

Usability Factors Affecting Continuance Intention of Disaster Apps

Marion Lara Tan¹

Supervisors:

Raj Prasanna¹, Kristin Stock², Emma Hudson-Doyle¹,
Graham Leonard³, and David Johnston^{1,3}

¹ Joint Centre for Disaster Research – Massey University

² Institute of Natural and Mathematical Sciences – Massey University

³ Joint Centre for Disaster Research – GNS Sciences



Disaster apps

Mobile apps that aid the public in perceiving, comprehending, and projecting time and location critical information to enhance their decision making process during a disaster situation.

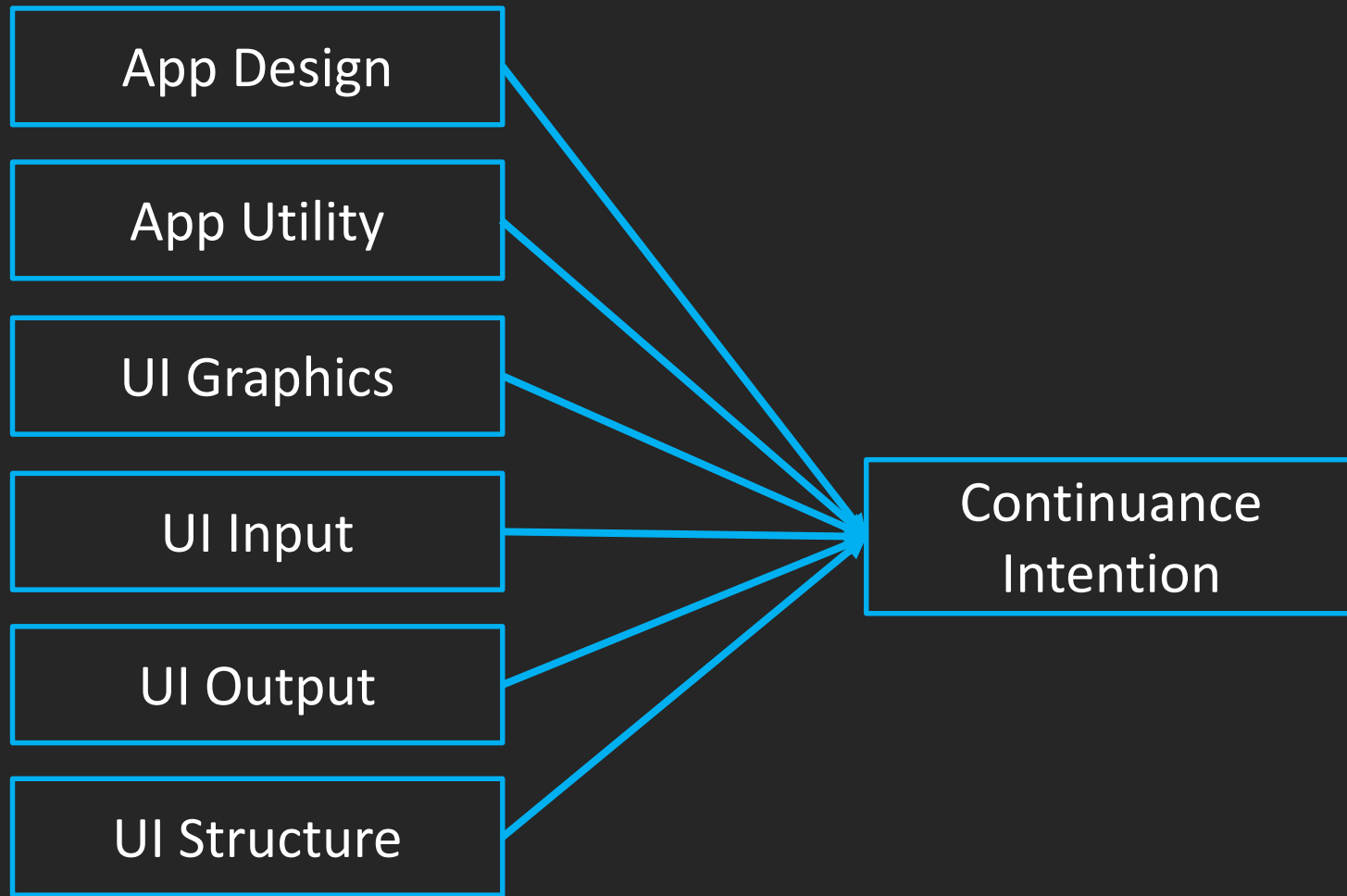


Situation Awareness

Research Question

What **usability factors** affect users' **intention to continue** using disaster apps?





Hoehle and Venkatesh (2015)

App Design

App Utility

UI Graphics

UI Input

UI Output

UI Structure

55 apps

1,925 user reviews



55 apps

1,925 user reviews

App Design

App Utility

UI Graphics

UI Input

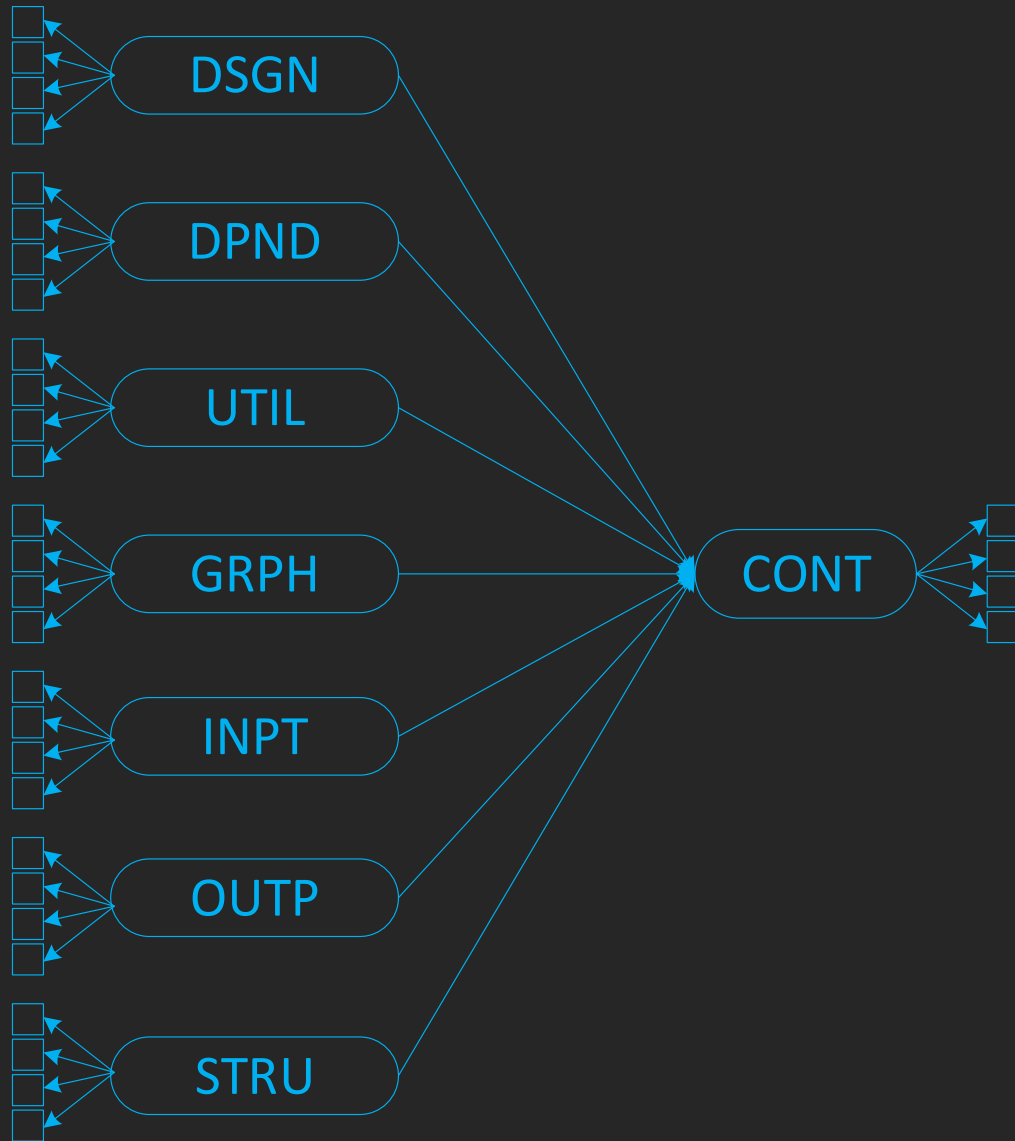
UI Output

UI Structure

App Dependability

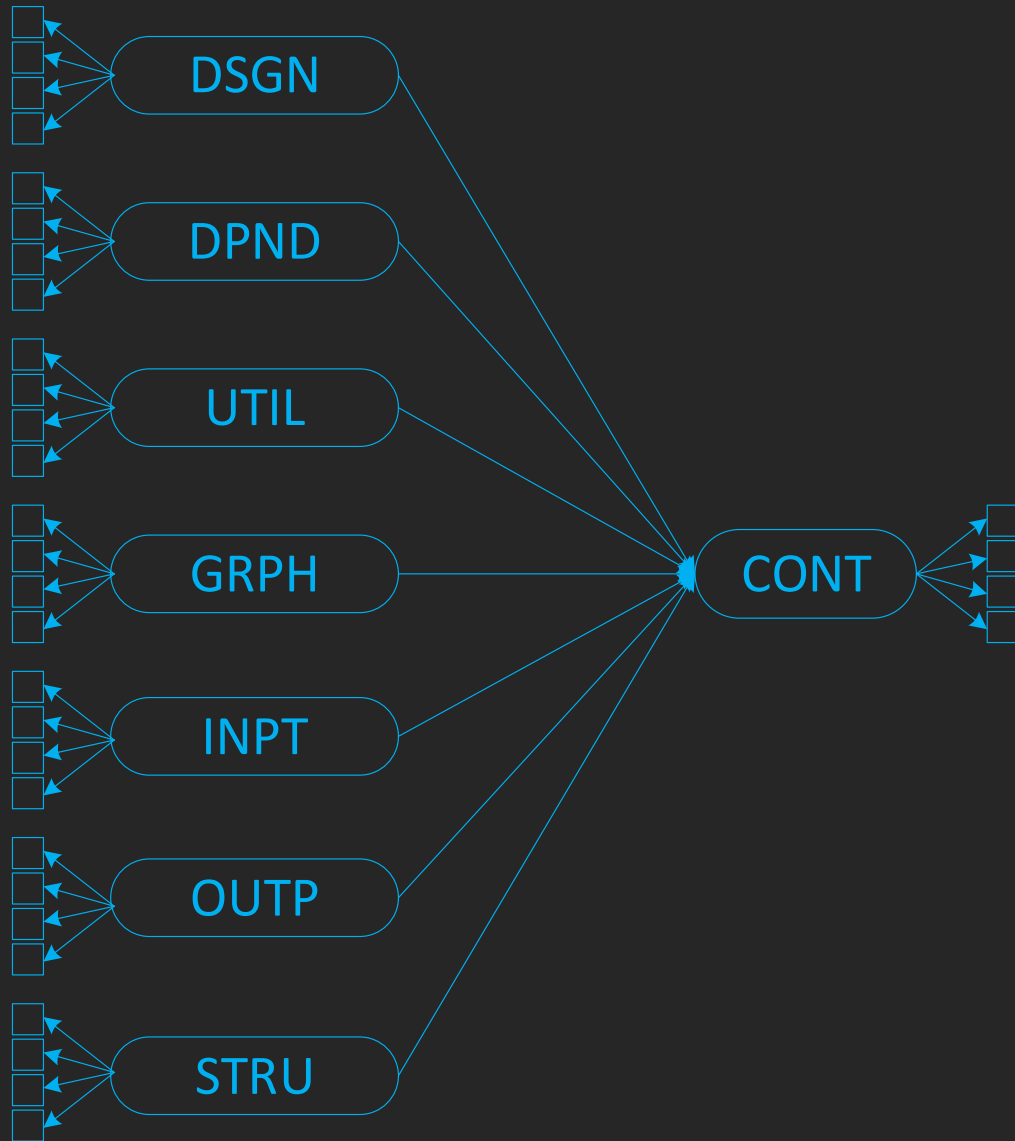


32 item questionnaire



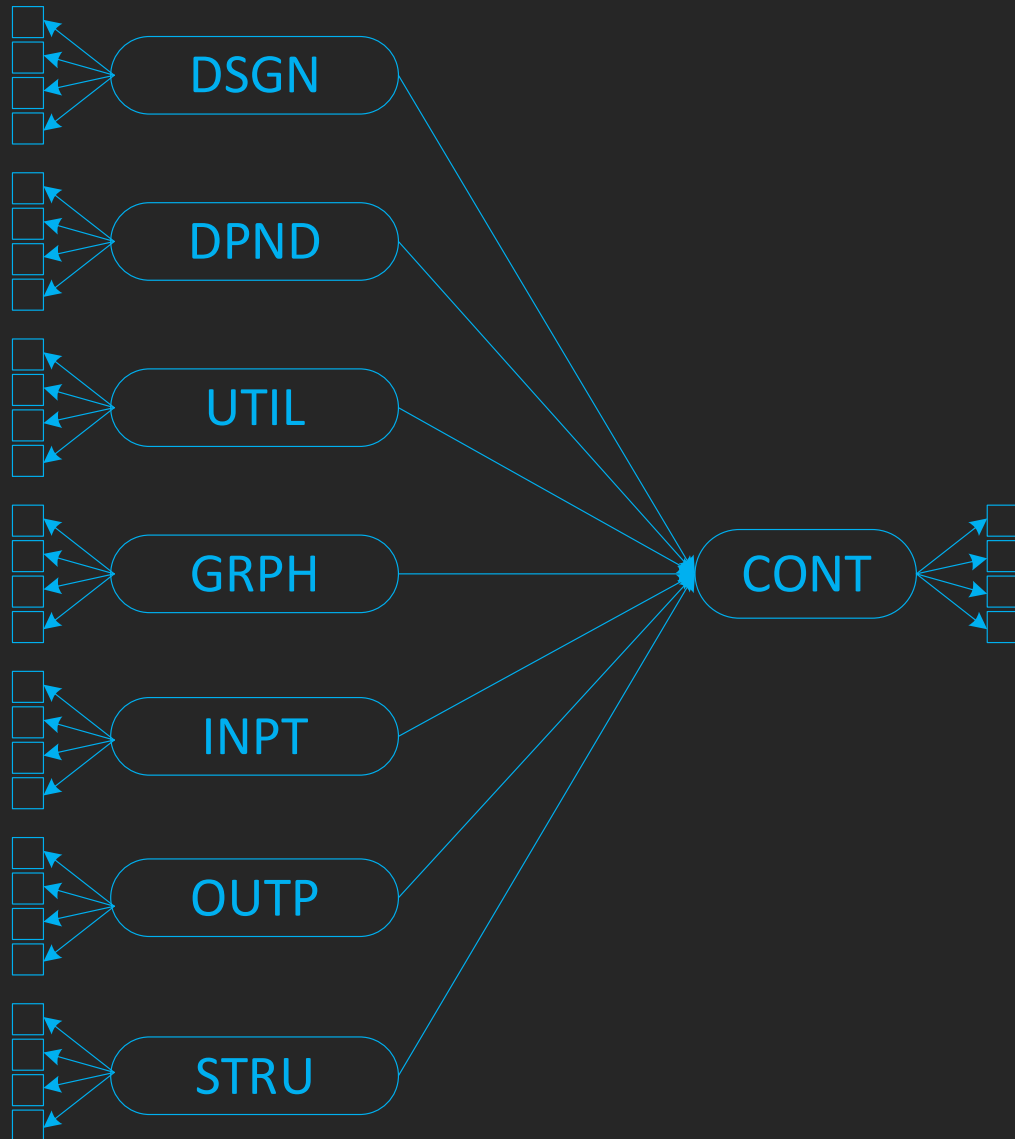
32 item
questionnaire

270 disaster app
users



32 item
questionnaire

270 disaster app
users



Structural
Equation
Modelling

Measurement model assessment (EFA)

	Factor							
	1	2	3	4	5	6	7	8
α	0.959	0.858	0.777	0.924	0.828	0.898	0.916	0.936
CONT2			0.406					
CONT3			0.880					
CONT4			0.747					
DSGN1		0.983						
DSGN2		0.432						
DSGN3		0.688						
DSGN4		0.799						
UTIL1								.837
UTIL2								.880
GRPH1	0.917							
GRPH2	0.913							
GRPH3	0.943							
DPND2						0.834		
DPND3						0.975		
INPT1				.840				
INPT2				.994				
OUTP1							.687	
OUTP2							.820	
OUTP3							.953	
STRU1					.732			
STRU2					.721			
STRU3					.816			

Measurement model assessment (CFA)

- Achieved good model fit

Criteria	Reported Value	Recommended Threshold
CMIN/df	1.658	<3 and >1 excellent
CFI	0.979	>0.95 excellent
RMSEA	0.049	>0.06 excellent
PCLOSE	0.528	>0.05 excellent
SRMR	0.053	<0.08 excellent
GFI	0.913	
AGFI	0.876	

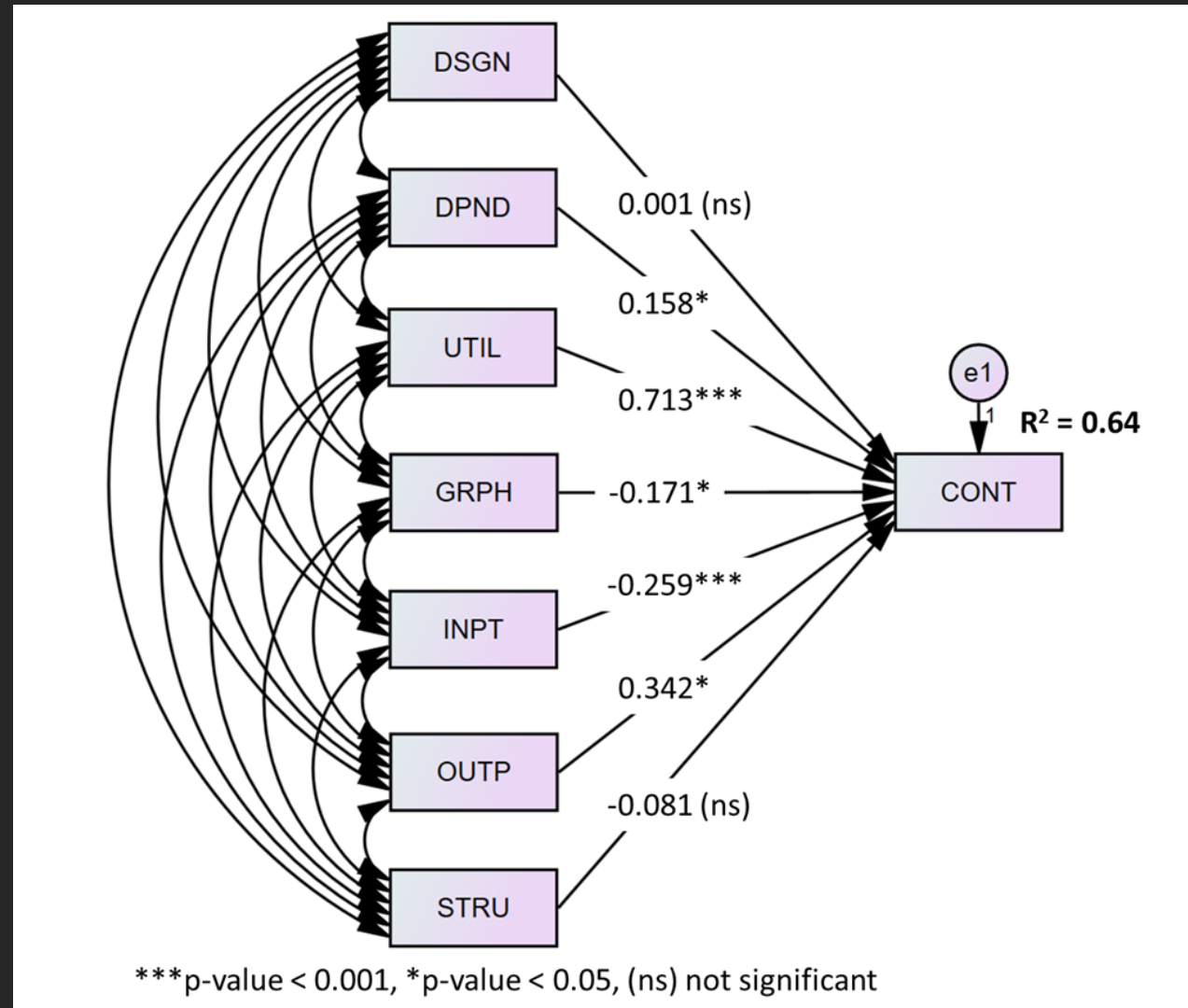
*From Hu and Bentler (1999)

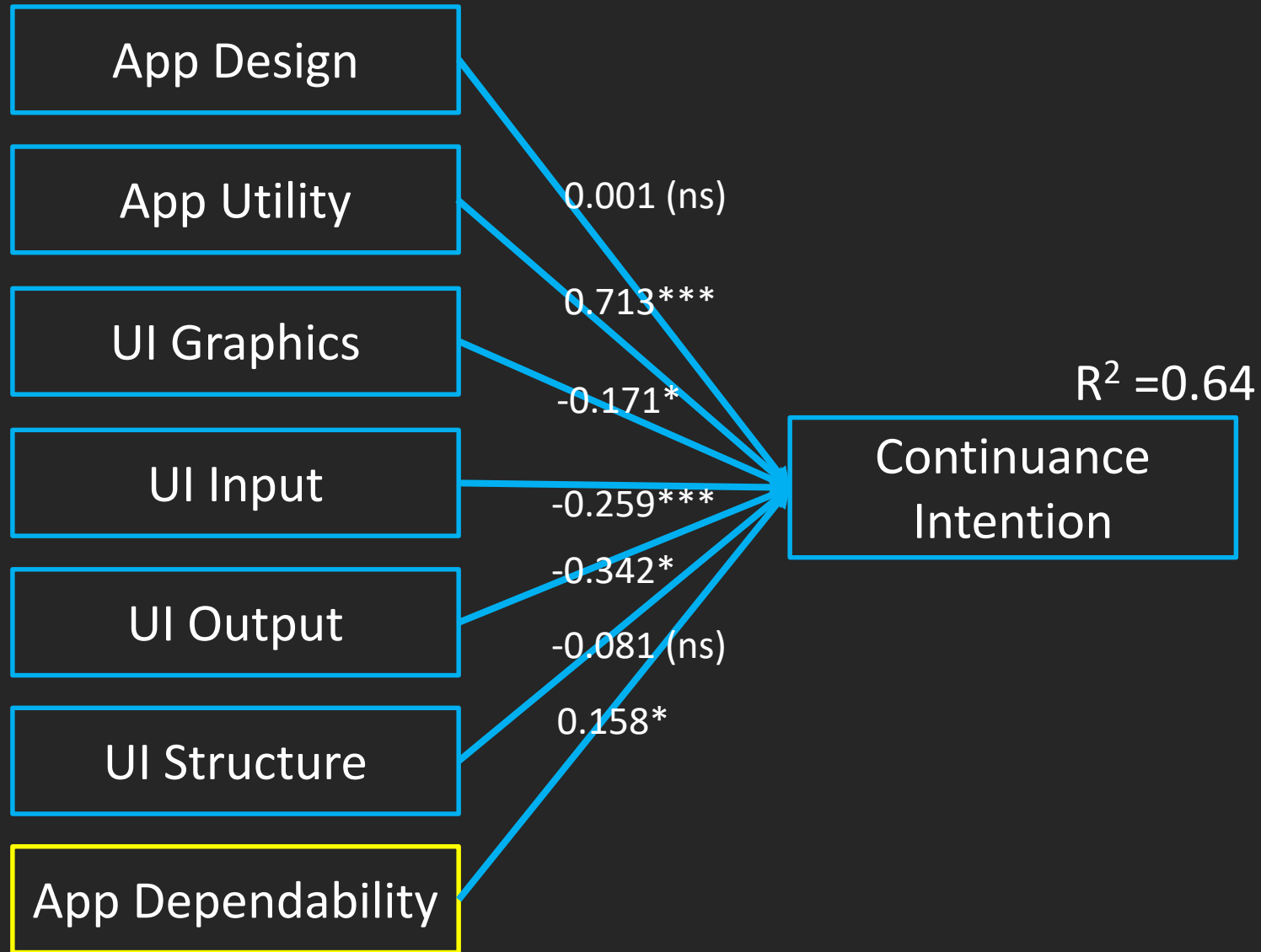
- Achieved convergent and discriminant validity

	CR	AVE	CONT	DSGN	DPND	UTIL	GRPH	INPT	OUTP	STRU
CONT	0.815	0.602	0.776							
DSGN	0.876	0.645	0.487	0.803						
DPND	0.903	0.824	0.474	0.674	0.908					
UTIL	0.937	0.882	0.761	0.612	0.517	0.939				
GRPH	0.959	0.887	0.324	0.649	0.542	0.453	0.942			
INPT	0.926	0.862	0.193	0.593	0.522	0.381	0.439	0.928		
OUTP	0.916	0.785	0.468	0.778	0.681	0.537	0.727	0.665	0.886	
STRU	0.890	0.801	0.404	0.716	0.700	0.506	0.593	0.663	0.840	0.895

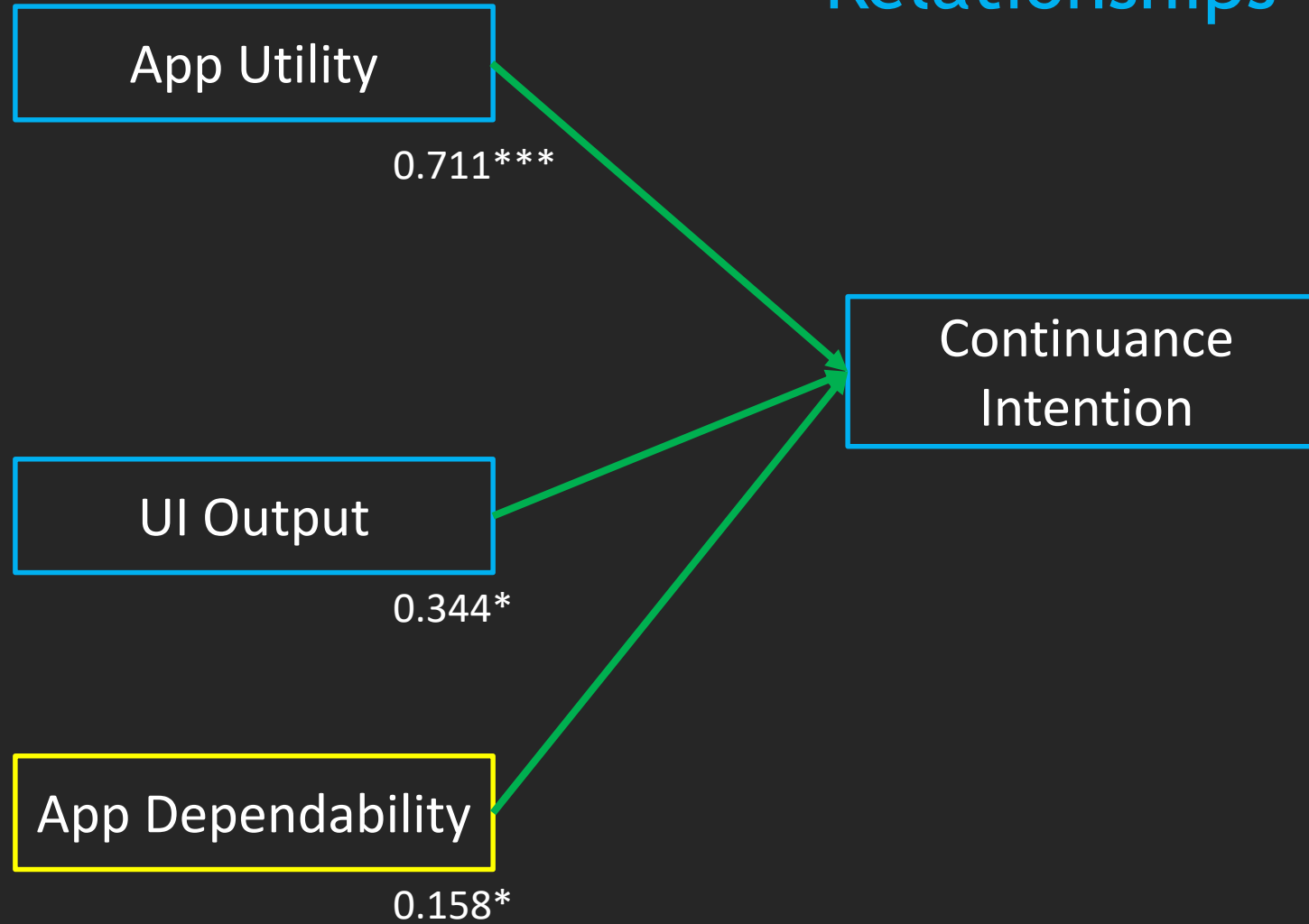
Note: Square root of AVE on diagonal

Structural model assessment

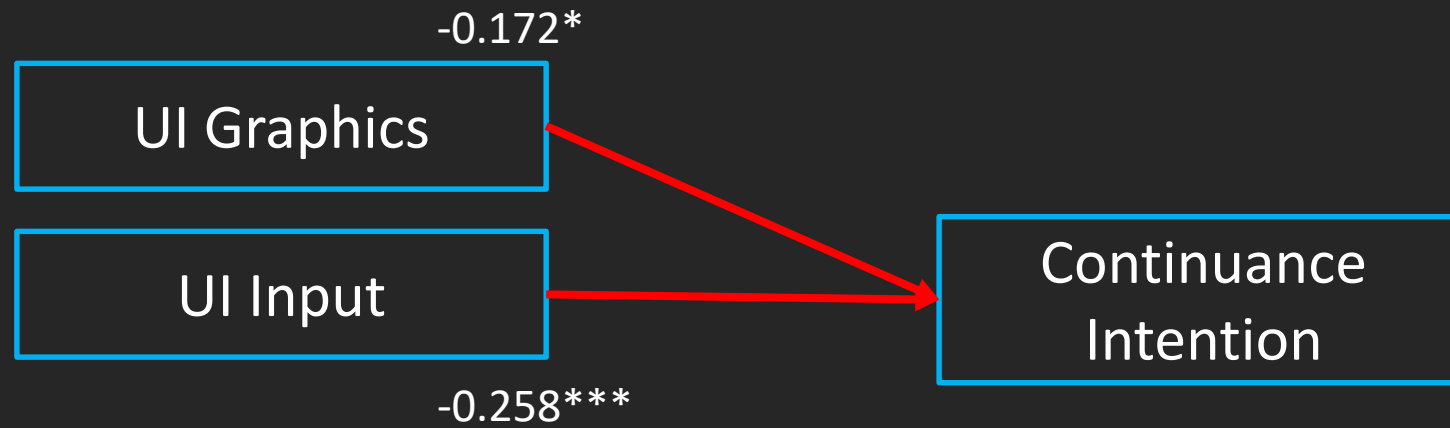


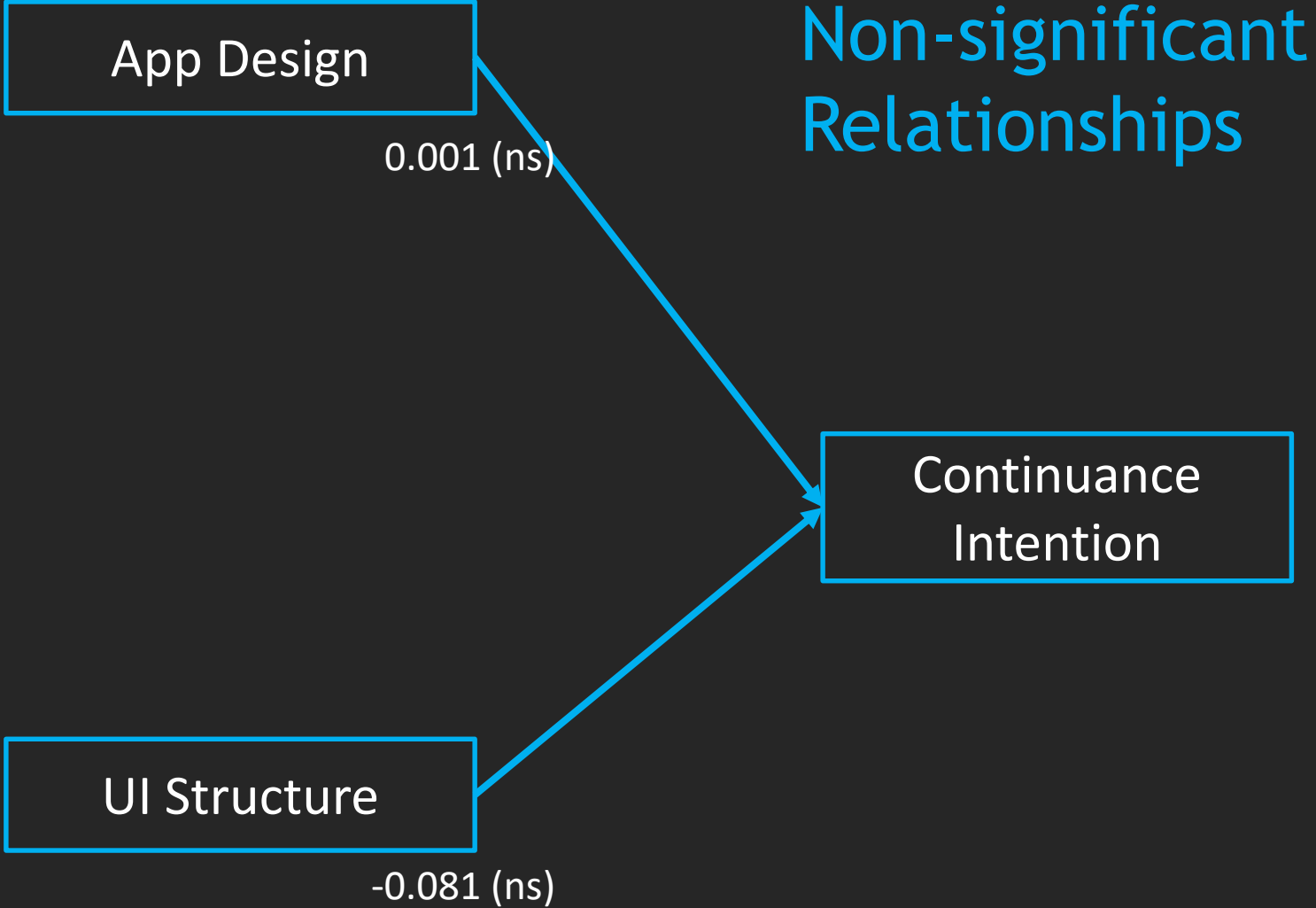


Significant Positive Relationships



Significant Negative Relationships





Conclusion

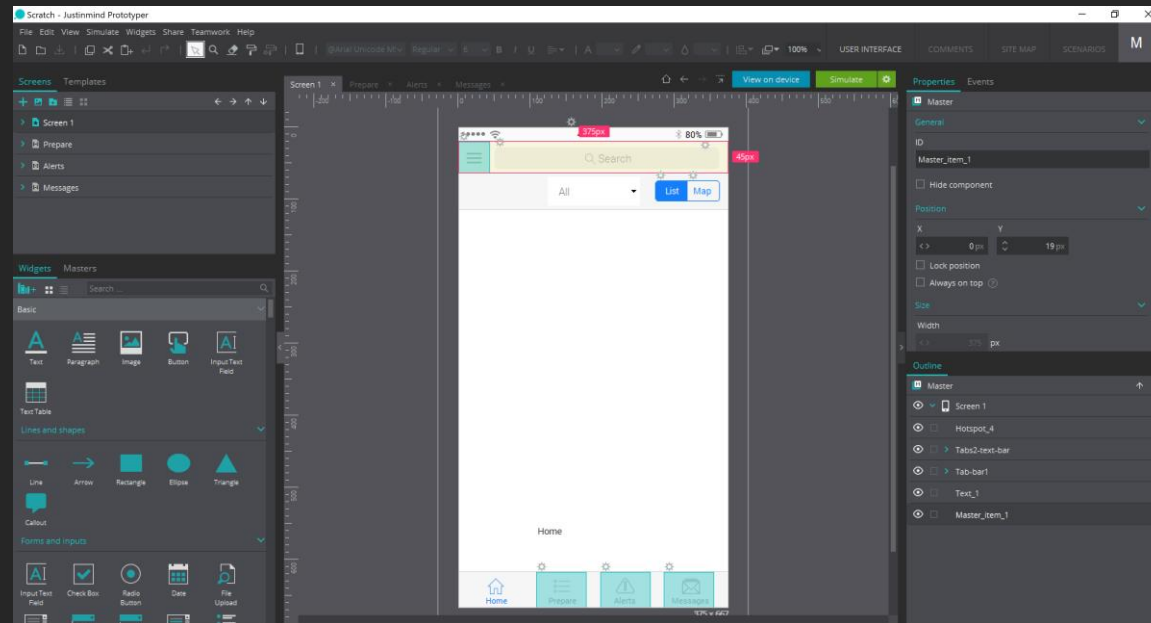
- To improve continuance intention, the focus for disaster app usability should be on **improving** the perception of **app utility**, **app dependability**, and **UI output**.
- Conversely, **reducing** the need for **input** and providing less focus on **interface graphics** may influence continuance intention positively.

Conclusion

- Design considerations for disaster apps is different from day-to-day use apps (e.g. social media)

On-going and Future Research

- Prototyping and user testing



- Is the concept translatable to other apps?



M.L.Tan@massey.ac.nz

@tan_marion

<https://sites.google.com/view/mariontan/>

SALAMAT