Identifying Travel Demand Priorities in Maritime Transport
A Behavioural Approach

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Abstract   This chapter deals with the analysis of hidden aspects of travellers' behaviour that are the key determinant of the sustainability and efficiency of sustainable mobility policies. We propose to complement the typically descriptive approach of flow-based and/or time-series analysis with techniques for analysing perceptions and intentions that can provide insights on travellers', such as the behavioural determinants or the perceived priorities. Together with the general description of two models, we will present an application concerning travellers between Italy and Croatia, an interesting case in which travellers can choose between maritime, air and land alternatives.

Keywords   Travellers' behaviour. Behavioural analysis. Kano Model. Travel choice determinants. Travel demand analysis.

Summary   1 Introduction. – 2 The Analysis of Travellers' Behaviour as a Fundamental Tool for Improving the Sustainability of Transport. – 3 "It's nice but I don't really care". Distinguishing What is Appreciated from What is Necessary. – 4 Perceived Priorities for Italy-Croatia Maritime and Coastal Transport Services. – 5 Inferring Behavioural Determinants from Travellers' Surveys. – 6 The MIMOSA Experience on Travellers' Behavioural Analysis. – 7 Conclusions.

1 Introduction

The relevance of environmental and social issues in transport and mobility steadily increased the awareness at Institutional level, leading to unprecedented efforts by policy makers to shift towards more sustainable patterns. The results are clearly visible as the combined effect of cleaner technologies, sustainability-oriented public policies and higher environmental awareness of citizens led to what can be labelled as a change of paradigm. On the other hand, we are living in times of constant, rapid and often unpredictable changes. Events such as the SARS-CoV-2 pandemic that erupted globally in early 2020 or the Russian-Ukrainian war started in 2022 show that many of the advances we take for granted can quickly vanish in the face of catastrophic events and major global threats. The transport sector is extremely exposed to global threats, so that resilience must be considered as a priority in every aspect of planning. Clearly, we are not only talking about physical and technological resilience, but also (and foremost) about the ability of transport to respond flexibly to the needs of demand, this representing the key to long-term economic sustainability.

This chapter deals with the analysis of demand as a function of the ability to identify those hidden aspects of travellers' behaviour that are the key determinant of the sustainability and efficiency of sustainable mobility policies. What we propose, in particular, is to complement the typically descriptive approach of flow-based and/or time-series analysis with techniques for analysing perceptions and intentions. In the following paragraphs, we will explain how, through appropriate demand survey techniques, it is possible to obtain incisive insights on travellers' behaviour in order to identify behavioural determinants as well as the priorities of travel demand. In addition to the general description of the theoretical models, we will present an application performed within the MIMOSA Project and thus concerning travellers between Italy and Croatia, representing an interesting case to study as cross-border travellers can choose between maritime, air and land alternatives.

2 The Analysis of Travellers' Behaviour as a Fundamental Tool for Improving the Sustainability of Transport

Framing sound strategies and policies consistent with the envisaged goals of players – such as transport operators or policy makers – call for a better understanding not only of *how* people behave, but also *why* they do so, and what are their priorities. This knowledge is a *conditio sine qua non* for a thorough understanding of which measures are likely to be more effective in an evolving framework that

sees policies increasingly focused on social aspects and soft measures, as opposed to a mobility paradigm that in the past was exclusively based on infrastructure investment and regulation (Lanzini, Stocchetti 2021).

Traditional approaches to analysing commuters/travellers' behaviours fall often short of providing an adequate picture of the behavioural determinants, the priorities and how the latter affects choices. On the one hand, this is related to the specific type of tool adopted (surveys with a descriptive approach), while on the other hand, it depends on how our behaviours follow a precise order of priorities. For instance, if travellers are asked whether they would like to have e-bikes available at the final destination of the trip or in the city centre, most of them might be likely to answer positively: yet it might turn out that, once available, only a minority will actually use them, as they are perceived as an interesting and positive option, yet not a priority for the specific situation for which it is provided. This type of problem becomes evident when pilot activities are developed with the task of testing the effectiveness of possible mobility solutions. In such a context, the actual utilisation of experimental infrastructure or services is often far lower than what preliminary investigations might suggest.

We hereby present two modes of analysis that we consider particularly useful in identifying the priorities expressed by travel demand, namely: a) the analysis carried out on the assumptions of what is known as the "Kano Model", combined with "Importance-Performance Analysis" or IPA (Martilla, James 1977; Oh 2001), and b) the general concepts of analysis based on the inferential approach. We propose these two models as practical tools to identify priorities for action within a range of (existing or potential) traveller services (e.g., bike sharing) and/or their characteristics (both electric and conventional, accessibility, etc.). In the last paragraph we will present the results that emerged in the MIMOSA Project, regarding the priorities identified by demand in the area of maritime transport and coastal interconnections.

3 "It's nice but I don't really care". Distinguishing What is Appreciated from What is Necessary

Very often, the transport planner's vision is based on the detected flows of travellers. However, the planning of new services or changes to existing ones cannot simply view flows as a mechanical phenomenon, as it should consider these flows being the result of choices that have their roots in an evaluation of alternatives by travellers. For this reason, it becomes essential to perform an analysis that investigates those aspects that are most closely linked to individual attitudes, preferences and utility.

IPA is a very well-known tool aimed at classifying services and characteristics of services according to their relevance in determining the overall attitude of demand towards the offer. Such an analysis allows to identify the priorities to be followed in improving services, as well as the strengths and weaknesses of the offer. However, as we shall see later, its interpretative capabilities have limitations that can be overcome by integrating this analysis with the principles of the Kano Model.

The IPA procedure consists in identifying a set of choice-relevant services or service features and asking respondents to rate the subjective relevance (r) of each service as well as their satisfaction (s) with the service. Such survey highlights strengths and weaknesses through mapping services according to the average value of relevance and performance (or satisfaction). It also provides a summary judgement of the 'criticality' C of the services considered, using the algorithm $\sum_{i=1}^{n} s_i \cdot \frac{1}{r_i}$, that is: the overall criticality C of the service or characteristic taken into consideration is given by the weighted sum of the performance ratings s made by each subject i (n is the total amount of interviewee) weighed with the inverse of the importance r [fig. 1].
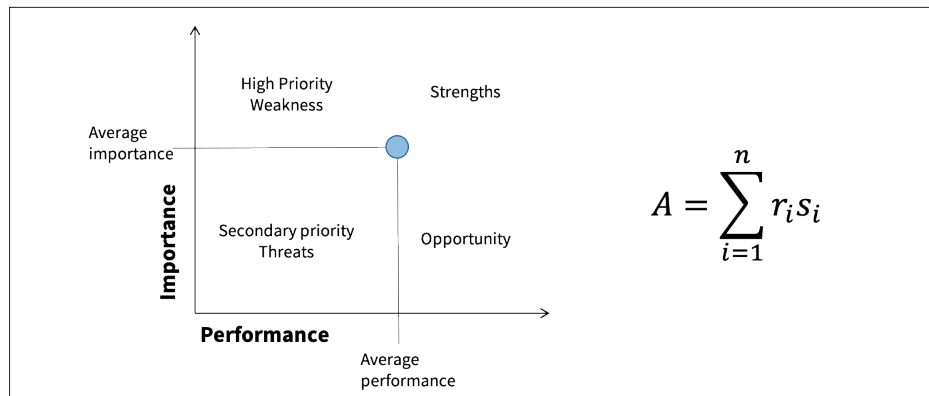

$$A = \sum_{i=1}^{n} r_i s_i$$

Figure 1 Scheme of the importance-performance analysis results

Values of C below 1 correspond to those features/services that perform less than they should: while an approximate indication, it is indeed useful in discriminating priority areas of intervention.

In addition to greater or lesser relevance and level of performance, an important specification is whether services and their features are considered as necessary rather than optional elements for the quality of the offer. There are characteristics and services that are perceived as very important, yet being minimal requirements they do not necessarily contribute to increased satisfaction once present, while their absence or poor performance is highly disappointing for customers. Some services, on the other hand, might be considered

ancillary or little known with a low rating but, at the same time, be able to convey better satisfaction. For this reason, an important complement to the IPA is the Kano analysis (Sauerwein et al. 1996; Yang 2005), which is aimed at shedding light on the role that services or characteristics being investigated have in generating (dis)satisfaction. Specifically, this model uses joint questions on attitudes towards situations of presence or absence of benefits/services. Questions are hence proposed both in:

- functional form (e.g., *how would you feel if* there was a bus service to the ferry boarding point?).
- dysfunctional form (e.g., *how would you feel if* there was no bus service to the ferry boarding point?).

Through the analysis of the joint answers to the two semantic forms of the same question, it is possible to infer whether a service (or its features) provide a different type of utility (or disutility) according to a classification of respondents' attitude towards it. Such classification can be illustrated as follows:

- a. attractive: the service might provide satisfaction/utility, but since it's not expected or not known, it doesn't provide dissatisfaction/disutility if missing or inadequate;
- b. one-dimensional: it provides satisfaction or dissatisfaction according to the level of performance;
- c. must-be (prerequisite): it is considered essential and as such it cannot generate additional satisfaction or utility, but only dissatisfaction if not present or inadequate.

To match answers with respondent's attitude, the answers are analysed on a one-by-one basis (that is, one respondent at a time) and their matching leads to the identification of how the service / feature was perceived by the single individual, according to the analytical structure at the basis of the model summarised in table **1** (*Questionable* stands for non-reliable answer, while *Reverse* indicates that the presence of a feature/service leads to dissatisfaction, and vice-versa).

Table 1   Classification of customers' requirements according to the Kano Model interview structure

		Answer to question in dysfunctional form				
		Like	Must be	Neutral	Live with	Dislike
Answer to question in functional form	Like	n.r.	n.r.	Attractive	Attractive	One-dimensional
	Must be	n.r.	n.r.	Attractive	Must-be	Must-be
	Neutral	Reverse Attractive	Reverse Attractive	Indifferent	Indifferent	Reverse Must-be
	Live with	Reverse Attractive	Reverse Attractive	Indifferent	Indifferent	Reverse Must-be
	Dislike	Reverse one-dimensional	Reverse must-be	Reverse Attractive	Reverse Attractive	n.r.

The three categories of attitude are represented in figure **2**, specifically by the three curves plotted in the diagram joining the level of performance and its effect in terms of satisfaction/dissatisfaction. Moreover, according to the positioning of a service it is possible to infer (approximately) different policy recommendations, as shown in the extended SWOT matrix on the right **[fig. 2]**.
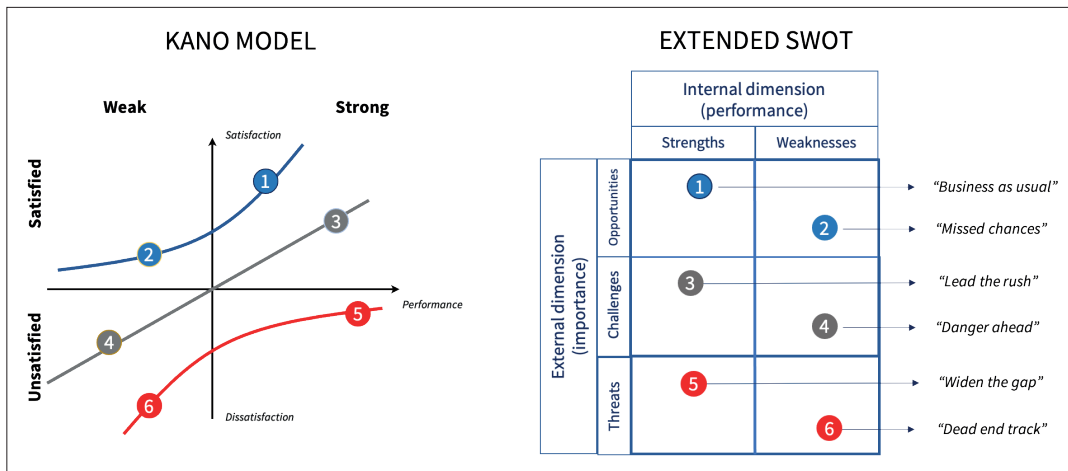
Figure 2   The Kano classification of service and characteristics and the relationship with policy implications (extended SWOT representation)

The Kano Model is useful to gain better insights on how demand perceives different aspects and features of the service provided. It is therefore a tool to understand where to concentrate efforts, insofar producers/providers need to allocate most resources on those aspects that are crucial in orienting customer satisfaction. It is hence possible to distinguish aspects that are perceived as necessary from aspects that are not, regardless of the level of importance attached to them. In this sense, the Kano analysis is a fundamental comple-

ment to IPA, and in the next paragraph we will see how, within the MIMOSA Project, we were able through the joint IPA-Kano analysis to highlight perceived priorities in maritime transport and coastal mobility services in the Italy-Croatia Programme Area.

4   Perceived Priorities for Italy-Croatia Maritime and Coastal Transport Services

The MIMOSA Project relied on an ad-hoc survey about perceived priorities on the maritime and coastal transport services. Services and features to be investigated have been defined through a focus group, that highlighted a set of crucial questions to be addressed that led to the investigate the following situations:

a.   availability of free bicycles rental at destination;
b.   destination in an area closed to vehicular traffic;
c.   destination accessible for people with motor disabilities;
d.   possibility to do the whole trip with public transport modes;
e.   availability of door-to-door luggage service;
f.   possibility to consult all trip information on a single App;
g.   maritime cruises adopting technologies that reduce environmental impacts;
h.   possibility at the final destination area to move only on foot or with zero-emission vehicles;
i.   possibility to do the entire travel from Italy to Croatia or vice-versa by train;
j.   connections with Croatian islands/Italy by daily public transport services at regular times and without the need to book in advance.

Consequently, a questionnaire including these topics has been submitted to a representative sample of the population of the Italy-Croatia Programme Area, in native languages since answers can be at times influenced by semantic aspects of the questions. The results of the survey are summarised in table 2. For a better understanding of the table, please note that: "attractive" indicates benefits/features that generate satisfaction if present but do not create dissatisfaction if absent; "one-dimensional" indicates benefits that the more they are present, the more they create satisfaction, while they cause dissatisfaction if absent; "must be" represent priorities that can only generate dissatisfaction if missing.

Table 2 Shares of Kano-analysis type of requirement by proposed characteristics / situations

	Attractive	Must be	One-dimensional	Indifferent	Reverse
Free bike rental	40%	3%	20%	36%	n.s.
Area closed to vehicles	30%	3%	10%	44%	13%
Guaranteed accessibility for the disabled	7%	40%	25%	28%	n.s.
Whole trip feasible with public transportation	18%	19%	24%	36%	n.s.
Door to door luggage service	26%	7%	11%	53%	3%
All travel info on single App	34%	10%	24%	31%	1%
Sustainable maritime cruises	11%	27%	42%	18%	n.s.
Only pedestrian and 0 emissions vehicles area	34%	11%	16%	31%	7%
Entire travel feasible by train	30%	6%	21%	39%	4%
Islands increased accessibility	27%	11%	36%	25%	n.s.

<3% n. s.	< 10%	11% - 24%	26% - 39%	> 40%

At a first glance, there are three relevant priorities emerging from the survey: a) to guarantee the accessibility to people with motor disabilities, b) the sustainability of maritime cruises, and c) the accessibility of the islands.

Although we estimate that the percentage of respondents that would personally need to use services for the physically challenged is very low in the sample, 40% consider it as a "must be" requirement, the higher share among all features. We think that this is an example of a possible effect of personal and social norms on perceived priority.

The sustainability of passenger ships scores the highest "one-dimensional" percentage and the second "must be", thus being considered as an issue affecting the attitude towards this travel mode by 69% of respondents. This is also the topic having the lowest percentage of indifferent responses (18%).

Accessibility of islands scores the second highest "one-dimensional" attitude (36%) and, together with "must be" respondents, almost 47% of the sample would be seemingly dissatisfied by inadequate services in this field. On the other hand, this is also a source of opportunity, given that 27% of respondents consider islands' increased accessibility as an attractive feature.

Among other insights from this analysis, the only feature that is viewed negatively by a detectable proportion of respondents is the closure to traffic (reverse = 13%). However, on this controversial issue, 44% declare themselves indifferent, 30% consider it an attractive and 10% a one-dimensional benefit. According to this result, any restriction of vehicle traffic in a coastal tourist destination would be more welcomed rather than opposed by travellers. This is confirmed by the fact that the number of respondents who oppose closed traf-

fic zones halves if they are given the opportunity to travel by zero-emission vehicles (7%), indifferent respondents decrease from 36% to 31% and respondents being overall in favour (one-dimensional) raise from 10 to 16%. As a whole, it can be estimated that a fully pedestrian zone is welcomed by 43% of travellers, while an area accessible only by pedestrians and zero-emission vehicles would be welcomed by 61% of travellers. Of course, since the closure to vehicular traffic also creates problems for residents and physically challenged people, a possible approach to policy in this direction should take into considerations balancing the restriction in various ways. We will return to this point when discussing policy implications.

An interesting example of how this analytic model provides useful insights is represented by the availability of free bike rental. This service is considered as a one-dimensional benefit by 20% of respondents and it is much appreciated by travellers between the two countries of the program, although its absence would cause dissatisfaction only in a small number of die-hard bicycling enthusiasts (given that 40% of respondents consider the service "attractive", while 35% state their indifference). In a typical descriptive analysis ("how would you rate the availability of…"), the result would have probably been 60% positive and 35% indifferent – a result that could lead us to assume that this kind of service would have a potential demand of 60% of travellers. Instead, according to our analysis, the actual potential demand is only 20% (the one-dimensional portion of the sample), this being a clear proof of the utility of the technique in estimating potential demand for new services.

In a nutshell, with the IPA-Kano analysis it is possible to go beyond a simple definition of 'satisfaction' or liked/disliked, gaining indeed valuable insights on what is perceived as necessary versus what is perceived as liked but not necessary, leading thus to a sound priorisation of actions to be implemented. In this respect, we propose two different perspective of the results.

In the first one we take up a criterion for reading the data that transposes the results of the Kano analysis in terms of opportunities/challenges/threats and strengths/weaknesses. These assessments take up and extend the categories used in the SWOT matrix. However, in our study, the performance of the situations presented was not measured and therefore only opportunities/challenges and threats can be considered. Situations with the highest concentration of evaluations in the "attractive" category are considered as opportunities, given that they represent potential policy levers useful to improve travellers' satisfaction while making travel and the use of the destination more sustainable. Those with the highest percentage of "must be" are classified as threats, representing conditions that would provide a very negative evaluation if not properly managed. Those with the highest percentage of "one-dimensional" are regarded as challenges, as they are relevant for better or worse and need constant attention for the level of

performance to remain above or equal to expectations. Our results show that free bike rentals, an app capable of providing exhaustive information on the whole travel and areas only for pedestrian and zero emissions vehicles are the major opportunities highlighted by the survey. To make islands more accessible, through regular/daily line services requiring no booking in advance is the main challenge, together with the improvement of maritime vessel emissions. However, this is also a potential threat (second as for share of "must be"), while the non-accessibility for disabled people is a condition that would provide a major threat as for the perception of travellers **[fig. 3]**.

Figure 3 Opportunities, challenges and threats emerging from the Kano analysis

The results shown in figure **3** are the outcome of a qualitative assessment of the Kano's answers given by the sample that classifies the main requirements in terms of the strategic role they play in mobility policies (i.e., they have the highest concentration in "must be", "attractive", etc., as explained above). Such evaluation, however, does not necessarily reflect the priority of actions in terms of what should be considered more relevant or "urgent" to fulfil, since the same weight is given to what is considered necessary and to what is considered pleasant or attractive.

A further way to highlight priorities emerging from this analysis is to provide a measure of the listed situations/characteristics according to a method emphasising necessity over liking. To do this, the priority can be measured by the weighted sum of the shares for each type of requirements. Specifically, $P = \sum_{i=1}^{n} S_i \cdot r_j$, where P is the measure of the priority, S the share of the i-th situation or charac-

teristic, and r is the weight assigned to the j-th type of requirement. In the logic of this model, the more the requirement impacts satisfaction/dissatisfaction, the higher its priority. The values of r should therefore reflect such impact. In this study we have calculated the overall priority of each situation/characteristic adopted the following scores: "must be" = 1; "one-dimensional" = 0.8; attractive = 0.3; indifferent = 0; reverse = -0.5. This priority indicator is constructed in such a way as to assign a higher score (the maximum score is 1) to a characteristic/situation according to the potential it has to create dissatisfaction, rather than rewarding opportunities arising from unexpected and welcome benefits. Table **3** shows the results of this calculation and the consequent rank of priorities. The need for maritime cruises to adopt technologies that reduce environmental impacts and the accessibility for people with motor disabilities have, by far, the highest priority in our sample, followed by islands accessibility and by the development of cross-border public transport **[tab. 3]**.

Table 3 Priorities emerging from the Kano analysis

	P	**Indexed 1st = 100**
Sustainable maritime cruises	0.634	100
Guaranteed accessibility for the disabled	0.616	97
Islands increased accessibility	0.474	75
Whole trip feasible with public transportation	0.426	67
All travel info on single App	0.389	61
Free bike rental	0.305	48
Only pedestrian and 0 emissions vehicles area	0.305	48
Whole travel feasible by train	0.298	47
Door to door luggage service	0.221	35
Area closed to vehicles	0.135	21

It is worth noting that situations previously identified as opportunities are not at the top of ranking, while threats and challenges are. This reflects the logic of this model of analysis. The priorities identified with this criterion outline strategies for improvement which, if implemented, will affect what the public considers to be minimum requirements for acceptability. In this sense, the results, although developed in the context of the Italy-Croatia Programme Area, are not merely related to the specific case of the travel between the two Countries but represent a general perception.

5   Inferring Behavioural Determinants from Travellers' Surveys

The second method that is here presented is the inferential approach, which enables to shed light on which are the key levers for soft measures of behavioural change.

The so-called inferential approach consists of using data collected from a representative sample of a population to test, using statistical techniques, hypotheses and thus make inferences about the characteristics of the entire population. This type of approach is particularly important in behavioural studies because it supports tracing the psychological determinants of actions and decisions, and in order to be applied it requires certain precise conditions, of which the following are particularly relevant: a) knowing or at least being able to hypothesise the distribution of the population with respect to the variables to be used; b) having 'validated' tools for analysing behaviour (scales, questionnaires, etc.).

A survey is considered to be 'validated' when it has been demonstrated, by means of repeated tests, that the results obtained are reliable and statistically representative. In behavioural studies, the aim is typically to establish a relationship between individuals' psychological conditions and specific behaviours. For instance, to investigate the relationship between how habitual a person is (in general) and the means of transport they use, we will need a validated scale for measuring the weight of habits in everyday behaviour. Based on the result, we will be able to know whether a policy (communication, fares, new services, etc.) aimed at counteracting the weight of habits is appropriate.

Another fundamental aspect is the pre-existence of theoretical constructs, already tested and validated at a general level, within which to frame the specific analysis related to the problem to be addressed. For instance, we know that a very important factor in travel and mobility choices is related to the perception of being able to act as desired. This variable is called 'perceived behavioural control'. Thanks to numerous previous studies, we can use inferential statistical techniques to understand whether in a group of citizens a certain mode of transport is perceived as consistent or in opposition to this variable, and then evaluate interventions accordingly.

In a nutshell, these techniques do not only tell us 'what' people do or think, but also 'why', and thus become a key tool for taking soft measures to change behaviour in the desired direction. In the case of cross-border travel, this type of analysis is also useful for segmenting the types of travellers according to the purpose of the trip, which often corresponds to precise criteria for the choice of means of transport.

6 The MIMOSA Experience on Travellers' Behavioural Analysis

The MIMOSA Project founded its activities on a solid analytical basis, which included an in-depth investigation of cross-border traveller behaviour between Italy and Croatia. It was therefore also an opportunity to adopt theoretical models that are widely adopted in scientific research, yet only marginally used by operators and policy makers interested in performing analyses of commuters/travellers behaviours. Investigated behaviours were related both to the cross-border travel and to mobility choices at the destination and on coastal areas.

As mentioned above, this approach starts from established theoretical models to identify the weight that one or more individual variables have in determining behaviour. The MIMOSA Project relied on well-established models of individual behaviour, which have been extensively adopted for the analysis of travel behaviours and modal choice.

The Theory of Planned Behaviour (Ajzen 1991) postulates that people adopt a specific behaviour as long as they develop first the intention to do so, and intentions in turn depend on our general predisposition towards an activity (attitudes: "do we like doing this?"), on social pressure (subjective norms: "would my friends/relatives/colleagues approve if I do this?"), and on how easy or difficult it is to perform an activity (perceived behavioural control: "do I have the opportunity and the competences to do this?").

A second theory that can be used to investigate travel mode choice pertains to our altruistic values, and to the fact that sometimes we do something because, even if it does not maximise our own utility, "it is the right thing to do". The Norm-Activation Model (Schwarz, Howard 1981) assumes that the triggering elements of our intentions (and thus behaviours) are the so-called 'personal norms', which emerge when we have feelings of moral obligation towards doing something, or refraining from doing so: "I would love to use my car, but I know it is better for people around me and for the environment if I take the bicycle instead".

The third stream of research focuses on the role exerted by habits (Verplanken, Aarts 1999), as we often do something because we are so used to that we do not even consider other options, and we automatically opt for the traditional choice: "I always went on holiday with the car, and although now there is an efficient train connection to my final destination I do not even consider it as a viable alternative".

Indeed, most behaviours are the outcome of a complex decisional process where both rational and automatic mechanisms play a role. As a consequence, we included all different models in our analysis, focusing also on the mutual interrelations. Figure 4 represents an example of such interrelations, as it depicts a model encompassing

the variables of the Theory of Planned Behaviour integrated with habits: the arrows represent relationships that might be investigated through statistical techniques (regressions) telling us whether such relationships actually exist and are significant determinants of the behaviour.
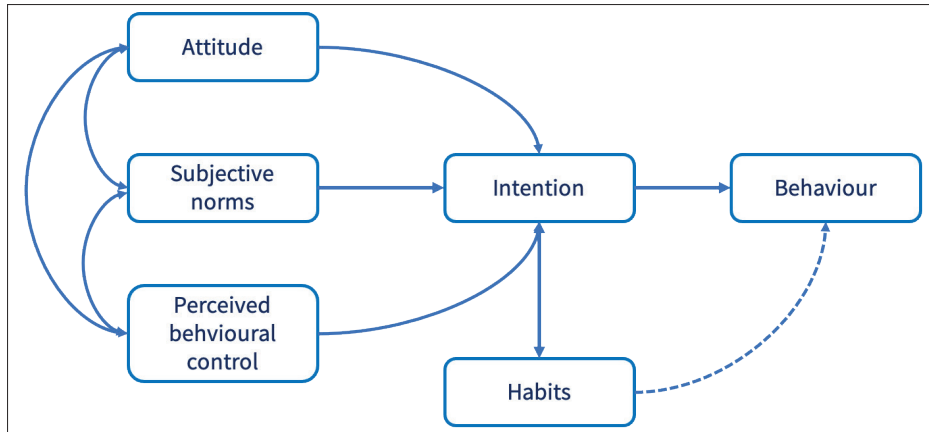

Figure 4 Example of an integrated model: Planned Behaviour and Habits

The relationships are studied through surveys adopting validated scales assessing the role of each variable in shaping behavioural patterns. In other words, this methodology does not tell what a specific individual or group of people do, but rather what are the elements (psychological, contextual and social) that make people choose different available options. This is a key element of a solid informational background on which to base sound strategies and policy measures: indeed, if I only observe what people do it might be extremely complicated to understand how to intervene in order to change behaviours and make them consistent with the envisaged goal.

Collected data are analysed with well-grounded statistical techniques based on correlational and/or regression analyses. It is the case for instance of the MIMOSA Project, where such approach has been adopted to investigate which are the elements at the basis of the decision to choose a specific transport mode when travelling between the two Countries of the study. Table **4** illustrates the correlation matrix between the constructs and, although regarding the specific setting of the project, it represents a useful example to clarify the broader methodology.

Table 4   Example of a correlation matrix (bicycles)

	PBC	SN	PN	HAB	INT	BEH
ATT	0.29444	0.61247	0.27154	0.35923	0.74827	0.26335
PBC		0.30647	0.08386	0.15521	0.22167	0.19459
SN			0.18272	0.17418	0.49642	0.18704
PN				0.14486	0.27223	0.03506
HAB					0.44081	0.46094
INT						0.33518

The correlation between the different variables measures how the variables move in relation to one another, and it can assume values ranging from -1 (perfect negative correlation) and +1 (perfect correlation). This is relevant insofar there are heterogeneous drivers of individual behaviours: we might choose what modal option to choose based on egoistic drivers, altruistic drivers or habits, and typically on a mixture of all of them, with the salience of either of them depending on the individual, the behaviour or the context being investigated. Since many different variables play a role in shaping our behaviours, it is important to gain insights about which variables are, on average, more important in a specific population. In our example, we might for instance want to understand whether most travellers base their decisions mostly on attitudes and generic predispositions towards the single alternatives, or mostly on deeply rooted habits. In other words, is it more important what I have been doing so far, or whether I like or not a specific travel mode?

The results of such analyses can be used to understand which are the priorities of the investigated population, and which should be the priorities when it comes to investing resources to act on different levers and change behaviours. If we look, for instance, at the relationship between attitudes (ATT) and intentions (INT), we see that there is a high positive correlation (0.75), which means that the two variables are strictly linked and, the more individuals display positive attitudes towards cycling, the more they develop the intention to choose bicycle as the transport mode (if one variable increases, so does the other). Yet, looking at the data, we can understand that although attitudes have a strong correlation with intentions, the correlation with actual behaviours (BEH) is much lower: on average, individuals in the population are interested in bicycles, yet rarely transform a generic intention triggered by positive attitudes into behaviours: "I like the idea of using the bike, but then I don't actually use it". This could be explained by different factors. It could be for instance that there are contextual constraints that make it hard for the individual to use the bicycle, and this is a piece of information that we can get from analysing the role of perceived behavioural control. Or, it

could be a matter of priorities: since different modal choices are mutually exclusive, it is not sufficient to analyse with traditional questions whether individuals would like to use a bike: the answer might reflect a generic positive predisposition, yet not translating into actual behaviours as other alternatives are preferred.

Similarly, we can analyse the role of personal norms: the correlation between them and attitudes might be misleading for the analyst, and trick into thinking that focusing on the sustainability of the modal choice is an effective strategy to convince travellers to use bicycles. However, the correlation with actual behaviours is extremely low, so that perhaps, although moral obligations play a relevant role in shaping our generic predisposition towards certain alternatives perceived as environment-friendly, they do not represent the variable orienting behavioural trajectories.

7   Conclusions

In pilot activities, and more generally in implementations of transportation improvement policies, there is often a tendency to focus more on technological and infrastructural opportunities than on social needs. In maritime and coastal transport this is made even more evident by the clear preponderance of infrastructural aspects over 'soft' ones. However, the perceptions and priorities expressed by demand are relevant elements in the ongoing improvement of services, as well as in orienting planning toward choices that are also sustainable from a social, as well as an environmental, point of view.

In this chapter we have partly recounted the experience of the MIMOSA Project, in which known and validated models of behaviour analysis were used to identify the priorities expressed by a representative sample of travellers between Italy and Croatia. The results were only partly close to expectations, which confirms how appropriate survey techniques can bring out aspects that would otherwise be overshadowed.

Of course, those presented in this chapter are only two among many possible methodologies for behaviour analysis. These were chosen because they exemplify analyses that can be carried out with little effort and in reasonable time, thanks to the wide availability of already validated techniques. Above all, however, we would like to emphasise how behavioural and intention analysis methodologies, such as those presented here, are a relevant complement to descriptive analyses and participatory processes, insofar as they provide reliable indications of individual determinants of travel choices and perceptions of priorities to be pursued.

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