destination together as opposed to through the use of a personal vehicle. This is then supplemented by the spatial planning and people-centric mobility focus which would look at providing the same car usage opportunities as they currently are but with more dedicated parking areas away from the centre and through the use of escalators or lifts to reach the centre or depending on the location, electric sharing vehicles from the mobility hubs. This is perhaps more dedicated to people who are not heading to work or rather have personal matters that need the use of a personal vehicle (e.g. shopping, dinner, pleasure,…). Lastly, economic resilience is achieved through the majority of these points being implemented. Specifically, a more welcoming and innovative accessibility system would lead to a more advertisable town to outsiders, which would revitalize some areas in the town.

What can be concluded from the discussion of these potential strategies is that a shift in mobility patterns is not due to a sole reason but the product of many. In essence, development in such regard should be focused on more aspects and should be expected to be slow. For instance, car ownership being at such high levels suggests that an overnight change to public transport will not be possible. On the other hand, high survey collaboration rates could allude to the fact that the population is ready for a new innovative system.

To conclude, towns such as Todi are prevalent in the region of Umbria and all have very similar characteristics. The aforementioned four strategies, as stated in the discussion, can be replicated in these other towns and could prove to be a step towards a more environmentally and economically sustainable city. To this end, I believe that the strategies' applicability could be studied individually for each town.

10. References

Abdelfattah, L., Deponte, D., & Fossa, G. (2021). The 15-minute city: interpreting the model to bring out urban resiliencies. *XXV International Conference Living and Walking in Cities - New scenarios for safe mobility in urban areas (LWC 2021), 9-10 September 2021, Brescia, Italy*, 330-337.

Andreucci, E. (2022, February 28). *Proposta per i parcheggi auto di Todi*. Retrieved from iltamtam: https://www.iltamtam.it/2022/02/28/proposta-per-i-parcheggi-auto-di-todi/

Aydin, N., Seker, S., & Ozkan, B. (2022). Planning Location of Mobility Hub for Sustainable Urban Mobility. *Sustainable Cities and Society*.

Btrini, S. (2019, September 12). *Aspire (capofila Comune di Lucca) per la mobilità sostenibile delle merci nei centri storici di città piccole e medie*. Retrieved from ASVIS: https://asvis.it/best-practices-sul-goal-11/1199-4713/aspire-capofila-comune-di-lucca-per-la-mobilita-sostenibile-delle-merci-nei-centri-storici-di-citta-piccole-e-medie

Burlando, C., Ivaldi, E., Saiani, P. P., & Penco, L. (2020). To own or not to own? Car ownership and consumer awareness: Evidence. *Research in Transportation Business & Management*.

Carver, A., Timperio, A., & Crawford, D. (2013). Parental chauffeurs: what drives their transport choice? *Journal of Transport Geography*, 72-77.

Cencetti, C., Conversini, P., & Tacconi, P. (2005). The Hill of Todi (Umbria, Central Italy). *Giornale di Geologia Applicata 1*, 113-121.

Comune di Todi. (2023, september 21). *L'assessore regionale Melasecche a Todi: "lavori ferrovia e stazioni al via"*. Retrieved from Comune Todi PG: https://www.comune.todi.pg.it/it/news/l-assessore-regionale-melasecche-a-todi-lavori-ferrovia-e-stazioni-al-via

Comune di Todi. (2024, March 7). *Nuovi ascensori per il centro storico di Todi entro l'estate*. Retrieved from ComuneTodi: https://www.comune.todi.pg.it/it/news/nuovi-ascensori-per-il-centro-storico-di-todi-entro-l-estate

Comune di Todi. (2024, April 12). *Todi, dal 22 aprile due bus gratis per il centro storico*. Retrieved from Comune di Todi: https://www.comune.todi.pg.it/it/news/todi-dal-22-aprile-due-bus-gratis-per-il-centro-storico

Concetta, M. (2017). La Mobilità Alternativa per "Spoleto città all'uomo ovvero città senza auto". *La Mobilità Alternativa di Spoleto.* Spoleto: Comune di Spoleto.

Cooperativa Mobilità Trasporti. (2024, January). *Iscrizione Abbonamento Scolastico*. Retrieved from cmtbus: https://www.cmtbus.com/

EindhovenAirport. (2024). *Public Transport*. Retrieved from EindhovenAirport: https://www.eindhovenairport.nl/en/public-transport

FIAB. (2024, February 19). *Il poco invidiabile primato dell'Italia, il paese con più auto nell'Unione Europea*. Retrieved from FIAB: https://fiabitalia.it/il-poco-invidiabile-primato-dellitalia-il-paese-con-piu-auto-nellunione-europea/

GDPR. (2024). *Article 7 GDPR Conditions for consent.* Retrieved from GDPR-info: https://gdpr-info.eu/art-7-gdpr/

Imperi, A. M. (2023, October 29). *Todi tra urbanizzazione, arte e cultura. Una ricerca*. Retrieved from Sociologicamente: https://sociologicamente.it/todi-tra-urbanizzazione-arte-e-cultura-una-ricerca/

InformaGiovani-Italia. (2018, September 7). *Mappa di Todi - Cartina di Todi.* Retrieved from InformaGiovani-Italia: https://www.informagiovani-italia.com/mappa_todi.htm

Istat. (2023, July). *Distribution of holiday trips taken by italian tourist from 2019 to 2022.* Retrieved from Statista: https://www.statista.com/statistics/585430/leisure-holiday-destinations-by-type-italy/

Jeekel, H. (2014). The Car-Dependent Society: A European Perspective. *Transport and Society*.

Kadar, B. (2013). A morphological approach in defining the causes of tourist-local conflicts in tourist-historic cities. *International RC21*. Berlin: ResearchGate.

Litman, T. (2002). Evaluating transportation equity. *World Transport Policy and Practice*, 50-65.

Luggage Hero. (2021, July 7). *Italy Travel Statistics.* Retrieved from Luggage Hero: https://luggagehero.com/blog/italy-travel-statistics/

Mancini, F. (2013, March 1). *Le frazzioni de Todi: Pantalla*. Retrieved from Jacopinodatodi: https://jacopinodatodi.wordpress.com/2013/03/01/le-frazzioni-de-todi-pantalla/

Marconi express. (2024). *Comodo, Veloce, Sostenibile*. Retrieved from Marconiexpress: https://www.marconiexpress.it/informazioni/il-servizio/

Moreno, C., Allam, Z., Chabaud, D., Gall, C., & Pratlong, F. (2021). Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities. *Smart Cities*, 93/111.

Naldini, L., & Papa, S. (2014). Virtual Variable Message Panels for Public Transport stops in Perugia within a Smartphone app. *18th European Conference on Mobility Management.* Florence: ECOMM.

Nazzareno, L. (2024, June 20). Bus service coordinator open interview. (P. J. Kirchin, Interviewer)

NS. (2024, January). *OV-Fiets*. Retrieved from NS: https://ns.nl/deur-tot-deur/ov-fiets

overpass turbo. (2024, February 8). Ferrovia Centrale Umbra. Todi, Umbria, Italy.

Pellegrini, P., & Micelli, E. (2019). Paradoxes of the Italian Historic Centres between Underutilisation and Planning Policies for Sustainability. *Sustainability*.

Peppicelli, C. (2019, March 15). *IL BELLO DEL CENTRO ITALIA: ACQUISTARE LA SECONDA CASA TRA TOSCANA E UMBRIA*. Retrieved from Great Estate: https://magazine.greatestate.it/it/il-bello-del-centro-italia-acquistare-la-seconda-casa-tra-toscana-e-umbria-0315.html

PerugiaToday. (2022, October 28). *Todi, riattivato l'impianto di risalita da Porta Orvietana e confermato l'abbonamento a 22 euro per il parcheggio*. Retrieved from PerugiaToday: https://www.perugiatoday.it/attualita/ascensore-porta-orvietana-todi.html#:~:text=%22Con%20questo%20intervento%20e%20provvedimenti,il%20parcheggio%20di%20Porta%20Orvietana%22.

Pucher, J., & Buehler, R. (2008). Making Cycling Irresistible: Lessons from The Netherlands, Denmark and Germany. *Transport Reviews*, 495-528.

Rete Ferroviaria Italiana. (2024, Febbraio 8). *RFI - Umbria: al via i lavori tra Perugia Ponte San Giovanni e Terni*. Retrieved from RFI: https://www.rfi.it/it/news-e-media/comunicati-stampa-e-news/2024/2/8/rfi---umbria--al-via-i-lavori-tra-perugia-ponte-san-giovanni-e-t.html

Stradling, S. G. (2011). Travel Mode Choice. In S. G. Stradling, *Handbook of Traffic Psychology* (pp. 485-502). Edinburgh: Academic Press.

Stravos. (2023, September 26). *Todi Civica "CENTRO STORICO, E' ORA DI TROVARE SOLUZIONI"*. Retrieved from TodInforma: https://todinforma.it/index.php/2023/09/26/todi-civica-centro-storico-e-ora-di-trovare-soluzioni/

Swapfiets. (2024, January). *Always a working Swapfiets for a fixed amount per month*. Retrieved from Swapfiets: https://swapfiets.nl/?_gl=1*1y4f962*_ga*MTAxMDY4MjM2NC4xNzE4Mzc5OTI5*_ga_74D1JZZNE1*MTcxODM3OTkyOS4xLjEuMTcxODM3OTkyOS42MC4wLjA.

Thoem, J. (2024). *What makes Copenhagen the world's most bicycle friendly capital?* Retrieved from Visit Copenhagen: https://www.visitcopenhagen.com/copenhagen/activities/what-makes-copenhagen-worlds-most-bicycle-friendly-capital

Toppetti, S. (2024, March 11). *Todi, i problemi del centro in un sondaggio*. Retrieved from iltamtam.it: https://www.iltamtam.it/2024/03/11/todi-i-problemi-del-centro-in-un-sondaggio/

Trombin, M., Pinna, R., Musso, M., Magnaghi, E., & De Marco, M. (2019). Mobility Management: From Traditional to People-Centric Approach in the Smart City. *Emerging Technologies for Connected Internet of Vehicles and Intelligent Transportation System Networks*, 165-182.

Tuttitalia. (2024, January 1). *Statistiche demografiche Todi*. Retrieved from Tuttitalia.it: https://www.tuttitalia.it/umbria/38-todi/statistiche/

Umbria Journal. (2023, January 28). *Quindici anni di apertura del Minimetrò, hanno viaggiato quasi 38 milioni di persone*. Retrieved from UmbriaJournal: https://www.umbriajournal.com/economia/trasporti-economia/quindici-anni-di-apertura-del-minimetro-hanno-viaggiato-in-quasi-38-milioni-498982/

UPPER. (2023). *Overview of the current situation in Lisbon*. Retrieved from upperproject.eu: https://www.upperprojecteu.eu/wp-content/uploads/2023/10/Overview-of-Lisbon.pdf

Vivi il Centro. (2024). Campagna di Ascolto. Todi: Comitato Todi.

Woods, R., & Masthoff, J. (2017). A comparison of car driving, public transport and cycling. *Transportation Research Part A*, 211-222.

Yanatma, S. (2023, September 19). *Cycling in Europe: Which countries and cities are the most and least bicycle-friendly?* Retrieved from Euronews: https://www.euronews.com/next/2023/09/19/cycling-in-europe-which-countries-and-cities-are-the-most-and-least-bicycle-friendly

11. Appendices

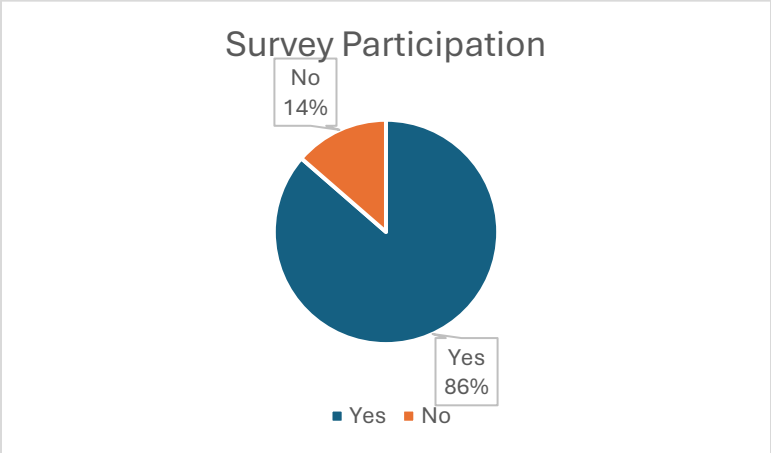
Appendix A: Survey Results

Analysis of the accessibility to the historic centre of the town of Todi (June 2024)

This survey aims at acquiring more information on the town of Todi and its accessibility. My name is Philip James Kirchin and I am a student from the University of Twente in the Netherlands. I would like to thank you for accepting to take part in this research for my thesis project. The response to the answers will not be registered until the button in the last page, "SUBMIT", is not clicked. To modify past responses, refresh the web link at the top of the page. The survey is 16 questions long and has an average response time of 10 minutes.

Q1 Taking part in this survey means that you are consenting to the use of personal information for this and future research projects. In any case, Responses will remain anonymous. Your data will be under the protection of article 7 of the GDPR (General Data Protection Regulation) Do you accept these terms and conditions?

Multiple Choice

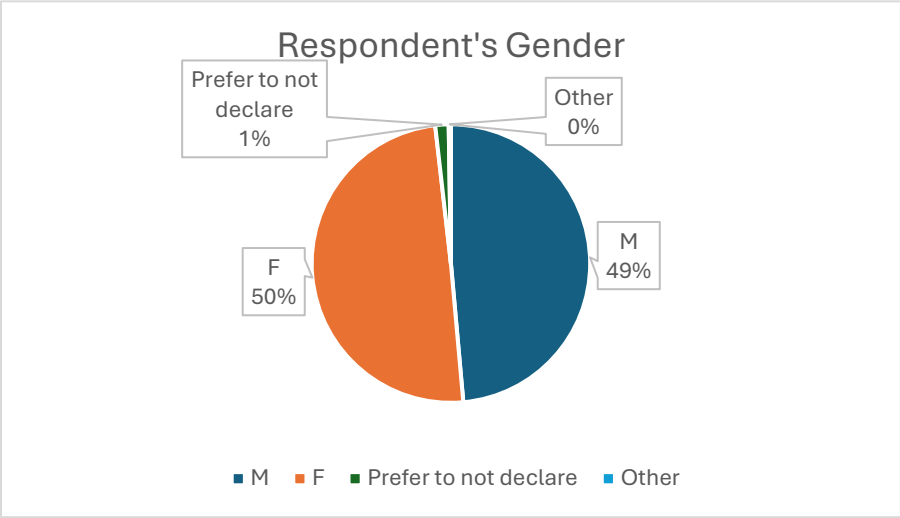


Choice	Totals
Yes	387
No	61

Responses 448 **Answered** 448 **Unanswered** 0

Q2 What is your gender?

Multiple Choice

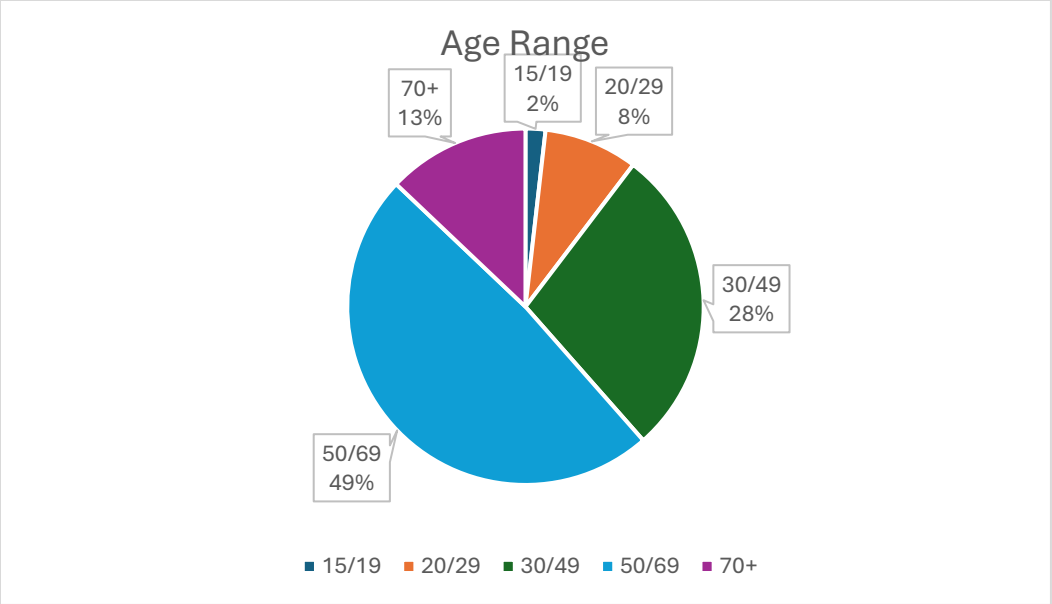


Choice	Totals
M	188
F	192
Prefer to not declare	6
Other	1

Responses 448 **Answered** 387 **Unanswered** 61

Q3 What is your age range?

Multiple Choice

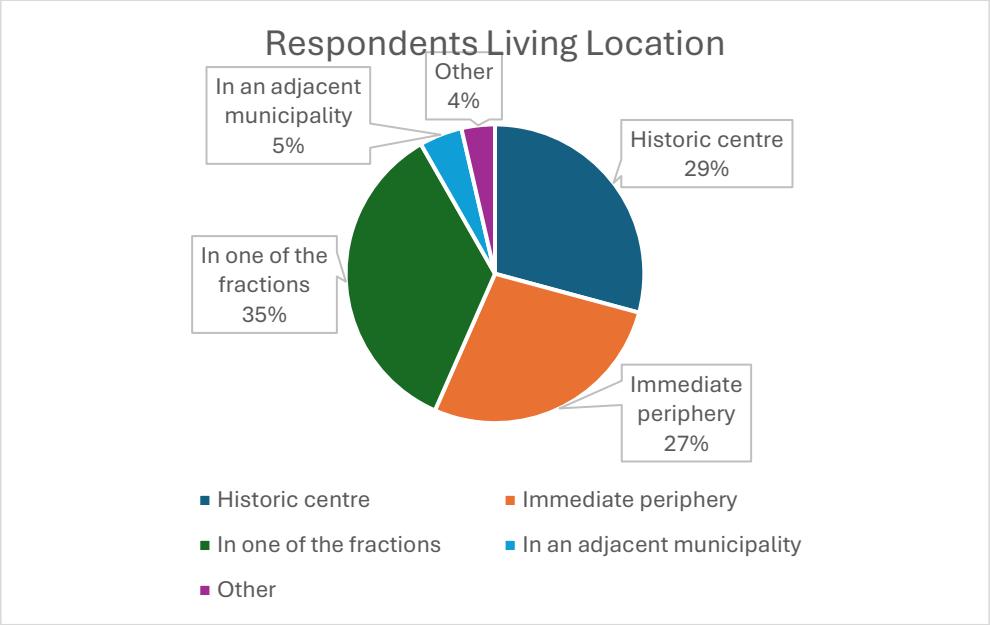


Choice	Totals
15/19	7
20/29	33
30/49	109
50/69	188
70+	50

Responses 448 **Answered** 387 **Unanswered** 61

Q4 Where do you live?

Multiple Choice

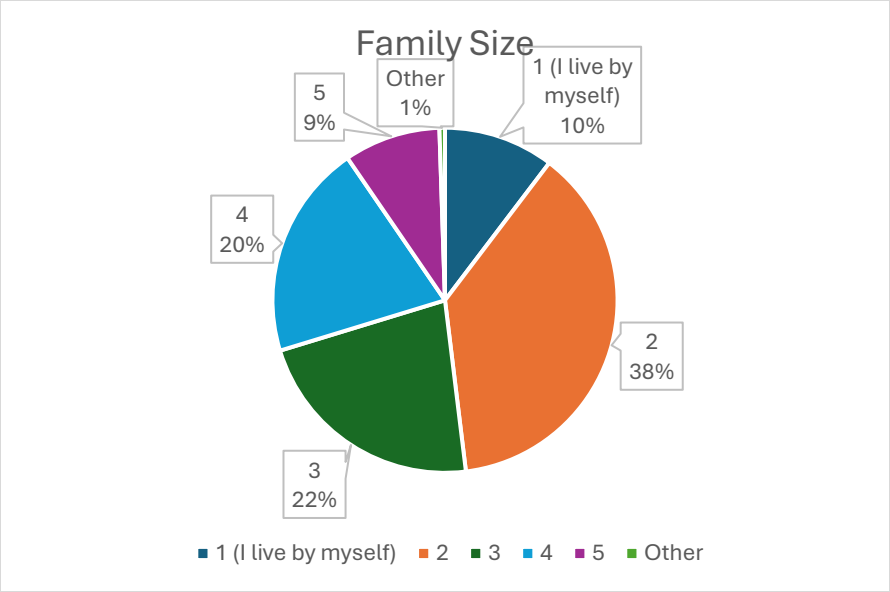


Choice	Totals
Historic centre	113
Immediate periphery (es. S. Arcangelo, Cappuccini, Montesanto...)	106
In one of the fractions (es. Ponterio, Colvalenza, Pantalla...)	136
In an adjacent municipality (Marsciano, Massa Martana, Fratta Todina...)	18
Other	14

Responses 448 **Answered** 387 **Unanswered** 61

Q5 Housing arrangement

Multiple Choice

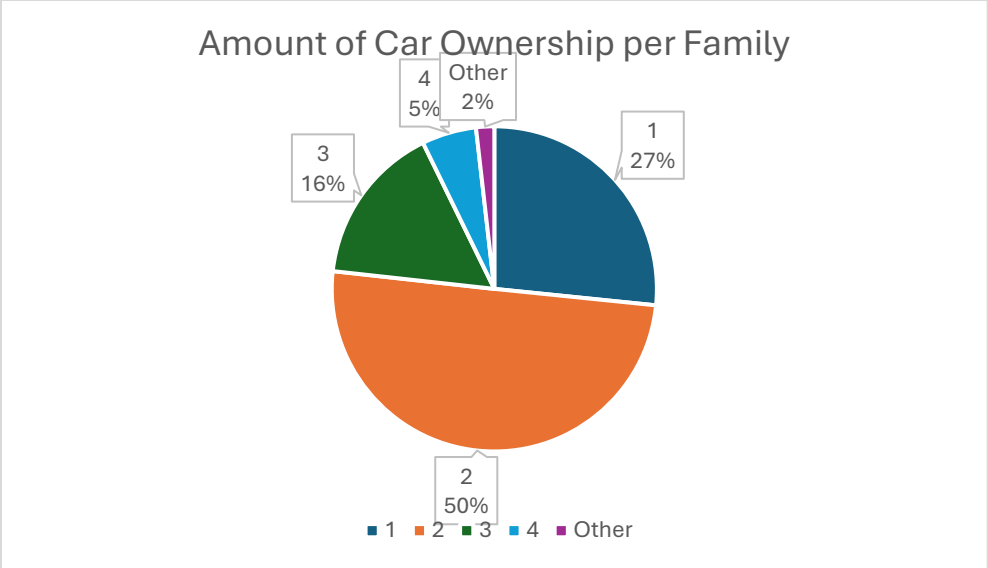


Choice	Totals
1 (I live by myself)	40
2	146
3	86
4	78
5	35
Other	2

Responses 448 **Answered** 387 **Unanswered** 61

Q6 How many cars does your family own?

Multiple Choice

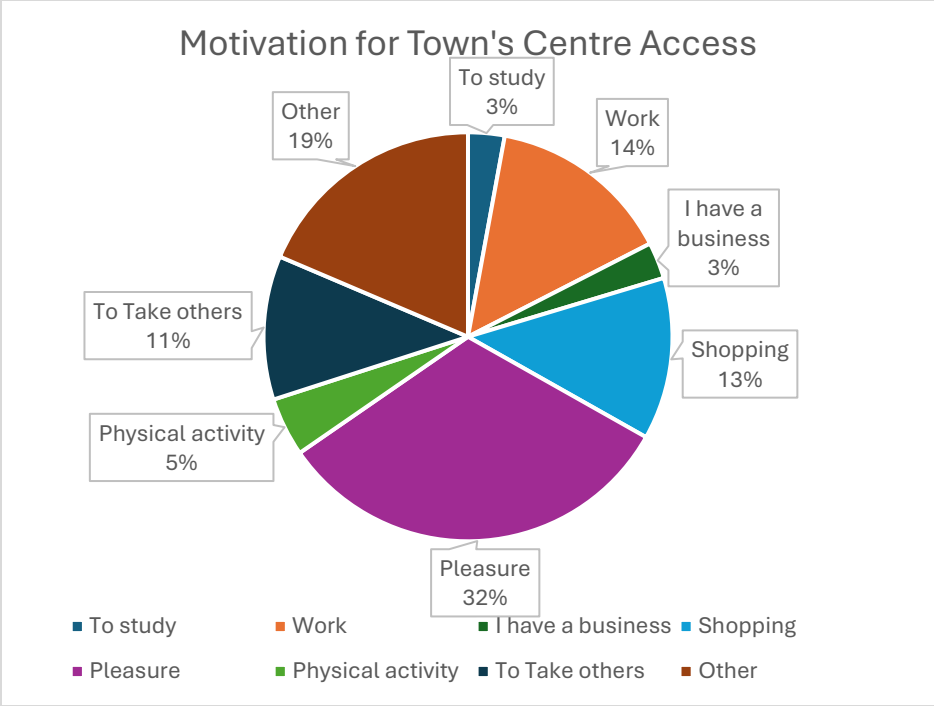


Choice	Totals
1	103
2	194
3	62
4	21
Other	7

Responses 448 **Answered** 387 **Unanswered** 61

Q7 Why do you go to the centre of Todi?

Multiple Choice

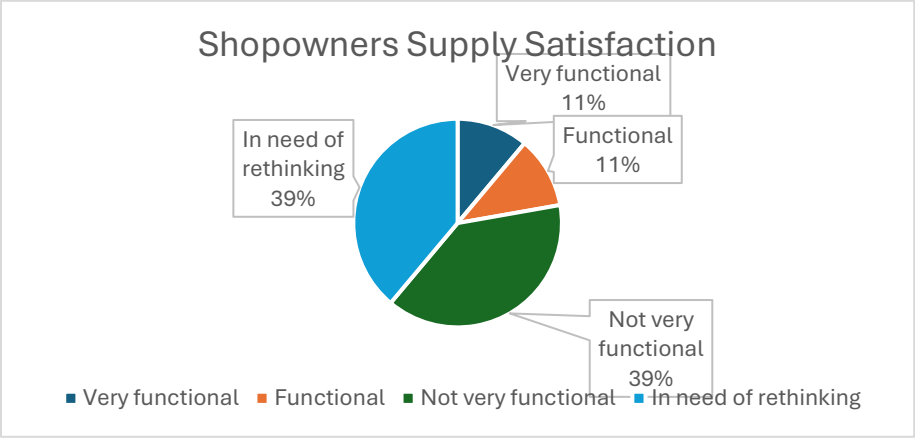


Choice	Totals
Study	18
Work (es. employee, freelance)	91
I have business	18
Shopping	80
Pleasure	201
Physical activity	29
To take others	71
Other	116

Responses 448 **Answered** 387 **Unanswered** 61

Q8 Logistical aspects regarding business supplies are:

Rating

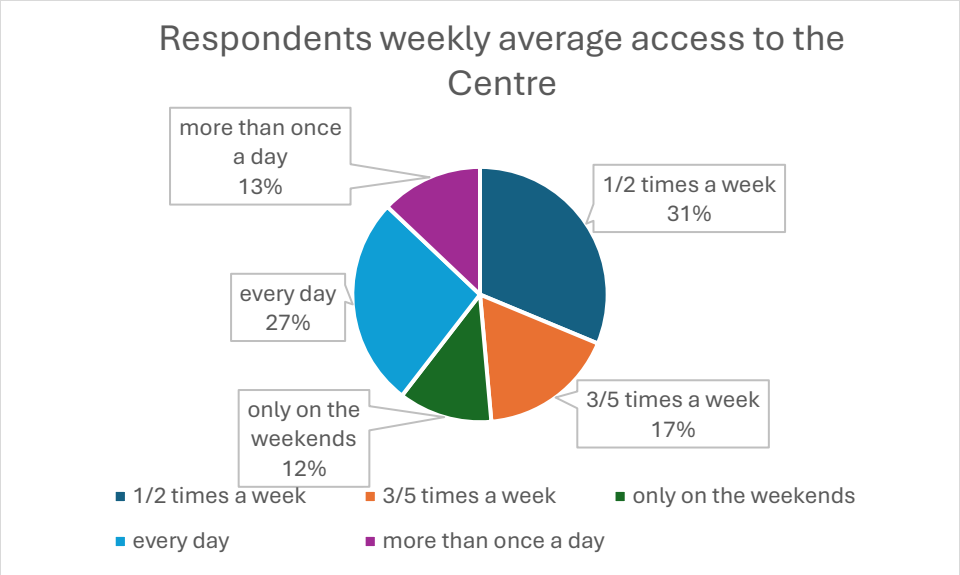


Value	Label	Total
1	Very functional	2
1	Functional	2
1	Not very functional	7
1	In need of rethinking	7

Responses 448 **Answered** 18 **Unanswered** 430

Q9 How often do you go to the centre of Todi?

Multiple Choice



Choice	Totals
1/2 times a week	121
3/5 time s a week	67
Only on the weekends	46
Once a day	103
More than once a day	50

Responses 448 **Answered** 387 **Unanswered** 61

Q10 Describe the activities performed in the centre in the various periods of the day

Form

Date	Morning	Afternoon	Evening
June 25, 2024 6:41 AM	colazione	visite	passeggiate
June 24, 2024 2:14 PM	Commissioni	Passeggiata	
June 24, 2024 12:21 PM	accompagnare la figlia a scuola	riprendere la figlia a scuola / passeggiata	passeggiata
June 24, 2024 9:39 AM	abitazioine	abitazione	abitazione
June 24, 2024 9:09 AM			teatro, concerti ecc

Responses 448 **Answered** 387 **Unanswered** 61

Q11 Describe the motivations that lead you to choose you method of transportation

Form

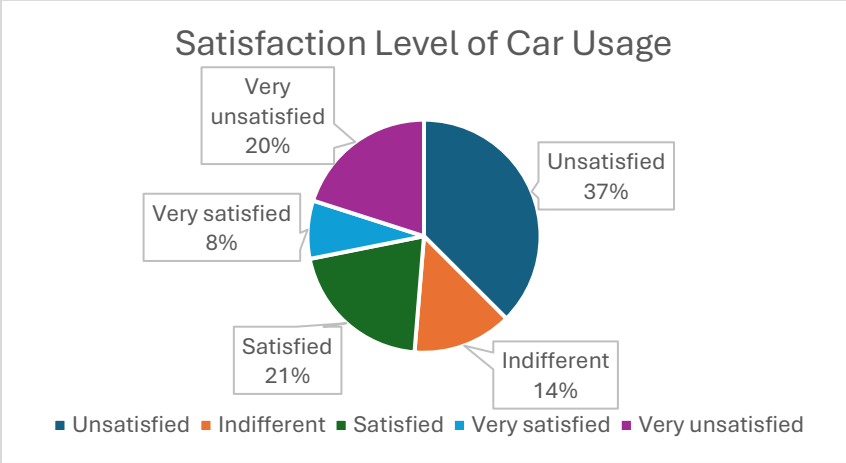
Date	Own vehicle	Two-wheeled vehicles	Public transport	On foot	Other
June 25, 2024 6:41 AM				comodita'	
June 24, 2024 2:14 PM			Evita di cercare parcheggio	Permette di svolgere sana attività fisica	
June 24, 2024 12:21 PM	comodità / necessità	non ne possiedo	assenti	molto spesso, vista la difficoltà	non ne possiedo

Date	Own vehicle	Two-wheeled vehicles	Public transport	On foot	Other
				ad arrivarci in auto	
June 24, 2024 9:39 AM	per comodità non essendoci mezzi pubblici nelle ore in cui devo andare a lavoro				
June 24, 2024 9:09 AM	comodita'				

Responses 448 **Answered** 387 **Unanswered** 61

Q12 What is your full evaluation when using your vehicle considering the following: Parking time, cost of parking, walk paths and infrastructure

Rating

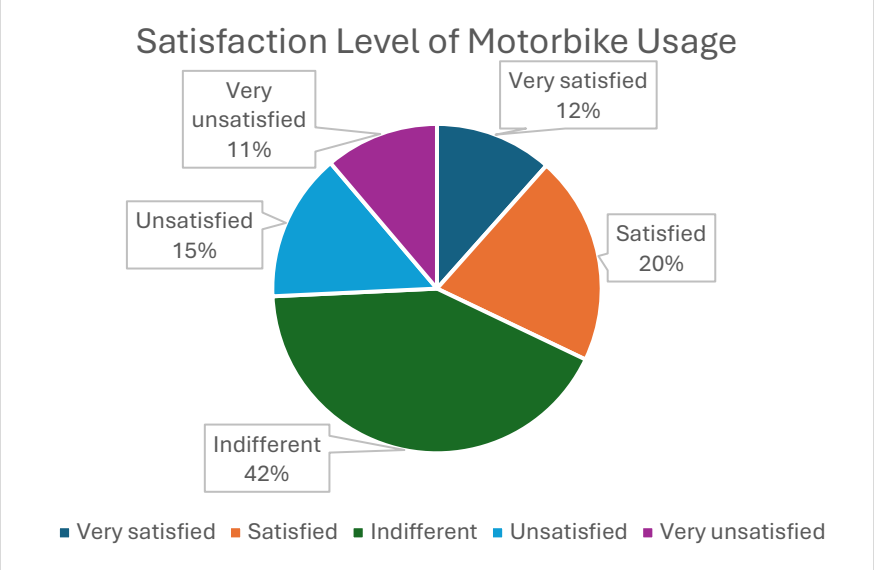


Value	Label	Total
1	Unsatisfied	144
1	Indifferent	53
1	Satisfied	79
1	Very satisfied	31
1	Very unsatisfied	77

Responses 448 **Answered** 384 **Unanswered** 64

Q13 What is your full evaluation when using a two-wheeled vehicle considering the following: Parking time, cost of parking, walk paths and infrastructure

Rating

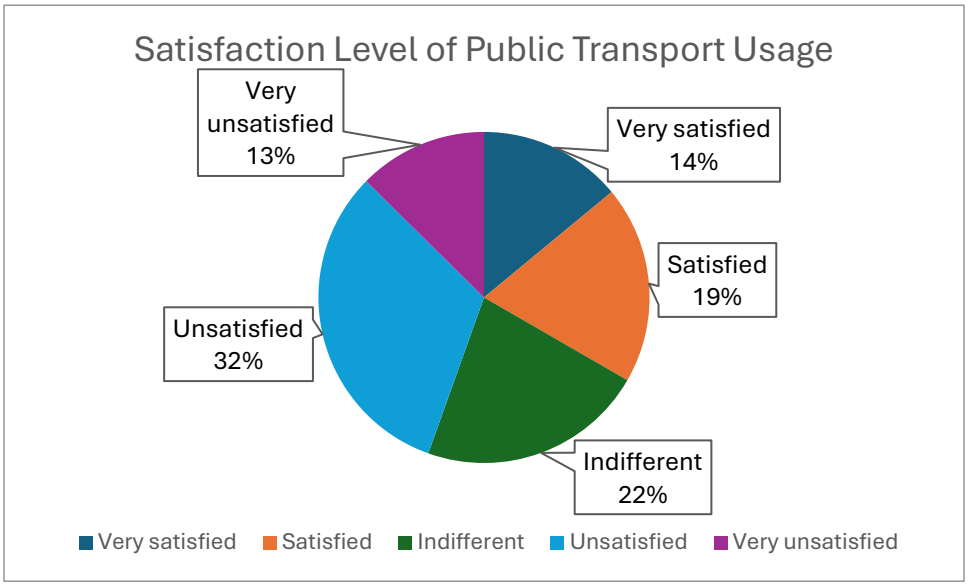


Value	Label	Total
1	Very unsatisfied	31
1	Satisfied	55
1	Indifferent	113
1	Unsatisfied	39
1	Very unsatisfied	30

Responses 448 **Answered** 268 **Unanswered** 180

Q14 What is your full evaluation when using public transport considering the following: Waiting times, walk paths and infrastructure

Rating

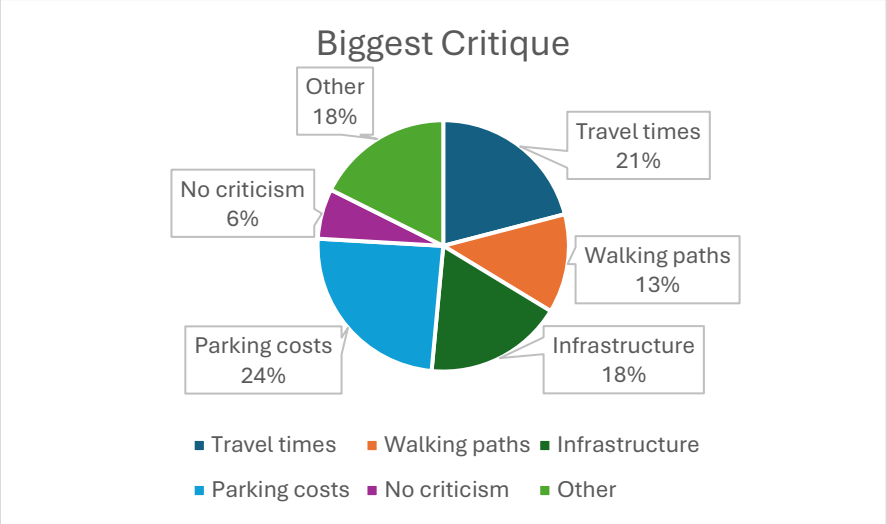


Value	Label	Total
1	Very unsatisfied	50
1	Unsatisfied	69
1	Indifferent	79
1	Satisfied	114
1	Very satisfied	45

Responses 448 **Answered** 357 **Unanswered** 91

Q15 Which criticism regarding the accessibility is most significant?

Multiple Choice

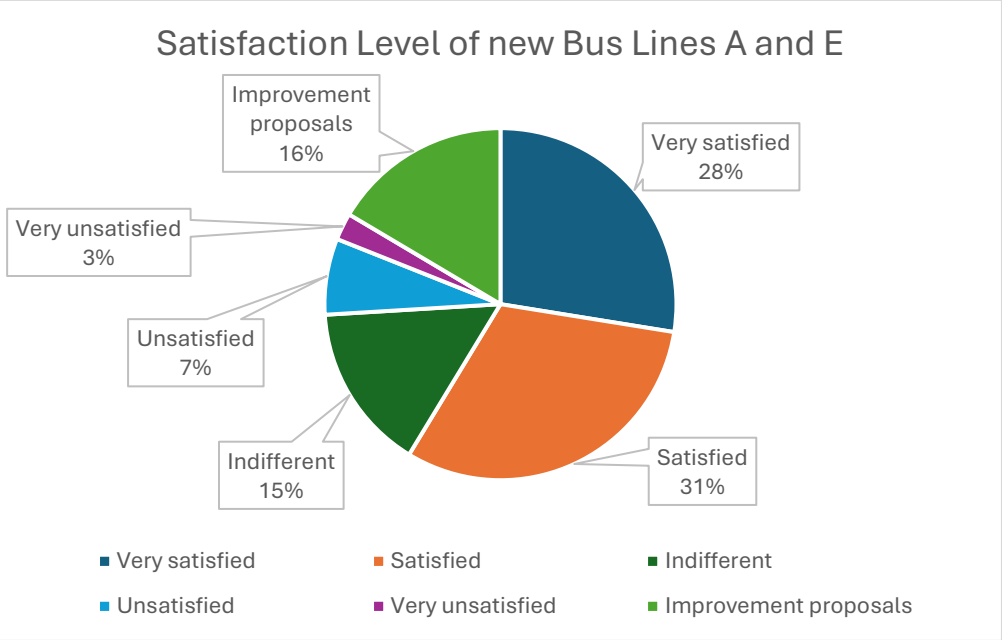


Choice	Totals
Travel times	120
Walking paths	73
Infrastructure	102
Parking costs	140
No criticism	37
Other	101

Responses 448 **Answered** 387 **Unanswered** 61

Q16 What is your opinion on the free bus service? (eg. lines A and E)?

Multiple Choice



Choice	Totals
Very satisfied	122
Satisfied	138
Indifferent	68
Unsatisfied	31
Very unsatisfied	11
Possible improvements to be applied to the service (e.g. Timetable, frequency, route,…)	73

Responses 448 **Answered** 384 **Unanswered** 64

Q17 Feel free to leave suggestions as to how to improve the accessibility to the historic centre

Essay

Date	Response
June 25, 2024 6:41 AM	Ripristinare Via CIUFFELLI a doppio senso di marcia liberando parte del flusso concentrato in via Roma per coloro che provengono da S fortunato e via Lorenzo.leoni
June 24, 2024 2:14 PM	
June 24, 2024 12:21 PM	Pur conservando un'area pedonale in piazza, si potrebbe consentire una breve sosta nei pressi della piazza, per chi necessita di fare attività brevi (presso i negozi o gli uffici) o accompagnare chi non può muoversi autonomamente (e di anziani ce ne sono molti a Todi!). Anche in occasione di eventi a teatro, soprattutto durante l'autunno-inverno, potrebbe essere consentita la sosta in piazza. La piazza è un patrimonio e va salvaguardata e resa fruibile, ma senza arrivare a misure troppo restrittive

Date	Response
	che alla lunga portano solo a far allontanare le persone. Non che trovare alternative valide sia facile, ma da un po' di tempo quello che si percepisce è solo un voler "chiudere" il centro senza pensare alle conseguenze per chi ci abita.
June 24, 2024 9:39 AM	
June 24, 2024 9:09 AM	piu mezzi pubblici durante i fine settimana

Responses 448 **Answered** 381 **Unanswered** 67

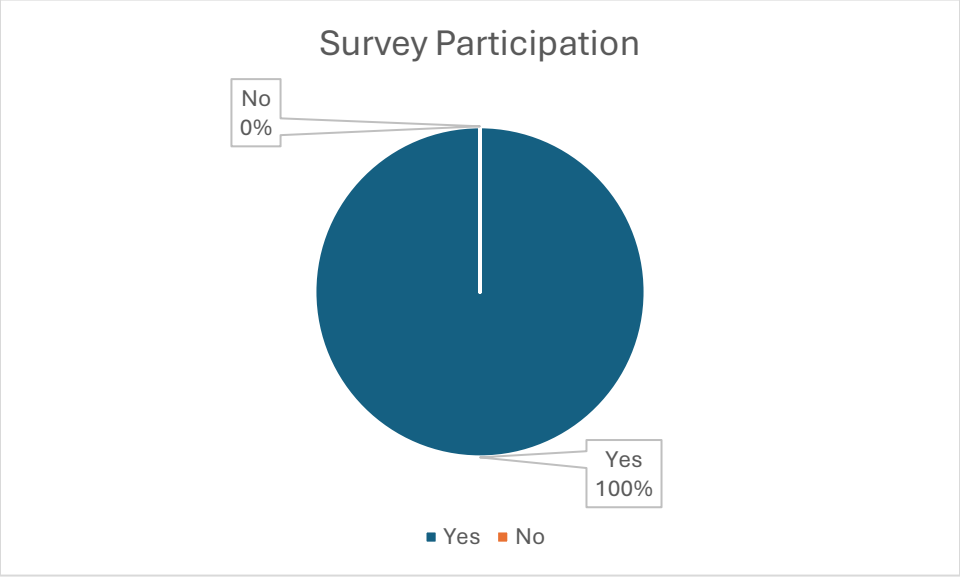
Appendix B: Tourist survey results

Analysis of the touristic accessibility to the historic centre of the town of Todi (June 2024)

This survey aims at acquiring more information on the town of Todi and its accessibility. My name is Philip James Kirchin and I am a student from the University of Twente in the Netherlands. I would like to thank you for accepting to take part in this research for my thesis project. The response to the answers will not be registered until the button in the last page, "SUBMIT", is not clicked. To modify past responses, refresh the web link at the top of the page. The survey is 16 questions long and has an average response time of 10 minutes.

Q1 Taking part in this survey means that you are consenting to the use of personal information for this and future research projects. In any case, Responses will remain anonymous. Your data will be under the protection of article 7 of the GDPR (General Data Protection Regulation) Do you accept these terms and conditions?

Multiple Choice

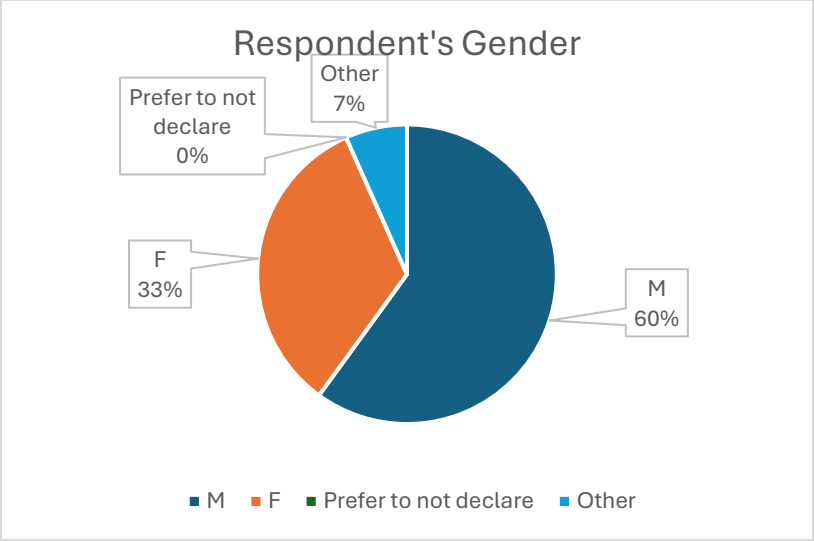


Choice	Totals
Yes	15
No	0

Responses 15 **Answered** 15 **Unanswered** 0

Q2 What is your gender?

Multiple Choice

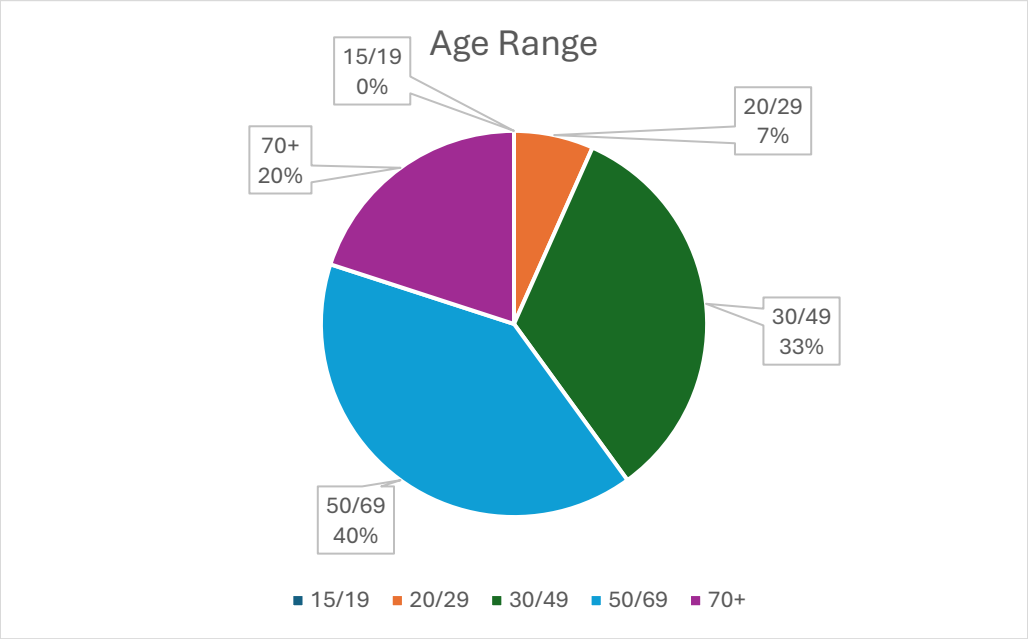


Choice	Totals
M	9
F	5
Prefer to not declare	0
Other	1

Responses 15 **Answered** 15 **Unanswered** 0

Q3 What is your age range?

Multiple Choice

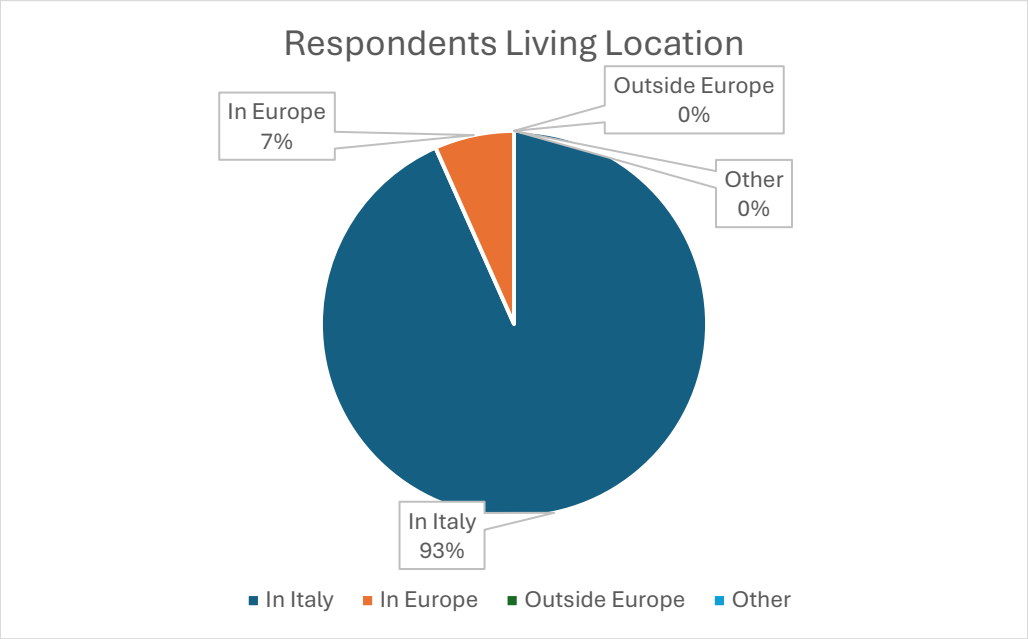


Choice	Totals
15/19	0
20/29	1
30/49	5
50/69	6
70+	3

Responses 15 **Answered** 15 **Unanswered** 0

Q4 Where do you live?

Multiple Choice

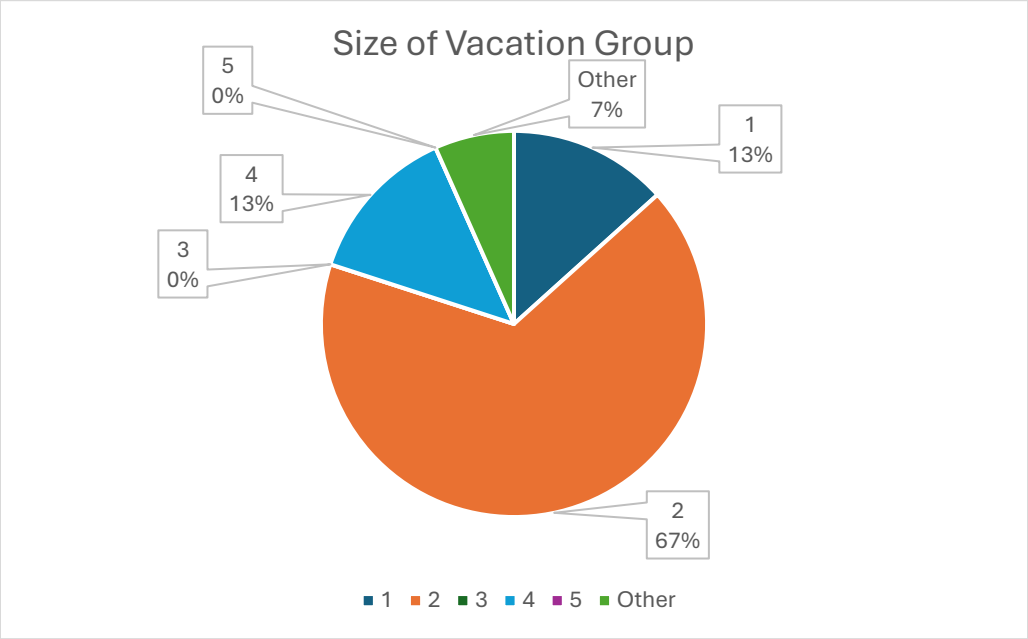


Choice	Totals
In Italy	14
In Europe	1
Outside Europe	0
Other	0

Responses 15 **Answered** 15 **Unanswered** 0

Q5 What is the size of your holiday group?

Multiple Choice

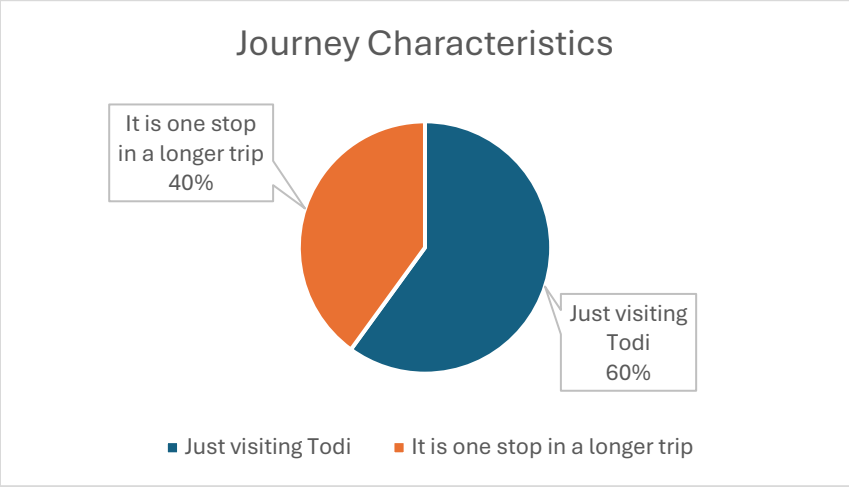


Choice	Totals
1	2
2	10
3	0
4	2
5	0
Other	1

Responses 15 **Answered** 15 **Unanswered** 0

Q6 Are you only visiting Todi or is it part of a longer trip?

Multiple Choice

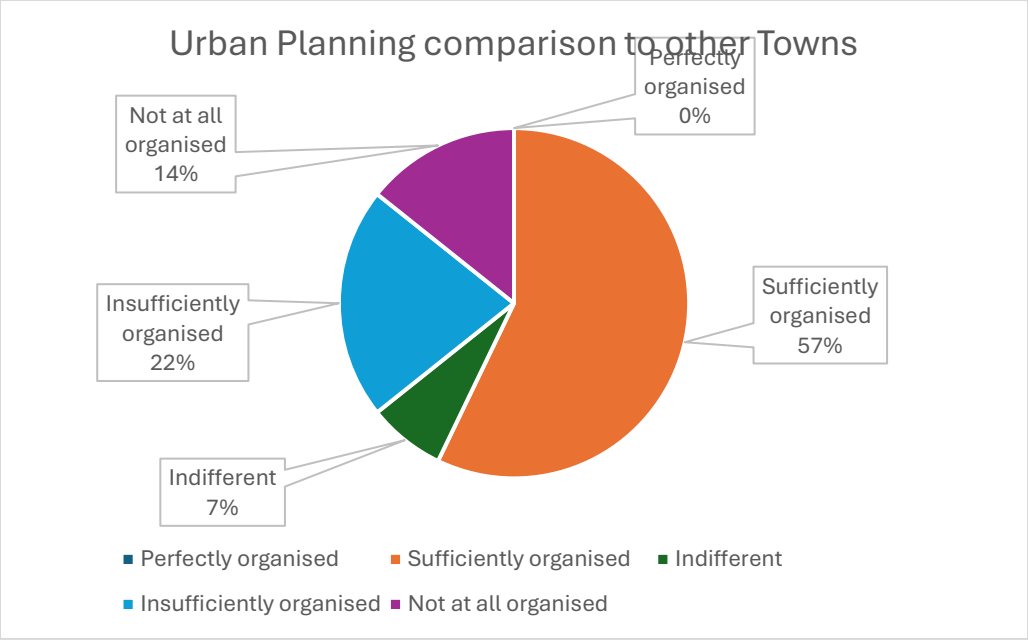


Choice	Totals
Just visiting Todi	9
It is one stop in a longer trip	6

Responses 15 **Answered** 15 **Unanswered** 0

Q7 How do you find the urban planning in the historic centre compared to other towns you have visited?

Multiple Choice

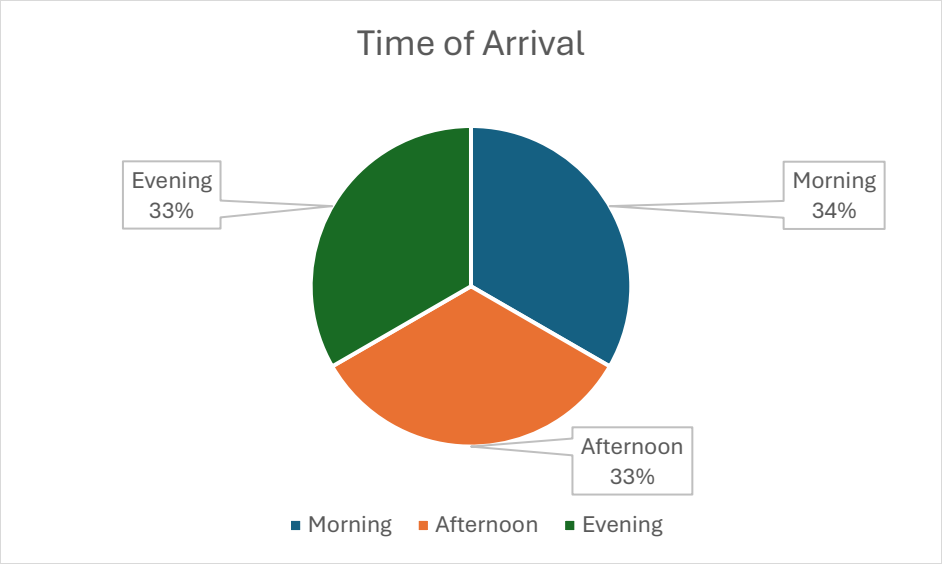


Choice	Totals
Perfectly organised	0
Sufficiently organised	8
Indifferent	1
Insufficiently organised	3
Not at all organised (e.g. Too many vehicles, too many parking areas,...)	2

Responses 15 **Answered** 14 **Unanswered** 1

Q8 When did you go to the historic centre?

Multiple Choice

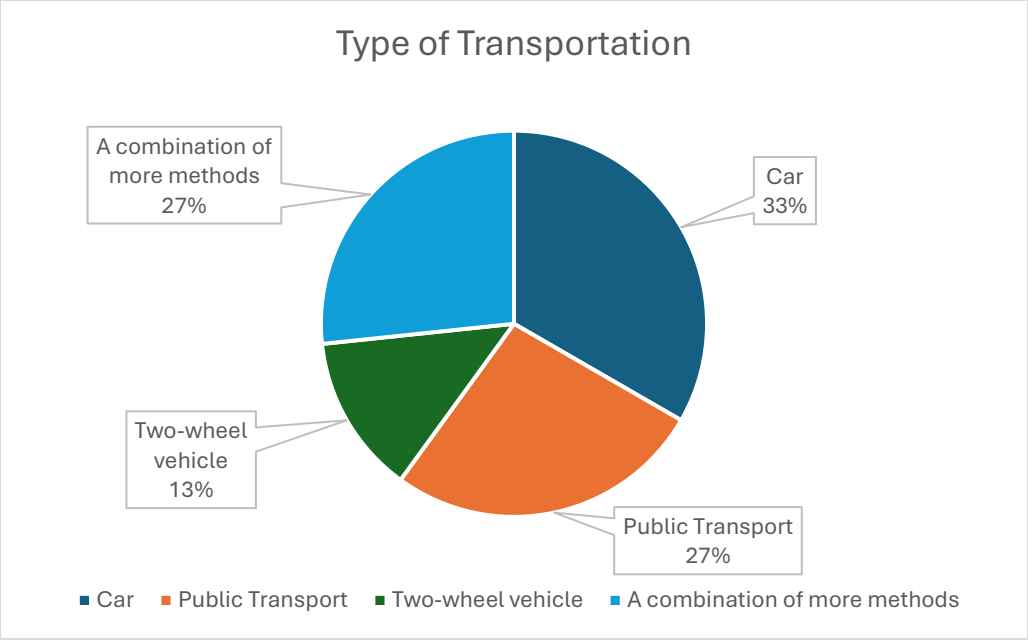


Choice	Totals
Morning	5
Afternoon	5
Evening	5

Responses 15 **Answered** 15 **Unanswered** 0

Q9 How did you initially arrive at the centre of Todi? (From the airport or wherever it may be)

Multiple Choice



Choice	Totals
Car	5
Public Transport	4
Two-wheel vehicle	2
A combination of more methods (Car/Lift, Car/Bus,...)	4

Responses 15 **Answered** 15 **Unanswered** 0

Q10 Describe the motivation behind the selected method of transport

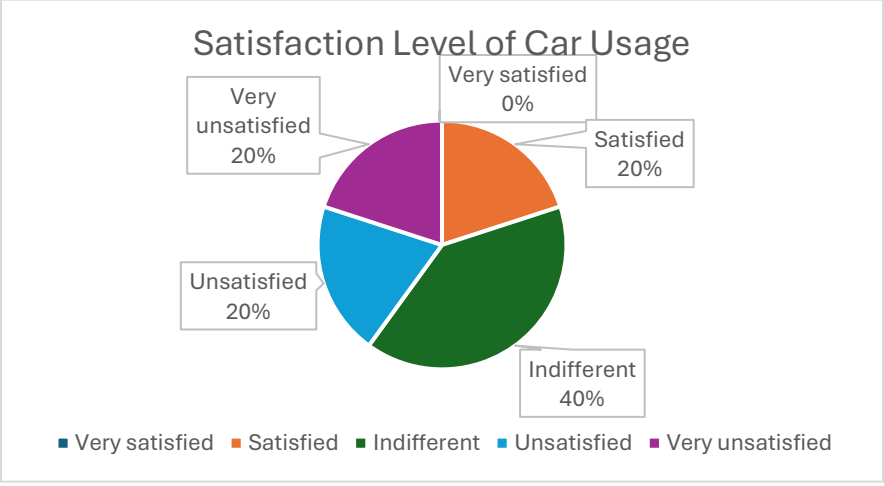
Form

Date	Car (e.g. comfort, necessity,...)	Public Transport	Two-wheeled vehicles	A combination of methods
June 24, 2024 1:26 PM	Comodità			
June 24, 2024 5:44 AM	comodità			
June 23, 2024 3:43 PM		Dovrebbero essere più frequenti		
June 23, 2024 9:01 AM	Necessità da Collevalenza			
June 23, 2024 6:58 AM			Dotato di pass disabili	

Responses 15 **Answered** 15 **Unanswered** 0

Q11 What is your overall satisfaction levels regarding the car considering the following: Time spent parking, parking costs, walking paths and the infrastructure used.

Rating

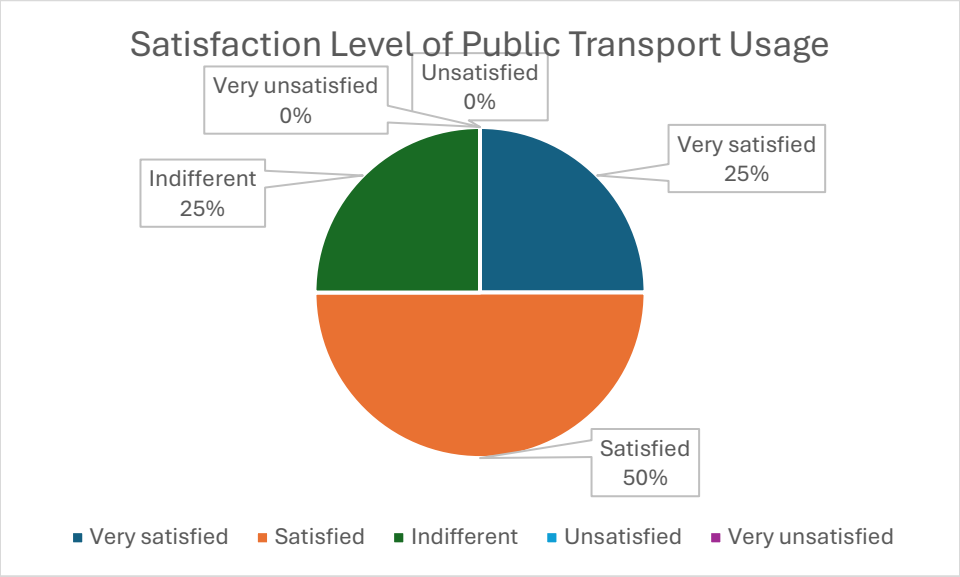


Value	Label	Total
1	Very satisfied	0
1	Satisfied	1
1	Indifferent	2
1	Unsatisfied	1
1	Very unsatisfied	1

Responses 15 **Answered** 5 **Unanswered** 10

Q12 What is your overall satisfaction levels regarding the public transport considering the following: Time spent waiting, walking paths and the infrastructure used

Rating

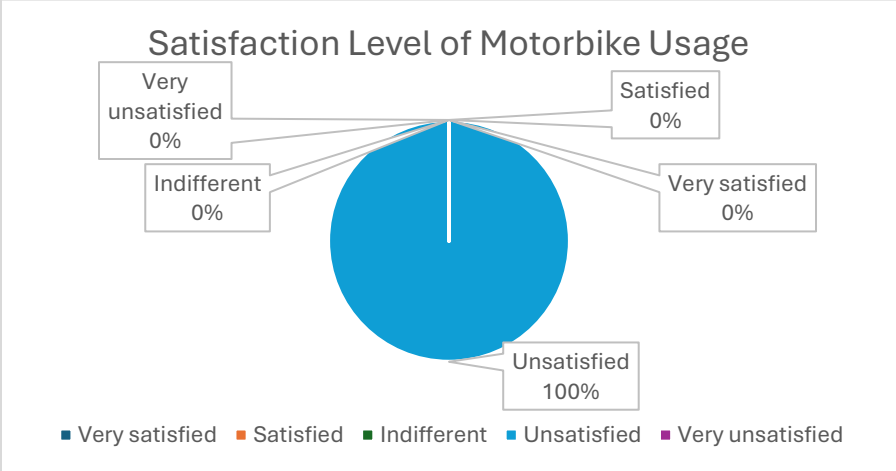


Value	Label	Total
1	Very satisfied	1
1	Satisfied	2
1	Indifferent	1
1	Unsatisfied	0
1	Very unsatisfied	0

Responses 15 **Answered** 4 **Unanswered** 11

Q13 What is your overall satisfaction levels regarding the two-wheeled vehicle considering the following: Time spent parking, parking costs, walking paths and the infrastructure used

Rating

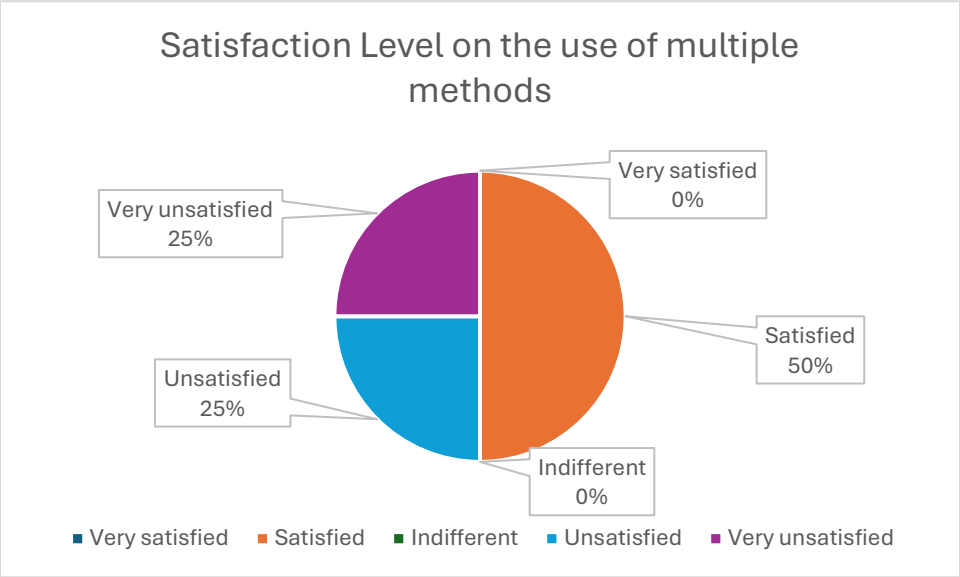


Value	Label	Total
1	Very satisfied	0
1	Satisfied	0
1	Indifferent	0
1	Unsatisfied	2
1	Very unsatisfied	0

Responses 15 **Answered** 2 **Unanswered** 13

Q14 What is your overall satisfaction levels regarding the use of multiple methods considering the following: Time spent parking, parking costs, walking paths and the infrastructure used

Rating

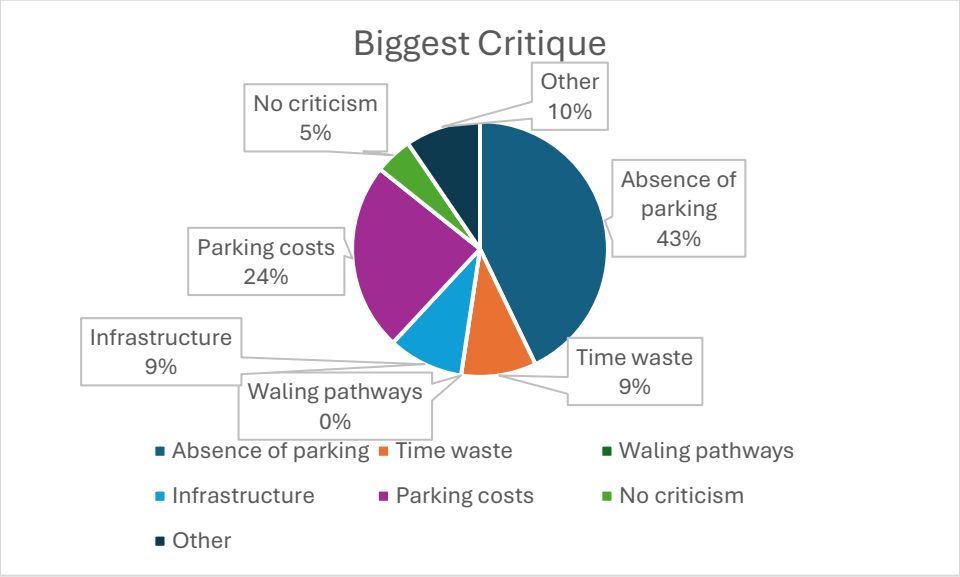


Value	Label	Total
1	Very satisfied	0
1	Satisfied	2
1	Indifferent	0
1	Unsatisfied	1
1	Very unsatisfied	1

Responses 15 **Answered** 4 **Unanswered** 11

Q15 Which criticism regarding the accessibility is most significant?

Multiple choice

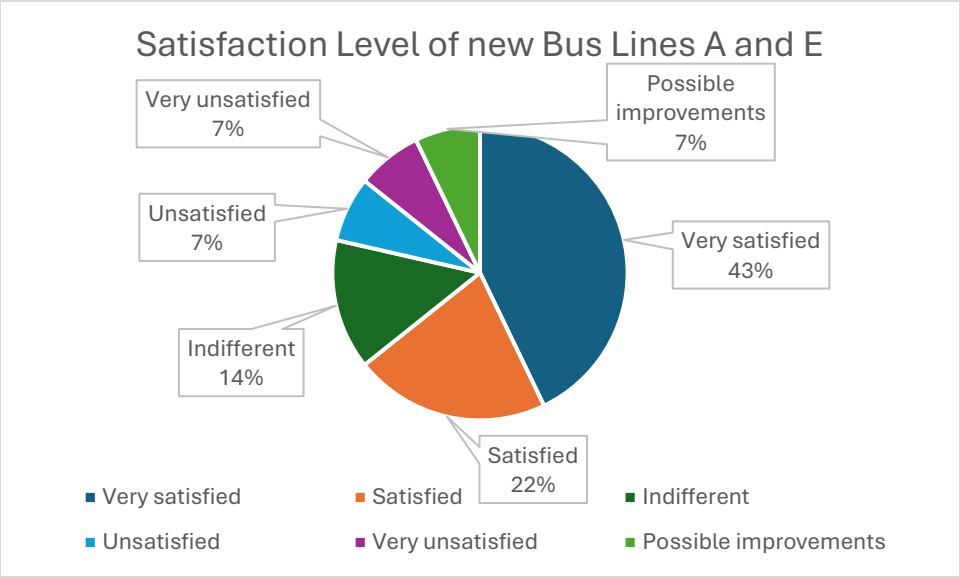


Choice	Totals
Absence of parking	9
Time to reach destination	2
Waling pathways	0
Infrastructure used	2
Parking costs	5
No criticism	1
Other	2

Responses 15 **Answered** 15 **Unanswered** 0

Q16 What is your opinion on the free bus service? (e.g. Lines A and E)

Multiple Choice



Choice	Totals
Very satisfied	6
Satisfied	3
Indifferent	2
Unsatisfied	1
Very unsatisfied	1
Possible improvements to be applied to the service (e.g. Timetable, frequency, route,...)	1

Responses 15 **Answered** 15 **Unanswered** 0

Q17 Feel free to leave suggestions as to how to improve the accessibility to the historic centre.

Essay

Date	Response
June 24, 2024 1:26 PM	
June 24, 2024 5:44 AM	Forse sarebbe da prendere in considerazione un servizio con scale mobili come a Perugia, Assisi ed altre località turistiche dell'Umbria.
June 23, 2024 3:43 PM	C'è poco parcheggio. I mezzi pubblici più frequenti ed essere in più punti della cittadina
June 23, 2024 9:01 AM	Mancano servizi di trasporto dalle frazioni tipo Collevalenza, quindi necessità di usare auto per raggiungere il centro storico di Todi
June 23, 2024 6:58 AM	Aumentare gli stalli per disabili

Responses 15 **Answered** 15 **Unanswered** 0

Appendix C: Survey Pubblication

Figure 21/25: Printed Newspapers and Tourist Poster

TODI - MARSCIANO

CORRIERE DELL'UMBRIA 21
Giovedì 13 giugno 2024

Oltre all'ex assessore Borzacchiello, fuori l'ultimo presidente della massima assise Antognoni. Dentro Facchini con 43 preferenze

Esclusioni eccellenti in consiglio

di **Massimo Fraolo**

MARSCIANO

Fuori dal consiglio comunale con 340 preferenze, dentro con 43. È lo strano gioco dei numeri e dell'attribuzione dei seggi che disegna, almeno sulla carta, un consiglio che lascia fuori esponenti importanti della maggioranza uscente. Come l'assessore Francesca Borzacchiello, che non siederà sui banchi dell'opposizione nonostante il boom di preferenze, mentre ad Angelo Facchini ne sono bastate così poche per tornare consigliere. A pagare la dispersione dei voti è soprattutto il centrodestra, che non elegge Vincenzo Antognoni, fuori nonostante le 195 preferenze, Danilo Simpatia con 108 voti, Laura Spaccino con 101, Patrizia Trequattrini, assessore uscente, con 97 e Gisda Gelosia con 96. Fuori anche Roberto Consalvi, assessore dimissionario prima della fine del mandato, che ha ottenuto 60 voti e Dora Giannoni, anche lei assessore, che si ferma a 33. Anche sulla sponda opposta ci sono esclusi in tripla cifra. È il caso di Altra Marsciano, che è riuscita a portare addirittura 7 candidati ben oltre le 100 preferenze. Al momento, salvo scorrimenti, restano fuori Yuri Capoccia, Letizia Ridolfi, Alessia Romoli, Roberto Pileri e Mattia Buspolini, rispettivamente con 160, 159, 145, 139 e 117 preferenze. Anche nel Partito Democratico ci sono non eletti con un buon riscontro in termini di preferenze. È il caso di Maria Cristina Sparanide, che ne ha ottenute 91. Al momento fuori anche due candidati della lista civica per Michela Moretti sindaco, che hanno superato quota cento: Pino Treppiedi con 108 e Francesca Filippetti con 106, seguiti da Anna Maria Arnegiani con 78 e Alvaro Angeleri con 76.

Chi entra e chi esce Antognoni, ultimo presidente del consiglio comunale, resta fuori con 195 preferenze. Entra invece Facchini con 43

Il concerto

Note d'estate al via con il Sirius Accordion Trio

TODI

Inizia oggi 13 giugno la decima edizione di Note d'estate, organizzata dalla sezione di Todi di Gioventù Musicale. Di scena (chiostro del liceo Jacopone da Todi, ore 21), il Sirius Accordion Trio *(nella foto)*, composto da tre giovani fisarmonicisti, allievi di Germano Scurti del Conservatorio di Musica Tito Schipa di Lecce, Michele Bianco, Alberto Nardelli e Pietro Secundo. "Un gruppo che ha già numerosi successi al suo attivo – spiega la curatrice della rassegna, Lucia Mencaroni". Il trio di fisarmoniche, il cui repertorio spazia tra vari generi musicali e viene considerato tra i più interessanti tra i fisarmonicisti, propone per il pubblico taderte musiche di Makkonen, Olczak, Hakola, Bänköví, Schnittke, Semenov e Baranek.

Ri.Bo.

Progetto internazionale

La città al centro di una tesi di laurea

di **Elio Andreucci**

TODI

La città di Todi è stata individuata per lo studio e tesi di laurea sulla accessibilità nei centri storici medievali caratteristici dell'Italia centrale. Su iniziativa della University of Twente (Paesi Bassi), in collaborazione con l'Università degli Studi di Perugia, l'amministrazione comunale ha assicurato il suo supporto, così da poter disporre di una analisi scientifica dei punti di criticità, ma anche di potenziale forza sui quali intervenire per migliorare la mobilità nel centro storico. Primo passo di questo lavoro è la diffusione di un sondaggio online: la scadenza è fissata al 20 giugno. Si tratta dello step iniziale della tesi di laurea di Philip P.J. Kirchin, studente di Ingegneria civile dell'università olandese. La ricerca è svolta in collaborazione con il dipartimento di Ingegneria civile e ambientale dell'ateneo perugino sotto la supervisione scientifica del professor Massimiliano Gioffrè e dell'architetto Alessandro Bruni, presidente della sezione umbra dell'Istituto nazionale di urbanistica. "Non possiamo che essere grati alle due università per aver scelto la città di Todi - sottolinea il sindaco Antonino Ruggiano - invitiamo i cittadini a dedicare 10 minuti per la compilazione del questionario, che può rappresentare una ulteriore occasione di ascolto utile al progressivo miglioramento del nuovo piano di mobilità, al quale si sta lavorando in attesa dell'entrata in funzione dei nuovi ascensori da Porta Orvietana ai Giardini Pubblici e della realizzazione di due nuove aree di sosta, collegate dalle due nuove linee urbane gratuite, istituite di recente". "Rispondere al sondaggio è importante - spiega il professor Gioffrè, perché l'analisi dei dati raccolti rappresenta una occasione, per avere una fotografia quanto più realistica possibile della percezione dei cittadini sull'accessibilità del centro storico".

Fratta Todina Le domande vanno presentate entro il 21 giugno

Campus estivo in piscina organizzato dal Comune

FRATTA TODINA

Il Comune di Fratta Todina organizzerà, tramite lo staff Minori Infanzia - Rete Lilliput - Polis Società Cooperativa Sociale, un campus estivo alla piscina comunale. Il campus sarà attivato con un numero minimo di 14 bambini compresi gli iscritti del Comune di Monte Castello di Vibio, dal primo al 26 luglio per quattro settimane, dalle 8 alle 13. La retta settimanale prevista è di 95 euro, comprensiva del contributo dell'amministrazione pari a una quota settimanale di 45 euro per ciascun bambino residente nel Comune. Pertanto la somma dovuta, per singola settimana e per ciascun bambino residente da parte dei genitori è di 50 euro da versare direttamente alla società erogatrice del centro estivo.
Al fine di consentire una migliore organizzazione del servizio, le adesioni dovranno essere comunicate entro e non oltre il 21 giugno via email a info@comune.frattatodina.pg.it, oppure direttamente alla società erogatrice.
Per coloro che vorranno partecipare al corso di nuoto durante tutti i giorni di partecipazione ai centri estivi è previsto il pagamento di una quota integrativa di 10 euro a settimana.
Per informazioni relative all'avviso è possibile contattare il servizio segreteria allo 075/8745304 o la Ditta Polis Soc Cooperativa al 347 4438936 (Mariateresa Briamonte).

O.V.

Iscritti Dovranno essere almeno 14 i bambini per attivare il campus estivo in piscina

L'intervento

Grazie, la riconferma non era scontata

di **Marsilio Marinelli***

Grazie!
Essere riconfermato per il terzo mandato non era scontato, perché quando si amministra per anni si può incorrere nel rischio di stancare i cittadini ed invece anche questa volta sono stato "seppellito" sotto una valanga di voti che orgogliosamente danno davvero il senso di essere riusciti ad interpretare i desideri di una intera comunità. Molto del merito di questa bellissima affermazione della lista Sare Venanzo Bene Comune va anche ai candidati consiglieri che hanno potuto dimostrare le proprie capacità e la propria volontà di lavorare a servizio dei cittadini. Qualcuno utilizzando forme improprie di campagna elettorale sperava di recidere un legame solido che ho saputo costruire con la mia comunità... non si può fare così e i cittadini hanno emesso il proprio verdetto. Ora al lavoro per Sare Venanzo, per le sue frazioni, per il nostro bene comune.
Ancora grazie.

*** sindaco di San Venanzo**

TODI | FINE LAVORI PER INIZIO AUTUNNO

Il punto sui lavori di rifacimento di Via Menecali

Proseguono i lavori per la riqualificazione di Via Menecali con il ripristino dell'ingresso principale alla Pizzeria Pozzo Beccaro. Il tratto ora interessato è quello tra Torre Caetani e Pozzo Beccaro, circa la metà dell'intero viale, cui seguirà la cantierizzazione del secondo stralcio, fino all'accesso del viale, all'altezza del Tempio della Consolazione. «Questo approccio progressivo – si legge sulla pagina FB del Comune – è stato adottato per diminuire i disagi dei residenti ed intervenire nel tratto davanti all'Istituto Einaudi durante il

periodo di chiusura delle scuole».
L'intervento, oltre al rifacimento dei servizi a rete e della pavimentazione, prevede una nuova illuminazione e arredo urbano.
L'attuale stazione dei bus urbani ed extraurbani in Via Menecali, a lavoro completato, verrà spostata nell'area di Porta Orvietana, da dove i collegamenti con la piazza saranno assicurati non solo dall'attuale sistema di risalita meccanizzata ma anche dai due nuovi ascensori, oltre che dalle due linee gratuite istituite lo scorso aprile.
Il termine ultimo dei lavori è fissato per la prima

TODI | I CENTRI STORICI MEDIEVALI

Studio di una università olandese sulla città di Todi

Per iniziativa della University of Twente (Paesi Bassi), in collaborazione con l'Università degli Studi di Perugia, Todi è stata individuata quale caso di studio per una tesi di laurea sulla accessibilità nei centri storici medievali caratteristici dell'Italia centrale,
Primo passo di questo lavoro è la diffusione di un sondaggio online che viene proposto a tutta la cittadinanza. Si tratta dello step iniziale della tesi di laurea di Philip P.J. Kirchin, studente del Corso di Laurea in Ingegneria Civile dell'Università olandese.
Il lavoro è svolto in collaborazione con il Dipartimento di Ingegneria Civile e Ambientale dell'Università degli Studi di Perugia sotto la supervisione scientifica del prof. Massimiliano Gioffrè e dell'Architetto Alessandro Bruni, Presidente di INU Umbria.
L'Amministrazione comunale di Todi ha fornito la sua collaborazione per una iniziativa di ascolto basata su un approccio scientifico.
Rispondere al sondaggio (https://s.surveyplanet.com/9wm02wgq), è molto importante perché l'analisi dei dati raccolti, in forma anonima, potrà dare la percezione che i cittadini di Todi hanno rispetto alla accessibilità del centro storico e quindi proporre soluzioni realizzabili.

EVENTI | XI EDIZIONE DELLA MANIFESTAZIONE

A Todi la Festa Europea della Musica il 21, 22, 23 giugno

La Festa della Musica, nata in Francia come festa gratuita aperta a tutti i generi, esprime l'idea diversa di fare musica accessibile a tutti, incoraggiando grandi e piccini a uscire di casa con i propri strumenti per suonare nelle piazze, carceri, negli ospedali, nei musei, affinché la musica diventi anche strumento di accoglienza e solidarietà. A Todi l'Ass. Centro Studi Della Giacoma ha abbracciato questa idea che ripropone dal 2014.

Dalla musica classica, all'opera lirica, dal folk al jazz, pop, rock: la musica apre anche ai siti minori, ma non per importanza. Il duo lirico (Natalia Quiroga Romero soprano, Gustavo Vita basso, Argentina) che si alterna alle visite nelle Cisterne Romane e alla scultura Ingresso di Beverly Pepper; le danze argentine (Pasión Folklorica Danze) e i canti mediterranei (Leggermente al Sud, Caserta) che accompagnano le visite guidate a Via Termoli; l'Alegrias flamenca (BolerOlé Anna Sinelshchikova baile, Roma) che invita alla visita della Galleria d'Arte Fondazione Beverly Pepper; la musica ucraina (Sofiya Rudakevych e Ilona Zadvirna canto e bandura), i canti della Corale Lorenzo Perosi di Cave (RM) che accompagnano le visite a Palazzo Pensi, la musica iraniana meditativa (Avartan Ensemble bansuri, santur, tabla, Perugia) che duetta con le visite guidate a Palazzo Valenti Fredi. Il tutto grazie alla collaborazione con le associazioni culturali Coop Culture, Fondazione Beverly Pepper, Gruppo Archeoclub Todi, Gruppo FAI Todi.
Una menzione particolare va al concerto finale del corso di musicoterapia dei ragazzi delle Ass. Temenos e Insieme per volare (Todi) guidate dal musicoterapeuta Gianfranco De Franco, e alla musica del gruppo MIC- BAND, costituito da utenti e staff del DSM ASL Roma2.
Infine, grazie alle bande musicali umbre che guideranno la sfilata musicale e all'orchestra eccezionale di 15 batteristi, oltre alla poetessa Antonella Rizzo e sua figlia Eleonora Croce soprano, alla fisarmonicista Debora Moriconi, al duo USA di musica rinascimentale Ilil Danin e Earl Christy, il coro della Casa delle Donne di Terni e folk spoletino Le Cinciallegre, IPSE Dixieland Jazz band, la Smilf marching band, Ol' Boozers Boogie Band, la grande Orchestra Giovanile Regionale Umbria, ReUnion Progressive Rock guidata da Giulio Castrica, all'Orchestra Aniene di musica pop romana. Ai giovanissimi cantanti pop e jazz Maria Mazzotta, Shorena Laudi, Maria Falcioni, Claudia Terlizzi, Marco Bovelli, ai musicisti Ruggero Bonucci, Giacomo Marcucci, Michele Porcu, Tony Ranocchia, Simone Tintillini, Valter Vincenti. E infine le sorelle arpiste Silvia Agnese e Chiara Ilia Rampazzo.
Musica e visite gratuite.
ORGANIZZAZIONE NO PROFIT: Centro Studi Della Giacoma APS info@centrostudidellagiacoma.it 3396531677 - FB, Instagram, Twitter, You Tube FestadellaMusicaTodi

Quando un'alba o un tramonto non ci danno più emozioni, significa che l'anima è malata. Roberto Gervaso

Todi, questionario del prof dall'Olanda per studiare la mobilità in centro

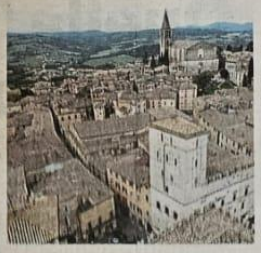
IL PROGETTO

TODI Solo dieci minuti del vostro tempo da dedicare ad uno studio per migliorare l'accessibilità nel centro storico di Todi. Infatti per la sua struttura urbana medievale la città di Iacopone diverrà modello di studio per l'accessibilità nei centri storici con caratteristiche analoghe. A promuoverlo l'University of Twente, un ateneo olandese che trasformerà la città in un interessante "caso di studio".

Primo step un questionario online in collaborazione con Unipg, Istituto Nazionale Urbanistica e Comune di Todi. L'iniziativa dell'università dei Paesi Bassi, presa in collaborazione con l'Università degli Studi di Perugia, ha focalizzato su Todi una interessante possibilità di approfondimento da svilupparsi attraverso una tesi di laurea che ha per tema l'accessibilità nei centri storici medievali caratteristici dell'Italia centrale, un'iniziativa che vede l'amministrazione comunale partner attento tanto da assicurare il suo supporto. L'interesse particolare della città è quello di poter disporre, al termine dello studio, di un'analisi scientifica dei punti di criticità, ma anche di potenziale forza, su cui intervenire per migliorare la mobilità nel centro storico. Il primo passo dell'operazione, quindi, è la diffusione di un sondaggio online che intende coinvolgere tutta la cittadinanza. Ciò è previsto dalla impostazione della tesi di laurea che sarà redatta da Philip P.J. Kirchin, studente del Corso di Laurea in Ingegneria Civile dell'Università di Twente. La ricerca è svolta in collaborazione con il dipartimento di Ingegneria civile e ambientale dell'Università degli Studi di Perugia sotto la supervisione scientifica del professor Massimiliano Gioffrè e dell'architetto Alessandro Bruni, presidente della sezione umbra dell'Istituto Nazionale di Urbanistica. «Non possiamo che essere grati alle due prestigiose Università per aver scelto la nostra città – ha sottolineato il sindaco Antonino Ruggiano - invitiamo pertanto tutti i cittadini a dedicare 10 minuti alla compilazione del questionario online che può rappresentare una ulteriore occasione di ascolto utile al progressivo miglioramento del nuovo piano di mobilità al quale si sta lavorando in attesa dell'entrata in funzione dei nuovi ascensori da Porta Orvietana ai giardini pubblici e della realizzazione di due nuove aree di sosta collegate dalle due nuove linee urbane gratuite istituite di recente». «Rispondere al sondaggio è molto importante - spiega il professor Massimiliano Gioffrè - perché l'analisi dei dati raccolti, rigorosamente in forma anonima, rappresenta un'occasione per avere una fotografia quanto più realistica possibile della percezione che i cittadini di Todi hanno rispetto alla accessibilità del centro storico per andare poi a proporre soluzioni realizzabili nel segno della sostenibilità economica e ambientale».

TODI Una veduta del centro storico

Luigi Foglietti

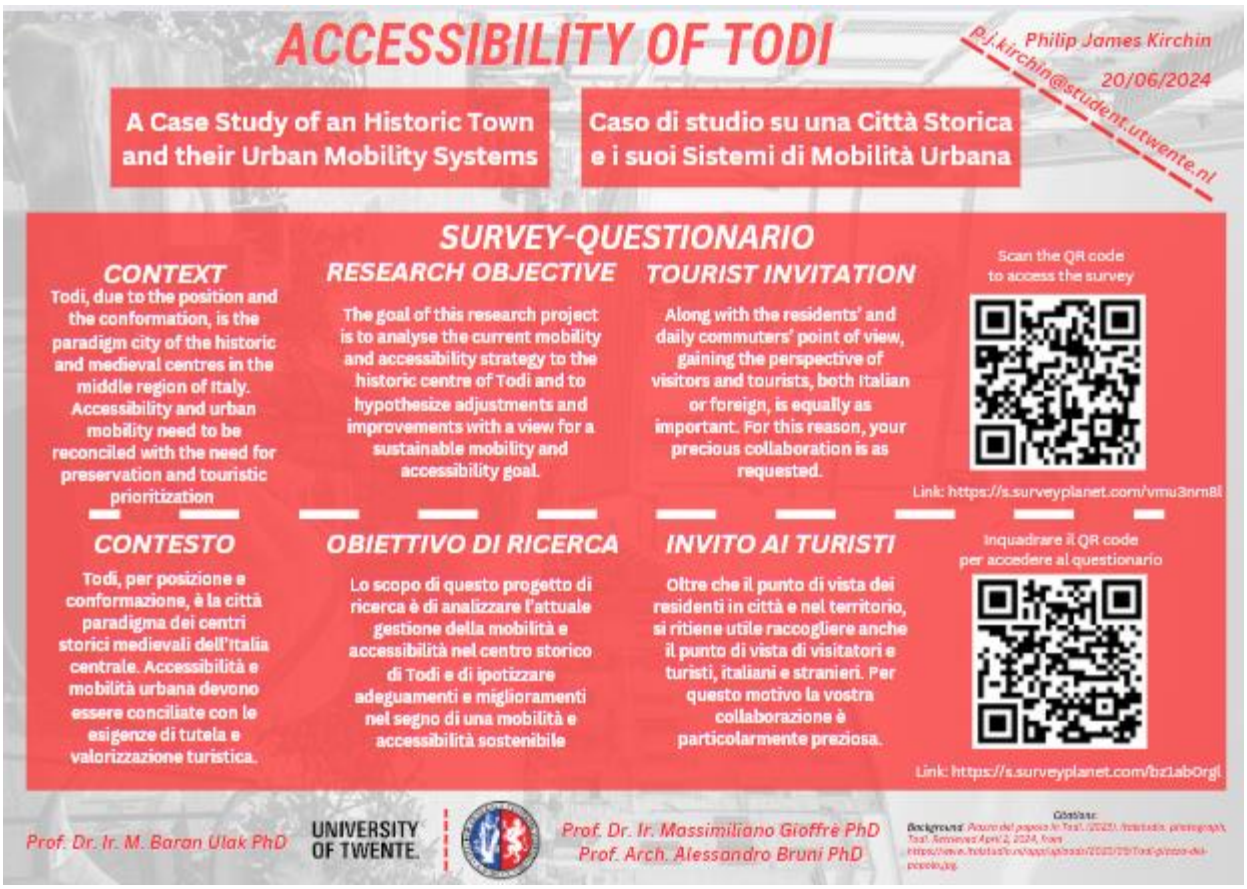


Todi

Accessibilità del centro Un questionario

TODI

Per iniziativa della University of Twente (Paesi Bassi), in collaborazione con l'Università degli Studi di Perugia, Todi è stata individuata quale caso di studio per una tesi di laurea sull'accessibilità nei centri storici medievali. Iniziativa alla quale l'amministrazione comunale ha assicurato da subito il suo supporto così da poter disporre di un'analisi scientifica dei punti di criticità ma anche di potenziale forza sui quali intervenire per migliorare la mobilità nel centro storico. Primo passo di questo lavoro è la diffusione di un sondaggio online che viene proposto a tutta la cittadinanza. Si tratta dello step iniziale della tesi di laurea di Philip P.J. Kirchin, studente del Corso di Laurea in Ingegneria Civile dell'Università olandese. La ricerca è svolta con il Dipartimento di Ingegneria civile e ambientale dell'Università di Perugia sotto la supervisione scientifica del professor Massimiliano Gioffrè e dell'architetto Alessandro Bruni, presidente della sezione umbra dell'Istituto Nazionale di Urbanistica. «Non possiamo che essere grati alle due Università per aver scelto la città di Todi – sottolinea il sindaco Ruggiano – invitiamo i cittadini a dedicare 10 minuti alla compilazione del questionario online che può rappresentare un'ulteriore occasione di ascolto utile al progressivo miglioramento del nuovo piano di mobilità. A quest'ultimo stiamo lavorando in attesa dell'entrata in funzione dei nuovi ascensori da Porta Orvietana ai Giardini Pubblici e della realizzazione di due nuove aree di sosta collegate dalle due nuove linee urbane gratuite istituite di recente». L'analisi dei dati raccolti costituirà l'occasione per avere una fotografia realistica della percezione che i cittadini hanno rispetto all'accessibilità del centro storico e per andare poi a proporre soluzioni.


ACCESSIBILITY OF TODI
A Case Study of an Historic Town and their Urban Mobility Systems
Caso di studio su una Città Storica e i suoi Sistemi di Mobilità Urbana
Philip James Kirchin
P.J.kirchin@student.utwente.nl
20/06/2024
SURVEY-QUESTIONARIO
CONTEXT
Todi, due to the position and the conformation, is the paradigm city of the historic and medieval centres in the middle region of Italy. Accessibility and urban mobility need to be reconciled with the need for preservation and touristic prioritization
RESEARCH OBJECTIVE
The goal of this research project is to analyse the current mobility and accessibility strategy to the historic centre of Todi and to hypothesize adjustments and improvements with a view for a sustainable mobility and accessibility goal.
TOURIST INVITATION
Along with the residents' and daily commuters' point of view, gaining the perspective of visitors and tourists, both Italian or foreign, is equally as important. For this reason, your precious collaboration is as requested.
Scan the QR code to access the survey
Link: https://s.surveyplanet.com/vmu3nm8l
CONTESTO
Todi, per posizione e conformazione, è la città paradigma dei centri storici medievali dell'Italia centrale. Accessibilità e mobilità urbana devono essere conciliate con le esigenze di tutela e valorizzazione turistica.
OBIETTIVO DI RICERCA
Lo scopo di questo progetto di ricerca è di analizzare l'attuale gestione della mobilità e accessibilità nel centro storico di Todi e di ipotizzare adeguamenti e miglioramenti nel segno di una mobilità e accessibilità sostenibile
INVITO AI TURISTI
Oltre che il punto di vista dei residenti in città e nel territorio, si ritiene utile raccogliere anche il punto di vista di visitatori e turisti, italiani e stranieri. Per questo motivo la vostra collaborazione è particolarmente preziosa.
Inquadrare il QR code per accedere al questionario
Link: https://s.surveyplanet.com/bz1abOrgl
Prof. Dr. Ir. M. Baran Ulak PhD
UNIVERSITY OF TWENTE.
Prof. Dr. Ir. Massimiliano Gioffrè PhD
Prof. Arch. Alessandro Bruni PhD
Citations: