MoTiV Project
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D.2.1 Outlook on Value of Travel Time: Futures Study and Related Hypotheses[1]

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[1] The original title of D2.1 in the MoTiV Grant Agreement was "Forecast Analysis on Outlook of Value of Travel Time in Europe in 2030". While the Deliverable scope is maintained and it is in line with Task 2.1 description, the title was slightly modified based on the results of the expert workshop and feedback from invited experts.

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Disclaimer

D.2.1 is associated to the MoTiV Task 2.1, described below.

Description of Task 2.1 "Megatrends and Value of Travel Time"
What are the trends that value of travel time is facing now and what will it be like in the future? A typical method to answer this question is to consider and assess the potential impact of existing megatrends - trends can be observed globally and in the long-term – on the value of travel time. For example, megatrends like ageing, globalisation, multitasking, individualism, or nomadism, are likely to have impacts on travel time. A desk research will be realized to review relevant megatrends, reviewing relevant recent futures studies in the scope of transport – like FUTRE (FUture prospects on TRansport evolution and innovation challenges for the competitiveness of Europe in the long term) and RACE 2050 (Trends and Drivers for Future Transport Demand) – and lifestyles, like SPREAD (Social Platform identifying Research and Policy needs for Sustainable Lifestyles 2050). To further explore the potential impacts of megatrends of VTT and identify hypotheses for testing through the MoTiV concept model, this task will carry out a futures assessment workshop, involving future studies experts, relevant stakeholders or experts with a focus on mobility consumers and VTT in particular. The workshop will consist of a creative exercise designed with a selected method to maximize the creation of collective insights. Based on the inputs from literature review and workshop, the following methodology will be used: Detail megatrends and their relations with potential impacts on value of time; Identification of specific key factors and insights influencing the evolution of value of time; Drawing of possible scenarios; Based on this factors, insights and scenarios, identification of hypotheses on the causes and consequences of VTT evolution. This task will deliver a report containing: Relevant megatrends for VTT, their impacts and possible scenarios VTT evolution hypotheses for consideration in the MoTiV model Preliminary identification of business opportunities and relevance for public policy

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About MoTiV

The Horizon 2020 project MoTiV (Mobility and Time Value) addresses the emerging perspectives on changing Value of Travel Time (VTT). Accordingly, it explores the dynamics of individual preferences, behaviours and lifestyles that influence travel and mobility choices. In other words, what does value of travel time mean for the end users, in relation to their travel experience.

The MoTiV project addresses VTT from the perspective of a single individual with a unique combination of personality, preferences, needs and expectations, in contrast with the traditional viewpoint of the economic dimension (time and cost savings). Its approach aims at achieving a broader and more interdisciplinary conceptualisation and understanding of VTT emphasising its "behavioural" component.

The main goal of the MoTiV project is to contribute to advance research on VTT by introducing a conceptual framework for the estimation of VTT at an individual level based on the value proposition of mobility. The conceptual framework will be validated through data collection and evaluation in at least 10 EU countries. The mobility and behavioural dataset will be collected using a mobile application developed by the project consortium, which will combine and integrate in an innovative way features from a multi-modal "journey planner" and an "activity/mobility diary". With this mobile app, end-users will be able to more easily track, understand, and re-evaluate travel decisions to make the most of their free time in accordance with personal preferences, lifestyle, interests, and budget. The target is to engage in the data collection process a minimum of 5.000 participants actively using the MoTiV app for at least two weeks. Besides validating the conceptual framework, the dataset will be made available to the scientific community as an Open Dataset to stimulate further research in this area.

The MoTiV project findings will produce scientific and policy outcomes, as well as potential business developments, including the development of new mobility services and the extension of existing applications such as the ones offered by the business partners of the Consortium (i.e. routeRANK journey planner and the PiggyBaggy app for crowdsourced deliveries).

Partners

Executive Summary

While the value of travel time is traditionally a core variable of transport and mobility infrastructure and service provision assessment, the evolution of lifestyles, technology, mobility patterns and choices are likely changing the way people perceive their travel time in a way that is not fully understood.

A good way to understand what is happening in the present is to try to figure how current trends could influence the future. We applied a futures study not only to generate some scenarios related to future perceptions of the value of travel time, but most importantly to generate hypotheses about the factors that might be influencing that perception in the present.

We involved a group of experts to share their views and construct new visions about the value of travel time and the factors that influence it. To generate information with underlying assumptions on the value of travel time, the experts and the MoTiV team were involved in two creative exercises: futures wheels from megatrends; creation of personas. Based on the results, we derived a set of underlying hypotheses about the factors that could be influencing travel time valuation.

A number of hypotheses were generated from the results of the futures wheel and persona analyses. These hypotheses are raw, in the sense that they result directly from these analyses and were not subject to systematization. They are an input for the development of the final MoTiV conceptual framework on value of travel time. This set of hypotheses may be used in different ways:

- To identify new hypotheses not considered previously
- To reassess the initially proposed dimensions of the value proposition of mobility
- To prioritize the research objectives
- To define the data that is needed to collect to validate the hypotheses

Concerning the definition of the conceptual framework for research in MoTiV, two main observations resulted from the observation of the set of hypotheses were raised:

- The futures wheel analysis raised few hypotheses related to time and cost dimensions. Is this a bias of the exercise or the symptom of a trend?
- The initial proposed dimensions by MoTiV of the mobility value proposition seems not to capture a significant amount of hypotheses. Reliability, information, connectivity and ability to work, are dimensions that could be added to the initial framework.

The steps of the consolidation of the MoTiV conceptual framework following from the inputs provided by the present work will be to synthesise the hypotheses raised, formulate hypotheses for research and identify the data required to validate hypotheses. The subsequent two steps, and the design of the MoTiV app, should be done iteratively as they have interdependencies, as the formulated hypotheses for validation should be feasible validate through data that is possible to collect.

List of Abbreviations and Acronyms

AI	Artificial Intelligence
AV	Autonomous Vehicles
MaaS	Mobility as a Service
VTT	Value of Travel Time

MoTiV Consortium Partners and Acronyms

Acronym	**Full name**
UNIZA	Žilinská univerzita v Žiline
CoRe	CoReorient Oy
ECF	European Cyclists' Federation ASBL
EUT	Fundació Eurecat
INESC ID	Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa
routeRANK	routeRANK Ltd
TIS.pt	Consultores em Transportes Inovação e Sistemas S.A.

1. Introduction

A good way to understand what is happening in the present is to try to figure how current trends could influence the future. While the value of travel time is traditionally a core variable of transport and mobility infrastructure and service provision assessment, the evolution of lifestyles, technology, mobility patterns and choices are likely changing the way people perceive their travel time in a way that is not fully understood.

The MoTiV project will identify and test hypotheses on the factors that influence the valuation of travel time through a European survey and data collection on real travel choices though a dedicated mobile app. The Workshop "Future trends and hypotheses on the Value of Travel Time" aims to generate hypotheses for further testing.

What are the trends that value of travel time is facing now and what will it be like in the future? A typical method to answer this question is to consider and assess the potential impact of existing megatrends – trends can be observed globally and in the long-term – on the value of travel time. For example, megatrends like ageing, globalisation, multitasking, individualism, or nomadism, are likely to have impacts on travel time.

To further explore the potential impacts of megatrends of the value of travel time (VTT) and identify hypotheses for testing through the MoTiV concept model, MoTiV carried out a futures assessment workshop, involving relevant stakeholders or experts with a focus on transport, consumers and innovation. The workshop consisted of a creative exercise designed with a selected method to maximize the creation of collective insights.

The following methodology was used:

1. Detail megatrends and their relations with factors with potential impacts on value of time;
2. Based on these factors and insights, identification of hypotheses on the causes and consequences of VTT evolution;
3. Drawing of possible scenarios on transport use and VTT.

2. Literature Overview on Factors Related to the Evolution of Value of Travel Time

Since the origin of transportation as a field of study that travel was considered as a derived demand, caused uniquely by the demand for spatially separated activities [1, 2]. However, the increase of leisure-based travel led to the present situation where the travel time may become positively valued and where (not only due to the first factor) the shorter time of travel isn't necessarily the desirable one [3].

In the MIND-SETS project (other H2020 project that ended in 2017), it is emphasized that the personal well-being depends heavily on three key psychological needs: autonomy (the freedom to explore the environment without restrictions), competence (feeling that we can control our reality and accomplish the objectives) and relatedness (social connection with the around world) [4].

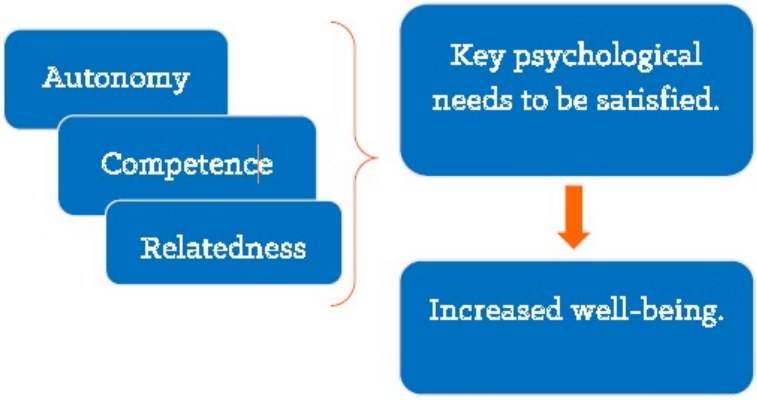


Figure 1. Well-being dependence as presented in the MIND-SETS project

This is related with the concept of "positive utility of travel", that suggests that the action of traveling is not necessarily negative and could provide benefits due to many reasons [1]. Psychologists argue that our general behaviour patterns are guided by three primary goals (hedonic, gain and normative goals) [4].

Even so, different works on the value of travel time savings like one realized in Sweden [5] showed that the monetary valuation of a travel time saving is still important and exhibits great variation due to different characteristics of the trip and the traveller.

For instance, according to Paleti et al. [6], one of the factors that can influence the perceived value of travel time is the period of the day and the activity related to the travel: a worker would pay more during the "before-work" period than during the after-work period due to the existence of a scheduled to comply. At the same time, the experiments undertaken by the authors suggest that the value of time for any given purpose (shopping, maintenance, etc.) varied significantly by the moment where it is measured (before, during or after the mandatory activity) and the time period during which the trip is realized.

One possible way of testing the attractivity of the travel as activity is to apply the "teleportation test" [2], which consists in exploring the receptivity of skipping the trip (e.g. on a home-work trip). The responses to questions like this are usually negative for those for whom "getting there is half the fun" – this explains the success of exploratory trips like the Route 66 or the European interrails. In contrast, trips with a utilitarian sense are most likely to happen by plane, based on the desire of connectivity.

This idea is related with the value of time variation across users of different modes. However, Wardman et al. [7] suggest that this is related not only to income variations across users of different modes (the so-called "user type variation") but also due to the differences in comfort or conditions of travel ("mode valued variation"). The lower attractivity behind the public transport is suggested by the work of Schwanen and Dijst [8], focused on the mean ratio between travel time and work time, which is considerably higher in public transport (specially in train trips) than in car trips.

Besides, related to the travel time experience within public transport is the frequently studied topic of stops and interchanges. The existence of a transfer within a public transport trip is a factor that adds a high cost to the journey, related not only with the possibility of a walking distance, but mainly to the added uncertainty on the total time of the trip [9]. Therefore, different studies have been directed to the waiting time experience within an interchange; just to name a few:

- Van Hagen [10] studied the impact of aspects like colour, advertising, infotainment or music on the waiting experience;
- Hickman et al. [11] evaluated the difference between expectation and reality within different interchanges in China in terms of accessibility, ticket acquisition experience, crowding, facilities or services like Wi-Fi connection;

- McCord et al. [12] evaluated the existence of real-time information provided to the passenger regarding the waiting times.

One common idea to these studies is the conclusion that the interchange experience must be improved, to enhance the passenger satisfaction and, ultimately, the public transport ridership. Indeed, the provision of accurate information, connectivity or an "affective experience" of time would reduce the cost of the waiting time. The experience became better due to the increased connectivity generated by the omnipresence of technology (namely the smartphones and tablets), turning the travel time more enjoyable and efficient [13, 14].

This apparently rising of enjoyment with public transport is one of the reasons pointed by the apologists of the "peak car" hypothesis, which is considered a manifestation of the arrival of a new era of travel in which demographic aspects and technological developments will be most relevant [15]. This alleged trend refers to the declining of car use and travelled distance in several different countries and cities all over the world, claiming that this means the car usage reached its "peak" [14]. Some relate this "peak" with different reasons [14, 16–20]:

- General economic conditions (indeed, it occurred right before the world economic crisis) or increase in fuel prices;
- Reaching the "Marchetti wall" – Marchetti estimated that, around the world, all cities have an average "travel time budget" of about 1 hour, and some authors claim that the average speed of the car has reached its limit due to the congestion and recent infrastructure priorities;
- Ageing cities, which lead to less car use;
- New patterns of work, shopping, entertainment and leisure.

Parallel to this phenomenon, another revolution seems to be knocking at the door. Automation has been a trend for some time, not only in the transport sector but mainly in all the industry. So far, railway lines all over the world use modern signalling systems and trains and underground systems no longer demand drivers. At the same time, autopilot systems have been implemented in aviation and shipping [21]. In the road sector, despite several tests being held in the cars' sector during the 20th century, only during the past decade serious advances were registered. Today, it is expected that full autonomous vehicles (AV) hit the road in a couple of years, and that the next 20 to 30 years will be of serious development.[2] IHS Markit, an American business information provider, estimates that autonomous vehicles sales will rise from about 50.000 in 2020 to more than 30 million in 2040 [22].

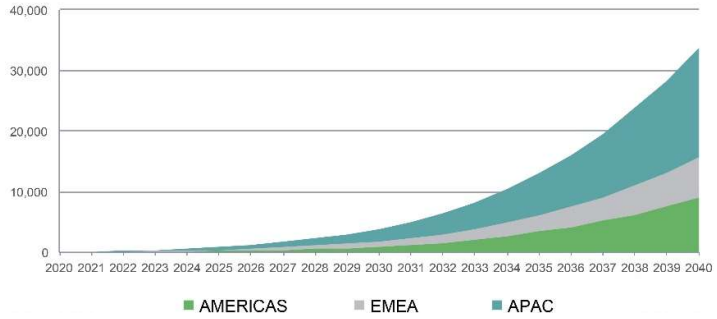


Figure 2. *Autonomous vehicles sales by region (2020-2040). Source: [22] (key: EMEA – Europe, the Middle East and Africa; APAC – Asia-Pacific)*

To achieve this tremendous growth, it is expected that the cost of the AV technology will cost in 2025 about 10 times less than it costs nowadays [23, 24].

[2] A full deployment of autonomous vehicles is not expected to happen until 2040-2050 within the Europe; until that time, the focus will be mostly in the connected vehicles, that would benefit from the infrastructure investments in the fields of networks and communications.

Some of the consequences of this new type of vehicles should have impact in the structure of the city, and have already been stated in different studies [25–27]: fewer accidents, fewer parking spots, larger fleets, reduced consumption, higher number of trips and higher infrastructure efficiency.

Van den Berg and Verhoef [26] claim there will be an impact on the value of travel time, as result of the time within the vehicle being used for other activities, which makes time more useful. The authors conclude that the extent to which getting an autonomous car decrease the cost of their travel time will differ among people: office workers may spend the "free time" working, while manual workers will use it on leisure activities. Another relevant aspect is the impact that this value of travel time change could have on congestion itself if it increases car usage.

De Looff et al. [27] performed a stated preference choice experiment in the Netherlands to compare conventional vehicles with autonomous vehicles depending on the ability to work ("AV-office") or to have leisure moments ("AV-leisure") inside, among other attributes of the trip (travel time, costs, company and walking time to car). The results pointed out that people are willing to pay less money to reduce their travel time if they will use it productively in an autonomous vehicle, but surprisingly also suggested that people might not like to have leisure time within such a confined space.

3. Workshop on "Future Trends and Hypotheses on the VTT"

3.1. Objectives and Methodology

The final objective of the workshop was to enable the identification of hypotheses about the value of travel time.

Rather than asking directly the participating experts about hypotheses to consider, the workshop took the approach of setting discussion and creativity frameworks that would lead to the description of situations, events or stories that had underlying assumptions on the value of travel time. These hypotheses were later extracted by the team that analysed the workshop results.

A relevant aspect to clarify in relation to this point is that the future study was not carried out for its own sake, but it was rather used as a method to understand the present. In other words, the end objective was to generate hypotheses about VTT, not to assess what the future may be. The process of forward looking is particularly effective in lifting the curtain of aspects that are more difficult to grasp when looking only at the present, and that is the reason of applying the future study approach.

There were two main activities with the purpose of generating information with underlying assumptions on the value of travel time:

- Creation of futures wheels from megatrends
- Creation of personas

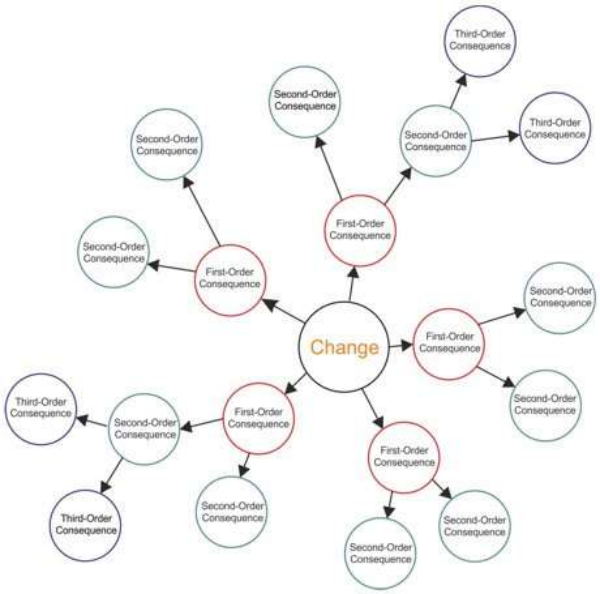


Figure 3. *Futures wheel. Source [28]*

The Futures Wheel approach is a "smart group" method that uses a structured brainstorming process to uncover multiple levels of consequences resulting from gives changes. The output is a map of possible direct and indirect, positive and negative impacts that can be analysed to develop strategies to promote desirable consequences and avoid undesirable ones [28].

To conduct the futures wheel, a set of megatrends with hypothetical implications on the evolution of VTT were considered. Megatrends are stable trends driven by global forces that impact several societal areas. Each futures wheel departed from a given megatrend. The second and third order insights obtained through the futures wheel exercise were then considered for the generation of hypotheses.

The second exercise was a persona creation activity. The use of personas is a method commonly used by marketers and product managers to deepen the analysis about people's needs and behaviours in relation an issue of analysis. In this case, the workshop persona creation activity had as a particularity that the personas were created considering the ideas and insights that were created in the futures wheel exercise. Therefore, these personas would tend to include aspects related to the trends or relations identified before. After creating the lifestyle profile of each persona, her attitudes and behaviours in relation to mobility and travel time were defined in the workshop. The workshop results analysis team then extracted the underlying hypotheses.

Finally, following the workshop and the identification of hypotheses, four future scenarios relating to the value of travel time were created. The scenarios attempt to define different possibilities with internal consistency between their underlying hypotheses and trends, and the technological futures. The objective of the scenario creation is mostly illustrative.

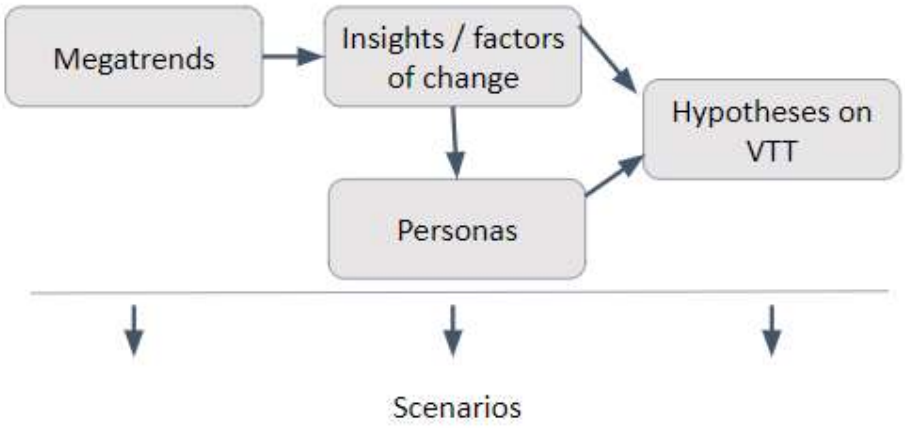


Figure 4. *Methodology on generation of VTT hypotheses based on futures study*

The definition of value of travel time used in this document implies that a higher value is related to more willingness to spend time, which is equivalent to a lower cost of travel time.

3.2. Setting and workflow

Aiming to generate hypotheses about the value of the travel time and the factors that influence this aspect, a workshop with experts from multiple backgrounds was realized on January 17th and 18th, 2018.

This workshop took place at the Arrábida Monastery, in Setúbal (Portugal), about 50 km from Lisbon – a beautiful monastery standing between the sea and the Arrábida mountains, understood as an ideal site for reflection and creativity.

Figure 5. *Arrábida Monastery*

The workshop was facilitated by Hugo Garcia, a Portuguese futurist, and had a total of 23 participants, including a set of experts from the different sectors like transport, marketing, data protection, ITS, as well as the MoTiV project consortium members.

Table 1. *Participants in the MoTiV workshop*

Name	Organisation	Description
André Marquet	Productized	Product innovation evangelist
Andrew Nash	-	Independent transport consultant
Duarte Batista	INESC-ID	MoTiV consortium member
Delphine Grandsart	European Passengers' Federation	Research officer
Fátima Santos	TIS	Transport expert & market researcher
Floridea di Ciommo	cambiaMO	MoTiV Advisory Board member and researcher on value of time and travel behaviour
Francisco Sousa	Carris	Marketing Director
Ghadir Pourhashem	University of Žilina (UNIZA)	MoTiV consortium member
Heikki Waris	CoReorient	MoTiV consortium member
Imre Keseru	MOBI Vrije Universiteit Brussel	MoTiV Advisory Board member and researcher on logistics and automative technology
João Pedro Barreto	INESC-ID	MoTiV consortium member
Jorge Cunha	Via Verde	Innovation Director
Kate Pangbourne	RGS-IBG	MoTiV Advisory Board member and Chair of Transport Geography Research Group
Kevin Mayne	European Cyclists' Federation (ECF)	MoTiV consortium member
Laurent Franckx	Federal Planning Bureau (Belgium)	Energy & Transport expert
Ludovico Boratto	EUT	MoTiV consortium member
Marco Ciarrocchi	European Cyclists' Federation (ECF)	MoTiV consortium member
Marian Gogola	UNIZA	MoTiV consortium member
Mário Alves	International Pedestrians Federation	Secretary-General
Mark van Hagen	Netherlands Railways	MoTiV Advisory Board member. Principal consultant & Author of the book "Waiting Experience at Train Stations"
Pedro Alcobia	INESC-ID	MoTiV consortium member
Richard Harris	HMI Technologies	ITS expert, ITS UK International Director
Soňa Ftáčniková	Slovak Centre of Scientific and Technical Information (CVTI)	MoTiV Advisory Board member and expert in Ethics and Data protection issues

The first contact with the monastery happened during the evening of January 17th. A “welcome dinner” was held by the workshop organization, with most of the participants arriving close to its beginning, when the monastery was already “submerged” into the night. After the dinner, and after a quick introduction by the coordination of the MoTiV project, João Taborda da Gama, a lawyer with regular presence as writer in one of the biggest Portuguese newspapers, was invited to a small and warm talk about the topic of this workshop, bringing a view to the topic from the perspective of a transport user.

DN Opinião

Destinos

14 DE JANEIRO DE 2018
03:08

João Taborda da Gama

É muito complicado saber o que é mais importante, se a partida, se o destino, se a viagem. Mas há quem à partida tenha a viagem como destino. Convidaram-me para falar num encontro de especialistas europeus em mobilidade cujo tema é o valor do tempo de viagem. Não é sobre viajar no tempo nem sobre o valor da viagem, mas sobre o valor que atribuímos aos tempos de viagem. Em rigor, é uma coisa no âmbito do workshop Future Trends and Hypotheses on the Value of Travel Time, do projeto europeu MoTiV - Mobility and Time Value, organizado em Portugal pelo especialista em transportes João Bernardino. E é no Convento da Arrábida. E chegar ao Convento da Arrábida é uma viagem que não tem um valor que se pode medir em dinheiro, nem sequer em espaço, nem muito menos em tempo.

Os modelos que estão por trás das políticas públicas de transportes, e dos planos concretos, têm muita dificuldade em

Figure 6. *Article published by João Taborda da Gama about MoTiV (available online – only in Portuguese)*

Then, Hugo Garcia brought forward a “megatrends appetizer”, presenting the selected megatrends and inviting the participants to suggest new megatrends and to explain their vision on the ones presented.

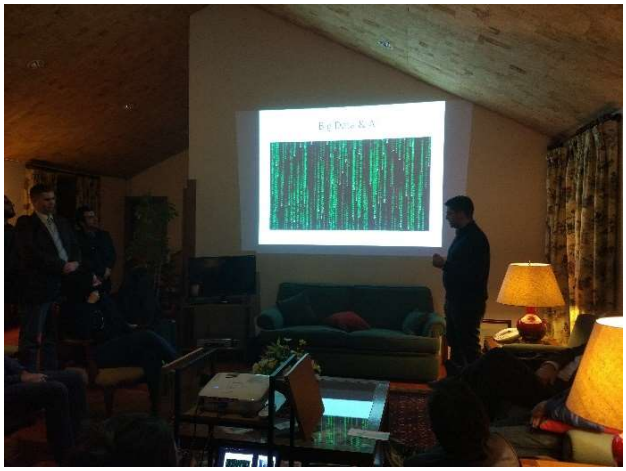


Figure 7. *Hugo Garcia presenting the megatrends during the evening appetizer*

In the next morning, the participants were divided into 4 groups (with the concern to equally distribute nationalities and areas of expertise). The first exercise consisted in, based on each considered megatrend, elaborating a “futures wheel” of insights – consequences and potential specific implications to travel time valuation. This allowed the identification of underlying factors that influence VTT, while through this mechanism the participants are “invited” to forget about their pre-defined ideas.

Figure 8. *Workshop participants on the futures wheel exercise*

After lunch, the participants (divided in new groups) picked real life personas and identified specific meanings, needs and solutions in respect to travel time valuation. For the needs of each persona, the participants were invited to create solutions that meet those needs, and underlying assumptions on the value of travel time for further validation were also raised. In the end, some members of each group presented the created personas to the rest of the participants.

Figure 9. *Workshop's participants presenting the created personas*

3.3. Selected Megatrends

Megatrends are global and sustained forces that impact business, economy, society, culture and personal lives, thereby defining our future world and its pace of change.

For this workshop, the facilitator Hugo Garcia selected a set of 13 megatrends that might affect the value of travel time and invited the participants to reflect about them. These megatrends are summarized in the table below.

Globalization

Your clothes are from Bangladesh, your computer is Japanese, your coffee is Brazilian, your next meal is Mexican, and the branding is American. It's easier to build a big wall, than it is to build a frontier.

Urbanization

Affecting mostly under-developed and developing nations, there are mega-cities being born constantly. Millions of people around the world are leaving rural areas for big cities, looking for jobs, excitement or safety.

Constant Connectivity

We are not really sure why or how, but suddenly we are convinced that we must check email and social networks every 5 minutes.

Speed of Change

You heard about that new trendy thing? Don't worry. It's over now.

Big Data & AI

They are watching you. You ticked the little box saying "I agree with the terms and service", and now they know everything about you. There was no secret conspiracy. You just said "Yes".

Automation

Robots are going to replace you in your job, in your sexual life and maybe even educate your kids. Will there be anything left?

Individualism & Horizontalism

You are not your family, you are not your country, you are not your religion and you are not your group. We question everything and everyone. We have traded our references for freedom.

Empowerwoment

Angela Merkel, Theresa May, Christine Lagarde and now Oprah? Not a good time to be sexist.

Own Less

House, car and products get old, they break, cost money and give you a lot of trouble. Why not rent, share or lease? Freedom overcomes possession.

Here and Now

Nobody likes waiting, and nowadays we don't have to.

Gamification

Most people don't really like to work, but everyone loves games. So, let's make everything into a game.

Slow Movement & Mindfulness

Tired of all this changes, stress, technology, information and distraction? Then, sit back, relax and take a deep breath.

Wellness & Health

Who cares about "Work hard. Play Hard"? Let's be happy and healthy instead. Let's ride a bike, not because it's cheaper or faster, but because it's fun and enjoyable.

After the presentation of these megatrends, and considering the inputs from the experts, some changes were made to the final list:

- Two new megatrends were added ("**Ageing Society**" and "**Environment (as a Problem)**");
- One megatrend was eliminated ("**Speed of Change**");
- Some megatrends were merged to wider concepts ("**Slow Movement & Mindfulness**" was merged into "**Wellness & Health**", and "**Big Data & AI**" was merged with "**Automation**" to "**AI (+ Big Data & Automation)**").

Ageing Society

Increasing our life expectancy is a great thing. Reducing fertility rate alongside child mortality is amazing. But now, we have more older people than young… and maybe there is a problem.

Environment (as a problem)

The summer gets hotter, the winter gets colder, ships cross the artic and the sea is rising. Is there something we can do? How are we responding? Are we solving or just dealing with it?

3.4. Insights from megatrends

In this section the analyses of the megatrends are presented, together with some of the main insights raised by the participants.

Globalization

One of the main effects of globalization should be the "movement of people, goods and services" and, therefore, the "expectation of same standards of travel everywhere".

A "corporate behaviour", with "monopolies of services and products", should be a reality, with the possibility of "a lack of competition". At the same time, "faster transport" (with "higher frequencies") is also a possibility, with "disruptive services" coming out.

Experientialism

The trend of giving more value to the experience instead of the material aspects should result in an "enjoyment of the trip", since the "journey becomes a purpose" and a "story to tell" arises.

The aspect of "quality" will gain strength, although this should lead to a higher "stress of choice". The importance of "feelings, emotions and sensations" should also contribute to turn time into "profit".

Constant Connectivity

The omnipresence of the connectivity allows the possibility of a true “multitasking on the move”, that increases the “effectiveness”, a “reallocation of time and time savings” and a “optimization of the thinking time”, but also an increase on situations of “distraction and lack of focus”. The time spent on transport should become “useful or pleasant”.

This “constant connectivity” also raises the possibility of “influence masses during transport through the information in real time” and “more choices”, but it could lead to “raise expectations”, that could be met or not.

Ageing Society

A society of elder people starts demanding “different travel needs” and considering “different physical and mental abilities”.

For one side, the number of “commuting trips” should decrease as “leisure trips” increase, while transport and the trip become “a fun thing to do”. The number of “trips for healthcare” should also be bigger, and the “home delivery” demand as well.

For other side, elder citizens shouldn’t be able to “use some transport”, have special needs related to “sight and hearing”, and demand “more seating in public/waiting areas” and changes on the “ergonomics of vehicles”. A “different perception of safety” is also foreseen.

“Working later/longer” or “a long time retired” would become some of the “economic impacts” of this society, and “demand responsive transport” should be needed, especially in the countryside.

Environment (as a Problem)

Taking conscience of the environmental causes should lead to a “pressure or motivation to change”, mainly in the direction of “less travel”. New “environment disruptions” are foreseen, and solutions like “incentivise active travel” and “new benefit schemes” should arise.

At the same time, the “exposure of bad practices” and the “exposure to pollution” should contribute in the same way, due to the “information on consequences”

AI (+ Big Data & Automation)

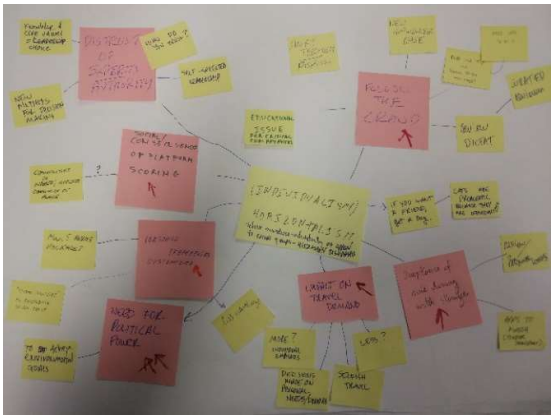
"New transport means", "value added services" and trends like the "capacity to prevent crowding" are some of the expected outputs from this evolution.

The "decision-making" process should be affected, with the possibility of "trusting in AI recommendations", but "new developments" should also lead to "social engineering" processes (e.g., to reduce the "social exclusion") and to the loss of "privacy".

Individualism & Horizontalism

This trend should result, according to the workshop participants, in a need for "personal preferences customized" and in a "need for political power".

At the same time, an "impact on travel demand" is foreseen, but without a clear direction: more trips due to an "individual emphasis" or less trips due to a decrease in ridesharing?



Empowerwoment

"Safety" and "security" are felt differently by women, and these factors may influence the "exposure to the waiting time", the "conditions of the bus stops" or even the "travel mode choice". However, their recognized "multitasking" skills may also take a role on the future of transportation sector.

The "family management" needs, namely the necessity of "travel with children", could also play an important role.

Own Less

The rising of Mobility as a Service (MaaS) was highlighted as one of the most relevant trends by the workshop's participants. Its suggested consequences range from the "easiness to try new things" and "a faster and more flexible response to travel needs" to "less responsibility". The "rural urban split" possibility was also mentioned.

The "economics of own less" were also highlighted, namely the increase of the "rationality as driver", as well as the "freedom of choice".

Here & Now

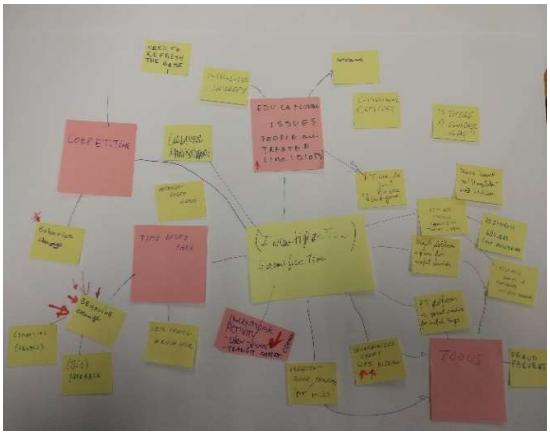
One of the main consequences referred from this trend was the "need of real time information and adaptation", but the "lack of personal planning [due to] laziness" and the "impatience" were also highlighted.

The search for "diversity of services and experiences" and the "need for time-fillers" can also lead to the demand of gamification and constant connectivity, two of the other megatrends presented.

Gamification

The possibility of a "behaviour change" due to a "time-based fare" was one of the most relevant consequences referred. Also, the idea of "decarbonized credits" and the rising of the "awareness" of the mobility issues were also stated.

New "tools" and "platforms" coming from the social media also raised the attention from the participants.

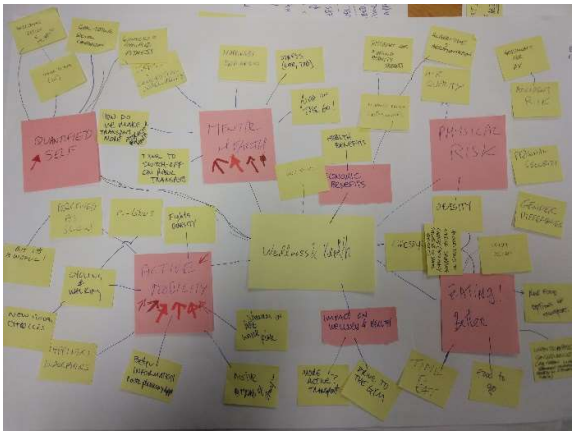


Wellness & Health

“Active mobility” and “mental health” came out as two main insights related to this megatrend.

Several ideas are related to the first insight, like “fights obesity”, “mindful”, while “stress of life and job”, “congestion unreliability” and “time to switch-off on public transport” are some of the ideas from the second one. The aspect of the “happiness endorphins” released by the “active mobility” are also a relevant factor for the “mental health” insight.

The need of “eating better” is also related to the possibilities of “new food options on transport” and “food to go”. The concerns with the health are also present within the awareness of a “physical risk” related to the “air quality” and to the “obesity”.



3.5. Personas

The table below presents a brief description of the twelve created personas, their perceptions on travel time, some viable solutions for their needs and underlying VTT assumptions.

For each persona, the experts were given one or two initial traits with some underlying megatrend or insight from the previous exercise. The personas were created with a future looking mindset: therefore, they do not tend to be representative of the current population, but probably more of future citizens (for example, there is a higher than average rate of personas without a driving license).

Table 2. *Personas created during the workshop*

Name (Gender/Age)	Occupation	Travel behaviour	Personal life and interests	Perception of time	Diagnostic and Solutions	Underlying dominant relations to VTT
Monica (F/26)	Degree in Marketing; sales manager of organic pet foods	Travels to visit clients; bicycle commuter; uses train for business travels (it provides useful time)	Health enthusiast; likes yoga; likes animals, environment and travel for leisure (hiking and cycling); blogger/Instagram on pet food	She likes travelling for the sake of travelling; she travels to relax; she needs constant connections; she uses tablet and smartphone during business travels	Developed a e-commerce website for organic pet food; work from home; less travels; more time for active travel only for leisure	+ Ability to relax + Constant connection + Active travel
Michael (M/62)	Fresh retired from postman	Lives in rural area, moves around a lot; used a lot of bikes; living all over central Europe; he has visual problem so cannot drive; railway station is 20km away but has a good bus service, and children can pick him out; needs to change trains	Big family (5 children and 10 grandchildren)	Does not value travel time much; he must be on time for doctor appointments	Needs social service; doesn't know how to use travel planner apps; poor accessibility to his home	+ Retirement + Reliability
Eric (M/23)	University student, social media expert at part-time	Has driving license but no car (too expensive); uses public transport, Uber, and scooter; needs to travel late at night;	Enjoys life; intellectual; online shopping-fashion; going to parties; interested in technology gadgets	Short of time (work/school); he would like to reduce travel time; high value, since he has a lot to do; cares about quality of travel too	Needs better mobile internet plan; needs MaaS	- More than one work occupation

Name (Gender/Age)	Occupation	Travel behaviour	Personal life and interests	Perception of time	Diagnostic and Solutions	Underlying dominant relations to VTT
Pink (M/50)	Engineer (self-employed)	3 kids and 1 step kid to take to school by car, to spend time with them; then, catches the bus to work; lives in suburbs and works downtown	Values family time; recently remarried; wine collector and lover	Mixed sense – on the way to work he wants to go really fast, but back home he enjoys a slow journey; in the weekend he likes to enjoy the moment	Buying bikes for the kids; organize a minibus from the community (driven by a parent) to school	- Taking kids to/from school + Busy life, journey as time to relax
Camilla (F/32)	Personal Chef	Lives in Barcelona centre, and rides the bicycle; uses an electric cargo bike for professional reasons; uses carsharing and motorbike sharing solutions;	Single but with a lot of affairs; likes adventure; as a hobby, she does rock climbing, kitesurfing and deep diving; environmental activist (Greenpeace)	Flexible but needs to be on time	Wants a MaaS solution	- Occupation that requires multiple trips in city
Alias (M/29)	Freelancer; works in a bar at night; app programmer; tourist guide; teaches how to ride horses	Monthly pass to use public transport; doesn't have driver's license; has a frequent flyer card	Single; multitasker; skater; goes to gym every day	Needs smartphone and connectivity; values reliability and comfort	App for taxis; Uber; ridesharing; equipment transport services	+ Connectivity Multiple occupations > Reliability
Dic (M/20)	Dropped out school but working in car sales	Drives parents car when it is available Rides the bike when going drinking with friends (it also gives a style)	Small town boy living with parents; weight lifter; "endorphin taker". No long-term plans	Doesn't care much about time loss or schedules Image improver	Low-end bike facilities not good for his image	+ school drop out + status increasing infrastructure (high quality cycle lanes and sidewalks)

Name (Gender/Age)	Occupation	Travel behaviour	Personal life and interests	Perception of time	Diagnostic and Solutions	Underlying dominant relations to VTT
Maria (F/26)	MSc Student (Computer Science); wants to start weekend tours in Barcelona	Trying to find a secure way to go from the city centre to the university; takes shared bike to go to yoga studio; she doesn't have driver's licence; she uses Uber	Looking for co-living place in the city centre; yoga practitioner	Travel time is a burden when it doesn't feel secure	Need of something easy to deploy Safer paths	- Security perception + Information
Pete (M/50)	Statistics lecturer in Reading	Car 100% dependent	Recently diagnosed with Alzheimer; lives with partner, who works full time in London, and has 2 kids	Time became less important with his decease	Needs Uber/taxi to drive the kids or community services; desire "ambulance as a service" due to this condition	+ Strong accessibility limitations + Door-to-door travel
Nils (M/60)	Knowledge worker; freelancer (projects abroad)	Likes to offer rides when driving (as rental); when he travels abroad, likes to take taxi or Uber to know local news from the driver; has ticket flexibility	Likes sailing, good food, good wine and good weather	Traveling moments are his social periods; stopovers used to maintain network; travel time is a socializing opportunity	Needs a "destination app" instead of a "travelling app", that arranges long distance travels according to the preferences and integrates local service facilities (household services for longer stays, delivery of goods instead of carrying around)	+ Travel information integrated with other services information (for long distance travel)

Name (Gender/Age)	Occupation	Travel behaviour	Personal life and interests	Perception of time	Diagnostic and Solutions	Underlying dominant relations to VTT
Francesca (F/24)	PhD student and part-time model	She walks and uses the underground	Triathlon athlete and does charity work; she's into fashion; she loves social networks and does not drink; she does yoga and eats healthy food	Hates unpredictability risk; she spends the time in "her own bubble"; she likes efficiency and she doesn't like to spend time travelling	She demands a routine, so she needs a predictable routine tool (nothing like Uber, which she doesn't know if it will be available)	- Unpredictability - "Efficiency" mindset of user
Stefan (M/35)	Student (over 30's); no stable job (usually works in bars)	He takes the bicycle or the train to visit friends; doesn't have driver's license	He likes to go to discos & bars; he is occasional vegetarian; he usually goes on cheap travels to warmer climates and skiing with friends	He has flexibility and overbooking is not a problem (if there are no extra costs)	He is "pro sustainability"	+ Student + Flexible lifestyle

4. Hypotheses on Value of Travel Time

Based on the results of the futures wheel and persona analysis carried out in the workshop, we derived a set of underlying hypotheses about the factors that could be influencing travel time valuation.

The set of derived hypotheses does not intend to be exhaustive, even though the expectation is that the diversity of exercises and views collected enabled to cover a wide range and, in some cases, out of the box hypotheses. Each hypothesis presented is directly linked to the megatrend or persona that originated it. Several of them are repeated and at this stage a work of syntheses of hypotheses is not done as that is left to the conception framework definition activity. Nevertheless, the hypotheses shown are framed by the dimensions of the early description of the Value Proposition of Mobility framework within the MoTiV conception framework definition activity [29].

Table 3. *Dimensions of the Value Proposition of Mobility*

Decision Factor	Objective
Time	To be minimised to reach destination rapidly.
Cost	To be minimised (as personal expenditure) to reach destination at the lowest costs, or to be maximized in case personal mobility plans are compatible with possibility of earning by transporting people or goods.
Comfort	To be maximized in line with travel service expectations.
Safety	To be maximised to reach destination safely.
Curiosity	To be maximised in line with travel experience expectations.
Prestige	To be maximised in line with social status aspirations.
Pro Social	To be maximised to maintain and/or extend personal social relationships (e.g. it may involve volunteering/charity activities).
Well-being	To be maximised in line with health and well-being aspirations and objectives. This includes also commitment to reduce environmental impact of transport (in terms of CO_2 emissions).

In relation to the dimensions defined in the first iteration of the MoTiV conceptual framework, there are some observations to highlight:

- There are **relatively few hypotheses originated from megatrends related to time and cost**, which may be considered a surprise. Whether it is a result of a bias of the participants to focus on other elements of the travel experience, or the reflection of a real trend, is something that could be subject to further analysis in MoTiV;
- There were **several hypotheses that did not fit in the initial proposed dimensions**. We proposed two additional dimensions that would be able to cover the hypotheses that were out of scope: **reliability** and **information**. Additional dimensions that could be considered according to the raised hypotheses are "**connectivity**" itself (that is in this allocation integrated in information, but where information could be

subdivided in the very different elements of travel information and connectivity) and “ability to work” (see next point)

- There are **hypotheses which overlap various dimensions or may still touch gaps in the proposed dimensions**. For example, “**ability to work**” is related both to comfort and connectivity (information). Beyond these, it seems that there is a space of ability to work that is not fully covered by these other elements. The most evident aspect is that to work, one needs to be not driving a vehicle. Another gap in detail: even if one may be in a very comfortable environment and seat in a train, if there is no backseat table to place a laptop, the ability to work is not so good.

Table 4. *Hypotheses raised from the futures wheel analysis*

Megatrend (Insight)	Hypothesis	Impact on VTT	Dimensions of the Value Proposition of Mobility									
			Time	Cost	Comfort	Safety/secur	Curiosity	Prestige	Pro Social	Well-being	Reliability	Information
Own Less	Decrease in reliability	⬂	✓							✓	✓	
Own Less (MaaS) / Here & Now	Available (real time) information on the trip	⬀	✓							✓		✓
Own Less (MaaS) / Constant Connectivity	Multiple/flexible options and larger number of choices	⬀	✓	✓						✓		✓
Own Less (MaaS) / AI (+ Big Data & Automation)	Lower responsibility for choices and trust in provided information	⬂								✓		✓
Own Less	Rationality as a driver for choice	⬀		✓	✓					✓		
Gamification / Ageing Society	Understanding the trip as fun/hedonistic	⬀					✓			✓		
Here & Now	Increase of user impatience	⬂								✓		
Here & Now	Omnipresence of technology	⬀			✓		✓		✓			✓
Here & Now / Constant Connectivity	Lack of travel planning skills and inexistence of “digested information”	⬂								✓		✓
Here & Now	Group thinking	⬂								✓		✓

Megatrend (Insight)	Hypothesis	Impact on VTT	Dimensions of the Value Proposition of Mobility									
			Time	Cost	Comfort	Safety/secur	Curiosity	Prestige	Pro Social	Well-being	Reliability	Information
Here & Now	Lack of connectivity in small time chunks	⬂			✓				✓	✓		
Here & Now	Shops or other entertainment at interchanges	⬀					✓			✓		
Wellness & Health	Degree of physical activity of the mobility choice	⬄			✓	✓	✓			✓		
Wellness & Health	Possibility to get (healthy) food during trip	⬀			✓		✓			✓		
Wellness & Health	Personal “insecurity” felt inside AV	⬂			✓	✓	✓			✓		
Wellness & Health	Need for “switching off” from life responsibilities	⬀								✓		
Wellness & Health	Congestion (unreliability and discomfort)	⬂	✓		✓					✓	✓	
Wellness & Health	Sweat in active mobility	⬂			✓			✓		✓		
Wellness & Health	Showers at workplace or e-bikes	⬀			✓			✓		✓		
Wellness & Health	Awareness of health impacts of active mobility	⬀								✓		

Megatrend (Insight)	Hypothesis	Impact on VTT	Dimensions of the Value Proposition of Mobility									
			Time	Cost	Comfort	Safety/secur	Curiosity	Prestige	Pro Social	Well-being	Reliability	Information
Wellness & Health	Air quality in the transport mode	⇔								✓		
Wellness & Health	Benefits offered (gaming, material benefits) for meeting physical activity targets	⬀		✓			✓			✓		
Ageing Society	Need for more seating spots (and frequent feeling of discomfort if they don't exist)	⬂			✓					✓		
Ageing Society	Increasing use of AV	⬀	✓					✓			✓	
Ageing Society	Different perception of safety	⬂				✓	✓			✓		
Individualism & Horizontalism	Desire for selfish travel and for less ridesharing	⬀			✓			✓	✓	✓		
Individualism & Horizontalism	Acceptance of ridesharing with strangers	⬂			✓				✓	✓		
Individualism & Horizontalism	Willingness to share the trip in social media	⬀						✓	✓			
Individualism & Horizontalism	Customization of personal preferences in service delivery	⬀			✓			✓		✓		

Megatrend (Insight)	Hypothesis	Impact on VTT	Dimensions of the Value Proposition of Mobility									
			Time	Cost	Comfort	Safety/secur	Curiosity	Prestige	Pro Social	Well-being	Reliability	Information
Constant Connectivity	Understanding of time as useful or pleasant	⬀					✓			✓		
Constant Connectivity	Understanding of time as productive	⬀					✓					
Environment (as a problem)	Reduction of exposure to pollution	⬀								✓		
Environment (as a problem)	Perceived exposure to pollution	⬂								✓		
Environment (as a problem)	Incentivisation of active travel	⬀						✓		✓		
Environment (as a problem)	Eco-friendly decision-taking	⬀						✓		✓		
Environment (as a problem)	Risk of environmental disruption	⬄			✓			✓		✓		
Environment (as a problem)	Material incentives to promote clean transport	⬀		✓						✓		
Environment (as a problem)	Reduction of noise by electric vehicles	⬀			✓					✓		
AI (+ Big Data & Automation)	Development of value added services	⬀			✓		✓	✓		✓		
AI (+ Big Data & Automation)	Reduced crowding	⬀			✓					✓		
AI (+ Big Data & Automation)	Lack of travel data privacy	⬂								✓		

Megatrend (Insight)	Hypothesis	Impact on VTT	Dimensions of the Value Proposition of Mobility									
			Time	Cost	Comfort	Safety/secur	Curiosity	Prestige	Pro Social	Well-being	Reliability	Information
AI (+ Big Data & Automation)	Empathy/trust with other users (ridesharing)	⬀					✓		✓	✓		
Globalization	Expectation of certain standards everywhere	⬀					✓					
Globalization	Fear of terrorism	⬂			✓	✓				✓		
Experientialism	"Journey as a purpose" motive (enjoyment, story to tell)	⬀					✓	✓	✓	✓		
Experientialism	Ability to get profit	⬀		✓						✓		
Experientialism	Liveable and pleasant streets	⬀			✓	✓	✓			✓		
Experientialism	Existence of special experiences on board	⬀			✓		✓	✓		✓		
Empowerwoment (family management)	Need to travel with children	⬂			✓							
Empowerwoment (family management)	Ability to multitasking	⬀					✓					

Table 5. *Hypotheses raised from the personas analysis*

Megatrend (Insight)	Hypothesis	Impact on VTT	Dimensions of the Value Proposition of Mobility									
			Time	Cost	Comfort	Safety/secur	Curiosity	Prestige	Pro Social	Well-being	Reliability	Information
Monica	Ability to relax	⬀			✓							
Monica	Constant connection	⬀							✓			✓
Monica	Active travel for relaxation and fitness	⬀								✓		
Michael	Retirement	⬀	✓									
Michael	Reliability	⬀									✓	
Eric	More than one work occupation	⬂	✓									
Pink	Taking kids to/from school	⬂	✓									
Pink	Busy life, journey as time to relax	⬀								✓		
Camilla	Occupation that requires multiple trips in city	⬂	✓									
Alias	Connectivity	⬀							✓			✓
Alias	Multiple occupations > Reliability	⬂									✓	
Dick	School drop out (low education)	⬀	✓									
Dick	Status increasing infrastructure (high quality cycle lanes and sidewalks)	⬀						✓				

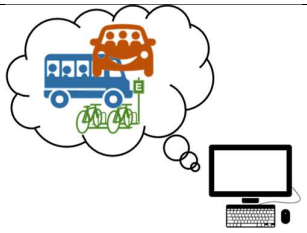
Megatrend (Insight)	Hypothesis	Impact on VTT	Dimensions of the Value Proposition of Mobility									
			Time	Cost	Comfort	Safety/secur	Curiosity	Prestige	Pro Social	Well-being	Reliability	Information
Maria	Security perception	⬊				✓						
Maria	Information on travel	⬈										✓
Pete	Strong accessibility limitations	⬈	✓		✓					✓		
Pete	Door-to-door travel	⬈			✓					✓		
Nils	Travel information integrated with other services information (for long distance travel)	⬈										✓
Francesca	Unpredictability	⬊									✓	
Francesca	“Efficiency” mindset of user	⬊	✓								✓	
Stefan	Student occupation	⬈	✓								✓	
Stefan	Flexible lifestyle	⬈	✓								✓	

5. Scenarios on transport and travel time

Scenarios are meant to give boundaries of plausibility about the future. They also push us to understand better the present and identify the underlying factors of power and change.

The following scenarios try to capture different futures where people tend to value their travel time in different ways. They were created to be diverse and picture these boundaries of plausibility towards 2040[3]. Each scenario is based on a set of insights and hypotheses that have internal consistency. They are meant as an additional tool to help the activity of definition of the MoTiV conceptual framework in considering the priorities and implications of the research options towards the capability to understand the present and the future.

Scenario 1 – Ownless Laziness



We no longer plan in such long notice, and we don't need to: the advent of "Mobility as a Service" (MaaS) to the main European cities takes responsibilities off from transport users, letting the "machines" suggesting the best choices for each situation. The existing platforms ask where people want to go, when they want to go, what is their travel time budget and take the users' desires and considerations to create optimal routes. Therefore, ridesharing is the current paradigm. Bikesharing, carsharing, scooter sharing, whatever the "machine" says it's better. Also, ridesharing is more than an option, is a consequence of the optimization. Minibuses transport up to 9 individuals, picking and dropping passengers along the way. People needed to learn to share their space when in a trip, and learned how to promote collaboration and to accept it as a consequence.

To improve the travel experience, value-added services are suggested by the "machine" – it knows you better than yourself. Maybe some food (healthy food, plastic food is for weekends' laziness). If a transfer is needed, the main places to do it (of course, they were optimized by the "machine") have shops and other entertainment services, that are personalized according to the people that is going to have a transfer in that day.

The results of each person calculation are available online to academic research, and to improve algorithms by machine-learning processes.

However… and when the "machine" fails? Everything fails. "Where do I go? Where should I pick the bus?" No one knows. As if we still had routing search engines available for the public…

Scenario snapshot	*Dominant megatrends*	*Related personas*
Value of Travel Time? Which value? We travel because we need to, and someone or something thinks about it for us.	*Own Less* *Here & Now* *AI (+ Big Data & Automation)*	*Eric* *Alias* *Camilla*

[3] Although the D2.1 title in MoTiV Grant Agreement makes reference to a 2030 time-frame, this has been extended to 2040 based on the experts' feedback received at the workshop carried out in Lisbon in January 2018.

Scenario 2 – FFF (Fast, Furious & Facebook)

Like, share, tweet, comment. This are almost the first words learnt by kids, even before “mom” and “dad”.

Impatience is the new normal. If we need, we need it now. If we want something, we wanted it one hour ago. But we wanted it because we saw someone sharing it online, and it had one hundred thousand likes. We travelled because we thought we would like from our “nemesis” pictures.

Life is exhausting. We cannot lose the social media for one hour, or we will be liking old things. We have now 150 mails to read, because changes happen every minute. 151. Let’s close our eyes while the Uber driver takes us to the destination. 152. The car stopped, 8 km of traffic jam to reach the city centre. Well, perfect time for switching off. “Warning! You have now 238 mails to read!”

Everywhere we go, there are no surprises about the traffic, the subway or the pricing schemas. Everything is standardized, one kilometre here costs as much as one kilometre in Kazakhstan.

So, let’s have that amazing trip, because we didn’t post something on Instagram for 12 hours. But alone.

Scenario snapshot	*Dominant megatrends*	*Related personas*
They want it now, I want it now. Here, there, or somewhere.	*Here & Now*	*Monica*
	Constant Connectivity	*Dic*
	Individualism & Horizontalism	

Scenario 3 – Caring and Breathable Earth

Day 1. Sun in the sky, 25 degrees Celsius. Why don’t we take the bike we just have been offered for being the employee of the month? We have cycling highways to reach work, we have showers in the office, and we can have a free coffee just by cycling to the coffee house.

Day 2. The rain arrived, 17 degrees Celsius. The (electric) car is in the garage, but… what about that cute minibus passing by the block every 8 minutes? In the meantime, the old lady from the second floor needs help to leave at the community centre, and it is right in the corner of the office.

Day 3. Cloudy sky, 19 degrees Celsius. No strict appointments in my Outlook calendar. Perfect for walking to work and observe the new neighbourhood stores. Oh, it started to rain again, but I'm just close to the bus stop and my app says it is only 1 minute away.

Day 4. It's weekend! Let's put some headphones and some jogging clothes, and take those 45 minutes to avoid thinking of work. Luckily, electric vehicles came up in the right moment, and that amazing green area next to home is more alive than ever.

Day 5, 6, 7 – yeah, we only work 4 days a week now. The efforts resulted in a free Uber ride, shared with a charming old lady that is going to pick some vegetables to a soup.

Scenario snapshot	*Dominant megatrends*	*Related personas*
We only have one Earth, and we live more years than before to enjoy it, so why not taking care of it? Furthermore, we have rewards for that!	*Environment (as a Problem)* *Wellness & Health* *Ageing Society*	*Stefan* *Nils*

Scenario 4 – Autonomous Love Affair

Thanks to Google and to Elon Musk, the penetration of autonomous vehicles is being faster than anyone imagined! Some of the most expensive models even seem like Kitt from "Knight Rider" – we just tell them we want to go to work, and they search for the best route according to Waze. If we're too sleepy to tell them anything… well, it's Monday morning, we only go to a place at that time.

Adults have now parents, and even grandparents are still alive. All of them have a brand-new Apple Watch (government funded) that allow people to track the GPS position of their loved ones. They also inform transport authorities that someone with some special needs is reaching the train or the subway, and the spaces are rearranged to avoid crowding discomfort for this population segment. If the alarm button in the watch is activated, the person will be taken home. The police are trained to help, if necessary.

Well, they've got all under control, right? So, let's enjoy the trip. Netflix has just released season 43 of CSI New York, and everyone wants to watch it, me included! But… it will have to wait until the return trip; my boss needs that finances report before lunch. Let's put the passenger bench tablet and finish my analyses.

Oh, tomorrow is Saturday! I have to check if that trip I programmed in the car's system is totally uploaded. 7-hour trip to reach the Grand Canyon, just looking by the car window… Can't we skip Friday already?!

Scenario snapshot	*Dominant megatrends*	*Related personas*
Technology is law, religion and addiction. Cars are just the most recent tip of the iceberg. Why not sit and enjoy that?	*AI (+ Big Data & Automation)* *Experientialism* *Ageing Society*	*Pink* *Pete*

6. Final Remarks

The futures report on the value of travel time was created to raise hypotheses on how people are valuing travel time. More that predicting what the future would be, this exercise is useful to try to dig in into what might be happening in the present. What are the factors that really influence travellers' choices? How do they consciously or unconsciously perceive and value the time they spend travelling?

A number of hypotheses were generated from the results of the futures wheel and persona analyses. These hypotheses are raw, in the sense that they result directly from these analyses and were not subject to systematization. They are an input for the development of the final MoTiV conceptual framework on value of travel time. This set of hypotheses may be used in different ways:

- To identify new hypotheses not considered previously
- To reassess the initially proposed dimensions of the value proposition of mobility
- To prioritize the research objectives
- To define the data that is needed to collect in order to validate the hypotheses

Concerning the definition of the conceptual framework for research, two main observations resulted from the observation of the set of hypotheses raised:

- The futures wheel analysis raised few hypotheses related to time and cost dimensions. Is this a bias of the exercise or the symptom of a trend?
- The initial set of mobility value proposition dimensions of MoTiV seems not to capture a significant number of hypotheses. Reliability, information, connectivity and ability to work, are some suggestions of dimensions to add or include in a reframing.

The steps of the consolidation of the MoTiV conceptual framework following from the inputs provided by the present work will be to synthesise the hypotheses raised, formulate hypotheses for research and identify the data required to validate hypotheses. The subsequent two steps, and the design of the MoTiV app, should be done iteratively as they have interdependencies. It is only worth to place hypotheses for validation for which it is feasible to collect data.

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