

# Gender differences in relation to cultural indicators

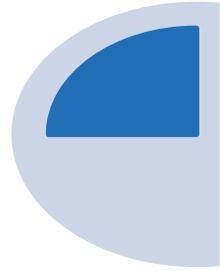
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# Why focus on gender aspects?



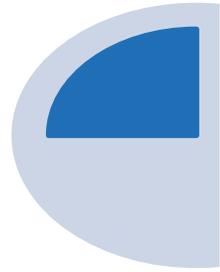
Exist at all ages  
and in all regions of the world

**3 time more men** than women die in road traffic fatalities worldwide

sex ratio in road crashes reflects a **difference in risk exposure**

but **risk-taking and traffic violations** better explain gender differences in fatal road crashes than mileage driven

# Why focus on gender aspects?



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Large number of studies  
in developed countries

**women anticipate** more negative and serious **consequences** and less pleasure in risky behavior

**men perceive fewer risks**, report a higher probability of engagement, rate their driving skills more positively, feel safer behind the wheel and use driving to increase their sense of self-efficacy more than women

# Objectives



Objective: explore gender differences in crash risk behaviors reported by drivers in different geographical and cultural contexts



Hypothesis: *gender differences in risk behaviors among drivers are linked to culturally constructed gender roles and stereotypes, and vary according to cultural contexts.*

# Analysis



## Four crash-risk behaviors addressed

- driving under the influence of **alcohol**,
- excessive **speed** outside built-up areas,
- non-use of safety **belt**
- mobile **phone** use while driving

For each of these violations, participants are asked about

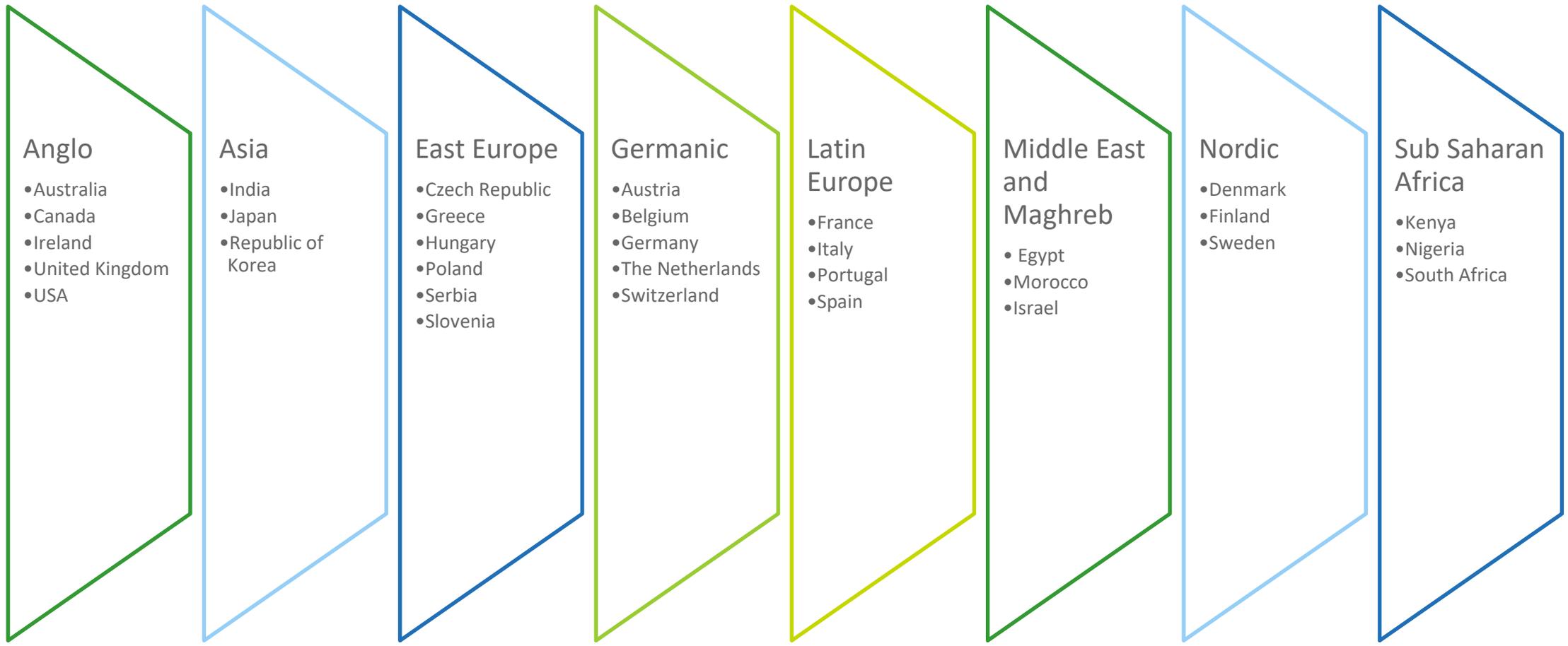
- their **behavior** in the past,
- the **social acceptability** of the behavior
- the **personal acceptability** of the behavior

Three-way analysis of variance (ANOVA)

- two **gender** groups (males and females),
- eight **cultural clusters** (Anglo, Asia, East Europe, Germanic, Latin Europe, middle east and Maghreb, Nordic and sub Saharan Africa)
- Controlling for **age** group and **driving frequency**

# Cultural clusters

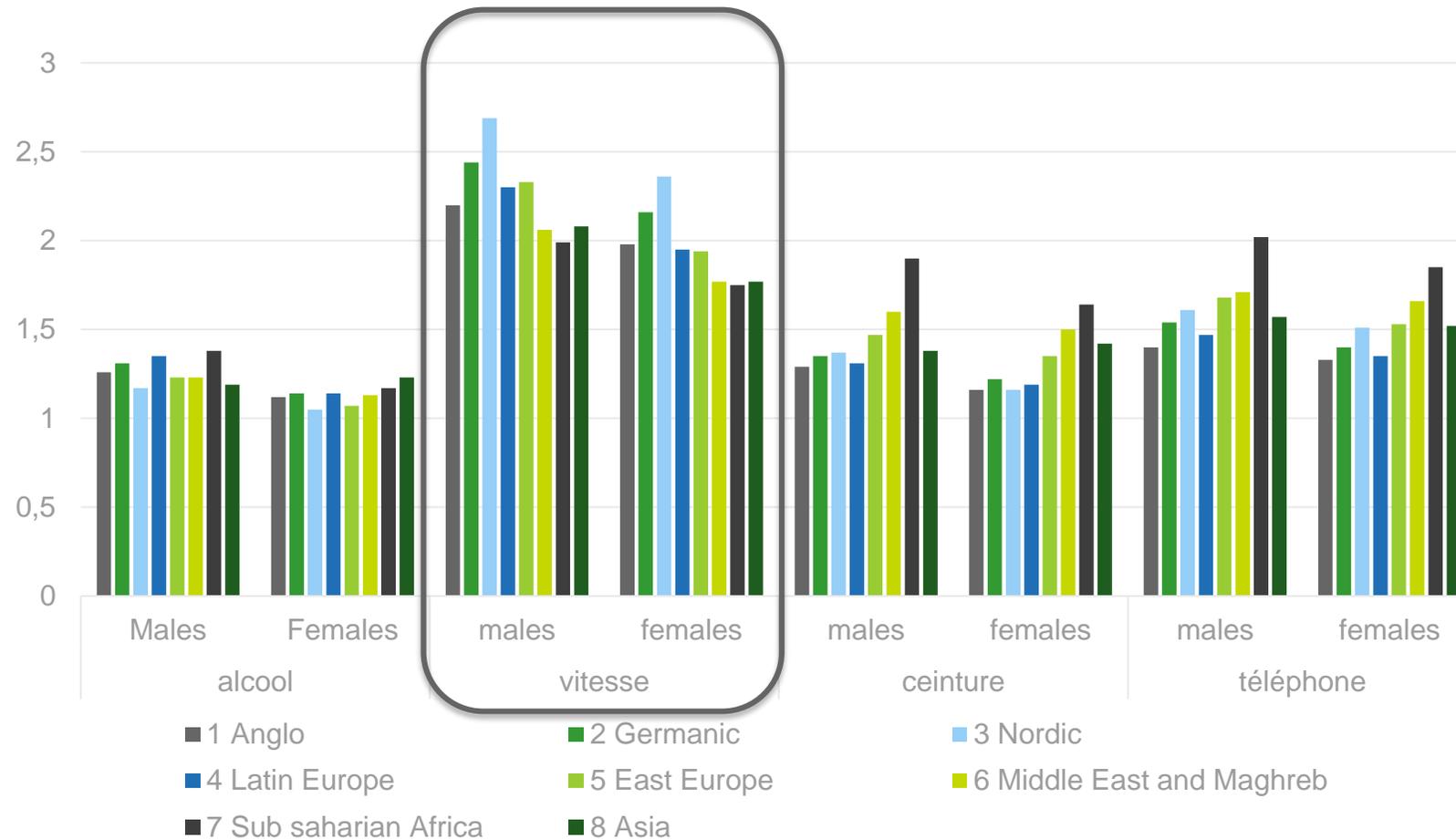
Based on the GLOBE Project: 9 cultural dimensions derived from Hofstede's work: in-group collectivism, institutional collectivism, gender egalitarianism, power distance, ...)



Granié, M.-A., Thévenet, C., Varet, F., Evennou, M., Lyon, C., Meesmann, U., Robertson, R., Torfs, K., Vanlaar, W., Woods-Fry, H., & Van der Berghe, W. (2020). Are Gender Differences in Risky Behaviors Culturally Determined? Evidences From Comparison Based On 32 Countries. *Transportation Research Record: Journal of the Transportation Research Board*, en révision.

[www.esranet.eu](http://www.esranet.eu)

# Declared behaviour: speed as perverse norm for both genders



# Gender x culture interactions

F value (and eta<sup>2</sup>) for the ANCOVAs of the reported behavior, the social and the personal acceptability according to gender and cultural cluster, age and driving frequency controlled

		Declared behaviours	Social acceptance	Personal acceptance
Drink & driving	Gender	279.67*** (.011)	58.71*** (.002)	127.31*** (.005)
	Culture	23.08*** (.006)	43.50*** (.012)	29.59*** (.008)
	Interaction	<b>8.99*** (.002)</b>	1.44	<b>5.82*** (.002)</b>
Speeding	Gender	404.18*** (.016)	128.26*** (.005)	325.08*** (.013)
	Culture	126.71*** (.034)	119.15*** (.032)	186.92*** (.049)
	Interaction	2.60	2.29	<b>3.26* (.001)</b>
Not wearing seatbelt	Gender	142.35*** (.006)	74.41*** (.003)	172.85*** (.007)
	Culture	100.02*** (.027)	71.83*** (.019)	31.72*** (.009)
	Interaction	<b>5.17*** (.001)</b>	2.46	<b>3.43* (.001)</b>
Mobile phone while driving	Gender	65.24*** (.003)	9.24* (.0001)	54.24*** (.002)
	Culture	69.64*** (.022)	46.50*** (.017)	36.24*** (.011)
	Interaction	1.92	.752	1.63

Gender differences, small but significant on all constructs

- Men value transgressive behaviours more than women in all cultural clusters

Interactions between gender and culture are more frequent

- on declared behaviours and personal acceptability than on perceived social acceptability
- on drinking and driving and not wearing a seatbelt more than on speeding and the use of mobile phone while driving

Gender differences vary according to cultures

- Larger gender differences in Western countries than in South and East countries

# Further analyses



Creation of aggregate scores on each dimension investigated in the questionnaire

- **Social acceptability** of risky behaviours
- **Personal acceptability** of risky behaviours
- Declared **risky behaviours**
- **Descriptive norms** of risky behaviours
- **Self-efficacy** in risky behaviours
- Positive **subjective safety in driving**
- Road safety **policy support**
- **Risk perception** (factors causing a crash)
- **Crash** history
- Perception of the probability of enforcement (**enforcement perception**)
- Social desirability as **compliance intention**
- Positive perception of **automated vehicles**
- Compliance with **Law** (20 countries)

Use of two indices representative of culture

- **Gender Gap index** (World Economic Forum): global score + 4 dimensions: health, education, economic, politic
- **Country income** (World Bank)



# Regression on declared risky behaviour

Variables included	Whole sample			By gender	
	Model 1	Model 2	Model 3	Model 3 for males	Model 3 for females
Gender (0=man; 1=woman)	<b>-.159***</b>	<b>-.029***</b>	<b>-.030***</b>		
Age	-.196***	-.009*	-.008	-.001	-.018*
Social acceptability of risky behaviours		-.007	-.006	.006	-.019***
Personal acceptability of risky behaviours		<b>.332***</b>	<b>.333***</b>	<b>.336***</b>	<b>.329***</b>
Self-efficacy in risky driving behaviours		<b>.386***</b>	<b>.382***</b>	<b>.371***</b>	<b>.394***</b>
Perceived safety in driving		.032***	.030***	.025***	.037***
Road safety policy support		.029***	.028***	.038***	.014*
Perception of risky driving behaviours		.034***	.031***	.026***	.038***
Number of crashes		.076***	.079***	.075***	.085***
Social desirability and intention to comply		<b>-.164***</b>	<b>-.164***</b>	<b>-.159***</b>	<b>-.174***</b>
Risky social norms		.096***	.097***	.112***	.080***
Perceived probability of enforcement		.044***	.044***	.050***	.038***
GGEI			<b>.035***</b>	.028***	.047***
Country's Income level			<b>-.021***</b>	-.021***	-.019*
Adjusted R <sup>2</sup>	.065***	<b>.567***</b>	<b>.568***</b>	.557***	.557***

## Relation to gender

- Disappears once attitudinal variables controlled

## All things being equal

- Declared behaviours explained by personal acceptance, self-efficacy, (social desirability)
- For both genders

## Gender index and income

- Very small effect on declared behaviour, once attitudinal variables controlled

# Gender and gender gap index

Linear regression analyses for each attitudinal and behavioural constructed variable by gender, age, global gender equality index and income for the whole sample  
 \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

	Gender (0=m; 1=w)	Age	GGEI	Income	R <sup>2</sup>
Social acceptability of risky driving behaviours	-.066***	-.186***	-.041***	-.081***	.060***
Personal acceptability of risky driving behaviours	<b>-.131***</b>	-.220***	-.028***	.086***	.065***
Declared risky driving behaviours	<b>-.160***</b>	-.199***	.060***	-.022**	.067***
Self-efficacy in risky driving behaviours	<b>-.188***</b>	-.213***	.095***	-.050***	.087***
Perceived safety in driving	-.089***	-.052***	.094***	-.081***	.017***
Road safety policy support	<b>.151***</b>	.228***	.029***	<b>-.193***</b>	.089***
Perception of risky driving behaviours	.097***	.094***	<b>.144***</b>	<b>-.113***</b>	.032***
Number of crashes	-.022***	-.077***	<b>-.107***</b>	<b>-.197***</b>	.091***
Social desirability and intention to comply	.047***	.141***	.001	<b>-.161***</b>	.038***
Risky social norms	-.051***	-.109***	-.011	-.072***	.025***
Perceived probability of enforcement	<b>-.104***</b>	-.108***	-.027***	-.078***	.037***
Positive perception of automated vehicles	<b>-.100***</b>	-.126***	-.089***	<b>-.111***</b>	.069***

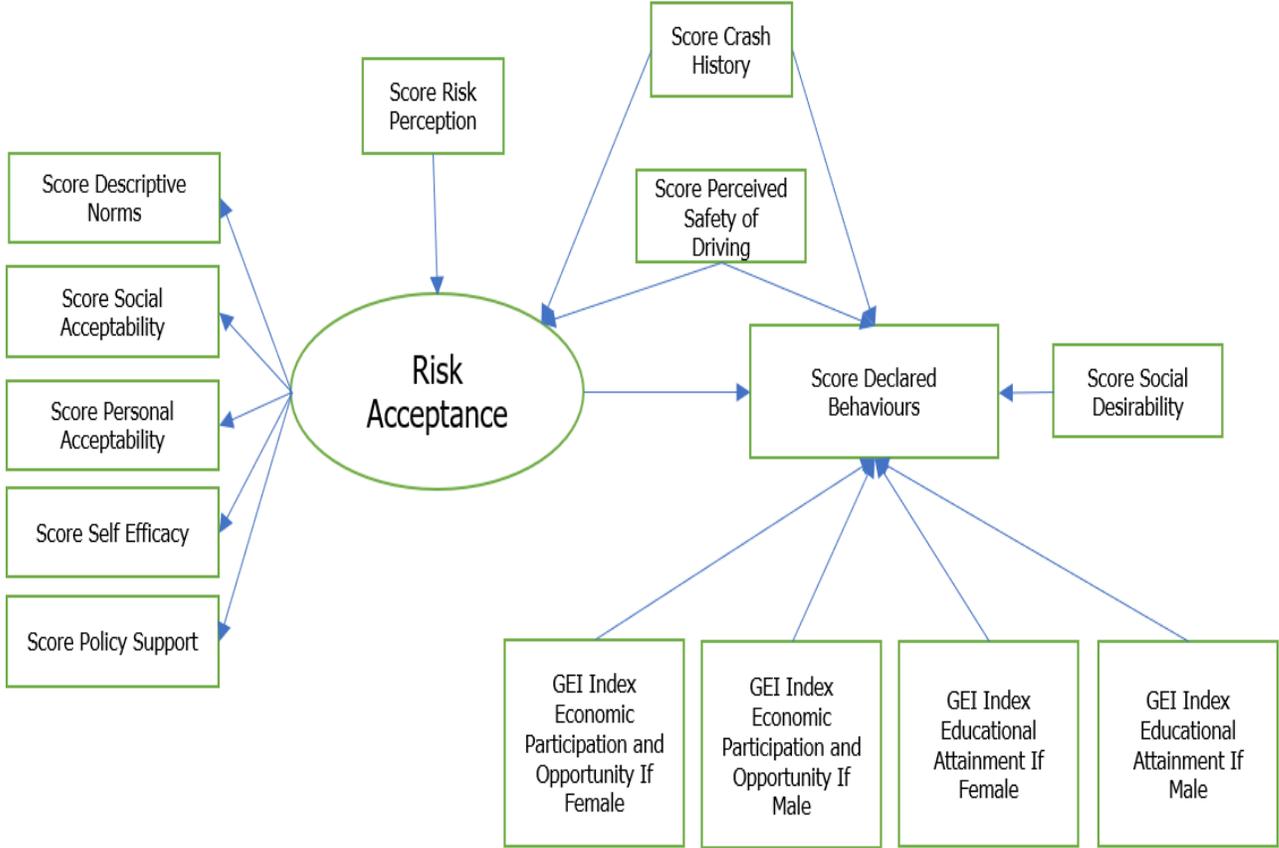
Once global gender gap index (GGEI) controlled, gender is related to all the indices, for example

- Declared risky driving behaviour (M>W)
- Self-efficacy (M>W)
- Personal acceptability (M>W)
- Probability of enforcement (M>W)
- Positive perception of automated vehicles (M>W)
- Policy support (W>M)

Once gender is controlled, GGIE is related to most indexes

- Perception of risky driving behaviours increases with GGEI
- Number of crashes decreases with GGEI (and country income)

# Structural Equation Modeling



## Those who declared less risky behaviours

- Women and older drivers
- Drivers from high Income countries

## Those who declared more risky behaviours

- Drivers (men or women) from countries where gender equality is higher for economic participation and opportunities
- **Less gender differences** on declared risky behaviours in countries **where gender equality is higher for education**
  - **Female behaviours become more similar to males behaviours**

# Conclusions

## Gender differences in traffic rule compliance

- Higher levels of violation and acceptability for men in all regions.
- Greater differences in reported behaviour and personal acceptability than in perceived social acceptability for both sexes: it is the position of each sex in relation to the social norm that varies, not the social norm itself

## Speed violation

- Most reported and acceptable behaviour (socially and personally)
- By all groups of men in all regions, but also by groups of women
- Speeding seems to be a widespread and generally accepted offence by both men and women.

## Gender difference decreases as gender equality increases

- Gender economic equality (female employment) promotes transgressions by both sexes.
- Gender equality in education promotes the transgression of women, presumably by promoting **women's conformity to male stereotypes** and/or disadvantaging women's conformity to female gender roles.

# General conclusion

Gender differences vary across cultures but, **in all regions observed, men value crash risk behaviors more than women do.**



Understanding why higher risk-taking among men appear to be **invariant across cultures.**  
Exploring differences according to cultural indicators (social values)

**Speeding** appears to be a widespread and globally **accepted violation** for both men and women.



Targeting men and the dangerousness of speeding in communication campaigns on **prevention**, and road safety **education.**



Thank you for your attention!

Questions?

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