Journal of Transport Geography 19 (2011) 1106–1119

Contents lists available at ScienceDirect

Journal of Transport Geography

journal homepage: www.elsevier.com/locate/jtrangeo

Policy frames of Park-and-Ride in Europe

Marc Dijk [a,*], Carlos Montalvo [b]

[a] International Centre for Integrated Assessment and Sustainable Development (ICIS), Maastricht University, PO Box 616, 6200 MD Maastricht, The Netherlands
[b] TNO – Dutch Institute for Applied Scientific Research, P.O. Box 6030, 2600JA Delft, The Netherlands

ARTICLE INFO

Keywords:
Park-and-Ride
Parking
Policy framing
Sustainable mobility

ABSTRACT

Transport congestion and the quality of the air in city centres is a major concern for urban planners. In recent years Park and Ride (P + R) facilities have been increasingly introduced by local authorities as an alternative for or addition to parking supply in the city centre. In this paper we present results of a survey amongst 45 major cities in Europe. We study how deployment of P + R is framed by policy makers within their broader transport policy. This paper offers three things. First, we report on present adoption levels of P + R. The survey outcomes reveal that P + R is adopted fairly unevenly across Europe. We find that a quarter of the responding cities are extensively engaged on implementing P + R, whereas another quarter has little or no engagement. It raises the question, if congestion is a problem present in most major cities across Europe, why adoption is so uneven? Therefore, secondly, we map out *diversity in framing* of P + R throughout European cities, by revealing current beliefs about it. We show how diversified policy-makers' interpretation of P + R is. Thirdly, we track the salient beliefs underlying the policy frames that determine P + R implementation. Linear regression analysis suggests that *economic implications of P + R*, *perceived demand for P + R*, and *organisational learning capabilities* are the most important drivers for city governments whether or not to engage in P + R development, explaining 40% of the variance in their *actual engagement* in P + R deployment.

1. Introduction

Transport congestion and the quality of the air in city centres is a major concern for urban planners. Medium and large cities around Europe suffer from surges of cars, entailing severe traffic congestion (OECD, 2007). City governments have been challenged to deal with these daily tides, but policies have been ambiguous on this point. On the one hand city governments have aimed at accommodating the growing number of cars by increasing parking supply and road capacity; on the other hand cities have discouraged urban car use, improved public transport, and developed P + R facilities. P + R is a service provided to motorist to park at (usually) the periphery of an urban area, where public transport operate to and from the city centre. Park and Ride (P + R) facilities are introduced as a key element of the sustainability packages of many urban areas in Europe.

In this paper we analyze the types of framing that might limit P + R implementation within urban transport policies in Europe. Most studies on Park and Ride tend to focus on the factors influencing the use of P + R sites (cf. Bos et al., 2005) or on effects of P + R schemes on urban car use (cf. Parkhurst, 2000). Though worthwhile from a technical point of view, these studies have not the addressed the social and practical ambiguities in policymaking. Few scholars have taken an interpretative approach to P + R, investigating the ways in which local authorities make sense of P + R schemes. A notable exception is Meek et al. (2010) who report on a survey of UK local authorities to understand the reasons behind the popularity of P + R in the UK (in this journal). The study finds a disparity between the perceived effectiveness of P + R by local policymakers and the effectiveness found in transport studies, but it has difficulties to point to the factors that explain the enthusiasm for P + R. In the same line of enquiry we analyze and compared how a large collection of European cities construes Park-and Ride. By mapping out belief systems of the city authorities, we find that *economic implications of P + R*, *perceived demand for P + R*, and *organisational learning capabilities* are the most important drivers for city governments whether or not to engage in P + R development.

A policy frame is the way in which a situation is interpreted by policymakers. More precise, it is the structure of (relevant) beliefs, perceptions, and appreciation which underlie policy positions and decisions. In most cities *accessibility* and *liveability* are prime objectives for transport policy. Although frame analysis has a long history in political sciences (Rein and Schön, 1977; Schön and Rein, 1994) and communication sciences (Iyengar, 1991; Reese et al., 2001), currently no fully fledged, standard methodology exists to analyse how decision making frames are structured (König, 2008). In this paper we offer a quantitative approach to analyze

* Corresponding author. Address: ICIS – Maastricht University, PO Box 616, 6200 MD Maastricht, The Netherlands. Tel.: +31 (0)43 3883301; fax: +31 (0)43 388 4916.
E-mail addresses: m.dijk@maastrichtuniversity.nl (M. Dijk), calos.montalvo@tno.nl (C. Montalvo).

0966-6923/$ - see front matter © 2011 Elsevier Ltd. All rights reserved.
doi:10.1016/j.jtrangeo.2011.05.007

the *belief systems* of policymakers to P + R. We take a social-psychological approach that regards knowledge and belief systems as the underlying basis of the frame. In other words: knowledge and beliefs *become manifest* in the frame. For our study we developed a questionnaire that could identity the strength and relevance of various beliefs that urban planners hold with respect to P + R. By including elements of their current transport and parking policy in the survey, such as their actual engagement in P + R, we determine the conditions that (dis)favor P + R as opposed to other transport (parking) policy options.

This paper is structured as follows: Section 2 starts with an overview of trends in urban parking policies in Europe in the last three decades, introducing also our conceptual approach of policy frames. In Section 3 we describe our research methodology, whereas in Section 4 we map out *diversity in framing* of P + R throughout European cities by revealing current beliefs about P + R. Moreover, we track the salient beliefs in framing of P + R. In Section 5 we discuss our findings, whereas Section 6 concludes on the main findings and contributions of this study.

2. Evolving parking policy

Parking policy has evolved greatly over the last decades in Europe, and P + R emerged as a one of the latest elements of urban parking policy. Virtually all urban areas have been facing growing parking demand. More parking entails growing issues of urban congestion and pollution from transport. Many cities have responded with policies that aim for better utilization of current infrastructure (e.g. by means of pricing or automatic parking capacity indication), and build new infrastructure at structural bottlenecks. The typical evolution of urban parking policy can be portrayed in seven phases (TCT, 2005):

1. *No parking measures.* This phase is sustainable until the level of parked cars has a negative impact on the attraction and quality of the area.
2. *Parking regulation and control.* This means that in some streets parking will become prohibited.
3. Time restrictions (free of charge). This results in more efficient use of available space from increased turnover of cars.
4. *Paid parking.* Parking tariffs become used as a key to control the use of parking spaces.
5. *Resident parking schemes.* An overflow of parkers to neighboring areas (often residential) will require resident parking schemes.
6. *P + R facilities.* These are developed as an alternative for or addition to parking supply in the city centre.
7. *Mobility management.* It comprises various activities to tune the combination of private and public transport in order to provide an acceptable mobility-chain for travelers.

This typical evolution parking policy is the outcome of an ongoing debate at local level on how to respond to growing parking demand. In general, we found two meta-strategies that local governments follow:

- Car-accommodating or 'predict-and-provide' (Vigar, 2001): aiming to increase capacity of parking in the city centre (e.g. by parking garages), and creating sufficient road capacity to enable cars to those parking spaces in or near the centre.
- Car-limiting[1]: aiming to seriously limit car-parking in the city centre (by high prices of parking, and few parking garages in the city centre), and in parallel creating facilities to leave the car at or out of the ring of the centre, with the necessary public transport facilities (bus, train, tram, metro, bike) to reach the centre. The places to leave the car and transfer to public transport are (usually) called Park and Ride (P + R) facilities.

The concept of P + R is not very new. The birth of the P + R concept was around 1932, when Bernard Mees, a Dutchman, published a book on possible ways to solve congestion problems (CROW, 2004). Subsequently, it was picked up in the 1950s in the USA, where the first P + R sites were built (MU-Consult, 2000). The United Kingdom followed suit and started to develop the first experimental P + R sites in various English cities in the 1960s: Oxford and Leicester were the first ones. Even though, as Cairns (1997) states, those first schemes were considered a failure. The first permanent UK schemes began in Nottingham (1970) and Oxford (1973), joined by a handful of other, mostly historic, towns by 1990. After 1990, however, the possibility of financial support from central government, followed by national policy endorsement, encouraged many other towns to initiate schemes (Parkhurst and Richardson, 2002). Other (European) countries followed the example and by now P + R schemes can be found in a majority of European countries.

The precise effects of P + R are contested. Some studies have confirmed that P + R-facilities can promote the use of public transport, relieve urban traffic congestion and reduce the level of carborne exhaust in city centres (Pickett et al., 1999). Other studies hinted at possible counter effects of P + R. Decreasing congestion in city centres could stimulate car drivers again to use their car in the city, since accessibility will have increased (Noel, 1988). P + R could then make driving more attractive. Another study found that P + R can generate extra car trips, divert motorists from other business centers and abstract patronage from other public transport services (Atkins, 1998). This would then contribute to car use around the city centre. Also, cars drivers travelling via P + R facilities to the city centre may make some extra miles to reach the P + R facility. The precise weight of these negative externalities is still debated (and will differ from place to place), just as the net direct benefits of P + R on car traffic in the urban area as a whole. It is uncontested however that well-used P + R sites directly reduce car movements in the central city centre.

2.1. Policy frames

Why do cities across Europe vary in their appreciation of P + R? In order to analyse the viewpoint and considerations of city authorities we adopt the concept of *policy frames*.

.Frame analysis has a history in political sciences (Rein and Schön, 1977; Schön and Rein, 1994) and communication sciences (Iyengar, 1991; Reese et al., 2001). Framing studies branch off from a long tradition in social sciences. Since Immanuel Kant published his 'Critique to Pure Reason' by 1781, social scientists have been stressing the limited cognitive capacities of individuals. Due to the diversity and versatility of reality, humans perceive only some aspects or elements of an observed part of reality at the same time. Originating from philosophy, social psychological research has devoted extensive attention to the notion of *attitudes*, which can be regarded as 'simplifiers' used for the evaluation of objects and situations: they prevent one to appraise things over and over again (Fazio, 1989). In the same line of enquiry, the *framing* metaphor can be understood as a window or pair of glasses that filters the total amount of information in the impression, and focuses attention on key elements and aspects within a situation and its context. Thus, framing involves processes of *inclusion* and *exclusion* as well as *emphasis*. In general, this is not a conscious construction process, but due to unconscious adoption in the course of communicative processes. Entman (1993, p.52) summarizes the essence of framing processes as follows: *Framing involves selection and salience. To frame is to select some as-*

[1] This is also called 'steering approach', as opposed to the previous 'car demand-following' approach.

pects of perceived reality and make them more salient in the communicating text. We follow this definition here.

In social issues frames are everywhere. All stakeholders have their own perspective. In fact, an actor 'wears' a whole range of spectacles, for various situations or objects. Policymakers also make sense of reality through framing, both of the variety of problems they are confronted with, as well as various possible solutions strategies. Schön and Rein (1994, p. 26) provide a useful definition of policy framing as the process through which:

> "Things are selected for attention and named in such a way as to fit the frame constructed for the situation. They select for attention a few salient features and relations from what would otherwise be an overwhelmingly complex reality. They give these elements a coherent organization, and they describe what is wrong with the present situation in such a way as to set the direction for its future transformation... It is typical of diagnostic-prescriptive stories such as these that they execute the normative leap in such a way as to make it seem graceful, compelling, even obvious." (1994, p. 26).

A frame is, therefore, a perspective from which an amorphous, ill-defined, problematic situation can be made sense of and acted upon. It is the structure in which a societal issue is described (or interpreted) by policymakers. An increasing number of empirical applications have emerged in the policy sciences (cf. Linder, 1995; Swaffield, 1998; Nie, 2003; Scholten and Van Nispen, 2008). In transport studies, Parkhurst and Dudley (2004) examined how bus use became framed as the solution for urban transport problems in Oxford in the 1970s, and how the frame evolved to accommodate pressures from pro-car interests and environmental problems.

In local debates on parking provision and P + R, especially in larger towns, rival policy frames may be recognized (Schön and Rein, 1994, p. 23). First, parking policy may be seen as a key economic tool in the context of economic competition between commercial centres (Dijk and Parkhurst, 2010). Accordingly, central parking should be promoted. Alternatively, it is regarded as one of the few engineering tools with a strong influence on traffic and congestion. In practice, parking policy tends to reflect a compromise between these frames, delivered through the twin instruments of regulations which limit who can park and for how long and pricing structures which may seek to favor parking 'acts' of different duration according to the perceived economic priority and need for equitable treatment that the regulatory authorities afford to different classes of motorist.

A third motivation, generally less forcefully articulated, is the raising of revenue for local authorities from charging for parking on the highway or through investment in off-street parking capacity. In most European countries, local authorities have high financial dependence on nationally-raised taxes allocated by the central governments, which retain a strong influence over how allocated funds are ultimately spent. In the context of this financial regime parking revenues offer the rare alternative of a significant revenue stream which can be allocated to transport or non-transport budgets against locally-determined motivations and justifications.

Currently no fully fledged, standard methodology exists to analyse frames (König, 2008). The plethora of approaches still lack systematic coherence and methodological rigor. In our study we applied a quantitative approach to frame analysis, based on a behavioral model, as we will illustrate below.

3. Methodology

We analyze P + R policy frames by assessing belief-systems of the decision makers. We employ an empirical approach that is based on a behavioral model, a theory of reasoned action, designed to understand human social behavior on the basis of the underlying intentions, attitudes, subjective norms and behavioral control (Ajzen, 1988, 1991). The three domains are derived in a range of empirical studies initiated by Ajzen, concerned with the understanding of human social behavior, finding an explanatory reliability of up to 91% of the variance of behavior (Ajzen, 1991; Ajzen and Krebs, 1994; Jonas and Doll, 1996). Montalvo (2002, 2006) has shown that this model is valid for technology development and strategic planning within the firm's context too, as strategic planning and technology development are based on goals to be achieved. Montalvo applies the model as a structural model to study the possible determinants of firm innovation behavior, where he distinguishes nine possible drivers, and concludes that the proposed model is satisfactory.

In the same line of enquiry, we apply this model to organize our study of innovative behavior of city government organizations, assuming nine possible drivers divided over the three groups. Through a regression analysis we assessed the explanatory value (i.e. validity) of the model in our case. Accordingly, we consider innovation behavior of local authorities as a function of salient *beliefs* which are formed by associating positive or negative connotation with the most relevant aspects of their particular practice of innovation and its implication for stakeholders, activities etc. With regard to the study of P + R, the model suggests that the innovative activities on P + R executed at local authorities are reflected in its decision-makers' *willingness to implement P + R*, which in turn is determined by three domains in their belief-system: their (1) *attitude* towards P + R, (2) their *perceived social pressures* to implement P + R and (3) their *perceived control* over the implementation process.

The *attitude* towards P + R is an indicator of the degree to which relevant decision-makers have a favorable evaluation of the expected outcomes of their engagement in P + R. In the case of P + R these outcomes refer to economic effects of P + R for the city (e.g. the effect on the attractiveness of shops and businesses in the city centre) and the city government (investment cost and possible loss of parking revenues), and also the effects of P + R on the quality of urban environment (congestion, air quality). We therefore distinguish between:

- perceived economic implications or risk (ER), and
- perceived environmental effects (EV),

as the main determinants of the decision makers' perceived attitude towards engaging in the innovation practice.

In contrast to attitude, *perceived social pressure* refers to the positive or negative normative connotations associated with an engagement in P + R. In particular, we distinguish:

- the regulatory pressure (RP), referring to the perceived pressure of (national or EU) authorities or regulations to develop P + R,
- the market pressure (MP), arising from the demand for P + R by car drivers, and
- the perceived community pressure (CP) from stakeholder groups in the community (various local NGO's, e.g. on air quality or shops and businesses).

The third category of determinants refers to the decision-maker's perceived control of the innovation process. This part of the belief system essentially comprises:

- the technical capabilities (TC) allowing a local authority to develop P + R,
- the authority's capability to experience organizational learning (OL) around P + R,

- to form strategic alliances (AL) with suppliers (e.g. private bus or rail companies), and
- use collaboration networks (NW) with research or consultancy institutions in order to outsource the acquisition of knowledge needed for the innovation process.

3.1. Research strategy

For our study we developed a questionnaire that could identity the various beliefs of city governments with respect to P + R and alternative parking policy options. Subsequently, we assessed the correlation between beliefs and actual implemented policies, revealing the salience of various beliefs. We contacted 80 of the largest cities in Europe and received 45 questionnaires completed (see Appendix A). We are confident that respondents were sufficiently knowledgeable about their city's parking policies and P + R initiatives for two reasons. First, the city organizations helped in finding an appropriate person to complete the questionnaire after our request for information 'concerning barriers and drivers to the adoption of Park & Ride facilities in your city' in the cover letter of the questionnaire. Second, from the respondents who indicated their position we find that a majority works at senior level in the traffic and transport department (team leader, head of a group, director).

We assume that respondents to have voiced the vision of their organization. In various statements in the questionnaire we use the phrase 'in our city', and there is no reason to presume that these transport professionals would not be able to indicate the field of influence around P + R in their city, especially since many are at senior level. Nevertheless, the respondent's assessment of various pressures on the city government will be slightly colored by the personal opinion on P + R or position in the organization. In our analysis we neglect these personal biases, and assume that the respondent perfectly voiced the view of the city government and the considerations behind current policies. We realize that this is a fairly strong assumption. In Section 5 we discuss the implication of this assumption.

4. Engagement and framing of P + R in Europe

Our questionnaire includes two types of questions:

– Current parking policies (including actual engagement in P + R).
– Beliefs on parking policies (including beliefs on P + R).

We discuss the answers to the questions of both types in this order. The questionnaire is enclosed as Appendix B.

4.1. Current urban parking policies

We evaluate five urban parking policy measures. We look at the following ones:

- Decreasing the number of vehicles in city center (as a policy aim).
- Increasing the prices to park in the city-center.
- Expanding parking capacity in the city center.
- Expanding capacity of the roads to the center.
- Developing P + R facilities.

Figs. 1–6 present the distribution of response frequencies of the 45 cities to these statements. We found that cities aim to curtail car use: for virtually all cities 'decreasing car use in the city centre' is a policy aim 'to increase the quality of the city center environment' (Fig. 1). Only two cities slightly disagreed: Hamburg and Rotterdam. In these cities congestion and (car use contribution to) air quality are apparently not critical issues. Various measures are applied to support the policy aim to decrease car use. Most cities apply pricing: about 84% (Fig. 2). In most cities the current parking price (by 2005) is less than 2 euros per hour (Fig. 3). Responses also show that most cities are not expanding parking in the city centre to solve parking problems: around 65% disagrees (Fig. 4). On the contrary, around 20% slightly agree they do use parking expansion. Further, we found that less that a quarter of the cities expand road capacity in order to solve congestion issues (Fig. 5). For most cities, developing P + R is one of the measures to decrease car-use in the city-center: Notably 36 out of 45 cities apply P + R as (at least one of the) measure(s) to decrease car use, which is 80% (Fig. 6).

4.2. Engagement in P + R development and operation

To what extent are these cities engaged in P + R? We evaluate:

- present development,
- existing plans to future development,
- past adoption levels.

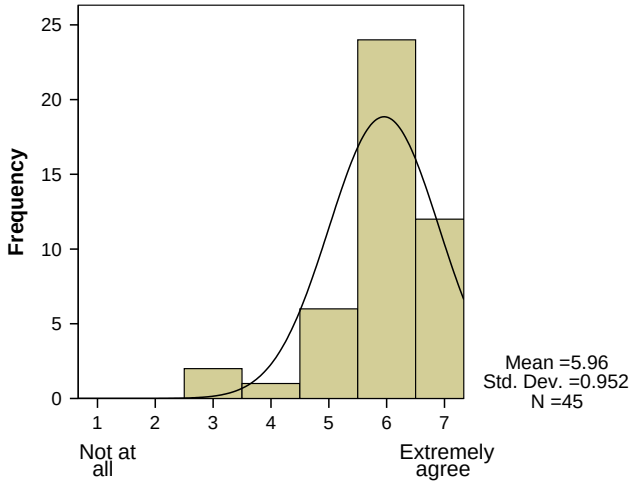

Fig. 1. Decreasing car use as policy aim.

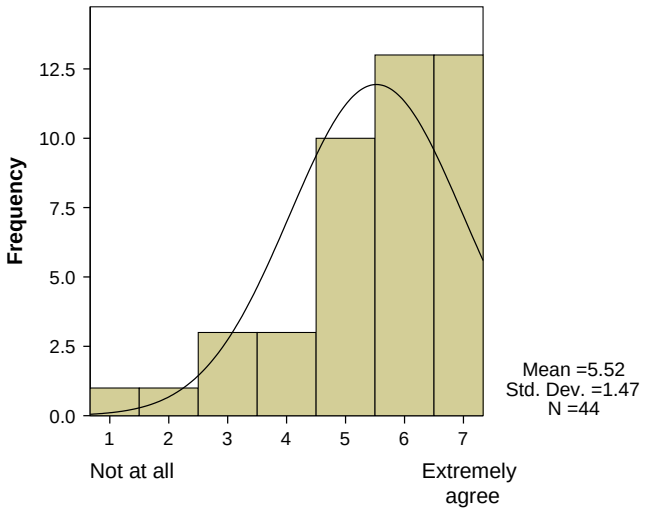

Fig. 2. Increasing parking prices.

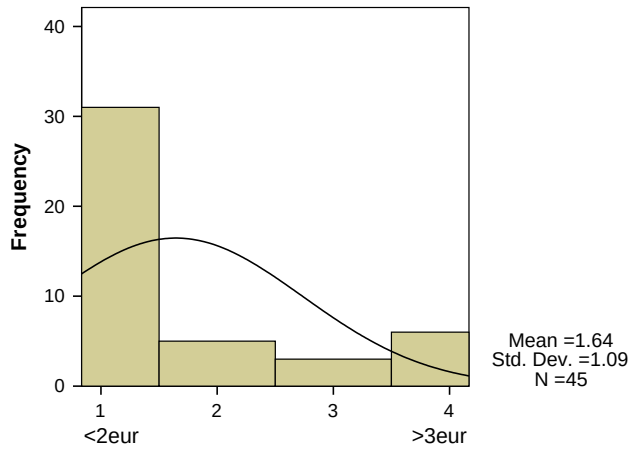

Fig. 3. Current parking price.

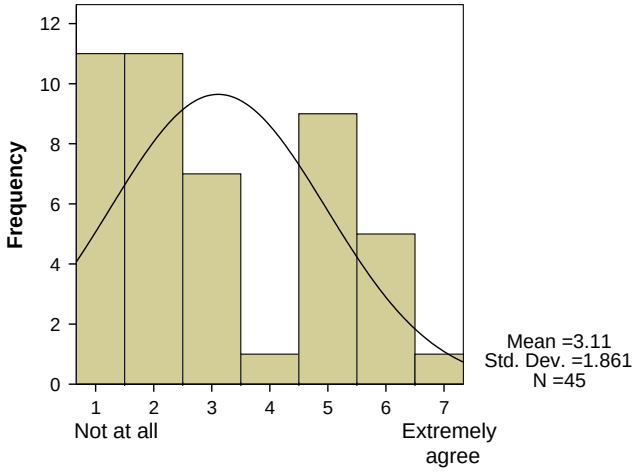

Fig. 4. Expanding parking capacity.

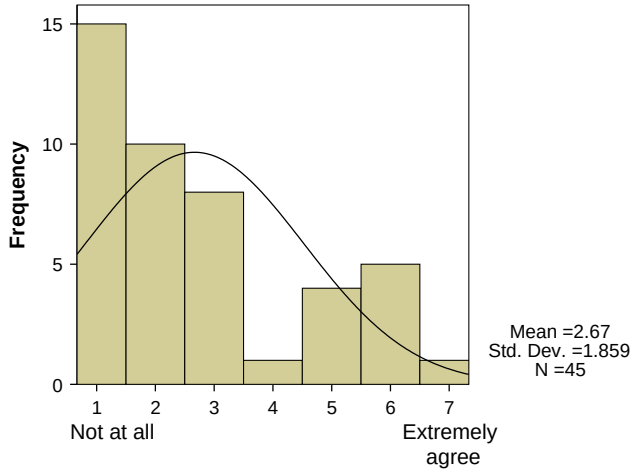

Fig. 5. Expanding road capacity.

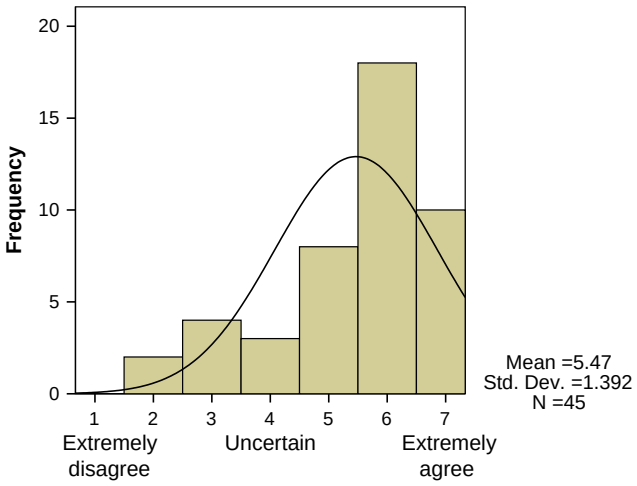

Fig. 6. P + R as measure.

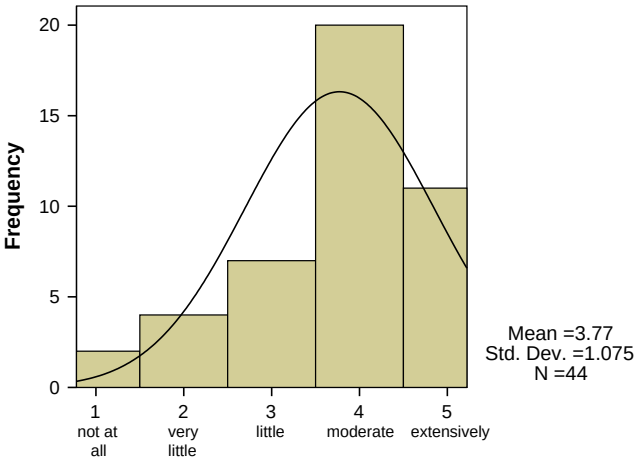

Fig. 7. Present engagement with P + R.

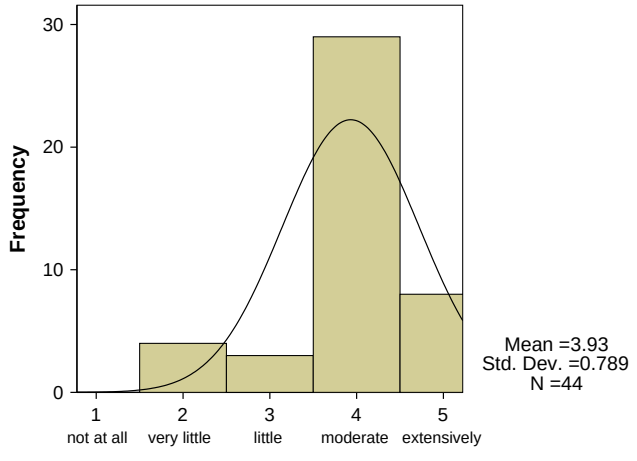

Fig. 8. Plans to develop P + R.

Figs. 7–9 present the distribution of response frequencies of the 44 cities to these statements. We found that most cities are moderately engaged in developing P + R: 45% (see Fig. 7). Eleven cities (or 25%) are extensively engaged. Another quarter has little or very little employed P + R.

Further, most cities have moderate plans to develop P + R in the future (68%, see Fig. 8). Eight cities have extensive plans: Edinburgh, Florence, Rotterdam, Helsinki, Oxford, Tallinn, Gent, and Geneva. Four cities have very few plans: Luxemburg, Dortmund, Zurich, and Copenhagen.

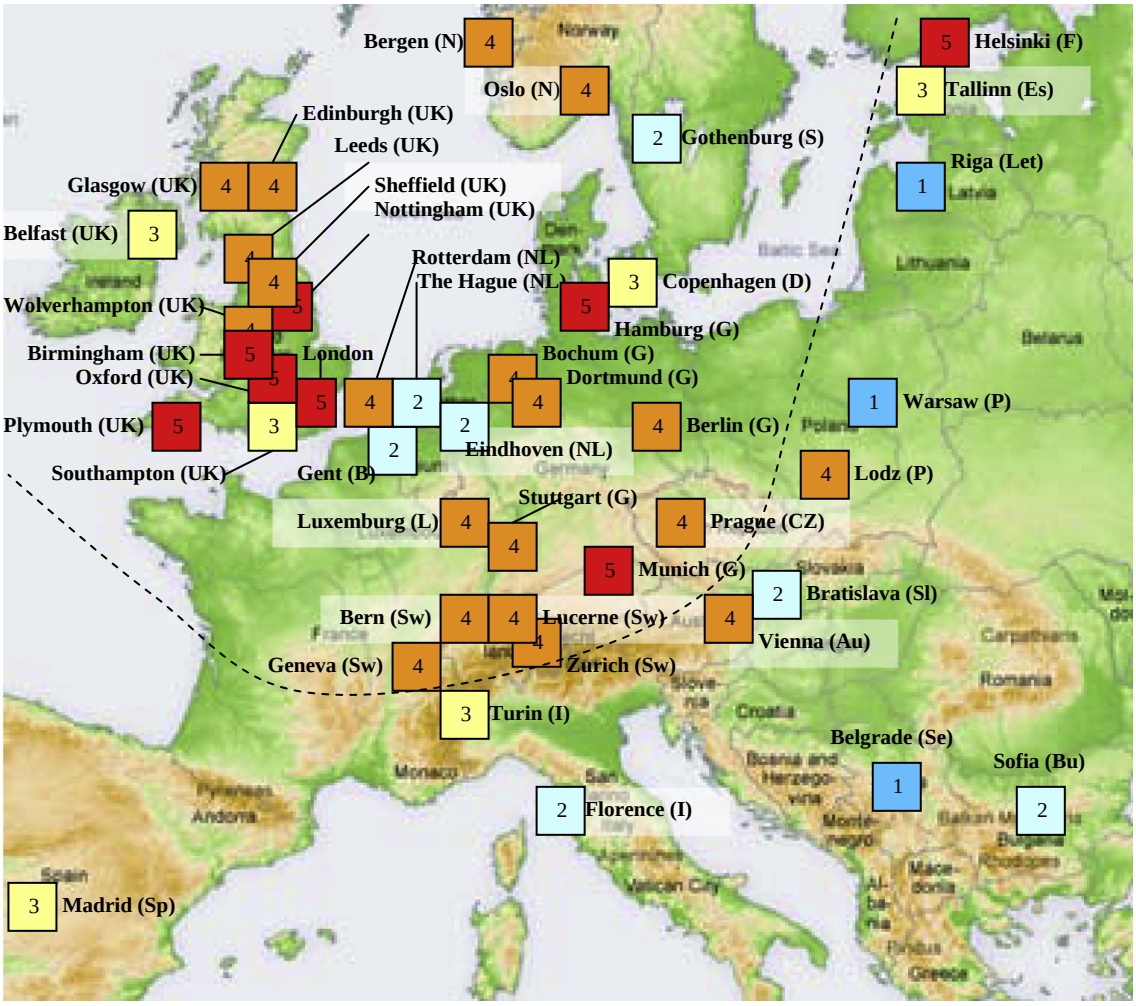

Fig. 9. Diffusion of P + R in Europe (where level of adoption in P + R: 1 = not at all, 2 = very little, 3 = little, 4 = moderate, and 5 = extensively).

Fig. 9 presents their past adoption levels (as marks) on a map of Europe. We find that P + R is adopted fairly unevenly across Europe. Geographically, we find that cities in Northern-western Europe (especially UK and Germany) have higher adoption levels than cities in southern and Eastern Europe. Stienstra (2004) also found that parking policies in general are more advances in North-western Europe, diffusing to the east and south.

4.3. Nine potential drivers of engagement in P + R

In this section we describe beliefs of city governments which may drive their engagement of P + R. We provided statements according to the nine items of the behavioral model: perceived

- environmental relevance of P + R for the city,
- economic implications of P + R for the city,
- demand for P + R (from car drivers),
- pressure from the community (NGO's, media),
- (national or EU) regulatory pressures,
- technological knowledge and capabilities,
- organizational capabilities,
- capabilities to form strategic alliances,
- capabilities to establish networks of collaboration.

Figs. 10–18 presents the distribution of response frequencies to these statements. Most cities find P + R relevant regarding the environmental effects of car use for the city (66%, see Fig. 10). Notably, nine cities (20%) disagree on this: Turin, Wolverhampton, Lodz, Gent, Vienna, Zürich, Dortmund, Munich, and Warsaw. These towns do not regard P + R as a relevant solution for decreasing environmental impacts in their city centre.

The economic implications effects of P + R for the city, such as the economic attractiveness of the city centre (for shops and businesses), are found uncertain by about one third of the respondents (Fig. 11). The largest share of cities associates P + R with economic loss: 47%. A minority experiences (moderate or minimal) economic benefits: 26%. Two cities see great losses: Geneva and Prague.

Perceived demand for P + R, i.e. market pressure to develop P + R, is polarized (Fig. 12): 48% views it as high (mostly slightly high), whereas 43% as low (mostly slightly low). Thereof two cities see extremely low pressure (Oxford, Riga), and two cities see extremely high pressure (Plymouth, Edinburgh).[2]

Community pressure to develop P + R (such as pressures from NGOs, representatives of shops and businesses, environmental organizations) (Fig. 13) is regarded to be lower than market pressure on average: the mean is 3.23 compared to 4 for market pressure. 58% of the cities see it as weak, while 26% regard it as strong

[2] We note that it is possible that the polarized shape results from two different interpretations of the question: some assuming that we meant 'additional demand' other scoring 'overall demand'. Therefore we suggest using this result with care.

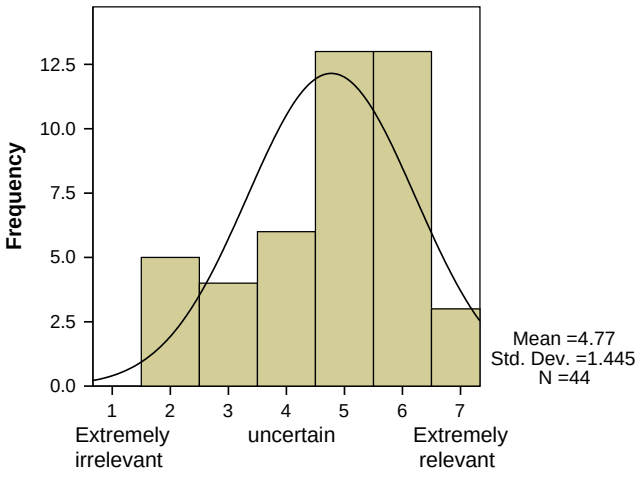

Fig. 10. Environmental relevance of P + R.

Fig. 11. Economic implication of P + R.

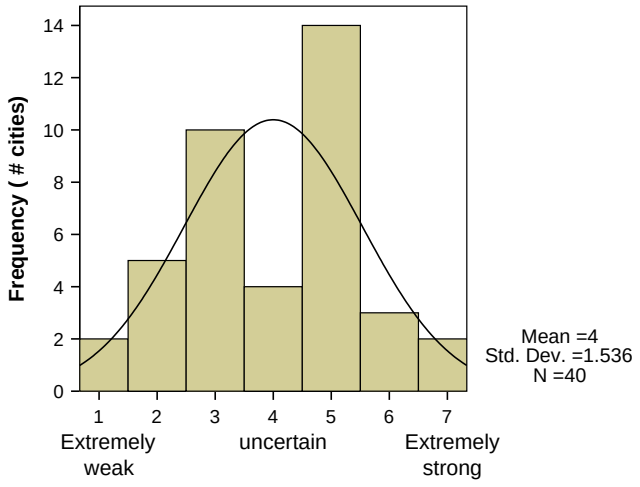

Fig. 12. Demand for P + R.

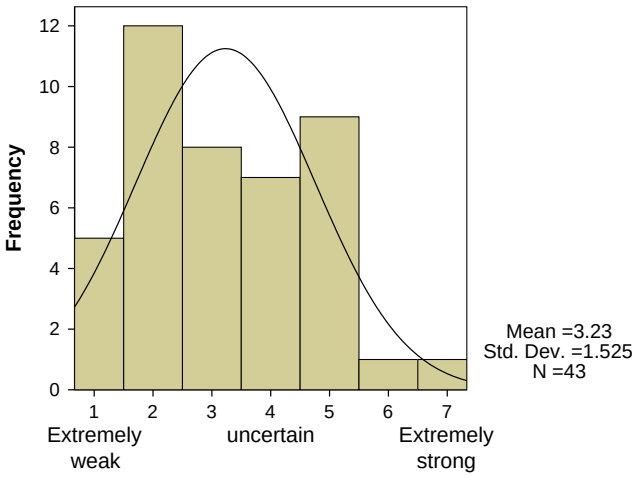

Fig. 13. Community pressure for P + R.

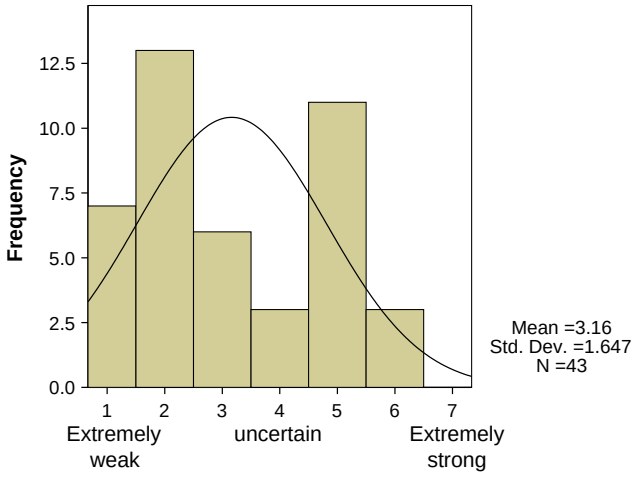

Fig. 14. Regulatory pressure for P + R.

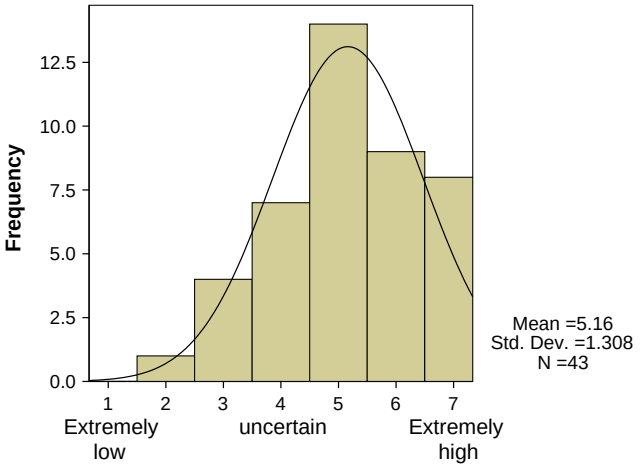

Fig. 15. Technological capabilities for P + R.

(mostly slightly strong). Cities that find it quite strong and extremely strong are Birmingham and Edinburgh respectively.

Similar as community pressure, pressure from national and EU authorities to develop P + R is mostly regarded as low: 57% (Fig. 14). Only 30% believes it is slightly high. The mean is compa-

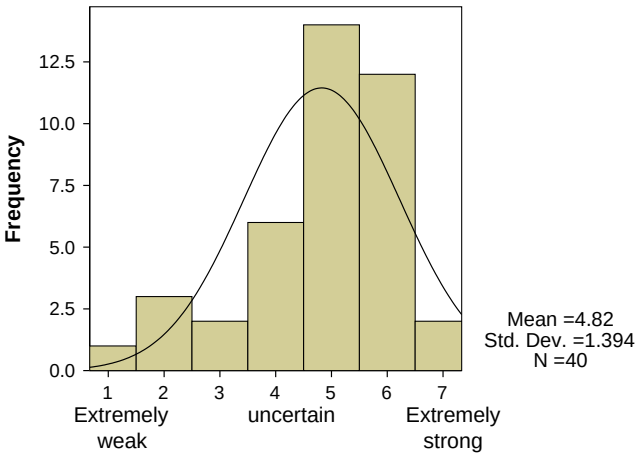

Fig. 16. Learning capability for P + R.

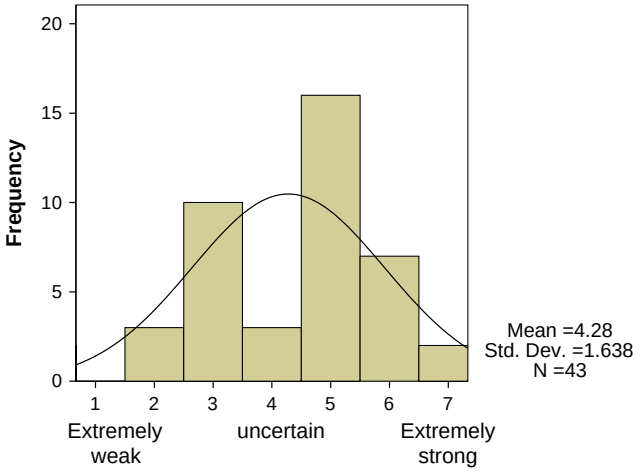

Fig. 17. Alliance capabilities for P + R.

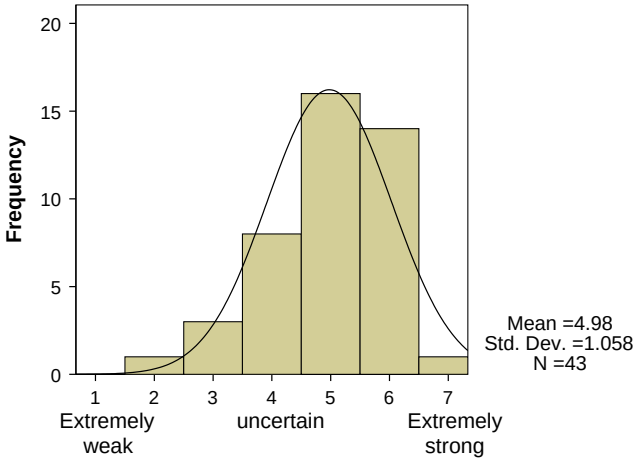

Fig. 18. Perceived networking skills for P + R.

rable to community pressure: 3.16. Cities that find it quite strong are Oslo, Helsinki and Rotterdam.

For a large majority of the cities technological capabilities (Fig. 15) are no concern or barrier to develop P + R: 72% see them as high. Only 12% consider them low (mostly slightly low); only Turin scores quite low.

Similarly as for technological capabilities, a great majority (of 70%) regards organizational capabilities for P + R (Fig. 16) as high (mostly slightly and quite high). Most pessimistic is Dortmund (extremely low), whereas most optimistic are Geneva and Plymouth (extremely high).

About 58% believes building of strategic alliances for P + R (e.g. with private bus or rail companies) is easy (mostly *slightly easy*), see Fig. 17. The number of cities that has concerns about this capability (13) is a bit higher than for the previous two statements. Three cities believe it's quite difficult: Lodz, Belfast, and Turin. Only four cities (about 9%) find that building networks of collaboration to acquire know-how for development is difficult (Turin, London, Rotterdam and Bratislava), see Fig. 18.

4.4. Beliefs on P + R alternatives

We provided statements on the perceived effectiveness of P + R (as benchmark) and various alternatives. First we asked about their appreciation of P + R as a policy measure. Subsequently we asked about (effectiveness of) alternatives to P + R.

- Statement A: P + R-facilities would be a good measure for my city to decrease car-use in our city-center.
- Statement B: 'Increasing the prices to park' would be a good measure for my city to decrease car-use in our city-center.
- Statement C: The effectiveness of 'limiting or decreasing places to park in the city center' as a measure to decrease car-use in our city-center is...
- Statement D: I believe that other available technologies/practices are more effective than P + R (to increase environmental quality of the city center).

Figs. 19–22 present the distribution of response frequencies to these statements. A great majority believes P + R to be a good measure to decrease car traffic in their city centre: 93% (Fig. 19). The same holds for pricing of parking in the city centre (82%, see Fig. 20). The mean value here is 5.31, very close to the mean of the confidence in P + R (5.33). 'Limiting parking capacity' is less regarded as an effective measure: in total 57% (see Fig. 21). About 36% finds it minimally effective. The mean is 4.53.

Is P + R the best measure to decrease car traffic? We asked whether other practices were regarded as more effective than P + R. We found 61% of the cities agreeing with this statement, who thus believe that other measures are more effective than P + R (Fig. 22). About a quarter are uncertain. The mean value is

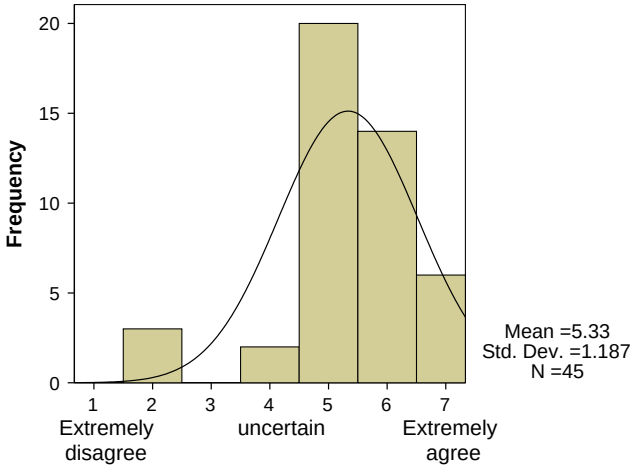

Fig. 19. P + R is a good measure.

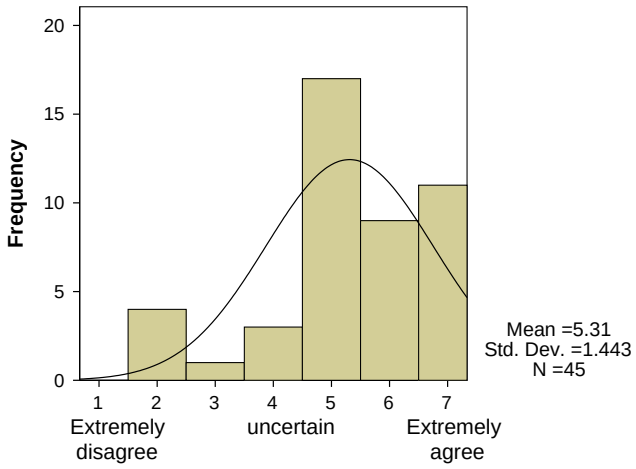

Fig. 20. Pricing is a good measure.

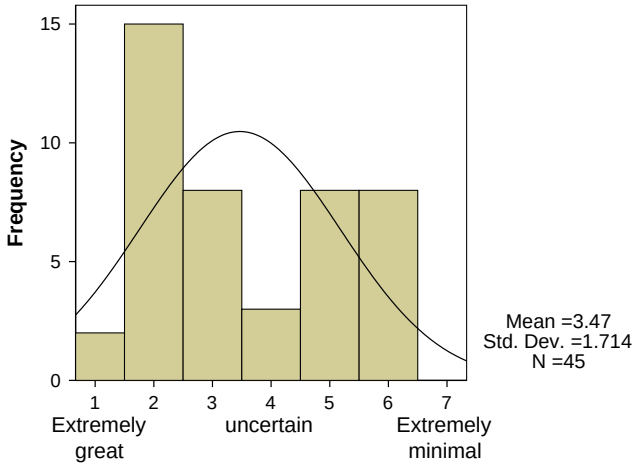

Fig. 21. Effectiveness limiting parking capacity.

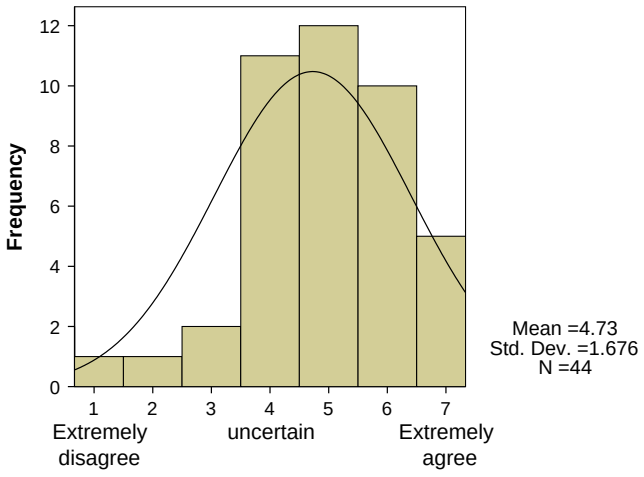

Fig. 22. Other ways more effective than P + R?

4.73. Four cities (or 9%) disagree and thus believe that P + R is the most effective measure.

Finally, directly following on statement D we posed an open question: Which measures are more effective than P + R (to increase environmental quality of the city center)? Most cited were: better or more public transportation (54%), promotion and facilities for bike use (31%), road pricing or congestion charge (31%). Finally four cities underlined the necessity of a package of measures (not just one solution like P + R), and the difficulty in seeing P + R as sole measure.

Table 1
Result of stepwise (backward) regression of actual engagement in Park + Ride and the corresponding beliefs regarding P + R (final step; unstandardised coefficients; significance in parentheses).

Variables	Actual engagement At present (I)
Constant (b)	0.62 ± 0.71 (0.388)
Market pressure, MP	0.23 ± 0.094 (0.019)
Economic implications, ER	0.23 ± 0.095 (0.020)
Organizational learning capability, OL	0.25 ± 0.099 (0.017)
R^2 (adjusted)	0.383 (0.328)

5. What are the strongest drivers of P + R in Europe?

In this section we analyze the salience of the various beliefs regarding P + R through a statistical analysis of beliefs and actual engagement in P + R.

5.1. Validity of the behavioral model

In order to confirm the validity of the behavioral model described in the methodology section, we analyse the validity of the hypothesis

$$\mathrm{I} \sim \mathrm{W} = \mathrm{W}(\mathrm{EV} + \mathrm{ER} + \mathrm{MP} + \mathrm{CP} + \mathrm{RP} + \mathrm{TC} + \mathrm{OL} + \mathrm{NW} + \mathrm{AL})$$

stating that perceived environmental effects (EV, see Fig. 10), economic implications (ER, see Fig. 11), market pressure (MP, see Fig. 12), community pressure (CP, see Fig. 13), regulatory pressure (RP, see Fig. 14), technological capability (TC, see Fig. 15), organisational learning (OL, see Fig. 16), strategic alliance formation (AL, see Fig. 17) and networks of collaboration (NW, see Fig. 18) consistently contribute to the organization's actual engagement (I, see Fig. 7) in the development or adoption of an innovation such as P + R, hypothesis H is represented by the following equation:

$$\begin{aligned} I \sim W &= w_0 + w_1\mathrm{EV} + w_2\mathrm{ER} + w_3\mathrm{MP} + w_4\mathrm{CP} + w_5\mathrm{RP} + w_6\mathrm{TC} + w_7\mathrm{OL} \\ &\quad + w_8\mathrm{NW} + w_9\mathrm{AL} \end{aligned}$$

In order to test this hypothesis, actual engagement I is subjected to a (stepwise) linear regression on all variables. Through a backward procedure we examined various model combinations by removing insignificant variables from the model until we there were only significant ones left (see Appendix C). We found a good model fit (R square 0.383; adjusted R square of 0.328) for a model with three independent variables: market pressure, economic implication and organizational learning capabilities. The p-value for this model is 0.01 (see Appendix C) and at least one coefficient is significant ($p < 0.05$; see Table 1) and thus the null hypothesis can be rejected and, accordingly, hypothesis H is confirmed.

This set of three variables is found to make relevant contributions to the prediction of the organizations' engagement in Park-and-Ride. Attempts to include each of six other predictors as a fourth variable led to negligible increases in R^2, whereas the fourth variable was never significant (and in most case the three variables remained significant). The correlation matrices for the three variables all show correlations below 0.15 (see Appendix C), which indicates that multicollinearity is not a problem and, thus, the

variables indeed measure different aspects of the willingness to engage.

5.2. Salient beliefs

Looking more closely at the variables, it becomes evident that the three variables have practically an equally important contribution (as measured by the size of the coefficient) to the willingness to develop P + R. The importance of *Economic implications* of P + R for city governments is understandable for a few reasons. City authorities care about the effects of P + R on the local economy, most notably on the attractiveness of the city centre for visitors of shops, services and businesses. The fear of putting off visitors is likely to be part of the explanation for those responders perceiving negative effects, whereas those who expect positive effects find that loss of attractiveness in terms of parking is compensated through increased attractiveness of the inner-city in terms of safer and more liveable streets and squares. In many cities these potential effects lead to lively political debates, as Stienstra (2004) notes.

Beside economic implications through the effect of P + R on attractiveness of the city centre, some responders may also have thought about the direct impact on the city's financial budget. It is quite difficult to develop and operate P + R sites on a budget neutral basis. Cities therefore face yearly returning operational costs, in addition to the investment cost of constructing the sites. Also, parking revenues from central locations make up a significant share of total local tax revenues, and cities may fear losing those revenues through introduction of P + R. The rather tight budget of city governments explains why this financial factor is of salient importance to them.

It is notable how diverse cities perceive these potential economic effects, as Fig. 12 shows. The largest share of cities P + R expects losses: 47%, while a minority experiences (moderate or minimal) economic benefits: 26%.

Market pressure is a second important contributor to willingness. We interpret market pressure as demand for P + R from car motorists (since we asked for demand signals, see Appendix A). Obviously, demand from car motorists is an important factor for the city's engagement in P + R as it would not make sense to construct sites if they would not be used. The other way around it would make a lot of sense to construct sites if motorists would really like them. Experiences in other cities are important in this respect, since they are taken as examples of how much car motorist like P + R and actually use it. Oxford's well functioning P + R sites in the early 1990s (with car interception ratio of around 10%) has stimulated other British cities to experiment with P + R. Even though physical infrastructures and cityscapes are very different, cities learn from each other.

Organizational learning is the third salient driver. This factor denotes the authorities' capabilities to organize P + R. Business innovation research suggests that organizational learning is a critical capacity for organizations aiming to innovate (Leonard-Barton, 1992; Lynn et al., 1998). Since innovation is typically surrounded by uncertainty, the absorptive capacity of new knowledge is key. For many cities P + R is a relatively new initiative, and still in development. It is not very clear how the sites can be operated and managed most efficiently, and what impact on other parts of city government organization and financial effects are. In this stage it is therefore explicable that organizational learning capabilities are a significant driver to the development of P + R.

Obviously, our analysis does not suggest that the other six potential drivers of P + R are irrelevant. Although they do not turn out to be significant in the statistical analysis of the respondent group, they may well be important for specific cities. Also, the importance of drivers may vary in the course of the innovation process in a city (future planning and visioning, implementation, operation), and accordingly some factors may be only critical in a certain phase, which is something we would not easily disclose with our regression analysis. Therefore, our findings need to be tested through closer examination of the parking practice in cities in various case studies. This is an important area for future research.

What if respondents did not perfectly voice the view of their organization? In fact it is quite certain that some respondents will slightly overestimate and others will slightly underestimate when scoring the statement for their organization. This is an issue in all studies that use expressed preferences as a method to rate variables. In this regard regression analysis operates as a mean of means with respect to the linear combination generated for a set of variables of interest. Thus it 'works with' the mean of all respondents to a question, and therefore the overestimation of some will to a high extent cancel out the underestimation of others.

6. Conclusion

This paper offers three new insights to the literature on Park-and-Ride. First, we report on present adoption levels of P + R in Europe. The survey outcomes reveal that a quarter of the responding cities are extensively engaged in developing P + R, whereas another half is moderately engaged. Geographically, we find that cities in Northern-western Europe have higher engagement levels than cities in southern and Eastern Europe. Second, this study maps out *diversity in framing* of P + R throughout European cities, by revealing current beliefs about P + R. We show how diversified their interpretation of P + R is. Linear regression analysis suggests that *economic implications*, *demand for P + R*, and *organisational learning capabilities* are the salient drivers for city governments whether or not to engage in P + R development, explaining almost 40% of the variance in their *engagement levels* in P + R. Thirdly, Park-and-Ride is certainly not the only transport policy initiative in town to improve accessibility and livability of the city. Most cities apply combinations of measures. We found that P + R is appreciated as part of such a package, but is not regarded the perfect one. Most cities regard P + R as a 'plan B'.

Appendix A. Respondent information

Here we provide the list of the 45 responding cities and the position of the respondent (that they reported).

City	Respondent Position
Madrid	Cabinet Adviser
Luxemburg	Head of staff service de la circulation
Sheffield	Transport Planner
Bern	Projektleiter, Verkerhrsplanung Bern
Berlin	Head of the group implementation of transport policy
Edinburgh	Professional Officer at City Development, Transport, Parking Operations
Sofia	Head expert
Florence	Sent to: Deputy Mayor of Urban Traffic Plan
Belgrade	Assistant in the traffic department
Turin	Top Manager – Turin City Council
Rotterdam	Urban planner/traffic & transport dep.
Bratislava	Head of dept. for transport planning and traffic control
Warsaw	Main specialist
Bergen	Senior Executive Officer
Munich	Officer for transport planning
Lucerne	Project manager in transportation planning
Prague	Prague City Hall

Helsinki	Director, City Planning Department
Oxford	Business Manager for Transport & Parking
Tallinn	Head of transport department
Birmingham	Policy Manager, Transportation
Dortmund	Leader of workgroup "public transport"
Gothenburg	Parking manager
Stuttgart	Mayor's Office, Department of Engineering
Zurich	Transportation engineer; traffic planning division
Vienna	
Leeds	Transport Planner (Policy)
Gent	Chief Mobiliteit en Transport
Geneva	Managing director
Bochum	Head department of Traffic
Hamburg	Directorate ...
Copenhagen	Transport planner
Riga	Traffic and Transport Affairs Committee
The Hague	Beleidsmedewerker
Eindhoven	Head department of Traffic
Oslo	Engineer
Lodz	Operation manager
Belfast	Deputy div.
Glasgow	Transport ...
Nottingham	Senior Public...
Plymouth	Public Transp.
Southampton	Principal transport planning (policy)
Wolverhampton	Head Transport strategy
London	Senior Business manager

After an initial list of about 125 European cities larger than 225,000 inhabitants (data from Eurostat), we were able to obtain an appropriate email address from about 80 cities after phoning the general city telephone number (from the city website). Especially in Eastern and Southern Europe the language (English) was a barrier to communication, and sometimes prevented us obtaining an email address or telephone number of an appropriate person. Sometimes the request to send a questionnaire was rejected because the city did not do anything with P + R. We sent out about 80 questionnaires, and received 45 completed. The relatively low percentage of respondents from Eastern and Southern Europe is also explained by the problems with English on the one hand (the questionnaire was in English), and on the other hand because fewer questionnaires were sent out there in the first place, since P + R was relative less well-known there, and therefore our request to send one was rejected relatively more often there.

All in all, the list of 45 cites we ended up with contains cities larger than 225,000 people, although we included three smaller cities (Oxford, 165k; Lucerne 76k; and Luxemburg 92k) where we came into contact with an appropriate respondents through other work, and decided to include them to enlarge the data set. We feel the inclusion of these smaller cities doesn't spoil the set, because the size of the city does not seem to be of major concern. In principle, for our present analysis cities and towns of all sizes could be included in the data set.

Appendix B. Questionnaire

The questionnaire we sent out includes two types of questions:

(1) Current parking policies (including actual engagement in P + R): Q1–2 and Q12–17)
(2) Beliefs on parking policies (including beliefs on P + R), with Q3–11, 18–21, with 3 and 11 on *attitude*, 4–6 on *perceived social pressure*, and 7–10 on *perceived control* (see Section 3).

—

B.1. Section I: general information

City's name
European Member State within which you are based
Respondent name
Position
Date

Table C1
Model summary.

Model	Number of (indep.) variables	*R*	*R* square	Adjusted *R* square	Std. error of the estimate	Significance ($p < 0.01$)
1	9	0.644	0.415	0.227	0.895	0.053
2	8	0.644	0.415	0.254	0.879	0.030
3	7	0.643	0.414	0.277	0.865	0.016
4	6	0.637	0.406	0.291	0.857	0.009
5	5	0.630	0.397	0.303	0.849	0.005
6	4	0.626	0.392	0.318	0.840	0.002
7	3	0.619	0.383	0.328	0.834	0.001

Table C2
Correlations for model 7.

		mp Market pressure	l Learning capability	er Economic risk
mp Market pressure	Pearson correlation	1	0.148	−.128
	Sig. (2-tailed)		0.374	0.430
	N	40	38	40
l Learning capability	Pearson correlation	0.148	1	0.084
	Sig. (2-tailed)	0.374		0.607
	N	38	40	40
er Economic risk	Pearson correlation	−.128	0.084	1
	Sig. (2-tailed)	0.430	0.607	
	N	40	40	43

B.2. Section 2: P + R information

1. To what extent is your city presently engaged in developing P + R facilities? 0 (not at all) ... 5 (extensively)
2. To what extent does your city have existing plans to develop P + R facilities? 0 (not at all) ... 5 (extensively)
3. To what extent did your city P + R facilities in the past? 0 (not at all) ... 5 (extensively)
4. Regarding the environmental effects generated by the usage of our cars in the city centre, the relevance of P + R is 0 (extr. irrelevant) ... 7 (extr. relevant)
5. In general it can be said that the signals (demand) that we perceive from the market place (for example: citizens and other cities) tell us that we should develop and offer P + R facilities are 0 (extr. weak) ... 7 (extr. strong)
6. In general, the pressure from the community (local NGOs, mass-media, shops and businesses, etc.) that this city faces to develop and offer P + R facilities are 0 (extr. weak) ... 7 (extr. strong)
7. There are several regulatory institutions (e.g. the EU and national authorities) pushing us to develop and offer P + R facilities 0 (extr. likely) ... 7 (extr. unlikely)
8. We find that the level of state of the art knowledge available in the marketplace for our city to engage in the development and implementation of P + R facilities is 0 (extr. low) ... 7 (extr. high)
9. Our city government has the necessary organizational capabilities to reshape our organizational structures to develop and implement P + R facilities in our city 0 (extr. likely) ... 7 (extr. unlikely)
10. Our city finds the performance of strategic alliances (with companies, organisations or other cities) to develop P + R facilities 0 (extr. difficult) ... 7 (extr. easy)
11. Establishing networks of collaboration to acquire know-how to develop and implement P + R facilities for our city is 0 (extr. difficult) ... 7 (extr. easy)
12. For our city the venture of development of P + R facilities would imply economically 0 (great losses) ... 7 (great benefits)
13. 'Increasing the prices to park' is one of the measures of my city to decrease car-use in our city-centre 0 (not at all) ... 7 (extr. agree)
14. Current parking price in the centre for 1 h is
< 2 euro□ < 2.51 euro□ < 3.1 euro□ > 3.1 euro□
15. P + R facilities are one of the measures my city implements to decrease car-use in our city-centre 0 (extr. disagree) ... 7 (extr. agree)
16. 'Expanding parking capacity in the city centre' is one of the measures of my city to solve parking problems 0 (not at all) ... 7 (extr. agree)
17. 'Expanding capacity of the roads to the centre' is one of the measures of my city to solve congestion 0 (not at all) ... 7 (extr. agree)
18. 'Decreasing the number of vehicles in our centre' is chosen as a policy aim to increase the quality of the city centre environment 0 (extr. disagree) ... 7 (extr. agree)
19. The effectiveness of 'limiting or decreasing places to park in the city centre' as a measure to decrease car-use in our city-centre is 0 (extr. disagree) ... 7 (extr. agree)
20. 'Increasing the prices to park' would be a good measure my city could implement to decrease car-use in our city-centre 0 (extr. disagree) ... 7 (extr. agree)
21. P&R-facilities would be a good measure of my city to decrease car-use in our city-center 0 (extr. disagree) ... 7 (extr. agree)
22. I believe that other available technologies/practices are more effective (to increase environmental quality of the city centre)
...namely

This concludes the survey. Thank you for your time.

Table C3
Linear regression coefficients for dependent variable i2 (current behavior).

Model		Unstandardized coefficients		Standardized coefficients	*t*	Sig.
		B	Std. Error	Beta	*B*	Std. Error
1	(Constant)	0.712	1.037		0.687	0.498
	evr2 Environment. Relevance	−.082	0.115	−.112	−.711	0.483
	mp Market pressure	0.207	0.123	0.303	1.689	0.102
	cp Community pressure	0.082	0.151	0.115	0.542	0.592
	rp Regulatory pressure	0.026	0.121	0.043	0.219	0.828
	tc1 Technological capability	0.130	0.156	0.165	0.836	0.410
	l Learning capability	0.223	0.150	0.310	1.484	0.149
	nk Networks of collaboration	−.096	0.174	−.101	−.554	0.584
	er Economic risk	0.238	0.105	0.342	2.277	0.031
	al Strategic alliances	−.009	0.133	−.014	−.069	0.946
2	(Constant)	0.715	1.019		0.701	0.489
	evr2 Environmental relevance	−.081	0.113	−.112	−.722	0.476
	mp Market pressure	0.209	0.118	0.305	1.770	0.087
	cp Community pressure	0.081	0.147	0.113	0.547	0.589
	rp Regulatory pressure	0.027	0.119	0.043	0.226	0.823
	tc1_Technological capability	0.130	0.153	0.164	0.848	0.403
	l Learning capability	0.218	0.132	0.303	1.655	0.109
	nk Networks of collaboration	−.101	0.156	−.106	−.646	0.523
	er Economic risk	0.239	0.102	0.343	2.329	0.027
3	(Constant)	0.712	1.003		0.710	0.483
	evr2 Environmental relevance	−.076	0.109	−.105	−.702	0.488
	mp Market pressure	0.208	0.116	0.303	1.790	0.084
	cp Community pressure	0.098	0.125	0.137	0.782	0.440
	tc1_Technological capability	0.124	0.148	0.156	0.834	0.411
	l Learning capability	0.223	0.128	0.311	1.746	0.091
	nk Networks of collaboration	−.095	0.151	−.100	−.626	0.536
	er Economic risk	0.237	0.100	0.340	2.356	0.025
4	(Constant)	0.512	0.941		0.544	0.590
	evr2 Environmental relevance	−.080	0.107	−.110	−.742	0.464
	mp Market pressure	0.201	0.114	0.294	1.757	0.089
	cp Community pressure	0.086	0.122	0.121	0.707	0.485
	tc1_Technological capability	0.095	0.139	0.119	0.679	0.502
	l Learning capability	0.216	0.126	0.301	1.718	0.096
	er Economic risk	0.235	0.099	0.338	2.366	0.024
5	(Constant)	0.819	0.819		1.000	0.325
	evr2 Environmental relevance	−.066	0.105	−.091	−.631	0.532
	mp Market pressure	0.200	0.113	0.292	1.765	0.087
	cp Community pressure	0.065	0.117	0.091	0.555	0.583
	l Learning capability	0.262	0.106	0.365	2.480	0.019
	er Economic risk	0.226	0.098	0.325	2.313	0.027
6	(Constant)	0.876	0.804		1.090	0.284
	evr2 Environmental relevance	−.071	0.103	−.098	−.692	0.494
	mp Market pressure	0.234	0.095	0.341	2.460	0.019
	l Learning capability	0.268	0.104	0.373	2.575	0.015
	er Economic risk	0.229	0.096	.329	2.375	0.023
7	(Constant)	0.618	0.706		0.875	0.388
	mp Market pressure	0.232	0.094	0.339	2.466	0.019
	l Learning capability	0.247	0.099	0.344	2.500	0.017
	er Economic risk	0.234	0.095	0.336	2.451	0.020

Appendix C. Statistical details

Table C1 presents a summary of the various model combination we found through a backward regression procedure with dependent variable i2 (current engagement). The model numbers refer to the following combinations of predictors:

- Model 1: Strategic alliances (al), Market pressure (mp), Economic risk (er), Environmental relevance (evr2), Regulatory pressure (rp), Technological capability (tc1), Networks of collaboration (nk), l Learning capability (l), Community pressure (cp).
- Model 2: mp, er, evr2, rp, tc1, nk, l, cp.
- Model 3: mp, er, evr2, tc1, nk, l, cp.
- Model 4: mp, er, evr2, tc1, l, cp.
- Model 5: mp, er, evr2, l, cp.
- Model 6: mp, er, evr2, l.
- Model 7: mp, er, l.

Table C2 provides correlation between the predicators for model 7.

Table C3 provides details of the coefficients of the various models.

References

Ajzen, I., 1988. Attitudes, Personality, and Behavior. Dorsey Press, Chicago.
Ajzen, I., 1991. The theory of planned behavior. Organizational Behavior and Human Decision Process 50, 179–211.
Ajzen, I., Krebs, D., 1994. Attitude and measurement: implications for survey research. In: Borg, I., Mohler, P. (Eds.), Trends and Perspectives in Empirical Social Research. Walter de Gruyter, New York, pp. 250–262.
Atkins, W.S., 1998. The Travel Effects of Park and Ride. Surrey.
Bos, I., Molin, E., et al., 2005. Traveler preference for park-and-ride facilities: empirical evidence of generalizability. Transportation Research Record 1926, 126–134.
Cairns, M.R., 1997. The development of Park and Ride in Scotland. Journal of Transport Geography 6 (4), 295–307.

CROW, 2004. Overstappunten – Ervaringen met Park and Ride in Nederland [Transfers – Experiences with P + R in the Netherlands]. Brochure 10: van parkeerbeheer naar mobiliteitsmanagement. CROW. CROW & MU-Consult, Ede.
Dijk, M., Parkhurst, G., 2010. Emergence of Park and Ride in the UK and the Netherlands (unsubmitted research paper).
Entman, R.M., 1993. Frames: toward clarification of a fractured paradigm. Journal of Communication 43 (4), 51–58.
Fazio, R.H., 1989. On the power and functionality of attitudes: the role of attitude accessibility. In: Pratkanis, A.R., Breckler, J., Greenwald, A.G. (Eds.), Attitude, Structure and Function. Lawrence Erlbaum Associates, Hillsdale, NJ.
Iyengar, S., 1991. Is Anyone Responsible? How Television Frames Political Issues. University of Chicago Press, Chicago.
Jonas, K., Doll, J., 1996. A critical evaluation of the theory of reasoned action and the theory of planned behavior. Zeitschrift für Sozialpsychologie 27 (1), 18–31.
König, T., 2008. Frame Analysis: Theoretical Preliminaries. Frame Analysis. <http://www.ccsr.ac.uk/methods/publications/frameanalysis/index.html> (retrieved 01.07.08).
Leonard-Barton, D., 1992. Core capabilities and core rigidities, a paradox in managing new product development. Strategic Management Journal 13 (5), 111–125.
Linder, S., 1995. Contending discourses in the electromagnetic fields controversy. Policy Sciences 18, 209–230.
Lynn, G., Mazzuca, M., et al., 1998. Learning is the critical success factor in developing truly new products. Research Technology Management 41 (3), 45–51.
Meek, S., Ison, S., et al., 2010. UK local authority attitudes to Park and Ride. Journal of Transport Geography 18, 372–381.
Montalvo, C., 2002. Environmental Policy and Technological Innovation. Edward Elgar, Cheltenham, UK.
Montalvo, C., 2006. What triggers change and innovation? Technovation 26 (2006), 312–323.
MU-Consult, 2000. EvaluatieTransferia – Eindrapport. Amersfoort.
Nie, M., 2003. Drivers of natural resource-based political conflict. Policy Sciences 36, 307–341.
Noel, E.C., 1988. Park-and-ride: alive, well, and expanding in the United States. Journal of Urban Planning and Development 114 (1), 2–13.
OECD, 2007. Managing Urban Traffic Congestion. OECD Publications, Paris.
Parkhurst, G., 2000. Influence of bus based park and ride facilities on users' car traffic. Transport Policy 7 (2), 159–172.
Parkhurst, G., Dudley, G., 2004. Bussing between hegemonies: the dominant frame in Oxford's transport policies. Transport Policy 11 (1), 1–16.
Parkhurst, G., Richardson, J., 2002. Modal integration of bus and car in UK local transport policy: the case for strategic environmental assessment. Journal of Transport Geography 10, 195–206.
Pickett, et al., 1999. (cited in TCT (2005)).
Reese, S., Gandy, O.H., et al., 2001. Framing Public Life: Perspectives on Media and our Understanding of the Social World. Lawrence Erlbaum Associates, Mahwah, NJ.
Rein, M., Schön, D.A., 1977. Problem Setting in Policy Research. Using Social Research in Policy Making. C. Weiss. Lexington Books, Lexington, MA.
Scholten, P., Van Nispen, F., 2008. Building bridges across frames? A meta-evaluation of Dutch Integration Policy. Journal of Public Policy 28, 181–205.
Schön, D.A., Rein, M., 1994. Frame Reflection: Toward the Resolution of Intractable Policy Controversies. Basic Books, NY.
Stienstra, S., 2004. Parkeren in Europees Perspectief [Parking in a European Perspective]. Van parkeerbeheer naar mobiliteitsmanagement. CROW. CROW, Ede.
Swaffield, S., 1998. Contextual meanings in policy discourse: A case study of language use concerning resource policy in the New Zealand high country. Policy Sciences 31, 199–224.
TCT, 2005. Parking Policies and The Effect on Economy and Mobility – COST Action 342. Report on COST. T. C. o. Transport. European Union, Brussels.
Vigar, G., 2001. Reappraising UK transport policy 1950–1999: the myth of 'mono-modality' and the nature of 'paradigm shifts'. Planning Perspectives 16, 269–291.