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# **The determinants of the adoption of cryptocurrencies in the tourism industry : Application to the case of hotel room reservations**

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## **Abstract**

While players in the tourism sector have demonstrated a growing interest in cryptocurrencies, only 8% of French people declared having already invested in cryptocurrencies in 2021. This research focuses on the determinants of the adoption of new cryptocurrency technology in the case of hotel room reservations on online platforms offer payment in Bitcoin by adapting the UTAUT model. A quantitative study carried out with 189 respondents residing in France shows that perceived usefulness, ease of use and perceived risk are major determinants of the intention to use cryptocurrencies. More surprisingly, the attitude towards new technologies does not have a significant effect on the intention to adopt this means of payment. These results highlight consumer gaps in understanding cryptocurrencies and specifically blockchain, the infrastructure that should negate the usefulness of cryptocurrencies to consumers as well as reduce their perceived risk. This research shows that tourism stakeholders who wish to democratize the use of crypto-assets must set up awareness-raising actions with travelers by insisting on the usefulness and security provided by this technology.

## **Keywords**

Consumer behavior, Crypto-currency, Blockchain, Technology adoption

## INTRODUCTION

Since the birth of Bitcoin (Nakamoto S., 2008), on October 31, 2008, and the creation of the first Bitcoin in 2009, cryptocurrencies have continued to develop. Thus, in 2022, the global market capitalization of crypto currencies amounts to 853 billion dollars<sup>1</sup>.

The development of these currencies also impacts the tourism sector. Indeed, some tourism stakeholders see cryptocurrencies as a way to compensate for the losses suffered during the health crisis by encouraging tourists to travel again. According to the President of El Salvador, a country known for promoting the use of Bitcoin and for having created Bitcoin City, the first city in the world to adopt cryptocurrency as legal currency, in 2022, tourism income grew by +6% in his country through the use of Bitcoin<sup>2</sup>.

Cryptocurrencies are already used by many players in the tourism sector such as airlines (e.g. AirBaltic, Vueling<sup>3</sup>), amusement parks (e.g. PortAventura World<sup>4</sup>) or travel agencies like destinia<sup>5</sup> or travala<sup>6</sup>, alternative airlines<sup>7</sup>. The latter offer travelers the possibility of paying for their online products in digital tokens such as Bitcoin.

If, as we can see, tourism players are sensitive to the contributions of cryptocurrencies and are increasingly interested in their use in the tourism ecosystem, the percentage of owners of electronic wallets remains low. According to a survey conducted by IPSOS, only 8% of French people had already invested in cryptocurrencies. in 2021<sup>8</sup>. In France, the euro is the only official currency<sup>9</sup> and, as the Ministry of the Economy reminds us, “to date, cryptocurrencies do not have an explicit legal status and their supervision by the public authorities remains embryonic”. The Financial Markets Authority (AMF) emphasizes the risky nature of cryptocurrencies.

All of these elements therefore raise questions about the adoption of this new technology by consumers in the context of travel payment. This research focuses more particularly on the determinants of the adoption of cryptocurrency technology applied to the case of hotel room reservations.

Among the various existing models offered by the literature, this research mobilizes the *Unified Theory of Acceptance and Use of Technology* model (UTAUT, Venkatesh et al., 2003) in order to investigate the antecedents of travelers' intention to use cryptocurrencies in order to pay for hotel room reservations on online travel platforms.

The literature review will present the UTAUT model from which the research hypotheses will be formulated. The methodology implemented to test the hypotheses and the results obtained will then be presented. In conclusion, the contributions, limits and research paths of this work will be detailed.

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<sup>1</sup> <https://www.coingecko.com/fr/global-charts>

<sup>2</sup> <https://www.lesechos.fr/finance-marches/marches-financiers/cryptomonnaies-le-salvador-veut-construire-la-premiere-bitcoin-city-1365884>

<sup>3</sup> <https://www.capital.fr/entreprises-marches/decouvrez-avec-quelle-compagnie-il-sera-bientot-possible-de-payer-ses-billets-davion-en-cryptomonnaies-1439417>

<sup>4</sup> <https://www.portaventuraworld.com/fr/plan-du-site/communiqués-de-presse-2021>

<sup>5</sup> <https://destinia.com/>

<sup>6</sup> <https://www.travala.com/>

<sup>7</sup> <https://www.alternativeairlines.com/>

<sup>8</sup> <https://www.usine-digitale.fr/article/8-des-francais-se-seraient-deja-essaye-aux-crypto-actifs.N1786647>

<sup>9</sup> <https://www.economie.gouv.fr/cedef/paiement-cryptomonnaie>

## LITERATURE REVIEW

Cryptocurrencies are primarily based on blockchain technology<sup>10</sup>, the model of the Unified Theory of Acceptance and Use of Technology (UTAUT, Ventakesh and al., 2003) provides a solid basis for analyzing the antecedents of consumers' intention to use cryptocurrencies. Indeed, this model is built from an empirical comparison of eight models focusing on the determinants of acceptance to use a technology:

- Theory of Reasoned Action – TAR (Fishbein and Ajzen, 1975)
- Technology Acceptance Model – TAM (Davis and al., 1989)
- Theory of Planned Behavior – TPB (Ajzen, 1991)
- Model of Personal Computer Utilization (MPCU, Thompson, Higgins and Howel, 1991)
- Motivational Model (MM, Davis and al., 1992)
- Combined TAM and TPB (C-TAM-TPB, Taylor and Todd, 1995)
- Innovation Diffusion Theory (IDT, Rogers, 1995)
- Social Cognitive Theory (SCT, Compeau and Higgins, 1995)

A review of these patterns revealed antecedents of the use of technology such as cryptocurrencies: Perceived usefulness, ease of use, perceived risk, social influence, and attitude to regard to new technologies.

Perceived usefulness can be defined as "the degree to which a person believes that using a particular system would improve their job performance" (Davis, 1989; Davis and al, 1989). This construct is one of the main predictors of the intention to use a technology. In our case, the perceived usefulness will relate to the capacity of the system to improve the life of the consumers. Indeed, one can legitimately suppose that the more a technology will be perceived as useful, the more the consumers will have the intention to use it. Thus, hypothesis H1 can be formulated as follows:

*Hypothesis 1: Perceived usefulness has a positive influence on the intention to use cryptocurrencies*

Perceived ease of use refers to the “degree to which the potential user expects the target system to be effortless” (Davis and al. 1989). Previous work shows that the more the consumer perceives a system as clear and understandable, the more he will be inclined to use it (Davis, 1989; Thompson and al. 1991, 1994):

*Hypothesis 2: Ease of use has a positive influence on the intention to use cryptocurrencies*

In the context of cryptocurrencies, perceived risk can be defined as consumers' perception of the uncertainty of the potentially undesirable consequences of using cryptocurrencies (Littler and Melanthiou, 2006). As Faqih (2016) points out, perceived risk is considered a determining factor limiting the adoption of technologies by consumers. This may prove to be extremely true in the case of cryptocurrencies with regard to the recommendations of caution formulated by States or financial institutions which highlight the risk of using cryptocurrencies:

*Hypothesis 3: Perceived risk negatively influences the intention to use cryptocurrencies*

Social influence can be defined as “the degree to which an individual perceives that important others believe he or she should use the new system” (Ventakesh and al., 2003). It refers to “the degree to which the individual believes that technology improves his status in a given social system” (Ventakesh and Davis, 2000). Fishbein and Ajzen (1975) already highlighted the effect

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<sup>10</sup> <https://bitcoin.org/fr/>; <https://ethereum.org/fr/>

of this concept in the theory of planned behavior. Even if previous works show contrasting results (Zhang and al., 2006, Andrews and Bianchi, 2013), in the case of cryptocurrencies, one can legitimately expect that the opinions of the entourage play a role in the intention to use these currencies:

*Hypothesis 4: Social influence positively impacts the intention to use cryptocurrencies*

Attitude towards new technologies can be defined as “the extent to which an individual makes a positive or negative evaluation about using new technologies. Attitude is an important determinant of an individual's predisposition to engage in a behavior (Davis and al. 1989: Fishbein and Ajzen 1975; Taylor and Todd 1995a, 1995b). Thus, it seems logical to postulate a positive relationship between attitude and behavior:

*Hypothesis 5: The attitude towards new technologies has a positive influence on the intention to use cryptocurrencies*

These assumptions lead to the following model :

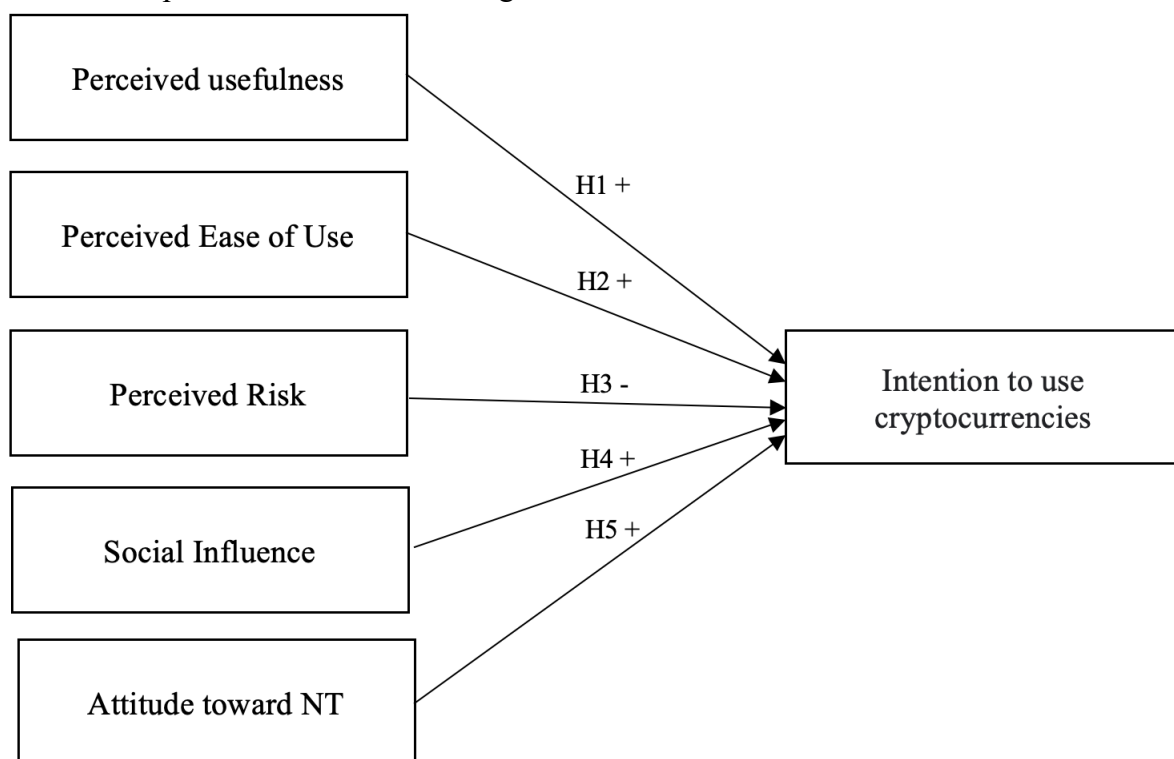


Fig. 1. Proposed conceptual model.

## METHOD

The methodology of this research consists of a quantitative study conducted among 189 people residing in France in December 2022. The questionnaire presented a fictitious situation in which the respondent was asked to imagine being looking for a room. hotel in Toulouse for the month of February 2023. In this context, a screenshot of the online travel agency Destinia, presented the result of a search carried out on the Internet and displaying the price of hotel rooms in cryptocurrencies (Bitcoin).

The sample is made up of 63.5% women and 36.5% men. 97.4% of respondents have heard of cryptocurrencies but only 10.6% have an electronic wallet. 55.6% of respondents are under 30 years old. 41.8% of respondents are students and almost 30% are executives or exercise an intellectual profession. 90% of respondents have an educational level higher than the baccalaureate.

The concept measurement scales were produced from a translation/adaptation of the items used in the UTAUT model of Ventakesh and al. (2003) using 5-point Likert scales. The validity and reliability of the measurements were tested. Thus, social influence is measured using three items (Cronbach's Alpha of 0.882). Perceived risk is measured using four items (Cronbach's Alpha of 0.839). Perceived usefulness is measured using four items (Cronbach's Alpha of 0.893). Ease of use perceived from three items (Cronbach's Alpha of 0.847). The attitude towards technologies is measured with 3 items (Cronbach's Alpha 0.876). Finally, the dependent variable, the intention to use cryptocurrencies is measured with three items (Cronbach's Alpha of 0.923).

After verifying the validity and reliability of the measurements, the testing of the hypotheses was carried out using a multiple regression model.

## RESULTS

The model was tested using a multiple regression, the results of which are significant. The model has an R<sup>2</sup> of 80.2%. The VIF criteria associated with each variable do not indicate a multicollinearity problem. The table below summarizes the results obtained.

Hypotheses	Standardised Estimates	t	Sig.	Results
H1 : Perceived usefulness -> Intention to use cryptocurrencies	0,412	5,684	0,000	Supported
H2 : Perceived Ease of Use -> Intention to use cryptocurrencies	0,131	2,129	0,035	Supported
H3 : Perceived Risk -> Intention to use cryptocurrencies	-0,263	-3,79	0,000	Supported
H4 : Social Influence -> Intention to use cryptocurrencies	0,093	1,713	0,088	Not Supported
H5 : Attitude toward NT-> Intention to use cryptocurrencies	0,088	1,9	0,059	Not Supported

Tableau 1 – Results of hypotheses testing

These results show that perceived usefulness and ease of use positively influence the intention to use cryptocurrencies and perceived risk negatively impacts it. On the other hand, the link between social influence, attitude towards technology and intention to use cryptocurrencies is not statistically significant. Thus, only hypotheses H1, H2 and H3 are empirically validated unlike hypotheses H4 and H5 which are not validated.

## CONCLUSION

Consistent with previous work, this research confirms the positive effects of perceived usefulness (Davis, 1989; Davis and al, 1989; Ventakesh and al., 2003; Cristofaro, and al., 2022) as well as ease of use (Davis, 1989; Thompson and al. 1991, 1994; Ventakesh and al., 2003; Cristofaro, and al., 2022). The negative effect of perceived risk on the intention to adopt cryptocurrency technology is also confirmed (Littler and Melanthiou, 2006; Faqih, 2016; Cristofaro, and al., 2022). While social influence is considered an important determinant of intention to adopt a technology (Ventakesh and Davis, 2000; Fishbein and Ajzen 1975), our results show a non-significant effect of this construct on the dependent variable in accordance with the work by Zhang and al. (2006) or Andrews and Bianchi (2013). More surprisingly, in contradiction to previous work, attitude towards technologies does not have a significant influence on the intention to adopt cryptocurrencies (Davis and al. 1989; Fishbein and Ajzen 1975; Taylor and Todd 1995a, 1995b; Ventakesh and al., 2003).

One of the main managerial contributions resulting from this work lies in highlighting the critical points to be compensated for if tourism stakeholders want the use of cryptocurrencies

to increase among travelers. This work shows that the development of this means of payment requires explaining its usefulness for its users, reducing the perceived risk and demonstrating the ease of its use.

These results show that the main component of cryptocurrencies to be explained to consumers lies in blockchain technology. Indeed, while cryptocurrencies are primarily the result of the development of a new technology known as blockchain, this research shows that the attitude towards new technologies does not influence the intention to adopt the cryptocurrencies. This paradox seems to show that consumers do not make the connection between blockchain technology and cryptocurrencies.

The advantages provided by the blockchain demonstrate the usefulness of cryptocurrencies at the same time as they make it possible to understand the security dimension it brings. Indeed, any cryptocurrency is supported by a blockchain infrastructure which guarantees the security of transactions through a consensus mechanism ensuring the authenticity of each transaction and ensuring network synchronization. Once recorded on the blockchain, an operation can no longer be deleted. Data relating to transactions and their history are therefore unfalsifiable. The blockchain being decentralized, shared by all the computers on the network, its hacking is almost impossible. To highlight the usefulness of cryptocurrencies, it will also be necessary to underline the reduced costs associated with transactions, especially internationally.

The ease of use of cryptocurrencies can be demonstrated through communication campaigns on social networks. These campaigns should be implemented by ecosystem players that offer crypto-asset wallets such as Binance, Coinbase, SwissBorg or Ledger. However, travel platforms that wish to develop payments in cryptocurrencies will have to support their customers by offering them tutorials and customer service capable of answering questions relating to this subject. These platforms could also develop partnerships with structures that offer electronic wallets in order to pool efforts.

Among the limitations of this work, the representativeness of the sample, which is mainly made up of young people under 30, should be highlighted. Even if this age group has the largest number of digital wallet holders, it would be useful to have a representative sample of the French population. In addition, the model only examines a few antecedents of the intention to use cryptocurrencies to pay for hotel reservations and does not investigate the moderating effects likely to influence the model and in particular those of socio-demographic variables.

Beyond all these limits which present so many avenues of research to improve the work carried out, it would be interesting to dwell on the understanding of cryptocurrencies among consumers in order to identify the determinants likely to better predict consumer intention to use cryptocurrencies in the context of their travels.

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