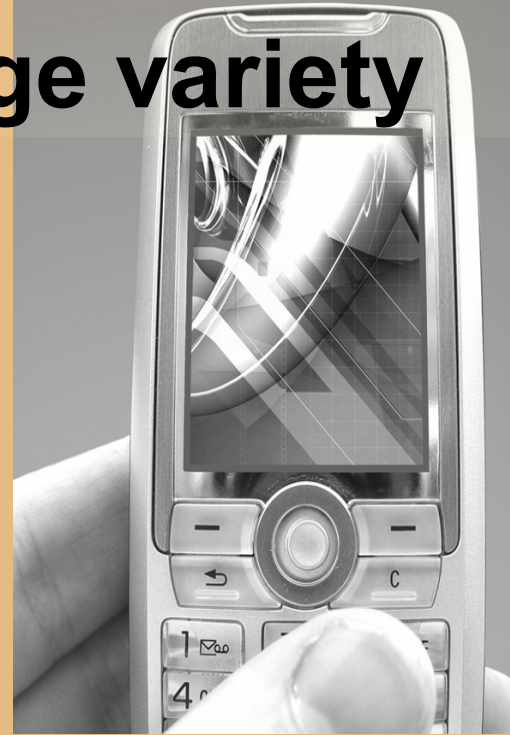


# The Cultural and Motivational Factors that Influence Mobile Phone Usage variety



Judy van Biljon

Paula Kotzé

SCHOOL OF COMPUTING



UNISA

college of  
science, engineering  
and technology

# AGENDA

- Motivation for Research
- Issues
- Research Design
- Analysis and Findings
- Future Research

# Motivation for Research

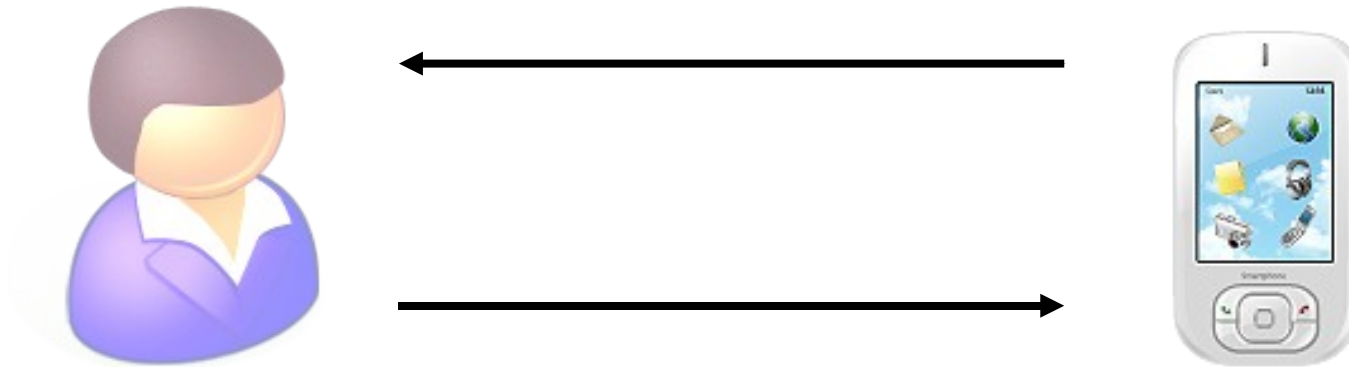
Mobile phone: ultimate **personal computer** with **unprecedented adoption** record.

What drives mobile phone adoption and usage?

<b>Cultural factors</b> in mobile phone adoption and usage	IFIP TC 13 Seminar
<b>Mobile learning</b>	SACLA 2007
Mobile phone <b>feature selection</b> for design	INTERACT 2007
<b>Technology adoption</b> model for mobile phones	SAICSIT 2007

# Research Question 1

**What should guide the selection of mobile phone features?**



**User needs:**

**Task analysis and context perspectives ✓**

**What other needs?**

# Research Design

- Initial Interviews (10 participants)
- Pilot survey (40 participants from Monash)
- Survey (168 participants from UP & TUT)
- Evaluation Interviews (6 participants)

# Data analysis

## Statistical analysis: Data reduction methods

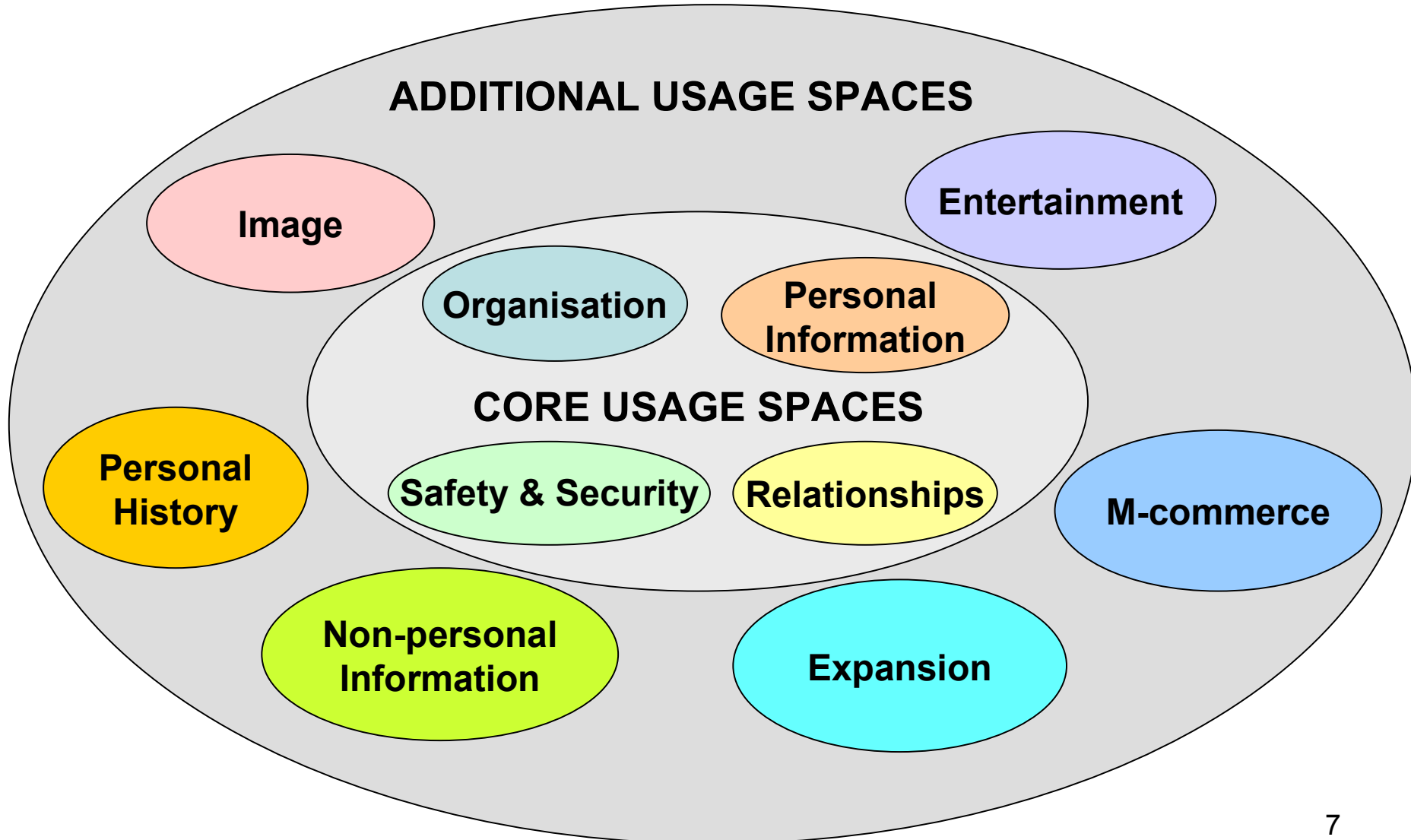
### Exploratory factor analysis:

- **New technology:** Bluetooth, video player, MP3, e-mail, voice recorder etc.
- **Safety, security, relationships:** phone book, caller identity, missed calls, SMS.
- **Organisation:** vibrating alert, reminders, profiles, calendar
- **Personal history:** camera, photo-album, MMS, ring tones, personal notes etc.

### Optimal scaling:

- **Safety, security, relationships:** phone book, caller identity, missed calls; SMS.
- **Organisation:** vibrating alert, reminders, profiles and alarm.
- **Personal history:** camera, MP3, personal organiser, photo-album, video capture.

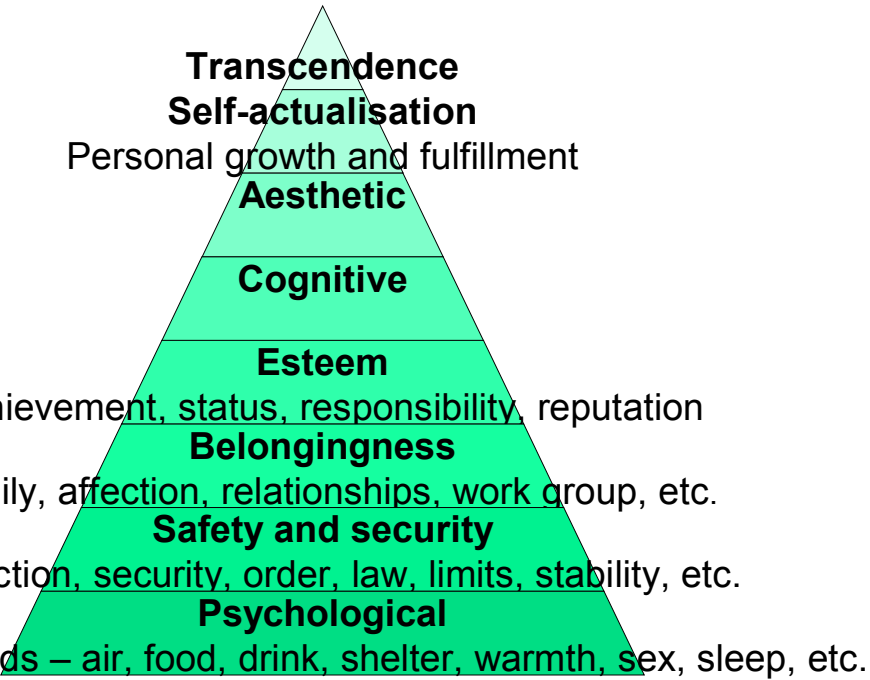
# Mobile phone Usage Space Model



# MASLOW

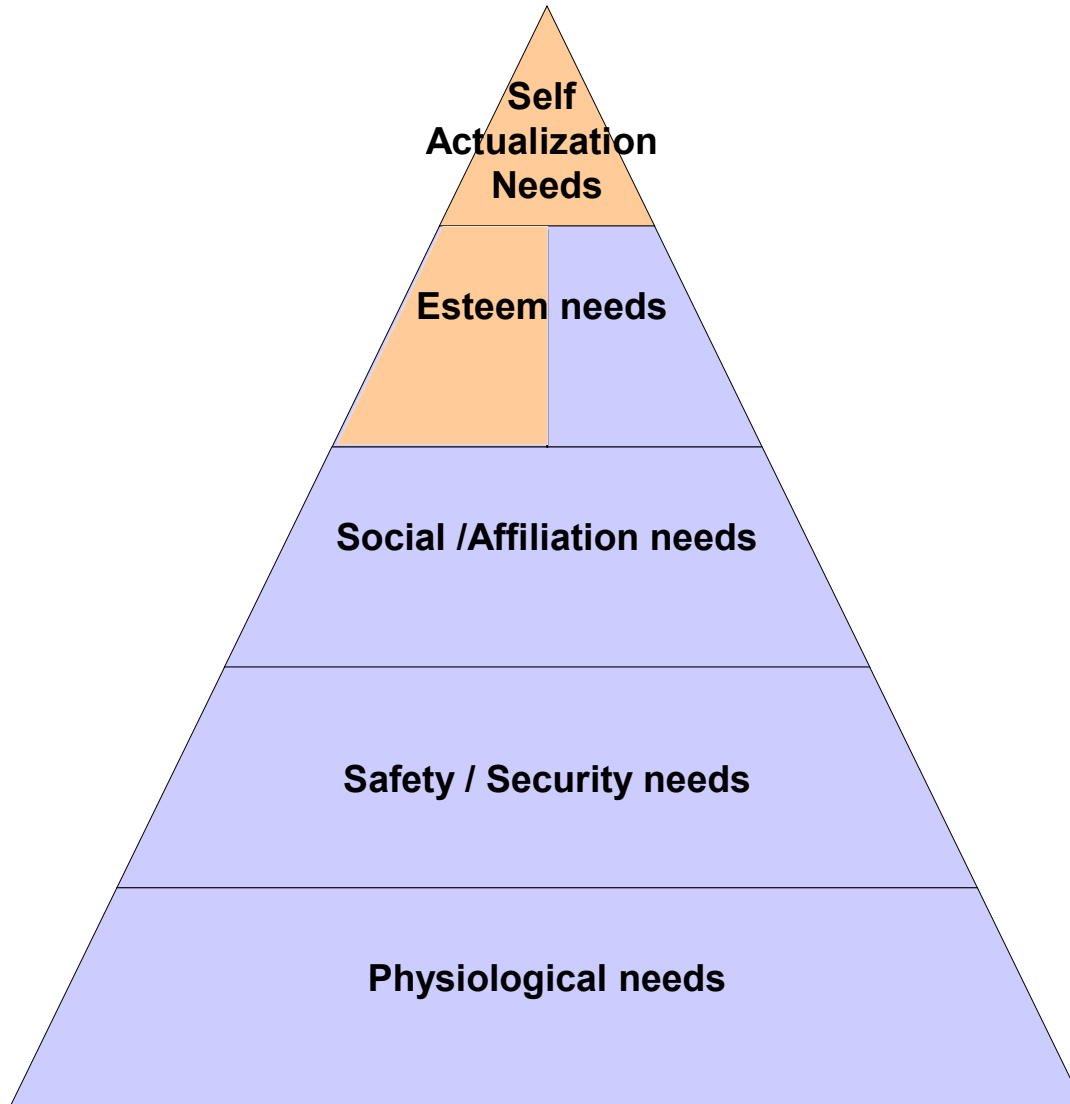


# 8 levels of needs



# Theoretical Framework (2-4)

**HERZBERG** → motivator-hygiene theory



# Findings and conclusion: Research Question 1

Links: MASLOW and HERZBERG to mobile phone user needs



Recommend **usage spaces** for facilitating interaction between designers and users

# Research Question 2

## How can mobile phone adoption be represented?

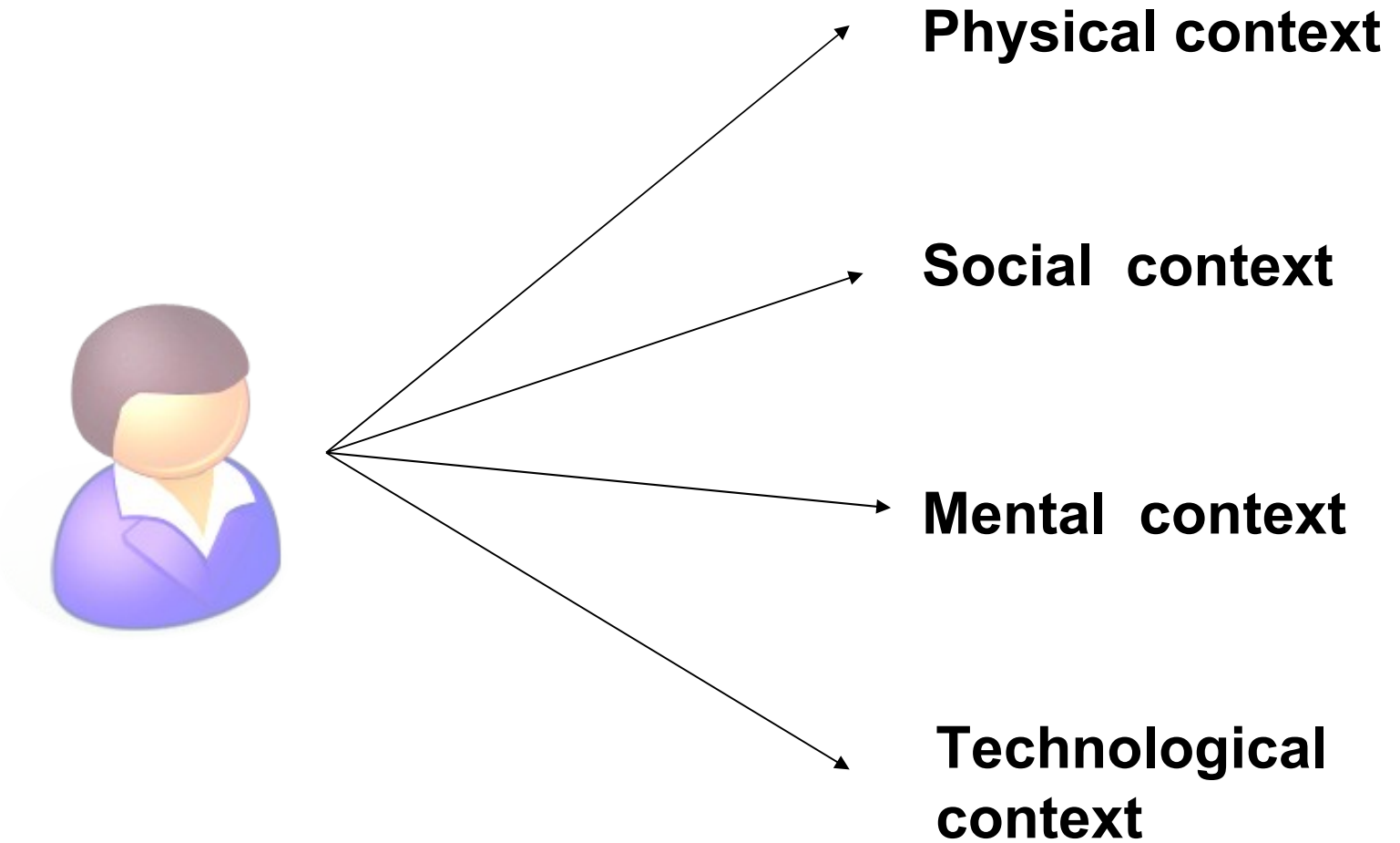
### Existing research

- Rogers
- TAM, UTAUT – organisations
- Focus on specific aspects e.g. wireless finance, mobile internet, cultural factors
- Mobile phone adoption models:
  - Kwon and Chidambaram
  - Sarker and Wells

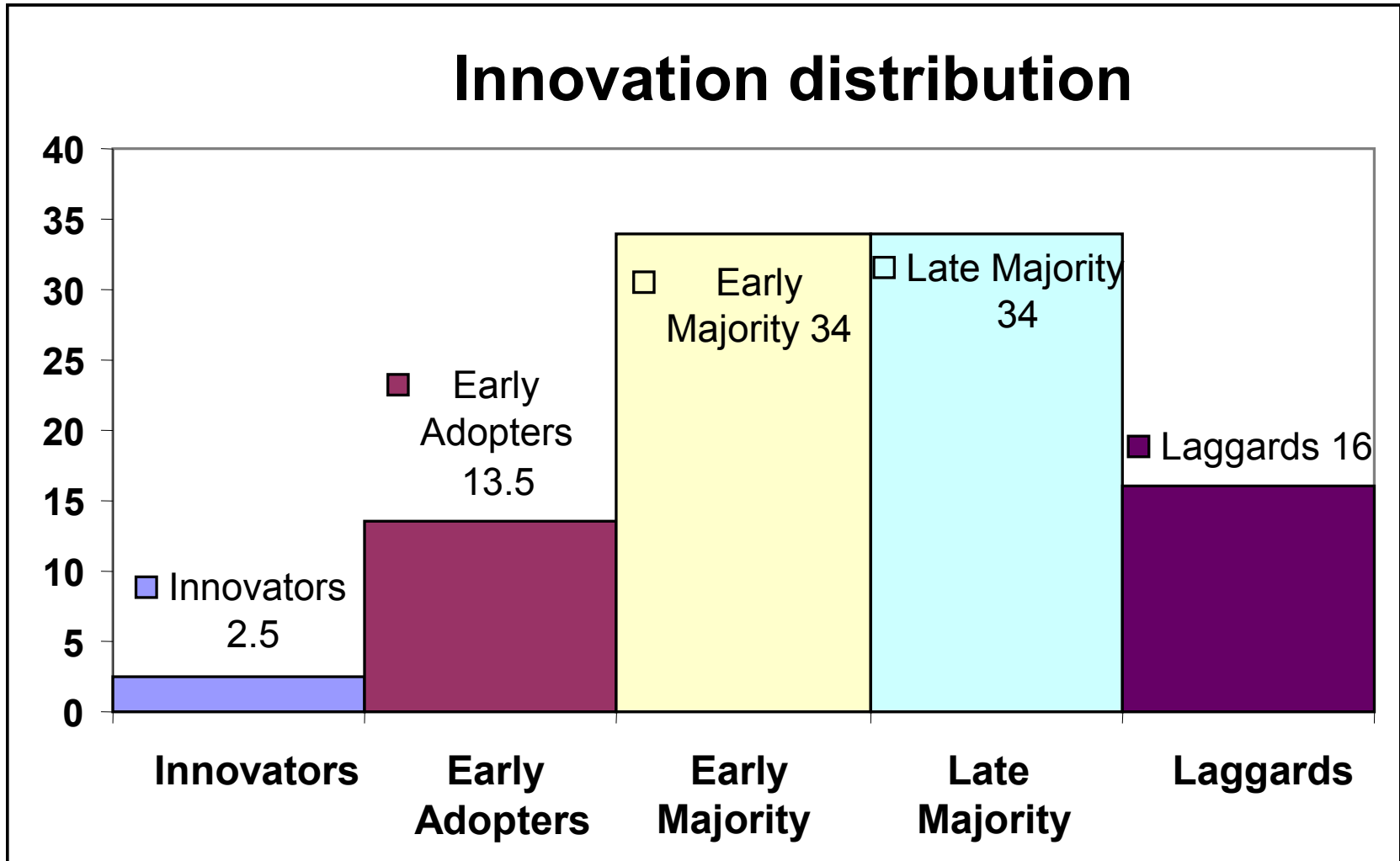
# Research Design

- Literature study on:
  - mobile context
  - technology adoption models
- Survey (59 participants from Monash)
- Evaluation Interviews (6 participants)

# Mobile Phone Context

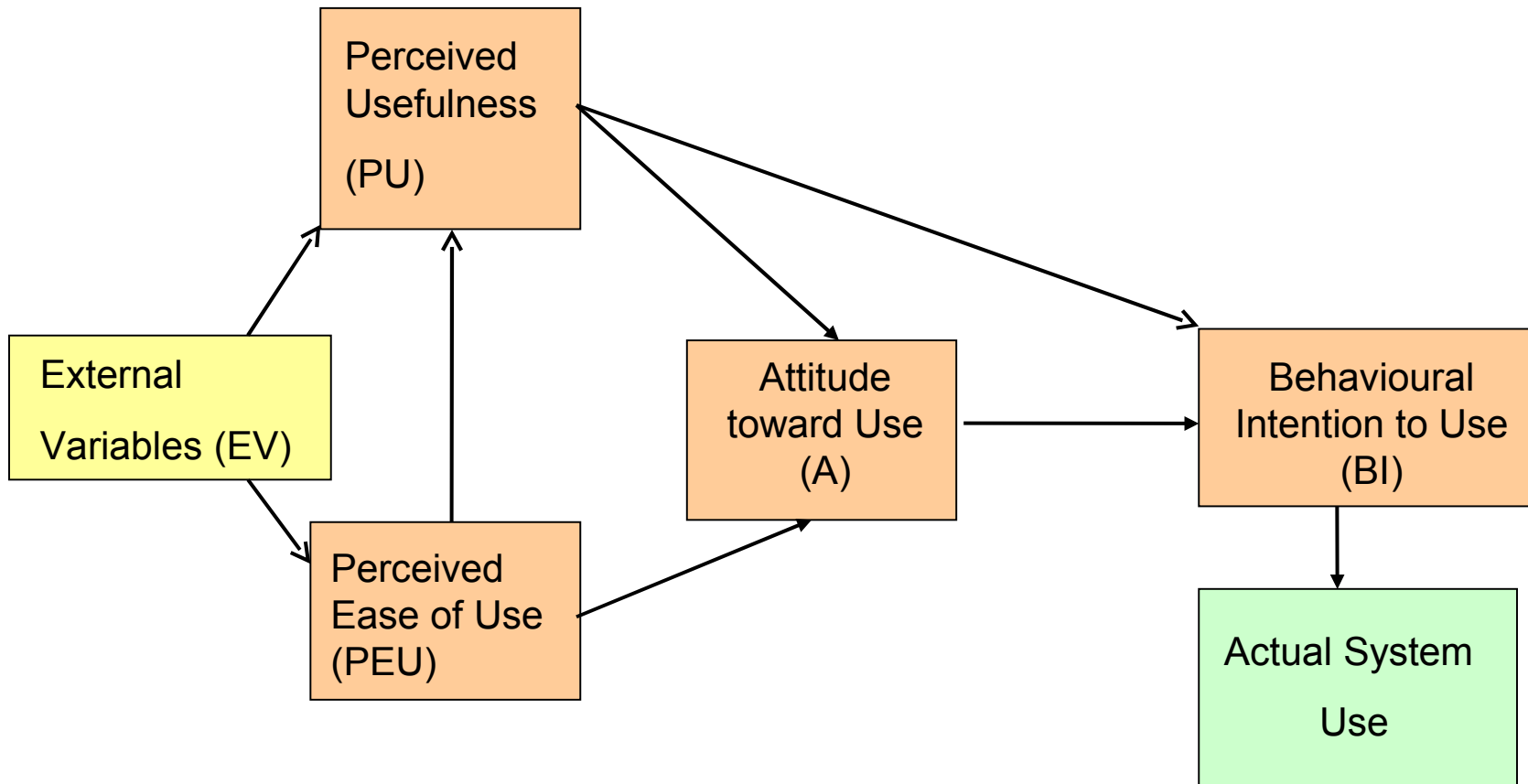


# Rogers's Innovation Diffusion Model

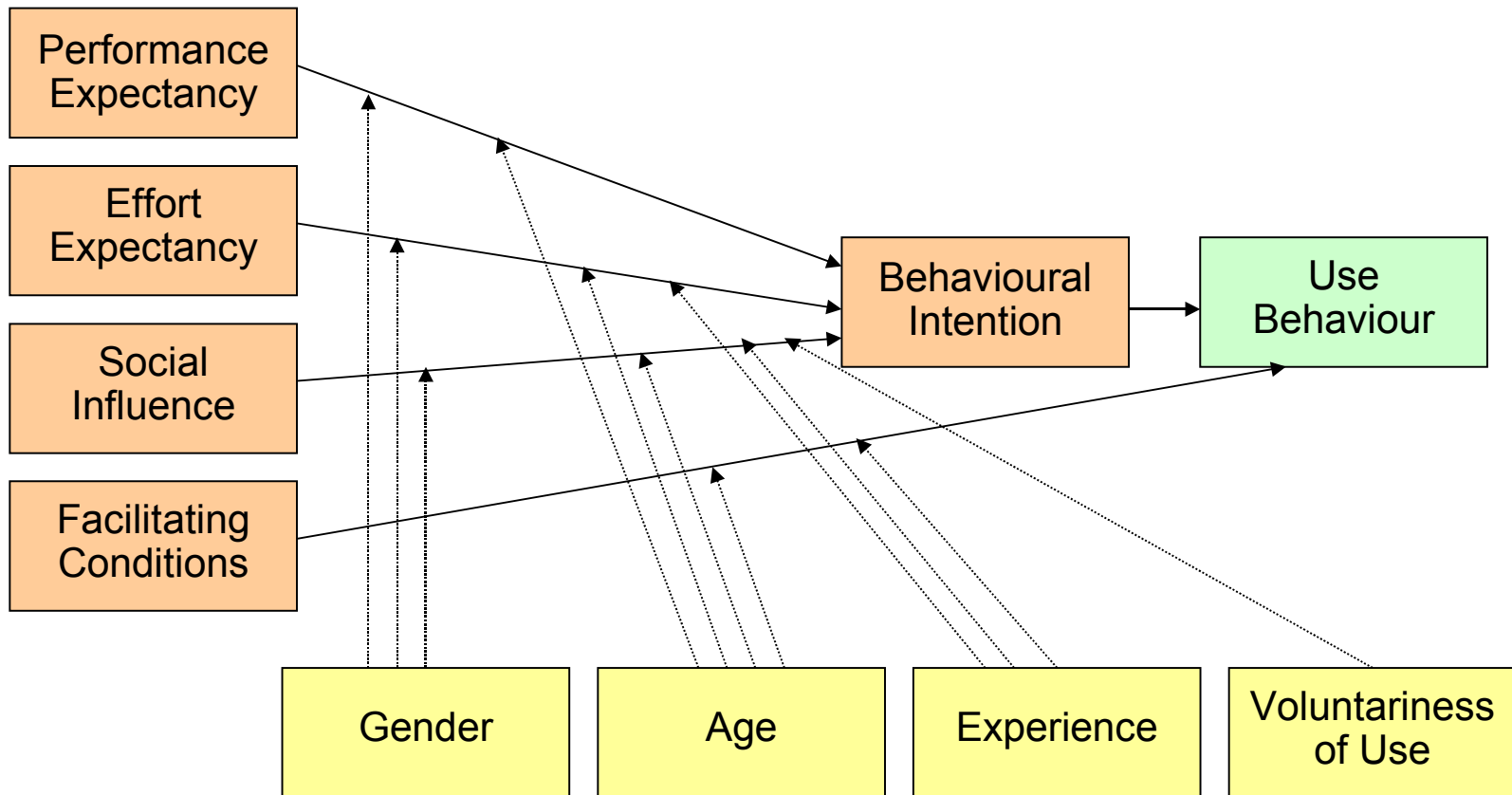


# Technology Adoption Model

[Davis 1989]



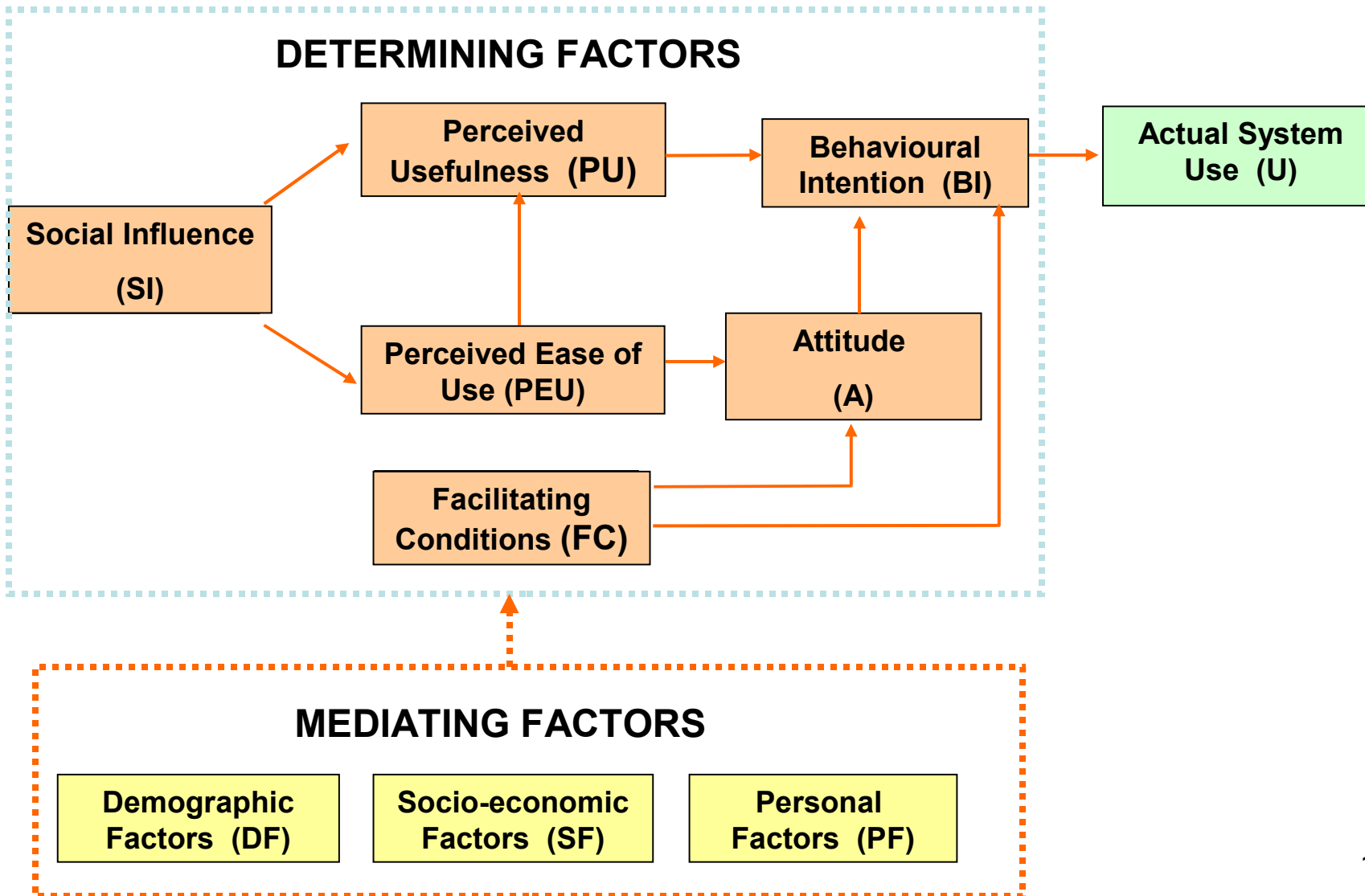
# Unified Theory of Acceptance and Use of Technology Model [Venkatesh 2000]



# Data Analysis

<b>Factors</b>	<b>TAM 1989</b>	<b>UTAUT 2000</b>	<b>K&amp;C 2000</b>	<b>S&amp;W 2003</b>	
<b>Social influence</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	
<b>Perceived ease of use</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	✓
<b>Perceived usefulness</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	
<b>Facilitating conditions (infrastructure)</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	
<b>Attitude</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	
<b>Behavioural intention</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	
<b>Actual system use</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	✓
<b>Demographic</b>	<b>External variables</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	
<b>Socio-economic</b>	<b>External variables</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	
<b>Personal</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	

# Proposed Technology Adoption Model



# Quantitative Results

			Personal Factor	Demographic Factor	Facilitating Conditions			
	PEU	PU	Tech_O	Tech_A	System Service	System Cost	Phone Cost	System Quality
PEU	1							
PU	.241	1						
Tech_O	.661**	.220	1					
Tech_A	.480**	.245	.389**	1				
System Service	.356**	.159	.358**	.294*	1			
System Cost	.286**	.334**	.154	.352**	.430**	1		
Phone Cost	.016	.248	-.124	.113	.161	.456**	1	
System Quality	.189	.256*	.177	.366**	.225	.393**	.108	1

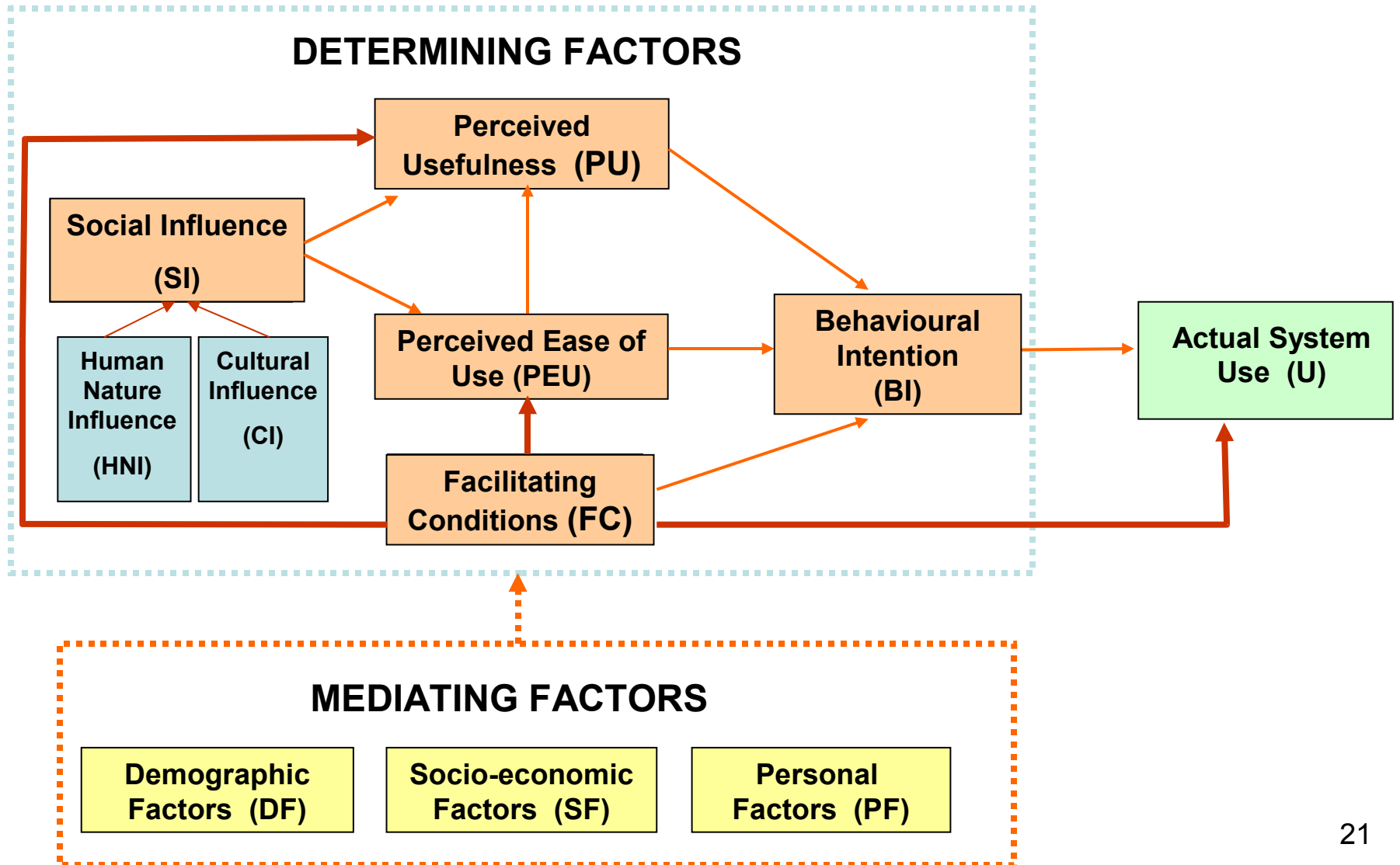
\* significant values at 0.05 level

\*\* significant values at 0.01 level

# Quantitative Results

ATTRIBUTE	NUMBER OF SIGNIFICANT CORRELATIONS
System Cost	6
Tech_Advancement	5
System Service	4
Perceived Ease of Use	4
Tech_Orientation	3
System Quality	3
Perceived Usefulness	1
Phone Cost	1

# Final MOPTAM



# Conclusions:

## Research Question 2

- Findings: Mobile phone technology adoption model is influenced by demographic, social and personal factors and **infrastructural** factors
- Contribution : Mobile phone technology adoption model (MOPTAM)
- Limitations of the research design
  - Self-reporting
  - Generalisability

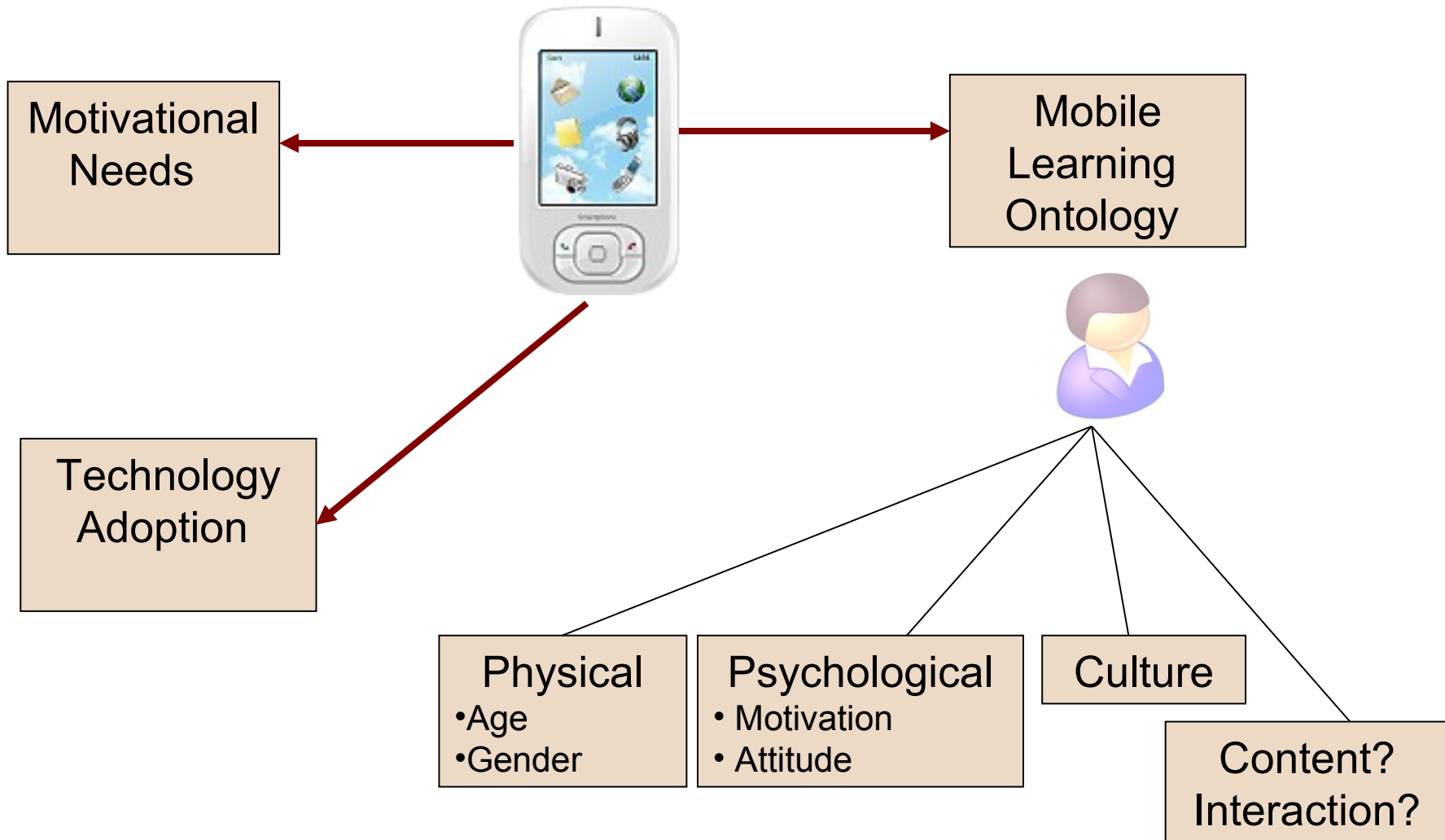


# Findings for Development Informatics

- Motivational needs as basis of mobile phone usage
- Mobile phone technology adoption model (MOPTAM) – importance of infrastructure
- Ethnic culture no basis for distinguishing mobile phone usage



# Future Research



# Questions?

Acknowledgements:

Funding: NRF of South Africa, UNISA

Participants: Monash University, UP and TUT

Research support: Estelle de Kock

## References:

- 2007: Judy van Biljon, Paula Kotzé, Gary Marsden, **Motivational Needs-Driven Mobile Phone Design**, In Proceedings INTERACT 2007 C. Baranauskas et al. (Eds.), LNCS 4662, Part I, pp. 523–526, 2007.
- 2007: Judy van Biljon, Paula Kotzé, **Modelling the Factors that Influence Mobile Phone Adoption**, In Proceedings ACM International Conference Proceeding of the 2007 annual research conference of the South African institute of computer scientists and information technologists on Riding the wave of Technology, L. Barnard & R. A Botha (Eds.) Fish River Sun, Eastern Cape, South Africa
- 2007: Van Biljon, J.A., Kotze, P. **Profiling mLearning students according to cultural dimensions: Is that possible?**, Proceedings of SACLA 2007, 1-4 July, Victoria Falls, Zimbabwe

