Understanding the Impact of Behavioral Intentions on Financial Inclusion: A Mediated Analysis of Perceived Effectiveness, Risk, and Benefits among University Students in Pakistan Using Smart-PLS

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Abstract

This study stated that behavioral intentions depends upon the knowledge of financial inclusion by using three intervening variables which includes perceived effectiveness, perceived risk and perceived benefits. Thus the relations of these concepts had been seen while providing valuable knowledge about those driving factors among the students of this understanding process regarding financial inclusion. A sample of 530 university students from different universities' across the Pakistan has been used for this study. The structured questionnaire has been used for collecting data. The result suggested that behavioral intention significantly affects the knowledge of financial inclusion through mediating roles from perceived effectiveness, perceived risk, and perceived benefits. This study contributes toward the existing body of literature to understand how there was an interactive effect of behavioural intentions with perceived factors that guide financial inclusion knowledge. It generates practical implications that can be shared with educators and policy makers as well as financial institutes to promote and enhance financial inclusion and literacy practices among university students in Pakistan.

Keywords: Behavioral Intentions, Financial Inclusion, Perceived Effectiveness, Perceived Risk, Perceived Benefits, University Students, Smart PLS.

Introduction

In the context of the growing popularity of online loans and concerns surrounding consumer financial behavior, the research investigated how improved access to financial services and fintech platforms shapes users' financial decision-making processes. The findings reveal that financial inclusion significantly enhance financial behavior, which subsequently has a positive impact on the intention to adopt online loans. The contribution of the study was the identification of financial behavior as a critical mediating factor in a novel framework to explain the relationship between financial inclusion, perceived risk, benefit and effectiveness. The findings have practical implications for policymakers working to refine regulations related to fintech, platform providers working to boost consumer engagement, and educators focused on advancing initiatives in financial literacy by (Ajizah, 2024).

Financial inclusion refers to a situation where all individuals, regardless of their socioeconomic status, have access to high-quality formal financial services. These services should be delivered in

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a manner that is timely, efficient, secure, and affordable, ensuring they are appropriately designed to meet the specific needs and capabilities of each individual. The general objective of financial inclusion is to increase the economic and social well-being of individuals by giving them the tools and opportunities to manage their financial resources effectively, participate fully in the financial system, and improve their overall quality of life (Alvin Tanady1, 2024).

The Behavioral intentions, originating from the domain of psychology, are critical factors in determining what people do or do not do with their money. They refer to the attitudes, perceptions, motivations, and beliefs people hold about financial issues. It is essential to unravel the factors behind these intentions for understanding why some people choose formal financial services and others do not (Buba, 2021).One another researcher (M Ajouz, 2021) indicated that the TPB is a great theory that outlines the behavioral dimension of financial inclusion.

The results pointed out that positive attitude of the individual as well as social support from envir onmental groups influence one's intentions regarding inclusion. Knowledge of financial inclusion (KFI) was considered an important part for better standards and enhancing the income level of the economy generally and, in particular, those living in developing countries, such as Pakistan in which people have less authority to approach the financial system and is still restricted (M Huda, 2024).Similar the developing world, much still remains to be done in Pakistan regarding making financial services understanding enough for all. Through increased financial inclusion, the poor people who have long been excluded from financial opportunities shall be empowered to invest in education, save and start businesses. This will have a direct outcome of reducing poverty and increasing economic growth (Igwemeka, 2019). Behavioral intentions were more deeply rooted in attitudes, motivations, beliefs, and perspectives of people, meaning that they shape how to manage money. Knowing their intentions was necessary for learning why people prefer formal financial institutions or alternatives.

According to Kirana, et al. (2013), perceived benefit encompasses the combination of service features, physical characteristics, and technical support that affect the usability of products or services. Recent research on financial inclusion has received significant attention due to its efforts to increase access to financial services among the population and enhance their overall well-being. Lee (2009) divided the benefits into direct benefits and indirect benefits. Behavioral intentions, deeply anchored in psychology, were essential in shaping individuals' financial decisions. The perceived ease of use has been identified to play a great role in shaping the attitude of people towards adopting internet banking.

Their findings resonate with (Hidayat, 2023) whose research further supports the notion that ease of use is a critical factor influencing the acceptance and adoption of internet banking services. There is, therefore, a clear imperative for perceived effectiveness and perceived risk as critical psychological constructs to be mediators in the relationship between behavioral intentions and achievement of financial inclusion goals.

Literature Review

Knowledge of Financial Inclusion (KFI)

KFI is state whereby all services were provided for free. It opens a chance for adjustment, affordability, convenience, timely availability, online statement access, interbanking abilities, and usability of financial services. Knowledge of financial inclusion can provide its support to individuals and groups as it avails digital bank accounts through which it may perform its financial services (AisaitiL, 2019).

Another researcher (Hasan, 2021),argued that densely societies will allow individual to remain closely knit with the other financial system if they are able to access money facilities, which results in great development of this society. According to researchers' point of views, the role of financial inclusion is paramount in determining how well economic individuals welfare is.Ensuring that the financially excluded individual is allowed to start using the formal financial services available is an integral part of financial inclusion .That's means population must have a considerable amount that can be allowed to access and efficiency to use all available financial services.

H1: Knowledge of financial inclusion is significantly positively related to the behavioral intention of students.

Britt,et al. (2017) further argue that university students may feel more pressure when they lack positive financial behaviors and have insufficient financial knowledge. Tang et al. (2016) highlighted that financial knowledge alone is not enough to drive desirable financial behaviors; self-esteem also plays a significant role in shaping such behaviors.

Besides, parental and peer group influence has been shown to be essential in determining the financial behaviors of young adults. According to (Watson et, al. 2017), parental expectations and peer financial behavior are crucial factors that affect how young adults manage their finances. In a consumption and borrowing driven society, where economic forces play a huge role in consumption and borrowing. Researchers have different views on the benefits of financial inclusion for students. According to (Feng, 2021), loans are essential for financial inclusion.

Theory of Planned Behavior (TPB) revolves around the idea that the basic concept is the intention of a person to undertake a particular action. Intentions were said to represent the motivational factors that explain behavior, including the amount of effort people are prepared to exert as well as the number of times they intended to try to perform that behavior.

Perceived Risk

The perceived risk means the subjective evaluation or interpretation of the uncertainty and probable losses involved in a decision by an individual or group. Perception toward risk implies how individuals realized the extent of the risk involved in a given stage, the way in which they perceive and respond to it on the basis of their beliefs.

This again variate from one to the other, this view towards risk may make somebody more willing to take or avoid risk altogether.

H2 a: Financial inclusion has a positive association with the students' perceived risk.

H2b: The perceived risk has an inverse relationship with students' behavioral intention to engage in financial inclusion.

Perceived Benefits

Perceived benefit can be considered as the level of the customer's perdition on how much his or her well-being will improve by utilizing a certain online service. The prior research findings revealed the PB impacts customers' intention to do certain behaviors, in a favorable and noteworthy way.

First, an inexpensive price is a perceived benefit in consumers' minds, which is associated with economic savings. Previous studies show that, in addition to the environmental benefits, cost savings are one of the most important and impactful benefits for sharing of economy (Espinoza, 2024).

H3 a: KFI has a positive correlation with the students' perceived benefits.

H3 b: Students' behavioral intention toward financial inclusion is positively influenced by their perceived of its benefits.

Perceived benefits are, in short, beliefs that individuals have concerning the positive outcomes they stand to reap as a result of a given action. These beliefs are often precipitated by the response to some real or imagined threat, where people act to maximize potential benefits (Liu, 2013). This points to the importance that perceived benefits carry in shaping choices and behavior.

Behavioral Intention of Students towards Financial Inclusion

Positive attitudes toward work are highly related to job performance and job satisfaction as numerous studies have consistently indicated (Dalziel, 2020).

A survey was done by Khan.et.al. (2009) about students of medical from different institutes in Pakistan to assess their attitude toward research and the degree to which they are involved in it.The students have identified several challenges that prevent them from conducting research, but the results indicate that they have a positive attitude toward research. Likewise, a cross-sectional study conducted by (Meraj et al., 2016) in Shifa College of Medicine in Islamabad analyzed students' perception and attitude towards research. Some other researchers examined the opinions of postgraduate students regarding research in both public and private universities in Pakistan.

In Iran a study was done by (Moneim, 2024) It is defined as the intention of individuals towards taking certain actions. Intention of a person to use will surely determine his use behavior.

Perceived Effectiveness

It largely depends on their perceived benefits as people tend to become willing adopted of ecological-friendly solutions and make use of public transport. In fact, individuals feel empowered when they believe that they derive actual benefits from the choice they make for such environment-friendly behaviors (Gelaidan, 2023). The term "perceived benefit" is one used in describing the way in which a customer thinks something online could improve his/her life. According to previous research studies, the perceived benefits were seen as having a significant positive impact on customer's intentions to adopt given behaviors. These benefits include the perceived beliefs that favorable consequences might result from certain action taken. Often they result from an actual or threatened loss (Liu, 2013).

H4a: Financial inclusion is positively associated with students' perceived effectiveness.

H4b: Perceived effectiveness is positively related to students' behavioral intentions toward financial inclusion.

The studies conducted in the Netherlands found that older adults derived fewer benefits from the internet compared to younger adults. People with lower levels of education and socioeconomic status derived fewer economic benefits from the use of the internet, while socially isolated individuals derived fewer social benefits compared to people living with others. However, a different finding has been reported in the UK study, where older persons have been shown to reap more benefits from internet usage than the younger ones. Those with higher education levels were said to benefit most (Heponiemi, 2019).

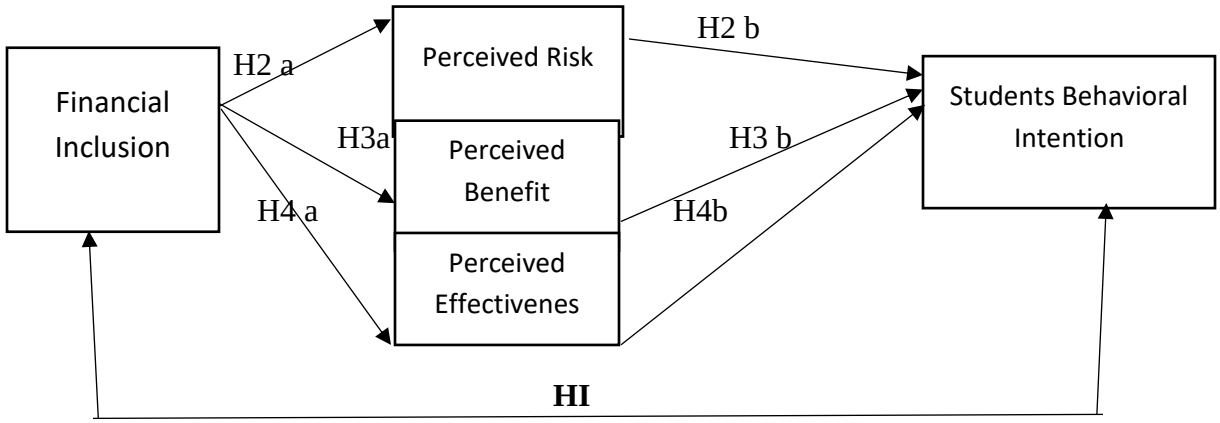
Research Design and Model

Data was collected by a questionnaire that featured multiple-choice questions that addressed each variable. Information about the students, such as gender, age, experience, and education level, was

included to assess whether these factors could influence the validity of the findings. This research used a quantitative descriptive approach, where data was acquired directly from students through universities in Pakistan. It was gathered through online surveys.

This questionnaire was rigorously reviewed by a panel of fifteen academic experts. The questionnaire was broadly categorized into two sections. The first section sought general demographic and background information regarding the respondents. In contrast, the second section concentrated on collecting data pertaining to specific indicators related to the five constructs in the proposed conceptual model. In terms of methodology, this paper made use of SEM approach. SEM is one of the most popular methods to deal with complex relations among variables and their effects in direct and indirect form.

Figure 1: Description of Model



Data Collection

The first round of analysis involved the use of Smart-PLS software.

It included some descriptive statistics and data screening to ensure that the dataset was good enough for further analysis. The SEM technique was then applied through Smart-PLS to validate the proposed model and check the reliability and accuracy of the model that was proposed. The research objectives and hypothesis are measured using primary data sources. For determining participants' competency on financial education, a wide-ranging questionnaires survey was carried out in October 2024, where participants of 530 higher education students were considered. The questionnaires have been carefully planned.

These research has been consisted of 530 structured questionnaires broadly divided into two primary parts. Eight more subsections were incorporated for further dividing the section and therefore providing insight into varied perspectives regarding participants' competence with respect to financial education.

Hence, there was cautious designing to arrange the questions within the questionnaires. The conceptual model serves as a way of visualizing the relationships of key variables involved in the study. According to the model, the knowledge of financial inclusion on the part of students does not have a direct influence on their behavioral intentions. Rather, it is mediated by the perceived risks, benefits, and overall effectiveness of financial inclusion. The framework provides a holistic view of the factors that shape students' financial behaviors within the realm of financial inclusion

by examining these mediators, thereby contributing to a deeper understanding of the determinants that drive such behaviors.

Data Analysis and Findings

This part provides guidelines, focusing on the factors that influence people perceived and behave in respect of financial access. This goes beyond the obvious correlation between financial inclusion and behavioral intentions to dig deeper into layers.

Studies have shown that in various circumstances, people with high perceived risk are less likely to use financial services regardless of the fact of available services for their usage (Macchiavello & Siri, 2022). For example, if students perceive that their savings will be stolen or that digital transactions are prone to hacking or fraud, the students will not use banking services or conduct online financial transactions (Jünger & Mietzner, 2020).

First, it demonstrates a strong association between financial inclusion and perceived risk and benefit. Secondly, it depicts perceived effectiveness as a main factor that affected the intention of students for financial inclusion. This research examines the views and intentions of university students in Pakistan regarding financial literacy (Pandey, 2022). The primary objective of financial inclusion was to mitigate the inequality of wealth and welfare to achieve community wealth and welfare (Ploypailin, 2022).

Demographic Overview

The demographic profile provided an overall view of the heterogeneity in the population under study by detailing such prime attributes as gender, age, level of income and educational status.These help to establish a link between the kind of composition made by the sample and the implications that researchers want to make using the results of this study.

Furthermore, these findings were helpful in forming research conclusions, informing policy formulation, and designing targeted interventions that are suited to the needs and characteristics of the population being studied.

Table 1: Education

	Frequency	Percent
Bachelor	250	45
Master	215	38.39
M.Phil.	36	6.42
PhD	29	10.19
Total	530	100.0

In table 1, maximum number of respondents, 45%, have a Bachelor's degree. Then, 38.9% have acquired a Master's degree. In addition, 6.4% of the sample have an M.Phil. and 10.19% have a Ph.D. This distribution gives an idea about the educational levels of the respondents of the survey.

Table 2: Gender

	Frequency	Percentage
Male	279	52.64
Female	251	47.36
Total	530	100.0

In terms of the gender, the sample consisted of 530 persons: 279 males were representing 52.64 percent and 251 females constituting 47.36%. According to the gender distribution in the current study, the data were relatively balanced, except the gender was slightly higher to female than male.

Table 3: Age

	Frequency	Percent
0-18	49	9.26
18-30	268	50.56
31-40	142	26.79
41-50	71	13.39
Total	530	100

Age distribution in the dataset of 530 participants is divided into specific ranges: 9.26% (49 individuals) are under 18 years old, while the largest group consists of 268 individuals (50.56%) aged between 18 and 30 years. The 41-50 age group includes 71 individuals, making up 13.39% of the sample. This breakdown underlines the significant proportion of participants in the 18-30 age range, which is a key demographic characteristic in the sample.

Table 4: Validity

	BITFI	KFI	PE	PTB	PTR
BITFI1	0.117				
BITFI2	0.136				
BITFI3	0.146				
BITFI4	0.144				
BITFI5	0.132				
BITFI6	0.324				
BITFI7	0.338				
KFI1		0.200			
KFI2		0.284			
KFI3		0.208			
KFI4		0.171			
KFI5		0.186			
KFI6		0.213			
KFI7		0.193			
PE1			-0.033		
PE2			0.017		
PE3			-0.014		
PE4			0.311		
PE5			0.301		
PE6			0.307		
PE7			0.475		
PTB1				0.376	

PTB2	0.472	
PTB3	0.338	
PTB7	0.003	
PTR1		0.153
PTR2		0.162
PTR3		0.188
PTR4		0.164
PTR5		0.156
PTR6		0.174
PTR7		0.158

The BITFI scores lie between 0.117 to 0.338, wherein the highest value is depicted by BITFI7 and has a value of 0.338, representing a moderate level of correspondence with the construct it refers to. Other BITFI values, ranging between 0.117 and 0.146, were found to be positive yet less correlated with their associated constructs.The values of PE vary between -0.033 and 0.475. Of the explained variables, PE7 shows the largest value of 0.475, signifying that it has a high, positive correlation with its construct. Values for PE4, PE5, and PE6 all are close to 0.300, showing that there is moderate, positive correlation. Values of PE1 and PE3 were found to be negative at -0.033 and -0.014, respectively, representing weak negative correlations with their constructs. The PE2 value is 0, indicating an extremely weak positive correlation, well below the 0.05 threshold, at 0.017.

For the PTB variable, scores range from 0.003 to 0.472. PTB2 has the highest value of 0.472, which means it has a strong positive relationship with its construct. PTB1 has a score of 0.376, which means it has a moderate positive correlation, while PTB3 has a value of 0.338, meaning that it has a slightly weaker but still positive association.

PTB7 has the lowest score with a value of 0.003, meaning that it has only slight +positive correlation. Values are within range of 0.153-0.188.

The differences,among all the values obtained are minimal. The maximum value is recorded in PTR3 at 0.188, while the least is PTR1 with the value of 0.153. These values reveal moderately positive association between PTRs and their respective constructs.

Table 5: Average variance extracted (AVE)

	Original sample (O)	P values
BITFI	0.432	0.000
KFI	0.378	0.000
PTB	0.427	0.000
PTR	0.707	0.000
PE	0.917	0.000

The result shows that the construct explains 19.7% of the total variance in the items used to measure PE. This relatively low AVE value indicates that there is weak convergent validity for the PE construct, suggesting that the items used do not effectively capture the construct.

A key measure of construct validity is the Average Variance Extracted (AVE). The AVE measures how much of the observed variance of variables is due to

the construct, correcting for measurement error. This high AVE indicates that the convergent validity is very strong, as the items associated with the PTR construct are highly representative. In total, 15.5%, which represents a lower convergent validity level for all constructs.

Table 6: Reliability

	Cronbach alpha	Cro_a	A
BITFI	0.803	0.941	0.899
KFI	0.805	0.825	0.832
PTB	0.689	0.826	0.576
PTR	0.937	0.952	0.934
PE	0.467	0.806	0.787

The Cronbach's alpha coefficient for PTB is 0.689, meaning that there is modest internal reliability among the items used to measure PTB for the students. Both reliability measures of PTB, such as Cronbach's alpha (rho_c = 0.687) and composite reliability (rho_a = 0.817), are also moderate in terms of reliability.

Cronbach's alpha for PTR is 0.944%, showing a strong level of internal consistency and reliability of the items employed in the PTR assessment. Besides, composite reliability estimates of rho_a = 0.899 and rho_c = 0.941 confirm that measurements made to assess PTR are of very high reliability.

Conversely, the Perception toward Risk (PE) has low reliability compared to all the other constructs included in this research. A Cronbach's alpha for PE equals 0.473, indicating there is relatively low internal consistency among items used to scale PE. The composite reliabilities calculated for PE: rho_a = 0.700 and rho_c = 0.473 prove that it has both low and moderate reliability in the measurement process.

Table 7: Model Fit

	SRMR	d_ULS	d_G
Saturated model	0.146	23.473	
Estimated model	0.153	26.744	6.323

The saturation model has a standardized residual variance of 0.146, indicating a moderate fit as the SRMR value is 0.146. The d_ULS value is computed as 23.474 for the difference between the saturation model and the observed data. This coefficient is primarily used as a benchmark to compare model estimates rather than to definitely determine the quality of fit. The d_ULS value here is 26.744, indicating the difference between the sample data and the estimated model. To confirm an acceptable model fit, this result must be evaluated against a bootstrap-based confidence interval.

Table 8: Coefficient of Determination

	R-Square	Adjusted R-Square	P values
BITFI	0.751	0.745	0.000
PB	0.032	0.023	0.000
PR	0.019	0.014	0.000
PE	0.200	0.195	0.000

The R-Square value, is currently 0. 751 for BITFI, which indicates 75.1%. The model's independent variables account for 75.1% of the variance in BITFI overall. This shows that the populations behavioural urge towards the actual use of financial products and the variables evaluated have a substantial association. The present model's Adjusted R-Square value of 0. 745 twice the variability determined by the number of predictors, confirming the model's stability once more. It illustrates the degree to which PB (=0.032) and PR (=0.019), the dependent variables, are related. They can nevertheless convey the idea of the explicatory use even though they are lower than BITFI.

Table 9: Path coefficient

	F-Square	P values
KFI -> BITFI	0.013	0.000
KFI -> PTB	0.000	0.000
KFI -> PTR	0.017	0.000
PB -> BITFI	1.658	0.000
PR -> BITFI	0.032	0.000
PE->BITFI	0.23	0.000

There is a significant degree of association between KFI and PTR of 0. 017 and PTB of 0. 000. The path coefficient from PE to BITFI has a higher value of 0.023, indicating a positive association between behavioural intentions and perceptions of risk. Similarly, the 1. 657 route coefficient from PTB to BITFI and the 0. 032 path coefficient from PTR to BITFI indicate that behavioural intentions are positively correlated with perceptions of the technology's advantages and efficacy. KFI also shares a substantial degree of correlation with PE of 0. 059, and PTB of 0. 000.

Conclusion

To analyze the mediating role of perceived risk, perceived effectiveness, and perceived benefits, the study analyzes how these factors facilitate the relationship between financial inclusion and students' behavioral intentions. Both risk perception and benefit perception are critical intermediaries, as they illuminate the underlying mechanisms that connect knowledge of financial inclusion to decision-making behaviors (Gabor & Brooks, 2020).

This shows the importance of mediating variables driving proactive financial behavior. Financial inclusion and behavioral intentions research questions can be viewed from several perspectives. First of all, financial inclusion helps to overcome the main problem of financial exclusion, which is associated with poverty and social justice (Adrian & Mancini-Griffoli, 2021). If financial education is incorporated in universities then students can obtain the needed knowledge and tools to use the financial system. Secondly, it enhanced financial inclusion and hence created a saving and investment culture among the youth to build a strong financial future (Kangwa et al., 2021).

Conclusion, the study has extensively portrayed the considerable interaction between behavioral intentions, financial inclusion, perceived effectiveness, perceived benefits, and perceived risk among university students in Pakistan. It also laid a great deal of emphasis on the considerable role of digital finance in shaping these dynamics.

The research focused on the level of perceived effectiveness as the mediation between KFI and BITFI. The study further found that although students' knowledge about FI may at times negatively impact their perceived effectiveness of FI, the perceptual effectiveness of FI has a direct positive influence on the behavioral intentions among students.

Risk perception is the students' evaluation of the potential losses to be incurred out of engaging in financial services (Zhou et al., 2022).Where perceived risks are higher, of equal probability, people are less likely to be financially enfranchised (Ye et al., 2022). For instance, students will not use a particular service if they think the money they invest in banks is unsafe or that using digital money is easily hacked. On the other hand, the perception of benefits is based on students' attitudes toward the favorable consequences or the gains that would arise from engaging the financial services (Zakariya et al., 2022).

It is evident that a research model that integrates factors such as financial inclusion, students' behavioral intentions regarding the use of financial services, and their attitudes towards perceived risks and benefits can effectively support a comprehensive framework for understanding students' financial behaviors. The model provides valuable insights into the factors influencing students' financial decisions by examining how these elements interact.

Future Directions

To monitor the systematic changes in the behavioral intentions and actual behaviors about financial inclusion, conduct a longitudinal study. In this way, it would become possible to observe the long-run impact of knowledge regarding financial inclusion on students' behaviors and attitudes related to finance.

Cross-Cultural Comparisons

Investigating the model across different cultural contexts could show whether cultural factors affect the perceived risk, benefits, and effectiveness that mediate the relationship between financial inclusion knowledge and students' financial behaviors.

Intervention-Based Research

Interventions aimed at enhancing financial literacy or changing students' perceptions about financial inclusion could be implemented. Measuring the impact of such interventions on students' knowledge, attitudes, and behaviors would provide actionable findings for policy makers and financial institutions.

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