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# PERSONAL INNOVATIVENESS AS MODERATOR OF THE ACCEPTANCE OF SMART TRANSPORTATION SOLUTIONS

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**Purpose:** The primary objective of this study is to examine the acceptance of smart transportation solutions within urban areas, with a specific focus on the moderating role of personal innovativeness. The research aims to identify and analyze the determinants that influence residents' behavioral intentions to adopt such technologies. By utilizing the Unified Theory of Acceptance and Use of Technology (UTAUT2) framework, the study seeks to fill the gap in the literature regarding the interplay between individual traits and the adoption of innovative transportation systems in Polish cities.
**Design/methodology/approach:** The study employs a quantitative research design, utilizing the Computer-Assisted Web Interviewing (CAWI) method to gather primary data. A total of 471 responses were collected from residents of major Polish cities with populations exceeding 200,000. The survey instrument was developed based on established scales from the UTAUT2 framework and included measures for personal innovativeness, perceived usefulness, perceived ease of use, hedonic motivation, social influence, perceived costs, and intention to use smart transportation solutions. The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the proposed hypotheses and determine the relationships between the variables.
**Findings:** The analysis revealed that perceived usefulness, perceived ease of use, and hedonic motivation positively influence the intention to adopt smart transportation solutions. Perceived costs were found to have a negative impact. Among these factors, perceived ease of use emerged as the strongest predictor. The study also demonstrated that personal innovativeness moderates the relationship between perceived costs and the intention to use, indicating that highly innovative individuals are less discouraged by higher perceived costs. Surprisingly, social influence did not significantly affect the intention to adopt smart transportation solutions, suggesting a context-specific deviation from typical UTAUT2 findings.
**Practical implications:** The results of this study offer valuable insights for policymakers, urban planners, and technology developers seeking to promote smart transportation systems. Strategies should focus on enhancing the perceived ease of use and usefulness of such systems while addressing cost-related concerns. Targeting early adopters with high personal innovativeness can create a bandwagon effect, encouraging broader adoption. Additionally,

the findings suggest the need to tailor promotional efforts that emphasize individual benefits rather than relying heavily on social influence.
**Originality/value:** This research contributes to the growing body of literature on technology acceptance by integrating the UTAUT2 framework with personal innovativeness in the context of smart transportation solutions. The study provides novel insights into how individual traits influence the adoption process, particularly in urban environments. Its findings offer practical guidance for enhancing the implementation and acceptance of smart transportation technologies, underscoring the importance of personalized strategies in fostering innovation adoption.
**Keywords:** personal innovativeness; UTAUT 2; smart transportation; innovativeness; smart mobility.
**Category of the paper:** Research paper.

## 1. Introduction

Smart transportation solutions are integral part of the “smart city concept”, embracing a wide range of advanced technologies to optimize mobility and reduce environmental pressures in urban areas. Fast adoption of such systems by urban populations is a crucial aspect of successful implementation of such solutions. As by 2050 two- thirds of the global population is expected to live in cities, there is a growing need for sustainable and efficient transportation solutions worldwide. The aim of this study is to investigate the determinants of the adoption of the smart transportation solutions among residents of Polish urban areas. Understanding these determinants is critical for successful implementation of smart transportation solutions, which often constitute a significant and risky investment for cities. Despite growing body of research on smart transportation adoption, the knowledge of factors promoting or inhibiting this process is still limited. In particular, the role of internal factors, such as individual differences is still not well understood. This study builds on the extended Unified Theory of Acceptance and Use of Technology (UTAUT 2) framework, enhanceded with personal innovativeness, to provide a more in- depth understanding how personal traits impact technology adoption. This study contributes to the filed by providing insight into the relationships between technology acceptance determinants and user characteristics.

# 2. Literature review

## 2.1.Personal innovativeness

Within extensive literature on determinants of technology acceptance, one identifies two main research streams. The first one focuses on external stimuli, such as perceived usefulness or ease of use, the second focuses on personal traits and social influences as determinants of adoption. Some studies suggest that the latter ones could potentially be more important factors behind adoption decisions (Lu, Yao, Yu, 2005). Individual's innovativeness has been long recognized as important factor driving individuals' behavior in the context of novel technologies and solutions (Lu, Yao, Yu, 2005). Highly innovative individuals are more likely to actively search for information, and are better accommodating for higher risk levels associated with the adoption of new products (Rogers, 1995). The general conclusions resulting from the diffusion of innovation research is that the innovative people tend to be quicker and more eager to try new technologies and solutions appearing on the market. Personal innovativeness is an individual trait, and is defined as adaptation of individuals to innovation sooner than others (Rogers, 1995) or eagerness to try any new technology (Agarwal, Prasad, 1998), and is antecedent for novel technologies acceptance behavior (Donmez-Turan, Zehir, 2021). As personal trait, it originates form the differences in cognitive styles (Lu, 2014). Innovative behavior is derived from conscious cognitive activity which implies shifting from habitual to active thinking, and is determined by novelty, discrepancy and deliberate conditions (Louis, Sutton, 1991). Individuals with higher levels of innovativeness should perceive novelty or discrepancy easier and have stronger inclination to use new technologies or solutions. In the literature, personal innovativeness is often related to risk – taking behaviors, with highly innovative individuals better accommodating for risk related to adoption of any innovative technologies (Chang, Huang, Fu, Hsu, 2017). Additionally, innovative individuals hold more positive beliefs towards innovative technologies (Lewis, Agarwal, Sambamurthy, 2003), and perceive them to be more useful (Mao, Srite, Thatcher, Yaprak, 2005). Numerous studies found personal innovativeness as a major determinant of intention to use new technologies (Donmez-Turan, Zehir, 2021). In the context of consumer behavior, personal innovativeness is understood as a predisposition to buy new and different products or brands, rather than relying on previous choices (Steenkamp, Hofstede, Wedel, 1999) or propensity to adopt new offerings or ideas earlier than others.

There is no agreement whether personal innovativeness is an antecedent or a direct moderator of behavioral intentions, and the role of individual innovativeness is theorized differently (Kwon, Choi, Kim, 2007; Yi, Fiedler, Park, 2006). Innovativeness can be measured both from internal and external perspectives, that is based on individual's internal characteristics or external actions (Menod, Jablokow, Purzer, Ferguson, Ohland, 2014). Generally, the first perspective (assessing attributes) and focusing on cognitive styles and affect tend to dominate in the research, especially when consumers' reactions to novelties are investigated. Although studies of personal traits in the context of innovation diffusion has been conducted from the late 1990s, only few integrated them into technology acceptance models and studied its impact on intentions to adopt innovations (Lu, Yao, Yu, 2005).

### 2.2. The Unified Theory of Acceptance and Use of Technology and acceptance of smart transportation solutions

In the literature, several models have been proposed to investigate the factors influencing the acceptance of new technologies. The most influential include: the theory of planned behavior (TPB), technology acceptance model (TAM), theory of reasoned action (TRA), and the unified theory of acceptance and use of technology (UTAUT). The latter one, proposed by Venkatesh et al. (Venkatesh, Morris, David, Davis, 2003), and later extended into UTAUT 2 (Venkatesh, Thong, Xu, 2012), has become particularly popular over the recent years. UTAUT and UTAUT 2 synthetize eight important models of technology acceptance, have high predictive value, and are applicable to consumer research. The UTAUT incorporates four factors influencing technology acceptance: performance expectancy (confidence in the new technology to deliver positive effects or consumer's belief that using technology allows for better task performance), effort expectancy (perceived ease of use of technology), social influence (the perceived degree of social environment's influence on individual's adoption), and facilitating conditions (individual's belief of the existence of the adequate support when adopting the new technology). UTAUT 2 was extended with additional variables: hedonic motivation (perception of technology as pleasant or fun to use), price value (beliefs about the value of the new technology), and habit (the extent to which an individual believes their behavior to be habitual). Additionally, the model includes moderators such gender, age, willingness to use the new technology, and experience. UTAUT and UTAUT 2 have been validated in various contexts, and provide comprehensive framework to investigate behavioral intentions to adopt and use new technologies (Harris, Mills , Fawson, Johnson , 2018).

There is still limited body of knowledge regarding the factors determining consumers' intentions to use smart city technologies, with majority of them focusing primarily on general acceptance of such solutions or intention to use particular technologies, for example mobile applications. Considerable number of published studies utilize UTAUT or UTAUT 2 frameworks, aiming to locate factors crucial for implementation of such technologies. Notable studies include investigation of determinants of the acceptance of IT technologies in public safety domain by Oliveria and Santos (Oliveira, Sanots , 2019), who found perceived ease to use and social influence to be important determinants. Research of factors influencing acceptance of smart city communication technologies by Popova and Zagulova (Popova, Zagulova, 2022) found performance expectancy, effort expectancy, social influence, facilitating conditions, and attitude towards the use of applications to have positive impact on the behavioral intention to use such technologies. Similar results were reported by Teng, Bai and

Apuke (Teng, Bai, Apuke, 2024), who additionally found privacy concerns to be negatively correlated to intention to use smart city services. High performance expectancy, facilitating condition, low effort expectancy, and social influence were found to impact positively behavioral intentions to adopt sustainability- oriented smart city services by Bestepe and Yildirim (2022), one of few studies that included personal innovativeness. They found personal innovativeness to be a significant determinant of use intention- more innovative individuals exhibited higher propensity to adopt focal technologies. Incorporating personal innovativeness to technology adoption studies is relevant for several reasons. As more innovative individuals should perceive any new technologies or solutions as less complex, this can have positive impact on effort expectancy, behavioral intention to use and performance expectancy. Further, one can expect lower impact of social influence on intention to adopt new technologies, but also higher expectations regarding the benefits of adoption.

Smart transportation solutions are part of the concept of the smart city. Both are conceptual and practical answers to demands of urban environments that result from growing populations, road congestion, and environmental pressures. It is estimated that by 2050, 68% of the global population, forecasted to reach ten Billion, will reside in urban areas (United Nations, 2024). Smart transportation systems are intelligent ones, defined as "(…) sets of tools that facilitate integrated, automated, and connected transportation systems, that are information-intensive to better serve users and be responsive to the needs of travelers and system operators" (U.S. Departmemnt of Transportation, 2015). Smart transportation systems utilize growing number of technologies, allowing more flexible, efficient and sustainable travelling and transportation. Smart cities worldwide adopt these sophisticated and intelligent systems, aiming at reduction of road congestion, limiting pollution and travelling optimization. Technologies that are employed in this area include, among others AI, Internet of Things, blockchain, sensors, communications technologies and the big data. Equipped with management strategies into cohesive and integrated frameworks, they aim to enhance efficiency and safety of transportation of both people and goods. Popular intelligent technologies have already been introduced to enhance urban mobility and include, among others, intelligent timetables for public transport, shared urban bicycles, park & ride facilities, mobile application ticketing systems, free parking space indicators, traffic light countdown displays, mobile parking payment systems, and city travel time displays. All these examples can be considered to be practical and tangible facets of smart transportation systems, which not only require considerable investment, but also- and foremost - aceeptance of urban populations. There is still limited body of research of determinants of consumers' intentions to use smart transportation solutions. Understanding what drives their fast and efficient adoption is crucial for their successful implementation. Knowledge of such factors can be instrumental to promoting benefits of such systems and encouraging their use by citizens, which, in turn, would allow their roader social and environmental goals to be achieved.

## 3. Method

The aim of this study is to investigate the determinants of the intention to use smart transportation solutions (ST, henceforth), with particular focus on the moderating role of personal innovativeness. To achieve this, the authors employed UTAUT 2 model. Based on literature review, a research model was developed (Fig. 1).

The following hypotheses were formulated:

H1: Perceived usefulness of ST positively influences intention to use ST solutions.

H2: perceived ease of use positively influences intention to use ST solutions.

H3: Social influence positively influences intention to use ST solutions.

H4: Hedonic motivation positively influences intention to use ST solutions.

H5: Perceived costs negatively influence intention to use ST solutions.

Based on analysis of the available literature, the following hypotheses, aiming to verify the moderating effects of personal innovativeness were formulated:

H6a: Personal innovativeness moderates the influence of the perceived usefulness on the intention to use ST solutions.

H6b: Personal innovativeness moderates the impact of the perceived ease of use on intention to use ST solutions.

H6c: Personal innovativeness moderates the impact of social influence on intention to use ST solutions.

H6d: Personal innovativeness moderates the impact of hedonic motivation on intention to uses ST solutions.

H6e: Personal innovativeness moderates the impact of the perceived cost on intention to uses ST solutions.

To verify the above hypotheses, the primary data was collected with CAWI method, to reach nation- wide population of respondents living in the major cities (with population above 200,000 residents) with smart transportation solutions already implemented. The authors aimed to investigate the acceptance of smart transportation solutions, and the role of personal innovativeness in this process. The questionnaire design was based on analysis of literature, and included scales measuring UTAUT 2 variables and personal innovativeness. Respondents answered with 5-point Likert scale, where 1 meant “strongly disagree”, and was scale’s minimum, and 5 meant “strongly agree”, and was scale’s maximum. To measure the perceived ease of use the scale proposed by Choi (Choi, 2022) was used. The scale for social influence was adapted from Nusir, Alshirah & Alghsoon (2024) and Lee (2023). The perceived usefulness was assessed with the scale proposed by Lee (2023). To measure hedonic motivation, the scale was developed based on the scales proposed by Debesa, Gelashvili, Martines-Navalon & Saura (2023) and Venkatesh, Thong & Xu (2012). For personal innovativeness the scale proposed by Alkodour et al. (2023) was applied. Weisstein, Kukar-Kinney and Monore scale was used to measure perceived costs (2016). The use intent was measured with the scale proposed by Bestepe and Yildrim (2022). A pilot study of 25 respondents was conducted to secure the quality of the research instrument. The data collection took place from May to June 2024. A random sample of 1460 respondents from the Biostat Opinion Research Panel was selected. The sample was controlled for gender, location and use of smart transportation solutions. 600 respondents took part in the survey, out of which, after validation, 471 qualified for further analysis. Sample's characteristics are presented in table 1.

**Table 1.**
*Sample's characteristics*

| Variable | | % |
|---|---|---|
| Gender | Male | 43.7 |
| | Female | 56.3 |
| Age | 18-30 | 33.5 |
| | 31-40 | 31.9 |
| | ≥40 | 34.6 |
| Place of residence | City, 201,000-500,000 residents | 43.7 |
| | City, over 501,000 residents | 56.3 |
| Use of car | Yes | 77.5 |
| | No | 22.5 |
| Household role | Dependent | 6.8 |
| | One of the breadwinners | 69.4 |
| | Sole breadwinner | 23.8 |

Source: Own calculations.

The analysis of the data was carried out with SmartPLS4 software. First, PLS-SEM algorithm was calculated. Since the model was based on reflective indicators, their internal consistency, convergent validity, and discriminant validity were estimated. The results of this stage are presented in table 2.

**Table 2.**
*Reliability and validity indicators*

| Latent variable | Cronbach alpha | Composite reliability rho_c | Composite reliability rho_a | Average variance extracted (AVC) |
|---|---|---|---|---|
| Perceived usefulness | 0.837 | 0.853 | 0.891 | 0.672 |
| Perceived ease of use | 0.903 | 0.909 | 0.939 | 0.837 |
| Social influence | 0.872 | 0.970 | 0.901 | 0.646 |
| Hedonic motivation | 0.850 | 0.938 | 0.905 | 0.760 |
| Perceived costs | 0.924 | 0.947 | 0.946 | 0.813 |
| Personal innovativeness | 0.879 | 0.948 | 0.920 | 0.794 |
| Intention to use | 0.920 | 0.923 | 0.949 | 0.862 |

Source: Own calculations.

Discriminant validity ratios for the constructs included into the study are presented in table 3.

**Table 3.**
*Heterotrait-monotrait (HTMT) ratios- discriminant validity*

| Latent variable | Perceived usefulness | Perceived ease of use | Social influence | Hedonic motivation | Perceived costs | Personal innovativeness | Intention to use |
|---|---|---|---|---|---|---|---|
| Perceives usefulness | | | | | | | |
| Perceives ease of use | 0.586 | | | | | | |
| Social influence | 0.599 | 0.119 | | | | | |
| Hedonic motivation | 0.656 | 0.426 | 0.523 | | | | |
| Perceived costs | 0.064 | 0.157 | 0.225 | 0.052 | | | |
| Personal innovativenes s | 0.518 | 0.400 | 0.456 | 0.654 | 0.089 | | |
| Intention to use | 0.700 | 0.704 | 0.245 | 0.517 | 0.193 | 0.374 | |

Source: Own calculations.

The measurement model was verified positively with the assessment of collinearity (variance inflation factor), predictive power (determination coefficients, $R^2$ ), and the significance of attrition coefficients. To estimate $R^2$ values, model fit indices, and path coefficients, PLS- SEM algorithm was used.

## 4. Results

Figure 1 presents results estimated with the PLS-SEM algorithm.

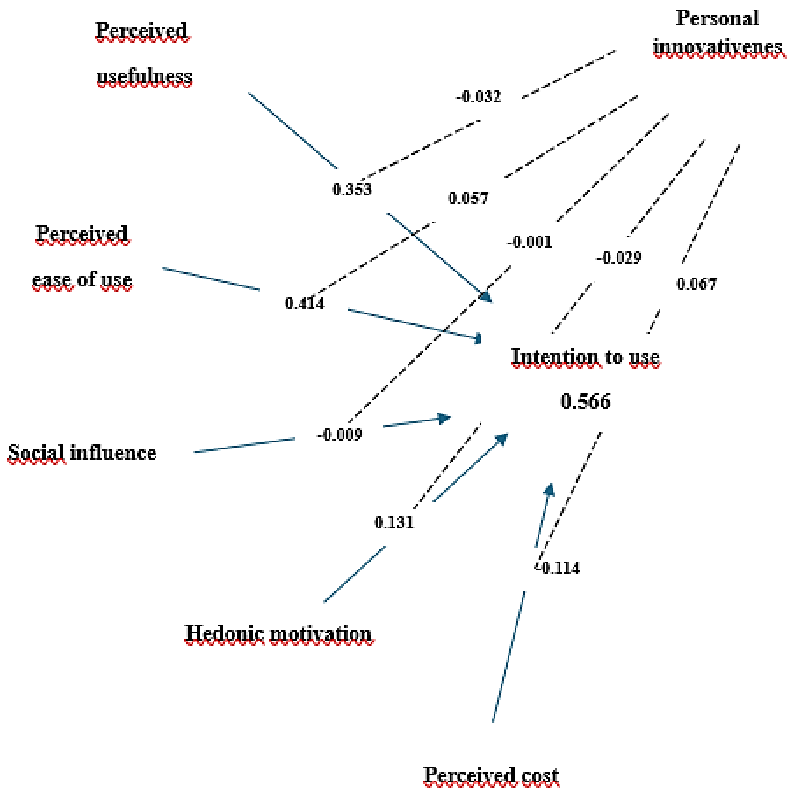


**Figure 1.** Path model estimated with the PLS-SEM algorithm.

Source: Own calculations.

The $R^2$ values for the intention to use smart transportation explained by the independent variables although moderate, are satisfying. Statistical significance of the path coefficients was assessed with the bootstrap analysis of a sample of 5,000. The results for the path coefficients and t- values are presented in the table 4.

**Table 4.**
*Path coefficients and t- values*

| Path | (STDEV) | t-Value | p-Value |
|---|---|---|---|
| Hedonic motivation → Intention to use | 0.047 | 2.782 | 0.005 |
| Perceived usefulness → Intention to use | 0.056 | 6.324 | 0.000 |
| Perceived ease of use→ Intention to use | 0.050 | 8.349 | 0.000 |
| Personal innovativeness →Intention to use | 0.045 | 0.526 | 0.599 |
| Perceived costs→ Intention to use | 0.034 | 3.375 | 0.001 |
| Social influence →Intention to use | 0.041 | 0.216 | 0.829 |
| Personal innovativeness x Perceived ease of use → Intention to use | 0.060 | 0.945 | 0.345 |
| Personal innovativeness x Social influence → Intention to use | 0.041 | 0.026 | 0.979 |
| Personal innovativeness x Perceived usefulness → Intention to use | 0.058 | 0.548 | 0.584 |
| Personal innovativeness x Perceived costs →Intention to use | 0.031 | 2.170 | 0.030 |
| Personal innovativeness x Hedonic motivation →Intention to use | 0.044 | 0.662 | 0.508 |

Source: Own calculations.

Table 5 presents summary results of hypotheses’ verification.

**Table 5.**
*Summary of hypotheses' verification*

| Hypothesis | Influence direction | Estimate | p-Value | Verification |
|---|---|---|---|---|
| H1: Perceived usefulness → Intention to use | + | 0.353 | 0.000 | Supported |
| H2: Perceived ease of use→ Intention to use | + | 0.413 | 0.000 | Supported |
| H3: Social influence → Intention to use | + | -0.009 | 0.825 | Not supported |
| H4: Hedonic motivation → Intention to use | + | 0.131 | 0.006 | Supported |
| H5: Perceived costs→ Intention to use | - | -0.013 | 0.001 | Supported |
| H6a: Personal innovativeness x Perceived usefulness → Intention to use | +- | -0.032 | 0.577 | Not supported |
| H6b: Personal innovativeness x Perceived ease of use → Intention to use | +- | 0.057 | 0.339 | Not supported |
| H6c: Personal innovativeness x Social influence → Intention to use | +- | -0.001 | 0.975 | Not supported |
| H6d: Personal innovativeness x Hedonic motivation → Intention to use | +- | -0.028 | 0.520 | Not supported |
| Personal innovativeness x Perceived costs → Intention to use | +- | 0.067 | 0.027 | Supported |

Source: Own calculations.

With the exception of H3, all hypotheses formulated for this study were accepted. Perceived usefulness of smart transportation, its perceived ease of use, and hedonic motivation were found to positively impact the intention to use smart transportation solutions. The perceived ease of use was found to have the strongest impact on the intent to use smart transportation (0.414, $p < 0.001$). The intention to use smart transportation was negatively impacted by the perceived cost. When it comes to the social influence – the positive impact was not confirmed. As for the personal innovativeness, it moderates the impact of the perceived costs on the intention to use the strongest. The higher perceived costs, the lower intention to use, but higher personal innovativeness offsets this effect (Figure 2).

Figure 2 presents moderating effect of personal innovativeness on relationship between perceived cost and intention to use smart transportation.

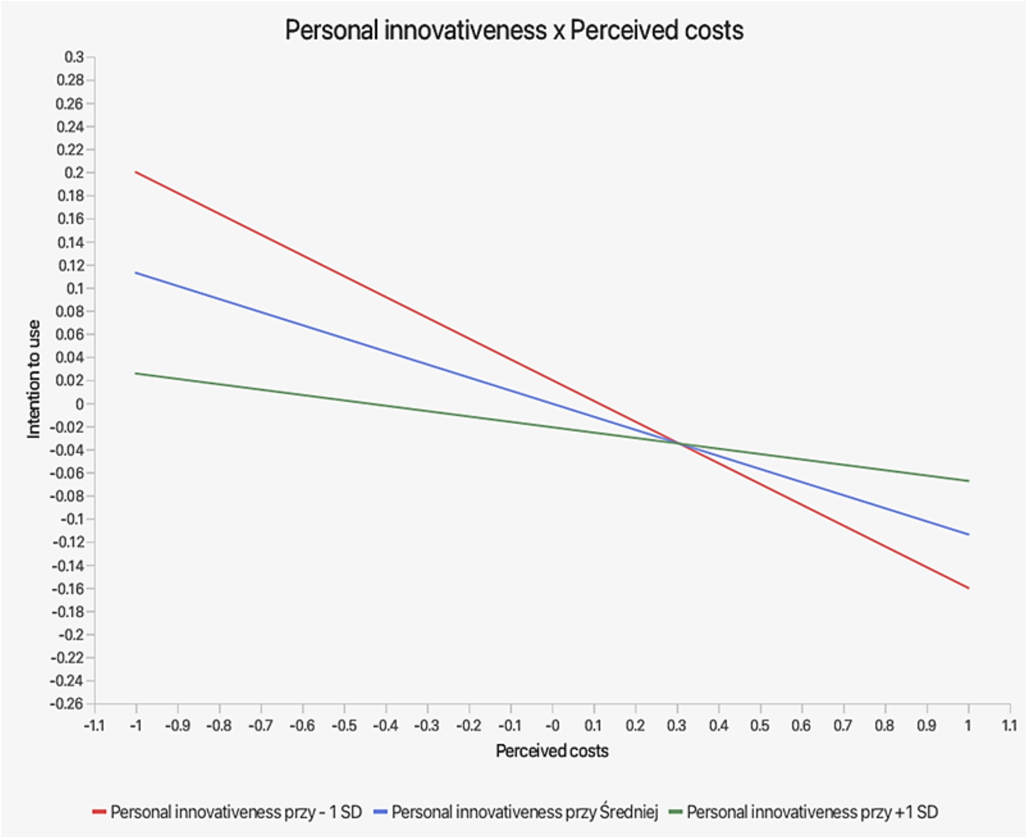


**Figure 2.** Personal innovativeness, perceived cost and intention to use smart transportation.

Source: Own calculations.

## 5. Discussion

This study sheds light on the UTAUT2 factors that impact the intention to adopt smart transportation solutions. The results of the analysis indicate that the perceived usefulness of such solutions (β = 0.353, p < 0.001) and perceived ease of use (β = 0.414, p < 0.001) significantly impact the behavioral intention to use smart transportation, which confirms their importance for the eventual adoption of such technology. Surprisingly, the results do not confirm the impact of the social influence (β = -0.009, p = 0.825) on the intention to use. One can hypothesize, that the insignificance of the peer pressure is context – dependent (for example culture or technology itself). The perceived costs (β = -0.113, p = 0.001) and hedonic motivation (β = 0.131, p = 0.006) influence the intention to use smart transportation- respectively negatively and positively.

The strongest determinant of the intention to use smart transportation was its perceived ease of use (β = 0, 414, p < 0.001). This suggest that individuals finding smart transportation solutions user- friendly are more likely to adopt them. The perceived simplicity and user-friendliness might reduce the risks perceived with technology adoption and thus, encourage to use new solutions available. This finding is consistent with previous researches based on UTAUT framework, which suggest that technologies perceived as easy to use are adopted faster (Recskó, Aranyossy, 2024).

Similarly, the perceives usefulness was found to have significant impact on the behavioral intention. This confirms previous studies, which identified the relationship between the perceived benefits and adoption of technology. Individuals who understand smart transportation as reducing their costs and enhancing their life quality or performance have higher propensity to adopt such solutions. This study did not confirm previous research results regarding the impact of social influence on the intention to use smart transportation. This could result from stronger emphasis users of smart transportation place here on their personal benefits or practical consideration. Another possible explanation, which may require further research, is that peer pressure may not be so relevant in the specific context of urban transportation. Further, the likely impact of sample's cultural characteristic (individualism versus collectivism) could be investigated, too. Hedonic motivation was found to positively impact the intention to use smart transportation solutions. One can assume that individuals deriving fun or pleasure from using technology are more likely to use or continue to use it. The negative impact of the perceived costs on the intention to use was not a surprise. This finding confirms previous studies, which suggest that the perception of higher costs of using technology can discourage its adoption. Personal innovativeness proved to moderate this relationship. Highly innovative individuals were found to be less discouraged by costs, suggesting their stronger intention to adopt new technologies regardless the perceived financial costs. The focal point of this study was the moderating role of the personal innovativeness on the relationships between the investigated UTAUT 2 factors and respondents' intention to use smart transportation solutions. Among all the analyzed interactions, only the one between personal innovativeness and the perceived costs was found to be statistically significant. One can hypothesize that more innovative individuals are less cost sensitive when adoption of smart transportation solutions is considered. This finding confirms propositions present in the literature, that personal traits can impact adoption of technology. As innovative individuals are more likely to actively engage in information search, they may have either better knowledge or understanding of the actual or potential costs incurred in using new technology. Additionally, they may perceived greater value in the new technology, which decreases the perceived costs. For other relationships investigated in this study, moderating effects of personal innovativeness were not significant. This suggests that while it moderates the relationship between costs perceptions and technology adoptions, it does not have uniform effect on relationships between other factors and the intention to use smart transportation solutions.

## 6. Limitations to study and further research

The limitations to this study result primarily from the CAWI method used, which did not allow to reach all segments of urban populations. This limitation is inherent to this method. The quantitative nature of this method did not allow for more in-depth inquiry into motivations and behaviors of respondents. Additional qualitative investigation, for example Focus Group Interviews, could be conducted to accommodate for the complexity of the topic. Also, longitudinal studies could be employed to investigate dynamics and patterns of technology acceptance. A cross analysis of different demographic segments of urban populations could provide more practical insights to formulate promotional and educational policies. Another area of further investigation is comparison between regions to better understand the likely impact of local cultural contexts on the acceptance of smart transportation solutions. This study focused on the moderating role of personal innovativeness, contributing to understanding of the role of personal traits on technology acceptance. Other personal characteristics could be investigated, to better understand their role in processes of technology adoption.

## 7. Conclusions

Based on responses from 471 individuals, this study presents an inquiry into the moderating role of personal innovativeness on UTAUT 2 factors influencing the intention to use smart transportation by the large urban populations in Poland. Personal innovativeness was found to moderate the relationship between the perceived costs and the intention to use smart transportation ($\beta = 0.067$, $p = 0.027$), suggesting that more innovative individuals are less discouraged by costs to adopt new technology. No significant moderating effects between personal innovativeness and other factors of smart transportation adoption were found. The significant role of personal innovativeness in the context of cost perception suggest that when promoting smart transportation solutions, early adopters should be targeted primarily. This can create a bandwagon effect, accelerating the adoption among less innovative segments of the urban population. The main contribution of this study is exploration and validation of the moderating role of personal innovativeness in the context of UTAUT 2 factors in urban populations in Poland. This study provides insights how intention to use smart transportation is determined by its perceived usefulness, ease of use, perceived costs, hedonic motivation, and social influence. The findings regarding the role of personal innovativeness contribute to fundamental discussion of the role of personal traits in technology adoption process.

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