

**The
Experiences of
Older Drivers
in Adopting
New
Technologies in
Cars:
An Exploratory
Study**



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Dr Anuraj Varshney
Consultant Practitioner
Driving Mobility &
Kent Community Health
NHS Foundation Trust
9.6.2022

The Study

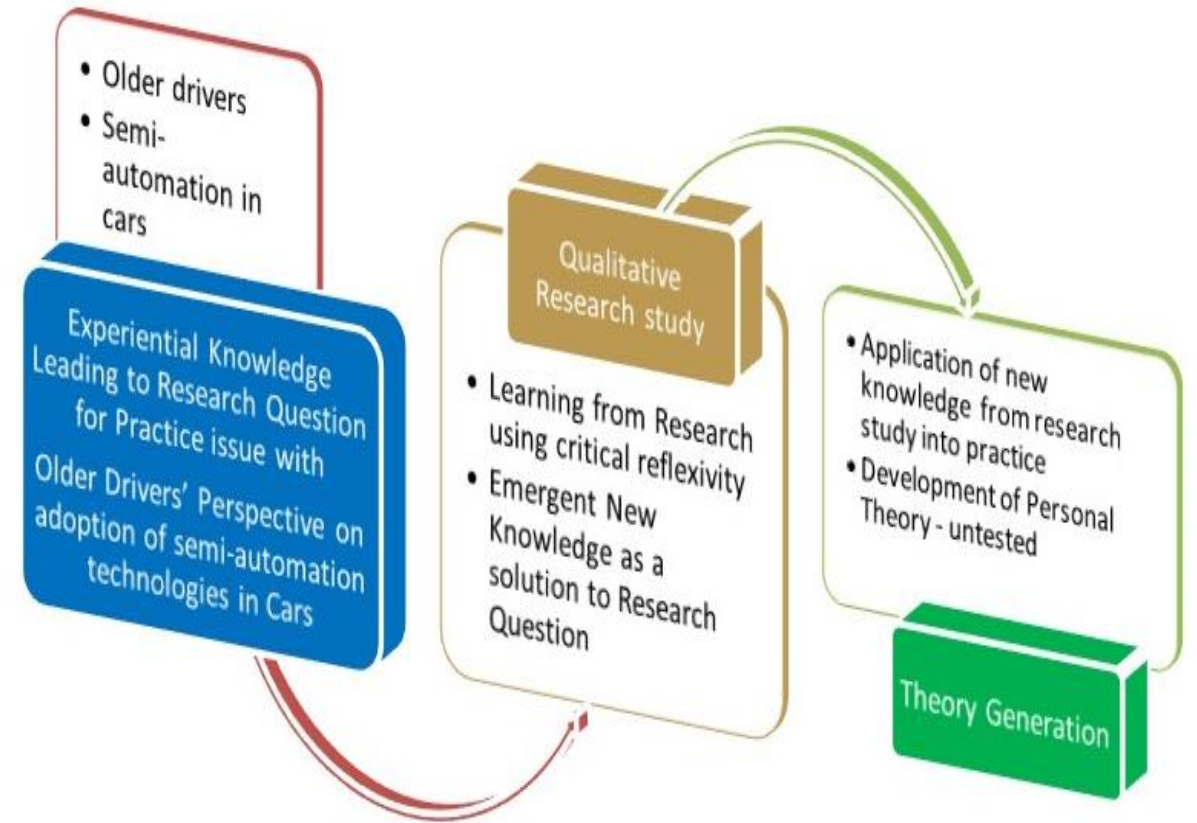
- This practitioner based qualitative study aims to explore diversity of experiences of older drivers in England towards both the adoption of car technologies and its role in supporting effective self-regulation.
- This small-scale, cross-sectional study is concerned with emerging technologies in modern cars.
- The fully automated cars are outside the scope of this study.

Rationale for the research study: Why this particular topic?

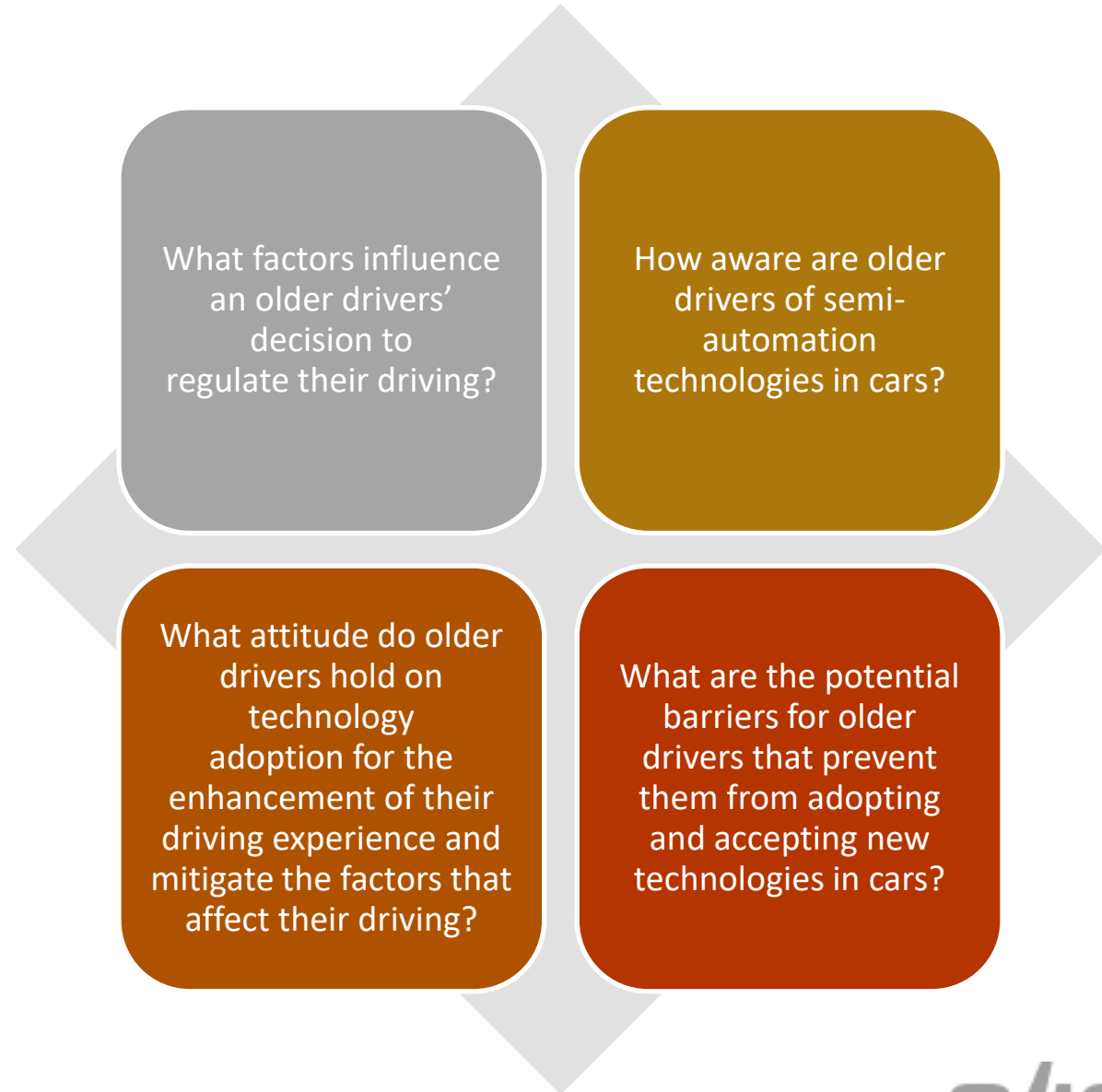
- Older drivers a diverse group hence warrants a user focus approach for them to harness new technologies (RICA, 2014)
- Vital for older drivers to accept and adopt new technologies to improve independence and well-being (Coughlin, Pope and Leedle, 2006)
- Lack of evidence to confirm if adoption is taking place at the same pace and rate across populations
- Future cohorts of older adults are likely to lag in technology adoption (Boot et.al., 2015)

The relationship between practice, continuing learning and personal theory

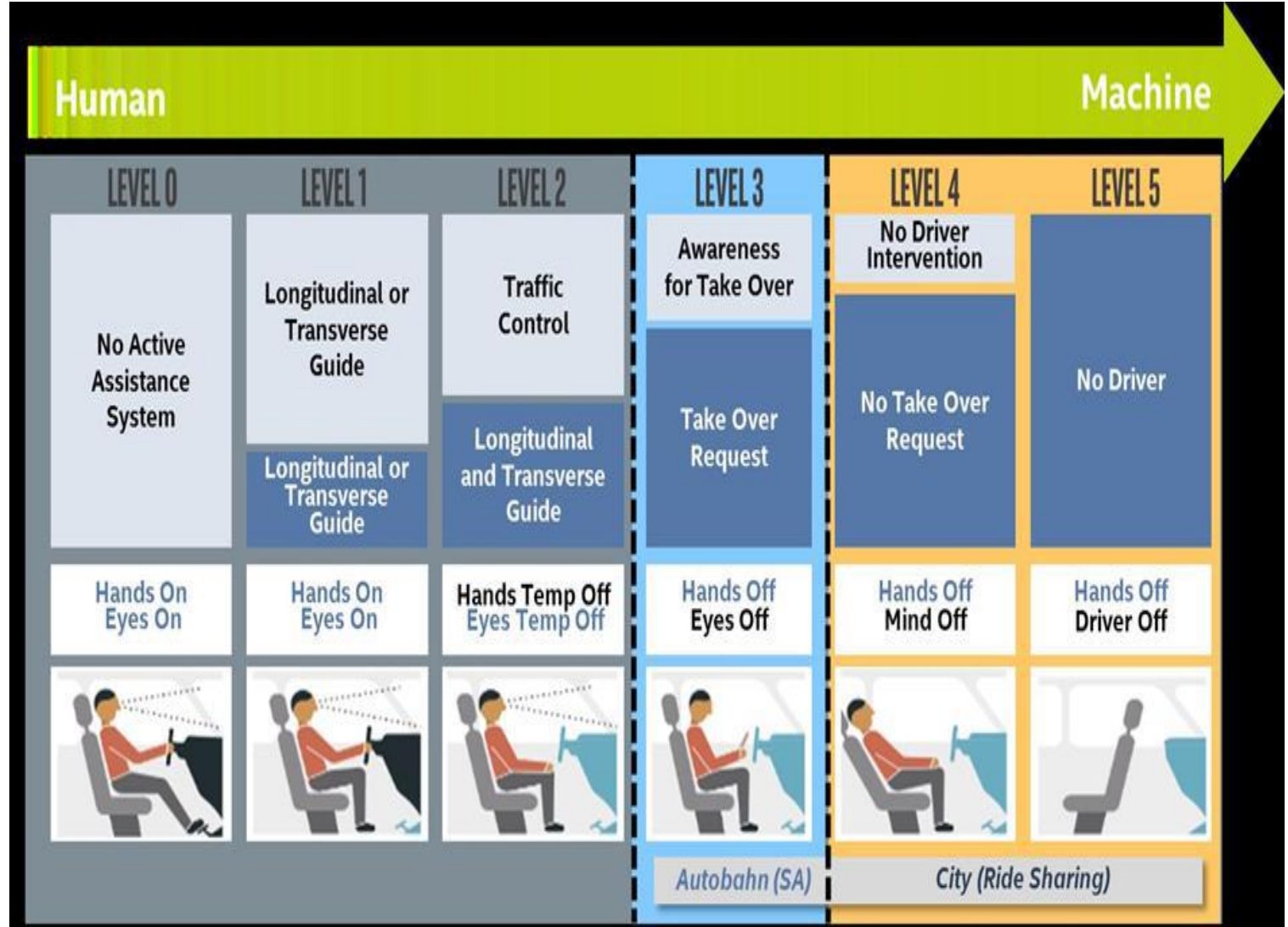
Adapted from Jarvis (1998)



Research Questions

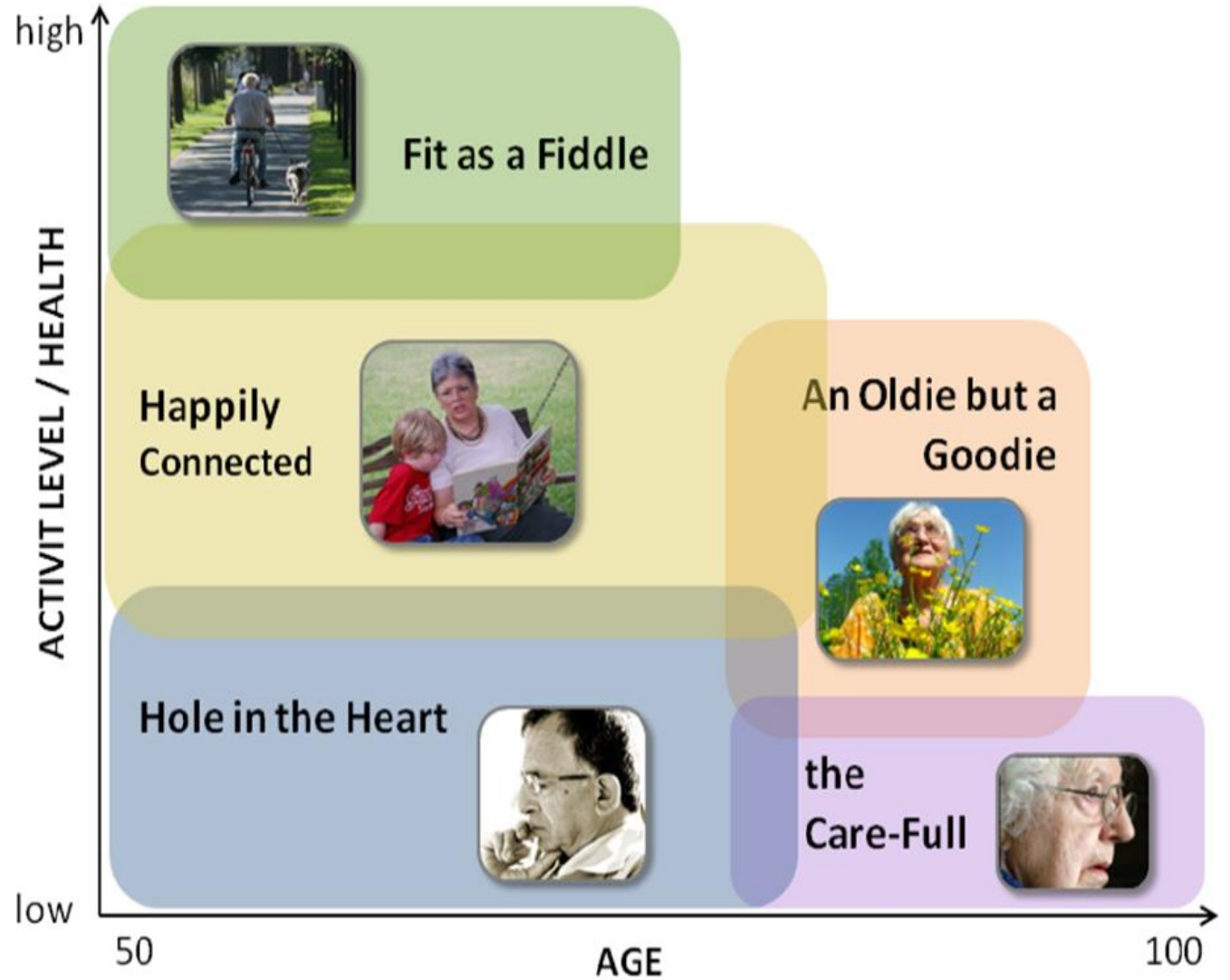


Levels of automation in cars



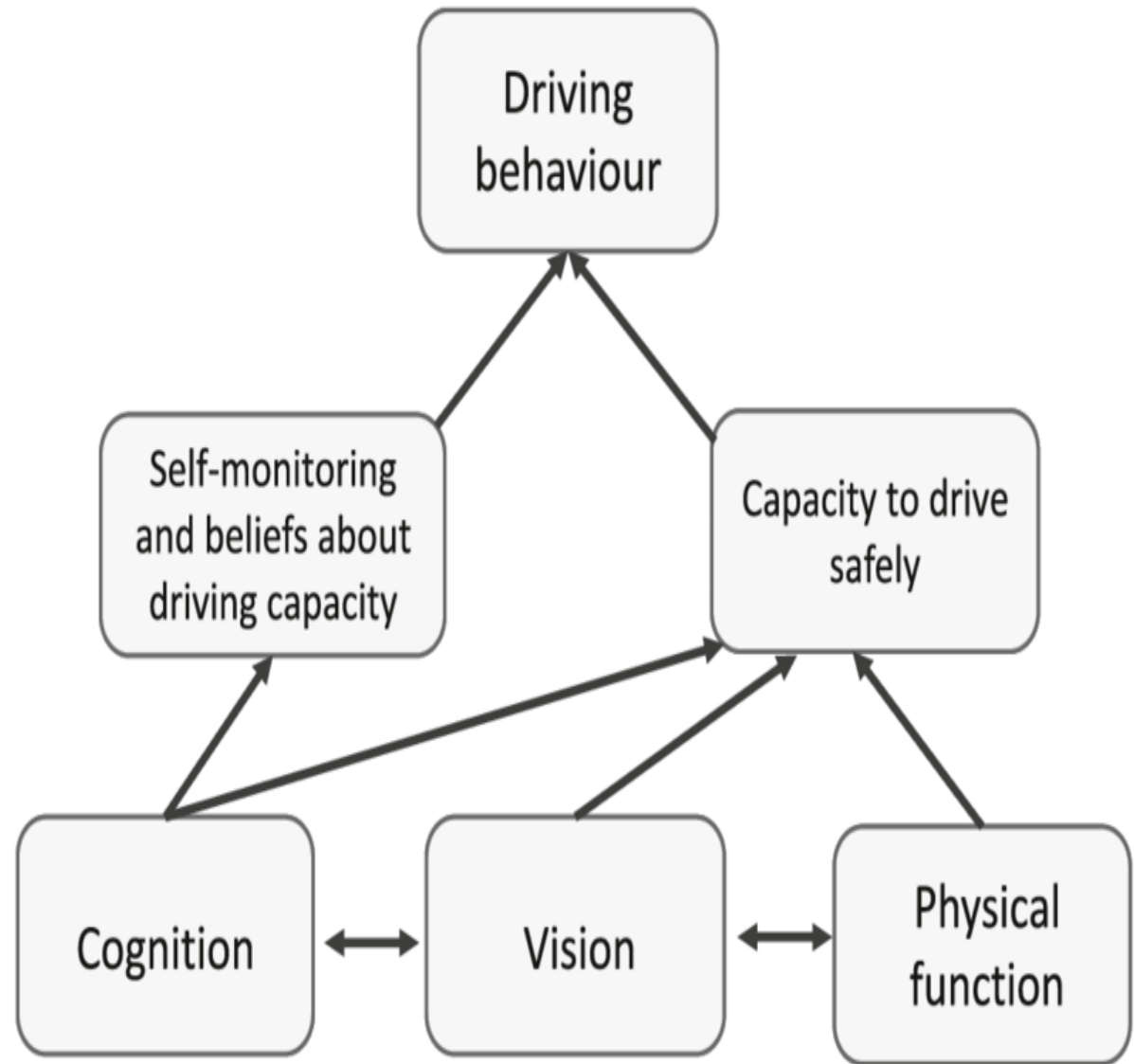
Source: Kaltenecker (2019) adapted from SAE, 2014

Older Adults



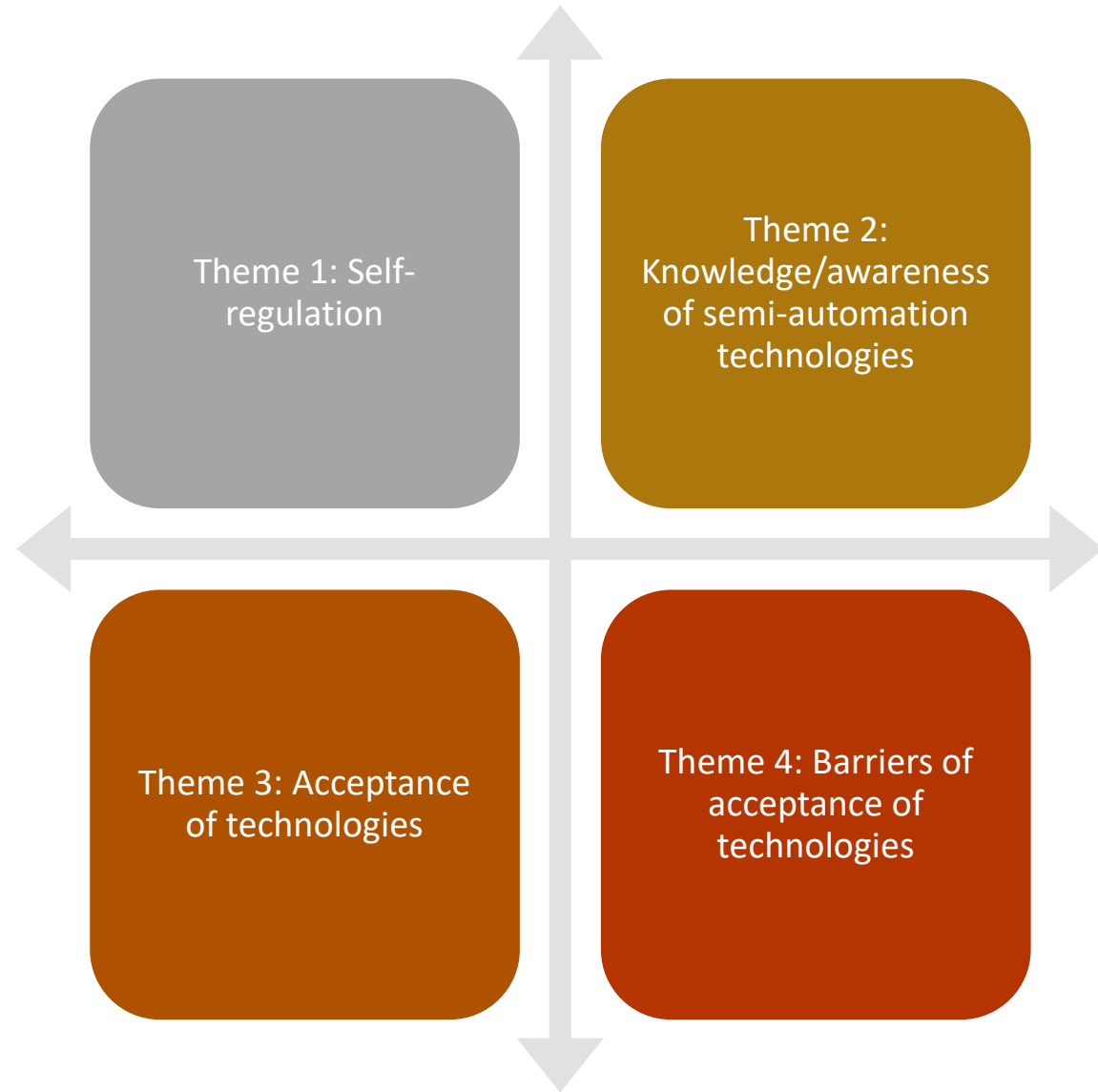
Source: GOAL Project 2013

Schematic model of factors enabling safe driving behaviour

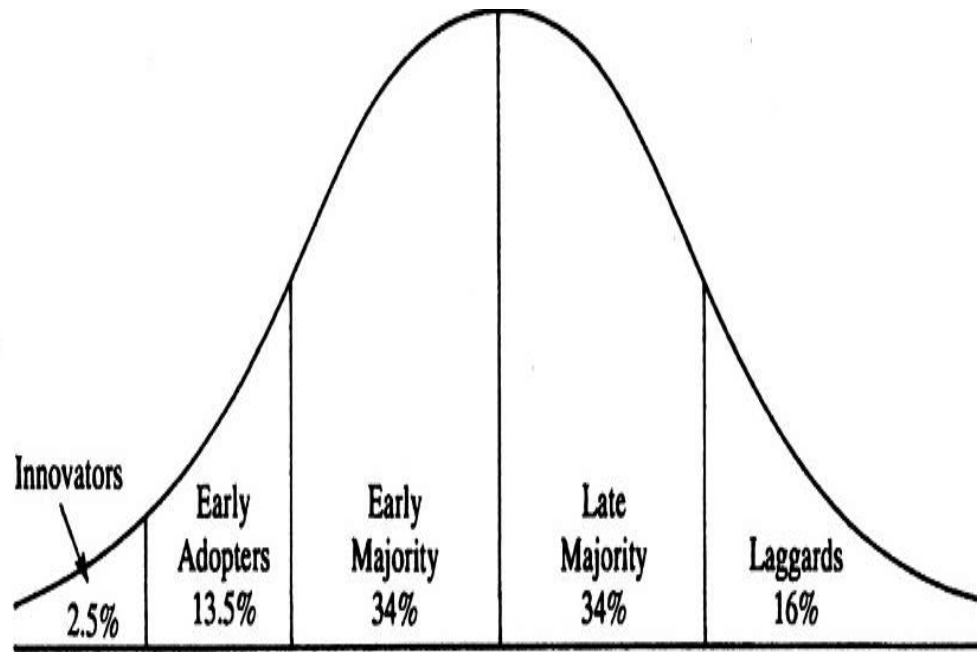


Source: Anstey et al. 2005

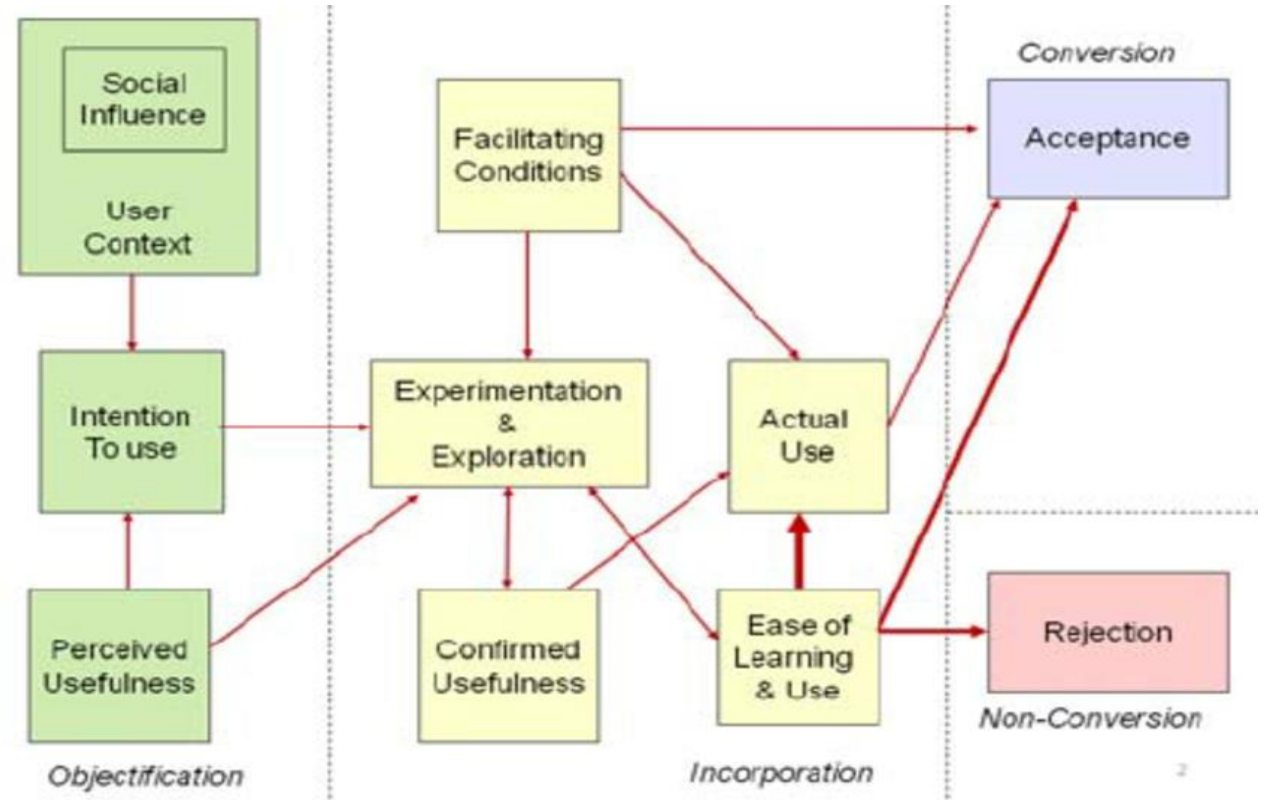
Classifying research questions



Study design on established models



Innovativeness and adopter categories (Rogers, 2003)



The STAM model (Renaud and Biljon, 2008)



1

Self-regulation due to health reasons

2

Self-regulation due to personal choice

3

Effectiveness of self-regulation.

Study Findings (1): Self- Regulation

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Self- Regulation

- **Deficient system:** The current system of self-regulation relies too much on individual drivers who may or may not have capacity to **adequately** self-regulate.
- **Lack of clarity** on the medical practitioner's role to advise a patient on their fitness to drive and to **notify DVLA** emerged.



Study findings (2): Knowledge and Awareness of New Technologies in Cars



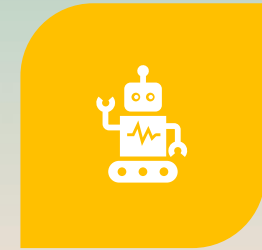
Diffusion of innovation:



Older drivers are aware of new technologies and their main information source is the internet, family, friends, and news



Most older drivers seem to belong to the early to late *majority cohort* for adoption of new technologies in cars



There is a small percentage amongst older drivers who would remain sceptical of new technologies



Study Findings (3): Actual Use of Technologies

Negative impact:

Use of autonomous or semi-autonomous aspects of technology has a potentially negative impact as it can be seen as relinquishing control.

Given that driving is seen as more than just means of transportation and more a part of social psyche, the use of technologies can be seen as making driving a boring task and potentially removing the fun aspect.



Study Findings (4): Ease of Learning and Use

Lack of training:

It has emerged from this section that the lack of training and support leads to drivers losing confidence in the use of new technologies and also developing a fear to even try them.



Study Findings (5): Lack of User Engagement

User involvement

The participants feel many products are designed without taking into consideration the needs of the older adults.

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Study findings (6): Affordability



Many new products are beyond reach of an average older person's income so affordability is seen as the crucial barrier for adoption.



"To get a decent car we need to spend £70,000 and not many people will be spending that kind of money on a car" - Participant...

Study Findings (7) : User Friendly Products



Drivers will be willing to pay for the product as long as these are both user-friendly and reliable.



"Technology should be user-friendly and not just having it as a high-tech gadget and to make sure people can understand and get on with it" - Participant...

Study Findings (8): User Choices and Control



“Drivers will be willing to use a product that gives them additional safety but that they still have a choice to override in order to control the vehicle.”

Study Findings (9): Privacy and Confidentiality



Data governance:

“Older drivers are concerned about data control which is being collected by these new technologies and there is genuine worry amongst them around use of this data and its impact on their privacy.”

Study Findings (10): Unintended Consequences of Technology on Drivers



De-skilling human drivers:

“Technologies can make human drivers de-skilled to deal with driving tasks due to not using the physical and cognitive skills required for the driving task.”

Study Findings (11): Infrastructure to Support Semi- Automated Technologies



Lack of information and clarity:

“Information on infrastructures preparations to support technologies seems inadequate. Lack of clarity on energy supply to support new products e.g. electric cars”



Conclusion



There is a need for the creation of more favourable conditions where older drivers can experiment/trial new technologies in order to alley their fear/anxiety to promote better adoption of new technologies. This can include training, education, support (pre- and post-delivery of technologies innovation).



Many drivers prefer technologies that provide drivers with guidance, such as parking sensors, but to achieve better diffusion of other products, e.g. park-assist, self-parking older drivers need to explore these technologies in a safe environment to make up their mind for adoption.

Recommendations



Technologies such as telematics devices can provide objective data to optimise self-regulatory behaviour amongst older drivers and promote safe driving for longer.

There should be further research preferably by an independent body for the DVLA to explore if technologies such as telematics can be used to develop an exclusive **pre-retirement driving licence (PRDL)** for older adults (similar to that currently used for the younger drivers known as *a graduated driving licence*)

There should be further longitudinal research on the unintended consequences of technologies on human health such as over-reliance on technology particularly on older drivers