

# What factors determine healthcare professionals' (HCPs) acceptance of mobile devices for telehealth: A qualitative study conducted in Queensland

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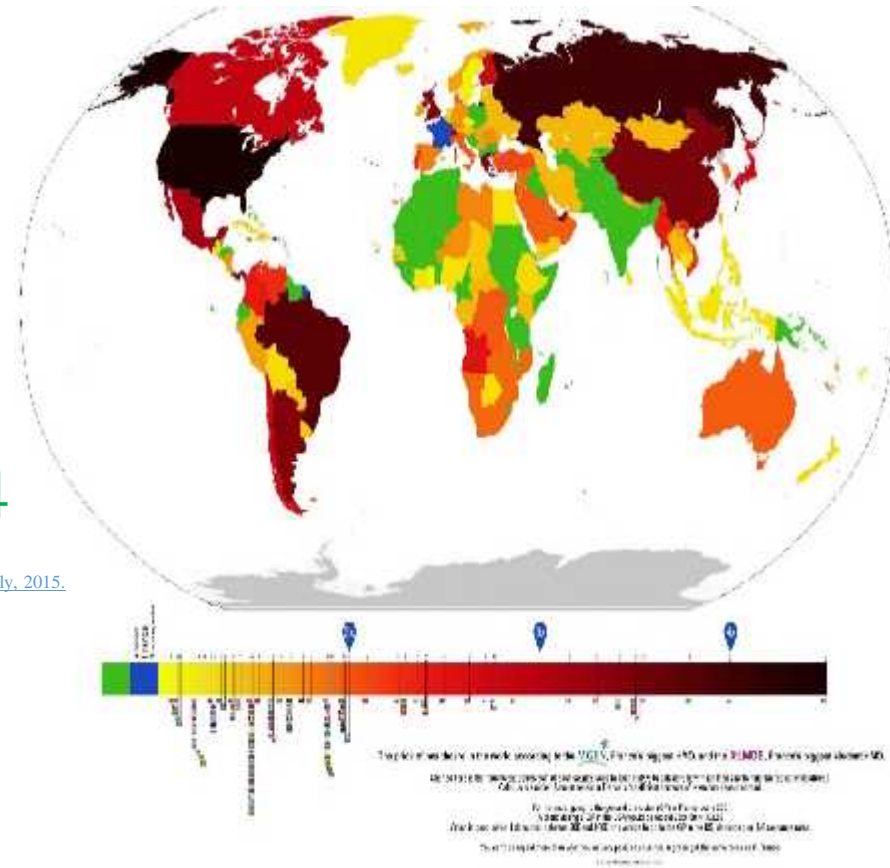


# Outline

- Background
- Objective
- Underpinning theories
- Overview of research method implementation
- Results

# Background slide1

- The cost of healthcare is increasing day by day.
- Demand for **primary care in Queensland** is high.
- Australia currently has only **about 4 beds per thousand** people [Mike Gee \(IDG Health\) on 30 July, 2015.](#)
- According to the Academy of Australian Technology, Science and Engineering (ATSE) report:  
' Assistive technology such as mobile devices could **play a vital role in reducing health care cost** when they are socially accepted and widely adopted' ([Anne 2013](#)).



The Australian health cost for 2015-2016 is \$69.4 billion

<http://www.budget.gov.au/2015-16>

## Background slide2

- Adoption of mobile devices in healthcare **is slow**
  - [\(Kay 2011; Fox 2011;Slaper and Conkol 2014; Wu, Li et al. 2011;Milward et al. 2015;Putzer & Park 2010\)](#)
- mHealth **adoption rate is only 5%** in remote monitoring worldwide [\(Kay 2011\)](#).
- The **Australian government has introduced funding** for video consultations in primary care.
- Health care professionals and patients prefer **face-to-face consultation** [\(AIHW 2014\)](#)
- Globally, mobile device based projects in healthcare are implemented on a **pilot basis and their outcome is unknown** [\(Qiang, Yamamichi, Hausman, Altman &Unit 2011\)](#).

# Objective



To understand Healthcare professionals perceptions and experiences for the use of mobile devices in the telehealth environment.

Research  
question

What factors determine healthcare professionals' (HCPs) acceptance of mobile devices for telehealth?

# Underpinning Theories

**The underlying theories in this research are theory of planned behaviour and diffusion of innovation theory.**

- To understand the **individual factors** fundamental predictors for adoption of technology are necessary to understand and TPB is able to explain fundamental predictors for adoption of technology.
- Many researchers have used TPB to predict individual behaviour for adoption of technology in healthcare

(Wu, Li Fu 2011; Casper 2007; Perkins, Jensen, Jaccard, Gollwitzer, Oettingen, Pappadopulos & Hoagwood 2007; Cheng & Chu 2014).

# Underpinning Theories

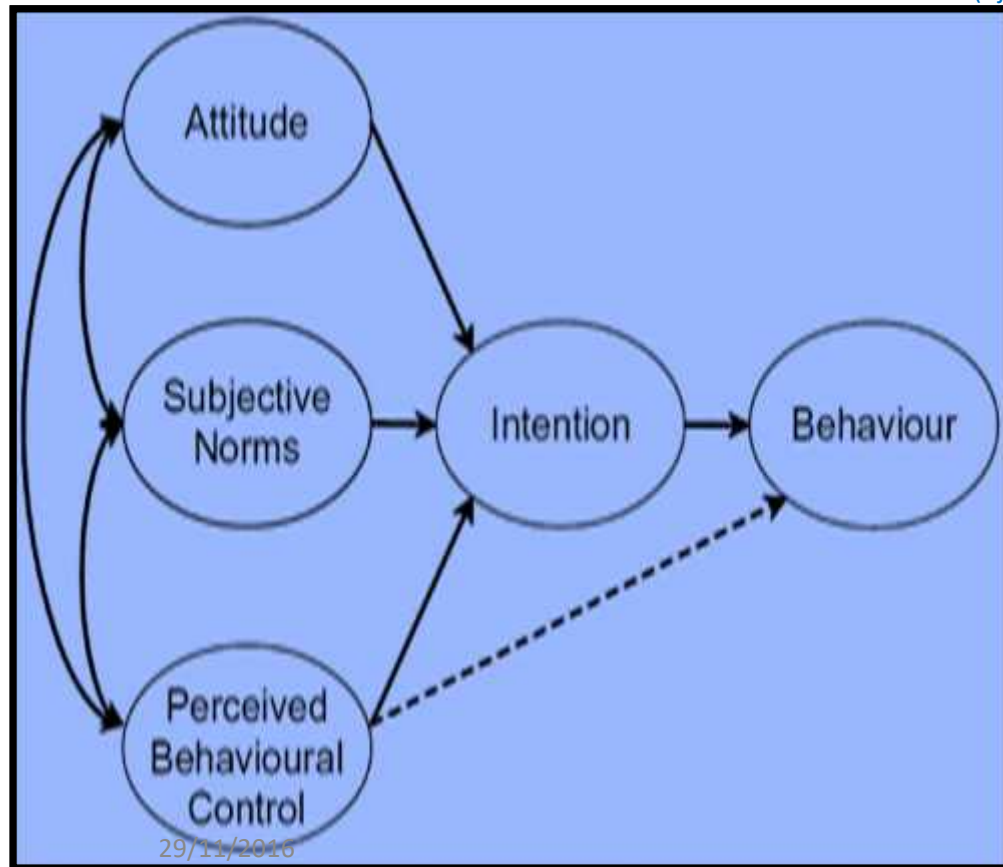
**The underlying theories in this research are theory of planned behaviour and diffusion of innovation theory.**

- Further, **health domain is a time critical** domain where patient can be in emergency and if technology used could not function properly it is useless. Therefore, it is important to **understand the operational aspects** of the technology from the individual perspective.
- Operational aspects of technology in **clinical processes can be well explained using DOI theory** (Ghodeswar and Vaidyanathan 2007) .
- DOI theory is also used by various researchers in the field of health care for the adoption of technology
  - ([Lei-Shih, Oi-Man & Goodson 2008](#); [Brown, Stride, Psarou, Brewins & Thompson 2007](#)).

# Underpinning Theories

## Theory of planned behaviour

(Ajzen 1991)

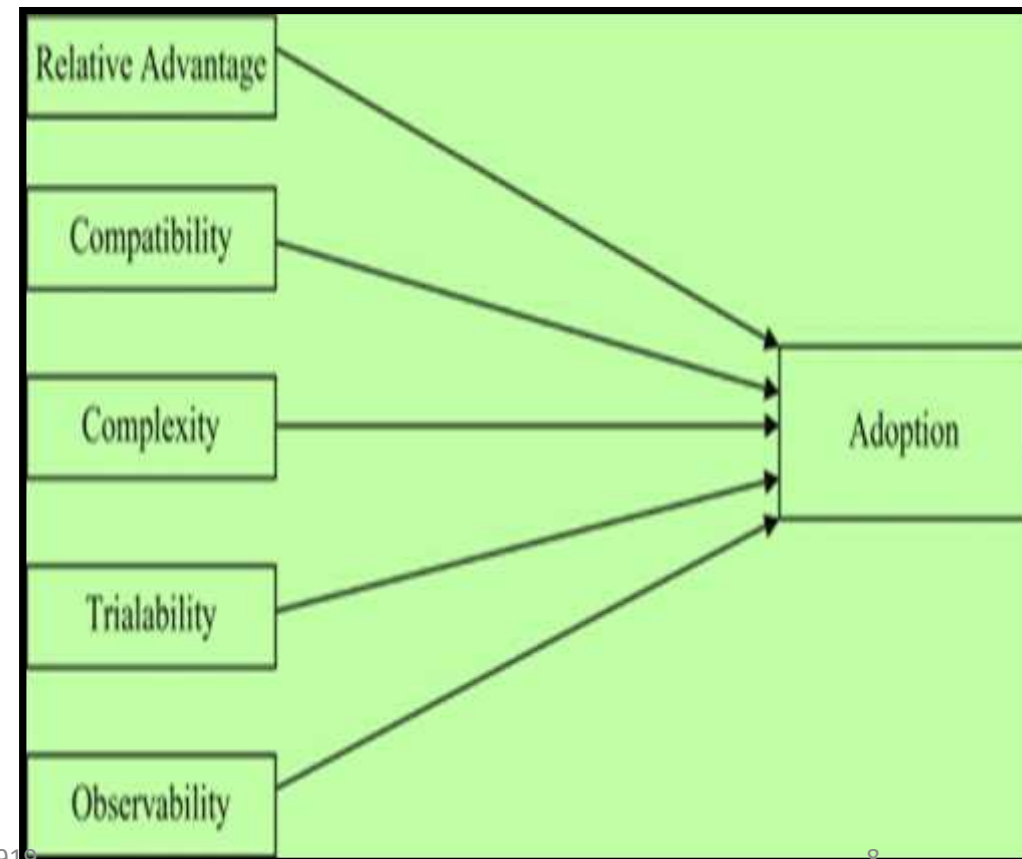


29/11/2016

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## Diffusion of Innovation theory

(Rogers 2003)



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# Methodology

Mixed mode methodology

- Qualitative Approach
- Quantitative Approach

# Overview of research method

[Link to question guide](#)

Qualitative approach

Qualitative data collection

Qualitative data analysis

Identification of factors

Procedure	Result/(s)
<ul style="list-style-type: none"> <li>Six focus group discussions and two interviews.</li> </ul>	Audio recording.
<ul style="list-style-type: none"> <li>Transcribed and converted into MS word .</li> </ul>	Refined text data in N-Vivo software.
<ul style="list-style-type: none"> <li>Identify themes.</li> </ul>	<ol style="list-style-type: none"> <li>Human environment</li> <li>Mobile device aspects</li> <li>Organisational environment</li> <li>Individual aspects</li> </ol>

# Results slide1

Overarching theme 1	Factors
Human environment	<b>Social influences</b> (conflicting views of the participants )
<ul style="list-style-type: none"><li>• We are all learning from each other and so I think there is an influence of each other to provide support to each other and to encourage each other too (F5P6).</li><li>• You can not be influenced by your social circle in healthcare because you are governed by the work, bosses and the person in charge. (F2P4).</li></ul>	

## Results slide 2

Overarching theme 2	Factors
Mobile devices aspects	<ol style="list-style-type: none"><li>1. <b>Functional feature</b> (conflicting views of the participants )</li><li>2. <b>Complexity</b> (conflicting views of the participants )</li><li>3. Compatibility</li><li>4. Relative advantages</li><li>5. Trialability</li><li>6. Network coverage</li><li>7. Privacy and security</li></ol>
I did two ehab last week and had basically to work as a translator because of the sound quality (F4P1).	

## Results slide 3

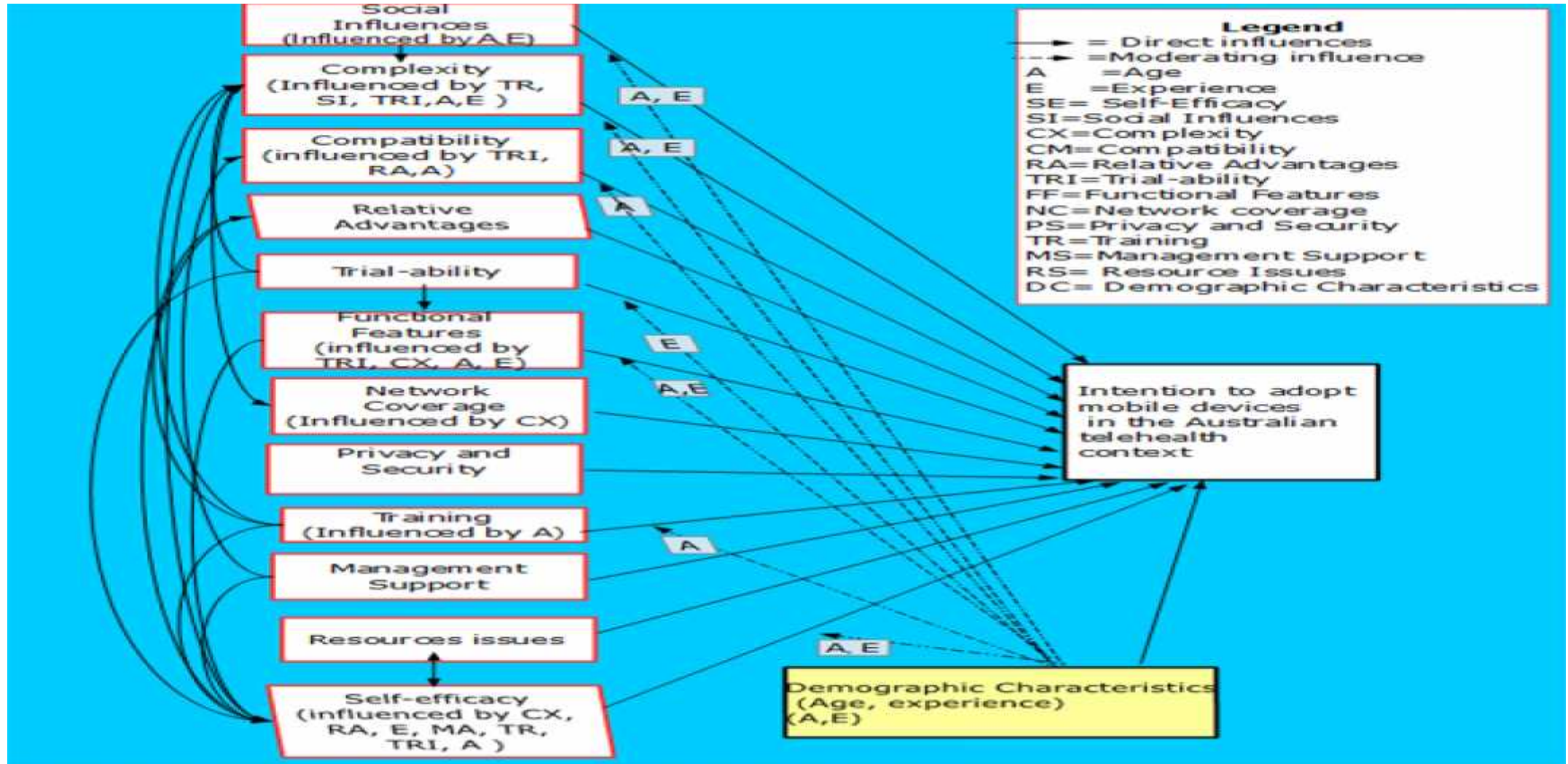
Overarching theme 3	Factors
Organisational environment	<ol style="list-style-type: none"><li>1. Training</li><li>2. Management support</li><li>3. Resource issues</li></ol>

But there are some old staff who do not know how to use so if training will be given to them they will be more confident (F1P1).

## Results slide 4

Overarching theme 4	Factors
Individual aspects	<ol style="list-style-type: none"><li>1. Intention</li><li>2. Self-efficacy</li><li>3. Demographic characteristics (age and experience)</li></ol>
<p>Yes, we would be confident because we are being kept updated through seminars and other written material (F1P1).</p>	

# Overall results





# Benefits

Personalized illness management

Access to time sensitive health information

Reduced cost

Reduced workload

Reduced time

Improved efficiency of the healthcare system

Virtual visit

Enhanced convenience

Reduced errors



Thank you

1. Can you please tell me your intention in regard to the use/ adoption of mobile devices in telehealth? Do you want to use mobile devices such as smartphone and tablets in the telehealth event for example remote monitoring and consultation with patients?  
Probe: if I have, to some extent, in coming future.

2. What do you think about your readiness for the adoption of mobile devices in healthcare event? If mobile devices are available to use in your hospital do you think you are ready to use them in telehealth?  
Probe: if I am familiar, if I have knowledge, if I have resources.

What features of mobile devices do you think may affect their use/adoption in telehealth?  
Probe: weight, image quality, screen size and battery life.

3. What is your perception about the complexity level for the use of mobile devices in telehealth? Do you think mobile devices are too difficult to use in telehealth event events such as remote monitoring and consultation with patient?  
Unclear, no understandable, need lot of mental effort, frustrating.

4. Do you think you may be influenced by your social circle for adoption/use of mobile devices in telehealth? Do you think you will use mobile devices in healthcare event such as remote monitoring and consultation with patient if your friends will be using them?  
Probe: friends, relatives or colleagues.

5. Do you think use of mobile devices will be compatible with the ways you used to work with in telehealth environment? Do you think there will be drastic change in your style of working by using mobile devices in telehealth?  
Probe: current work process, all work process, my style of working

6. Do you think you would be confident to use mobile devices in telehealth?  
Probe: I am confident, I am able, it is under my control

7. Do you think there are some advantages of using mobile devices in telehealth?  
Probe: Productivity, effective, fast.

8. Are there any other factors which may influence to use adoption of mobile devices in the telehealth environment?

Probe: Age, gender, experience, training, management and government support, challenges, privacy and confidentiality, service availability (network coverage)