‘The factors that influence the behaviours of construction workers in Dubai to work on unguarded platforms’

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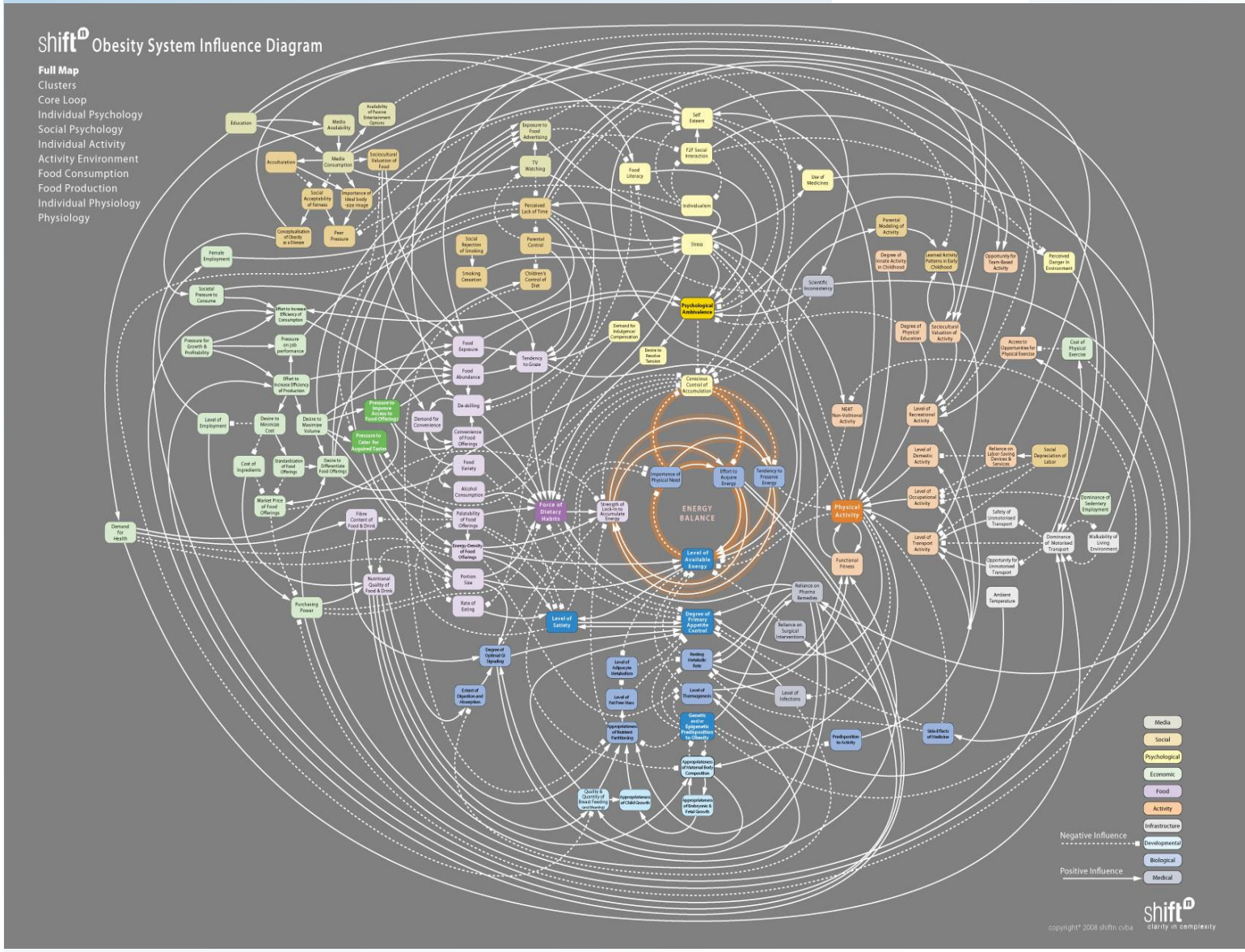
Research objective:

To develop a system model that illustrates behavioural drivers



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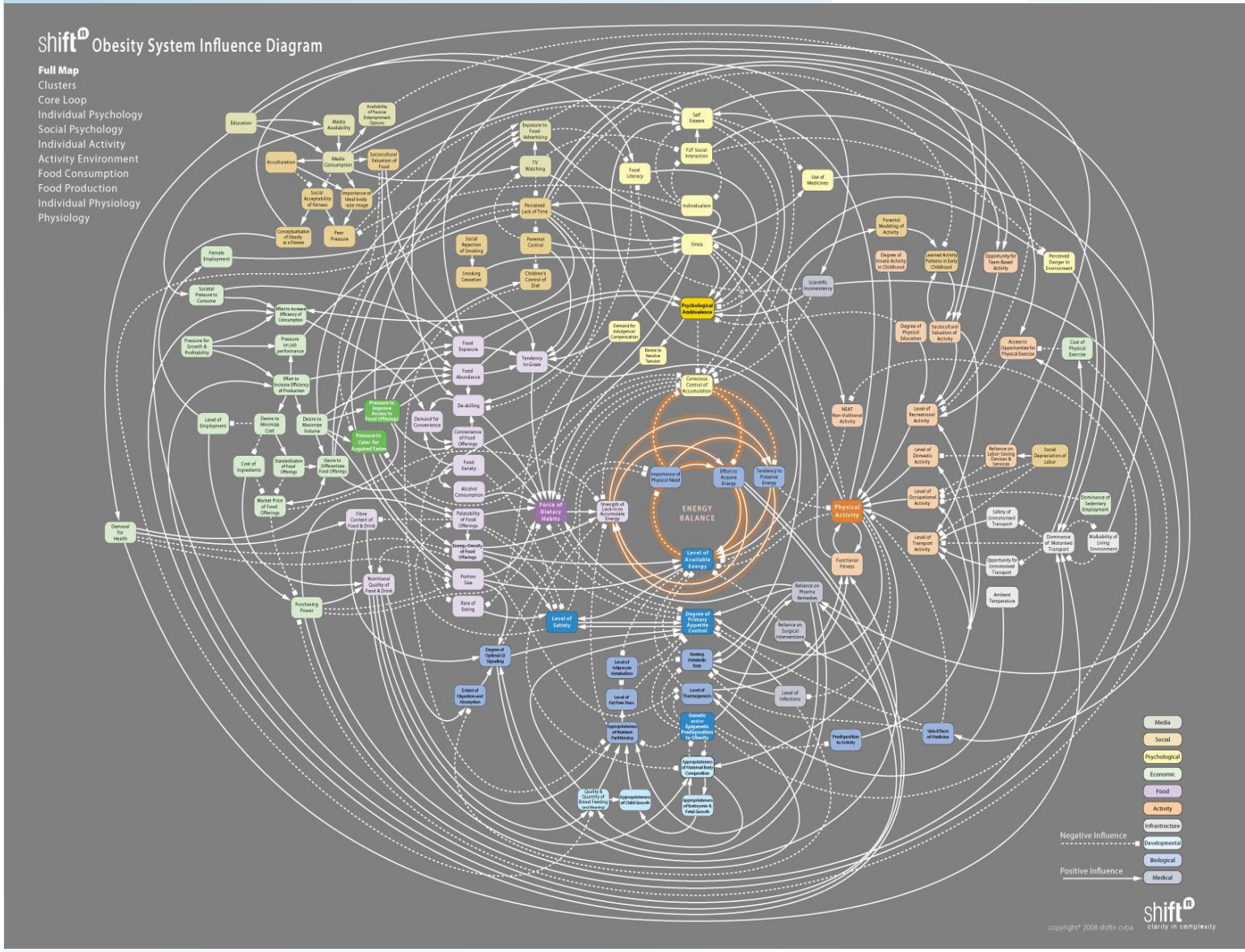
Research Sample Population

- 4 Main Contractors
- 84 construction workers
- 96 H&S Professionals in the UAE
- 4 industry experts
  - *Clients*
  - *Contractor*
  - *Consultant*
  - *Working at Height Industry Expert*

Where do you start?



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Part 1
System Anchor

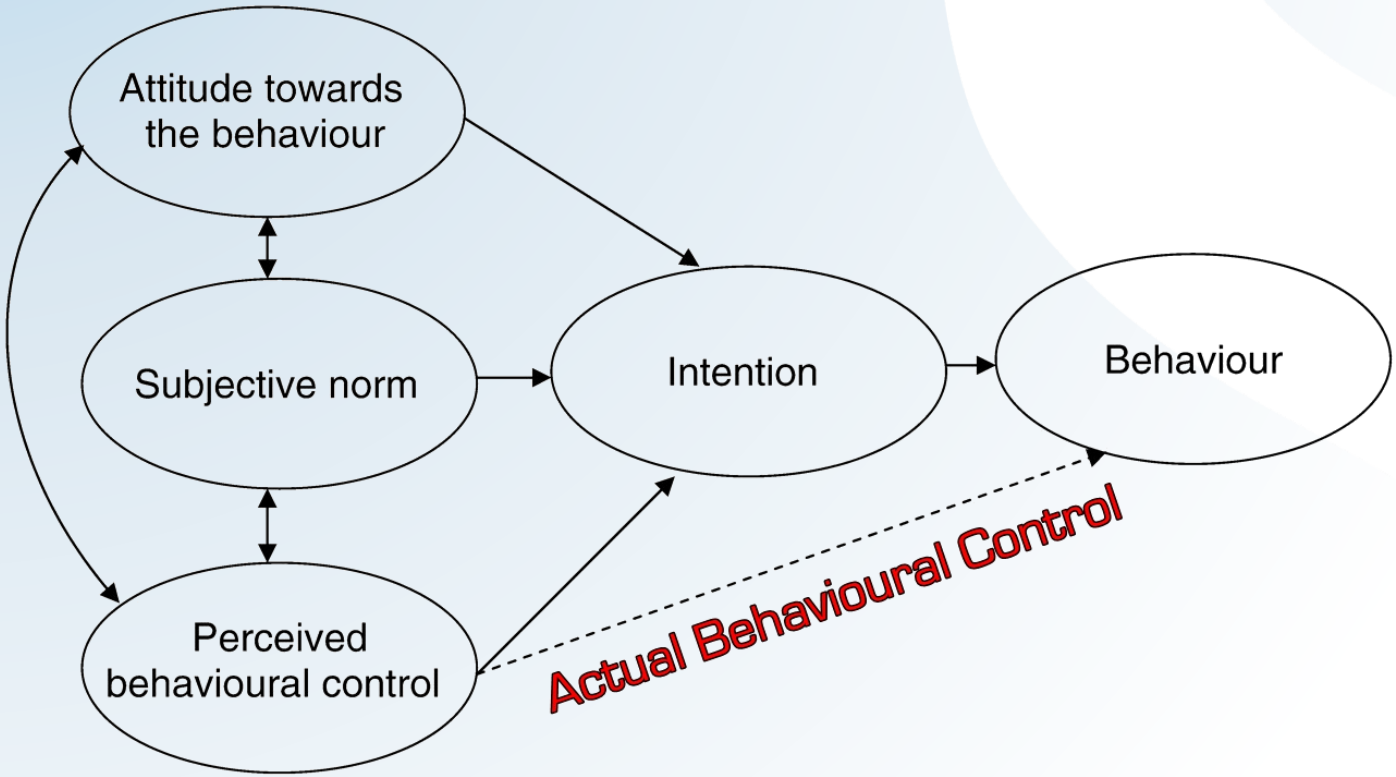
Methodology

- Literature review with Middle East context
- Identify system anchor (behaviour change model)
- Develop survey for system anchor
- Analyse results using SPSS Statistical Software

Research Population

- 84 Construction workers
- 4 Main Contractors

The theory of planned behaviour



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Survey Characteristics

- 22 questions
- 7 point likert scale
- Arabic, English & Hindi versions
- Images used to illustrate guarded and unguarded platform
- Demographics – nationality, age, experience, type of working at height

Theory of Planned Behaviour Questionnaire

Instructions

Please take a few minutes to tell us what you think about working on an unguarded platform (see photos below). This is research being undertaken to understand the factors that influence the working at height behaviours of construction workers in the UAE.

Your participation will require approximately 10 minutes of your time to complete a questionnaire to evaluate people intentions of working on an unguarded platform. The questionnaire is based on the individual factors of the theory of planned behaviour, which has been used in previous studies to predict risk taking behaviours. Please note that there are no right or wrong answers, just respond in a way that best describes your personal opinion.

Guarded Platform

Unguarded Platform

Survey Demographics:

Nationality (please tick)

Indian	Pakistani	Filipino	Nepalese	Chinese	Bangladeshi	Thai	Other:

Age (please tick)

18-25	26-34	35-49	50-64

Experience in construction (please tick)

Less than one year	1-5 years	6-10 years	10+ years

Type of working at height (please tick)

Scaffolding	Mobile Tower	Frame Erection	Concrete Floor	Roof Work	Vehicle Loading/unloading	Other:

Survey questions

- Attitudes – quicker, easier, saving money, changes of falling
- Subjective norms – coworkers, charge hands, foremen, supervisors
- PBC – ability to work without falling
- ABC – equipment available, can use the equipment

Please tick the number that best describes your personal opinion-

1. Working at height on an unguarded platform will result in other workers finishing the work quicker -

   Agree ○1 ○2 ○3 ○4 ○5 ○6 ○7 Disagree

2. For other workers, finishing the work quicker is -

   Good ○1 ○2 ○3 ○4 ○5 ○6 ○7 Bad

3. Working at height on an unguarded platform will result in the company saving money -

   Agree ○1 ○2 ○3 ○4 ○5 ○6 ○7 Disagree

4. Other workers, saving the company money is –

   Good ○1 ○2 ○3 ○4 ○5 ○6 ○7 Bad

5. Working at height on an unguarded platform will be easier for other workers -

   Agree ○1 ○2 ○3 ○4 ○5 ○6 ○7 Disagree

6. For other workers, making the work easier is –

   Good ○1 ○2 ○3 ○4 ○5 ○6 ○7 Bad

7. Other workers believe that the chances of falling off an unguarded platform are high

   Agree ○1 ○2 ○3 ○4 ○5 ○6 ○7 Disagree

8. Other workers believe that the falling from a unguarded platform at 1m in height will cause serious injury

   Agree ○1 ○2 ○3 ○4 ○5 ○6 ○7 Disagree

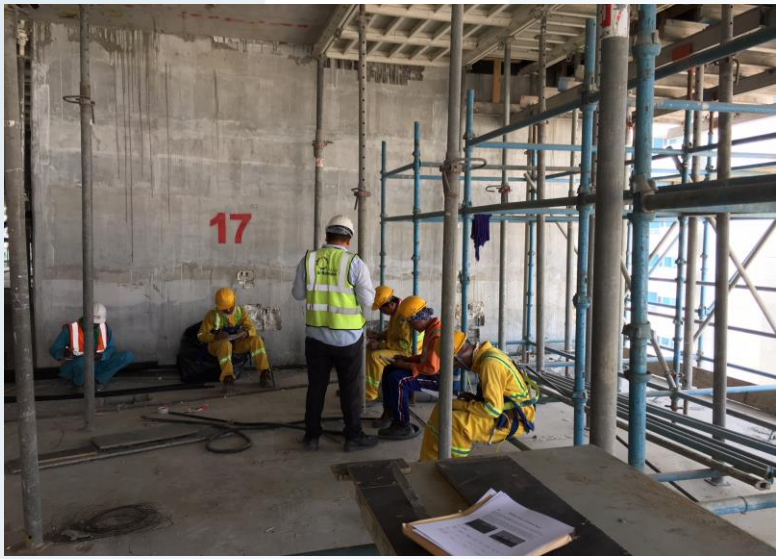
9. Other workers believe that the falling from a unguarded platform at 2m in height will cause serious injury

   Agree ○1 ○2 ○3 ○4 ○5 ○6 ○7 Disagree

10. Other workers believe that the falling from a unguarded platform at 4m in height will cause serious injury

    Agree ○1 ○2 ○3 ○4 ○5 ○6 ○7 Disagree

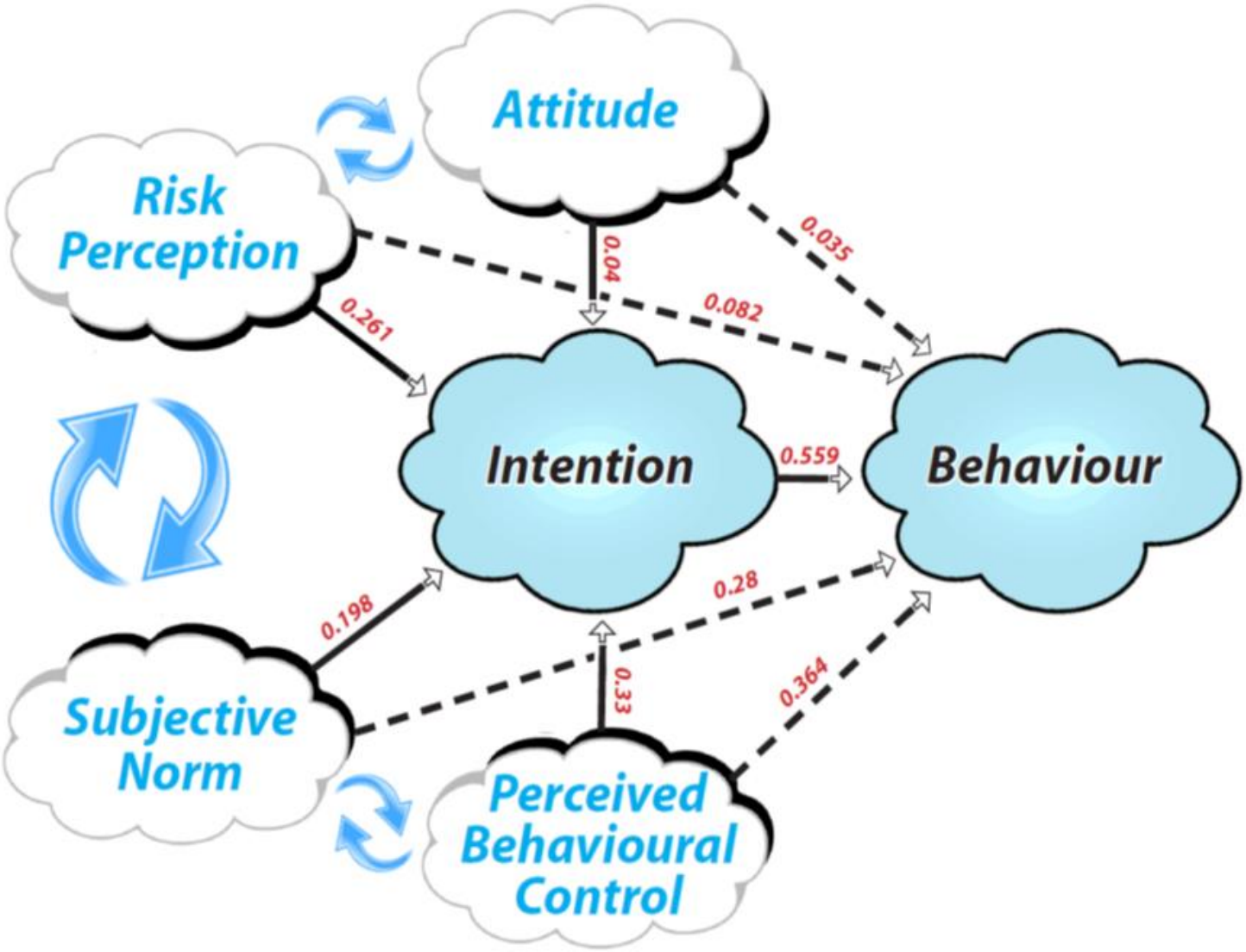
TPB Survey Implementation images



SPSS Statistical Software Results

Spearman's Rho test

84 Construction workers / 4 construction sites



Survey Results

Demographics

- 70% Indian, 10% Nepalese, 5%, Pakistani, 2% Bangladesh
- 60% less than 5 years experience, 85% less than 10 years
- 67% younger than 35

SPSS Results

- Attitudes to working off an unguarded platform were negative
- Risk perception of injury from falling was high
- Motivation to comply with important others were statistically significant
- Perceived behavioral control was low
- Workers believed that equipment is always available and that they have the ability to us it

Survey Research Challenges

- Unwillingness to provide truthful answers
- A significant amount of copying
- Not understanding likert scale
- Language issues although the questions were translated
- Translators interpretation may present issues
- Group think
- The issues in undertake effective research have not yet been established in the region!

Part 2
System Variables

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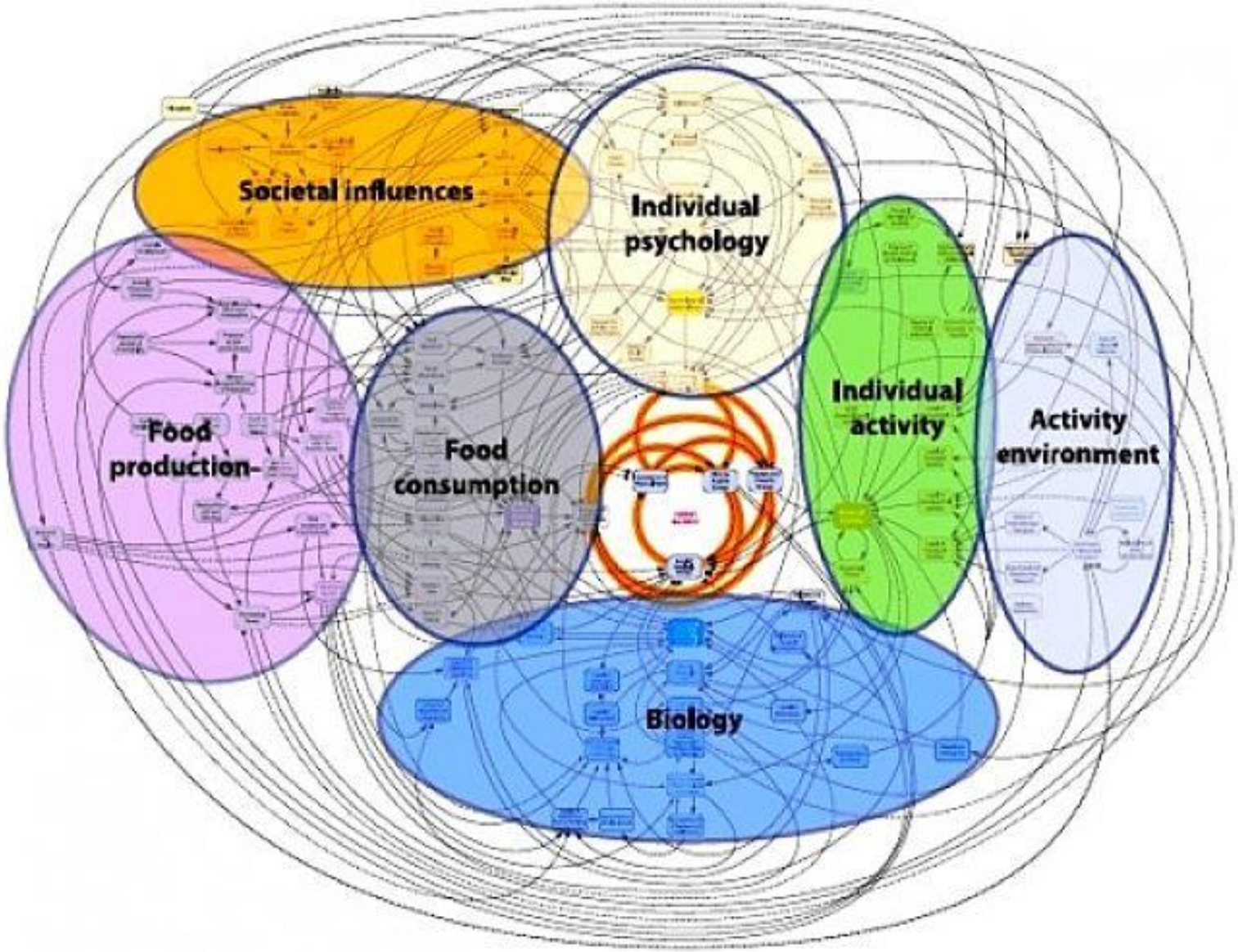
Methodology

- Literature review with Middle East context
  - *Identify system variables and clusters*
- Qualtrics survey to identify priorities
- Interviews with industry experts

Research Population

- 96 H&S Professionals
- 4 industry experts
  - *Clients*
  - *Contractor*
  - *Consultant*
  - *Working at Height Industry Expert*

Literature review to identify system clusters



Priory Coding Template

			Inconsistent approaches	Lebanon	General Construction	Awwad, Souki and Jabbour (2016)
		Safety Management Systems	Communications	Jordan	General Construction	2013 Alkilani, Jupp and Sawhney
	Insurance companies			Lebanon	General Construction	Awwad, Souki and Jabbour (2016)
		Sharing of information between insurance companies		Lebanon Kuwait	General Construction General Construction	Awwad, Souki and Jabbour (2016) Kartam and Koushki (2000)
		Method of calculating insurance premiums	Accident performance not considered	Kuwait	General Construction	Kartam and Koushki (2000)
		Monitoring/Inspections		Kuwait	General Construction	Kartam and Koushki (2000)
	Government	Ministry of Labour	Maintaining Accident Records/Under reporting	Lebanon Jordan Kuwait	General Construction General Construction General Construction	Awwad, Souki and Jabbour (2016) 2013 Alkilani, Jupp and Sawhney Kartam and Koushki (2000)
	International Organisations – UN, Banks	Improves performance		Jordan	General Construction	2013 Alkilani, Jupp and Sawhney
	Government	Ministry of Labour	Enforcement of legislation	Jordan Kuwait	General Construction General Construction	2013 Alkilani, Jupp and Sawhney Kartam and Koushki (2000)
			Under-resourced	Jordan	General Construction	2013 Alkilani, Jupp and Sawhney
			Procurement Methods	Jordan	General Construction	2013 Alkilani, Jupp and Sawhney
			Insufficient penalties	Jordan	General Construction	2013 Alkilani, Jupp and Sawhney
	Consultants	Production is top priority		Lebanon	General Construction	Kartam and Koushki (2000)
	Clients	Procurement methods		Lebanon	General Construction	Awwad, Souki and Jabbour (2016)
		Proactive Monitoring		Lebanon	General Construction	Awwad, Souki and Jabbour (2016)
		Planning		Lebanon	General Construction	Awwad, Souki and Jabbour (2016)
		Safety incentives		Lebanon	General Construction	Awwad, Souki and Jabbour (2016)
		Production is top priority		Lebanon	General Construction	Kartam and Koushki (2000)
Construction Industry Standard	Legislation	Enforcement		Arabian Gulf Lebanon	Working at Height General Construction	Fass, S., Yousef, R., Liginlal, D., & Vyas, P. (2017). Awwad, Souki and Jabbour (2016)

11 Main themes

— Client, Contractor, Worker, Consultant, DM, Insurance Companies, the Environment, Government entities, Workforce, International Banks, UN Organisations

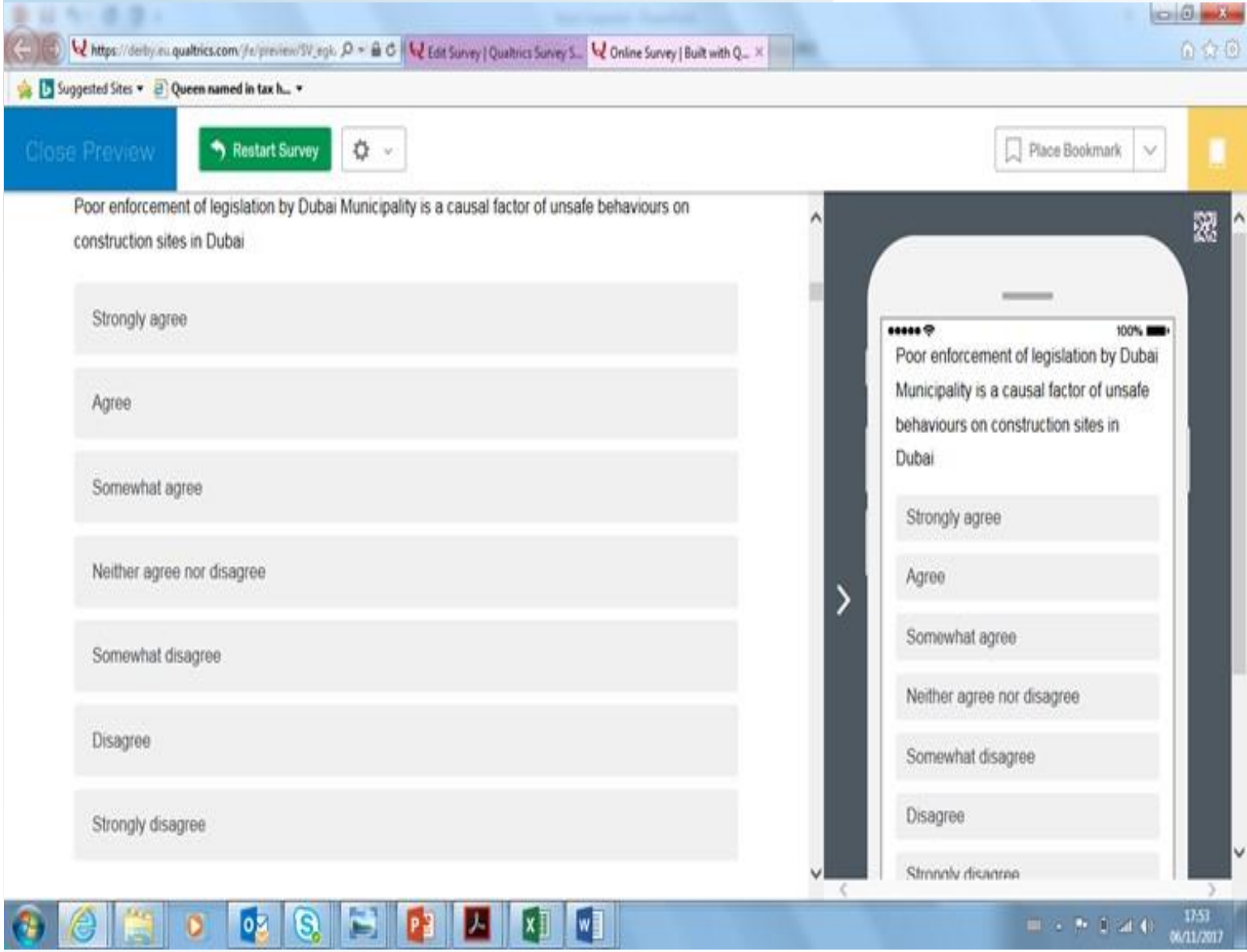
44 Sub-themes

— Contractor management commitment
— Client monitoring of contractor
— Government entities poor procurement
— Insurance companies not sharing information
— DM lack of a specific WAH industry standard

Qualtrics interface

44 questions

7 Point likert scale



Qualtrics Survey Results – 96 H&S Professionals

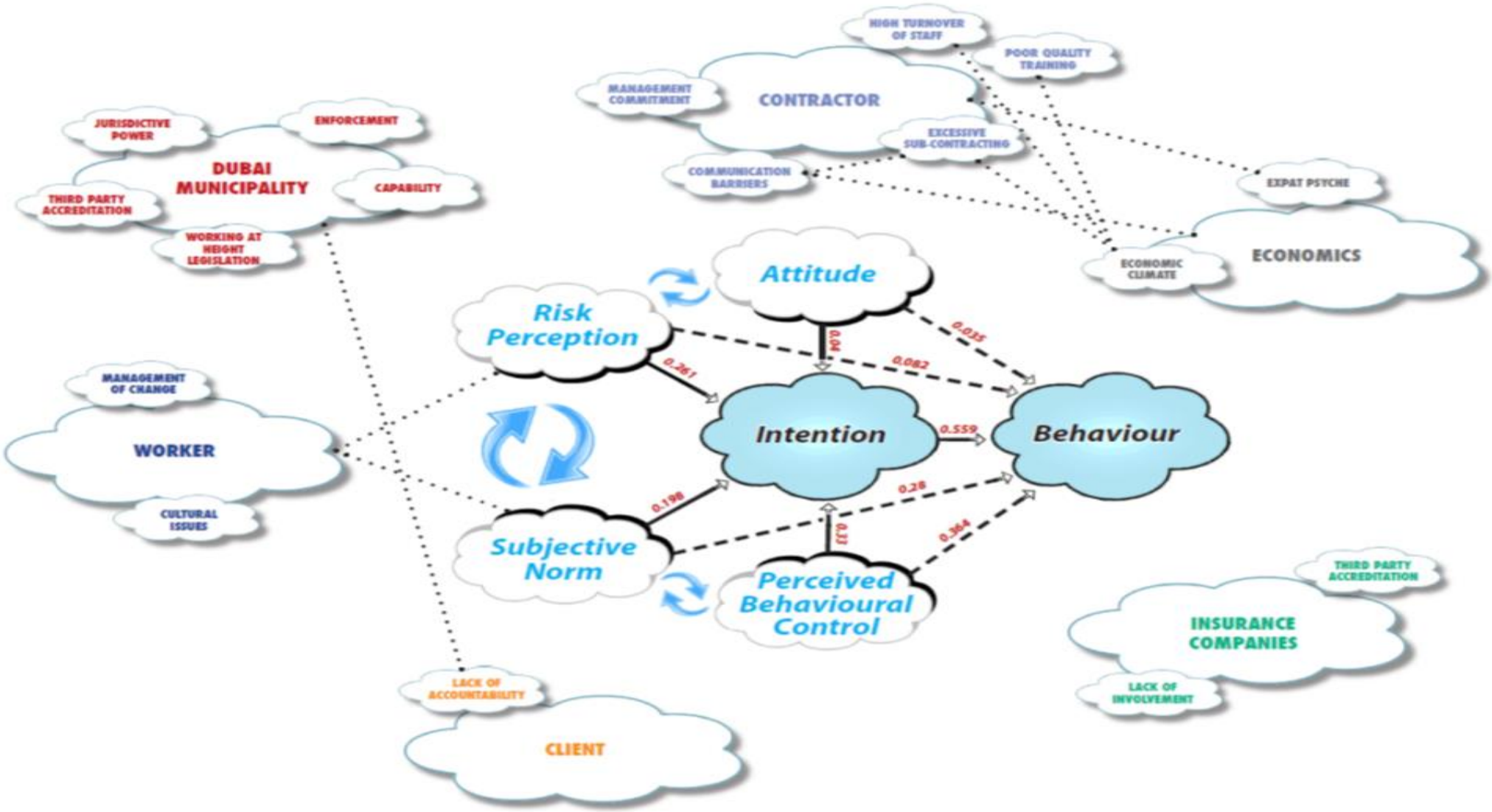
Rank	League Table - Themes		
1	Client	2.316	Strong
2	Contractor	2.406	Strong
3	Worker	2.439	Strong
4	Consultant	2.45	Strong
5	DM	2.995	Strong
6	Insurance Company	3.4	Moderate
7	Environment	3.16	Moderate
8	Government entities	3.54	Moderate
9	Workforce	3.786	Moderate
10	International Banks	4.38	Moderate
11	UN Organisations	4.66	Moderate

Rank	Sub-theme League Table	
1	Contractor - management commitment	1.82
2	Contractor - training	1.82
3	Workers - attitudes	1.85
4	Workers - risk perception	1.88
5	Client - production top priority	1.91
6	Contractor - Communication of management system	2.04
7	Client - insufficent planning	2.14
8	Client - monitoring of contractor	2.19
9	Contractor - programmes	2.19
10	Workers - skill	2.23

<3 Likert Mean	Stong relavance
3-5 Likert Mean	Moderate relevence
5-7 Likert Mean	Weak relevance

Salient issues from Interviews with Industry experts

- *All interviewees disagreed with the main theme league table, contractors are the most influential!*
- *Clients are free from any legal liability and are able to build layers of defense to try and discharge their capabilities*
- *There is not one jurisdiction with overall power and control*
- *The lack of a specific working at height industry standard*
- *The economic climate has lead to excessive subcontracting and a high turnover of staff*
- *The 'expat psyche' with a short term lookout and no interested in leaving a legacy*
- *The lack of involvement of insurance companies is an issue*
- *Safety groups (i.e. IOSH, IIRSM, IPAF) have improved standards in the region*


HIGH TURNOVER OF STAFF
POOR QUALITY TRAINING
MANAGEMENT COMMITMENT
CONTRACTOR
EXCESSIVE SUB-CONTRACTING
COMMUNICATION BARRIERS
JURISDICTIVE POWER
ENFORCEMENT
DUBAI MUNICIPALITY
CAPABILITY
THIRD PARTY ACCREDITATION
WORKING AT HEIGHT LEGISLATION
EXPAT PSYCHE
ECONOMIC CLIMATE
ECONOMICS
Attitude
Risk Perception
0.04
0.035
0.082
0.261
MANAGEMENT OF CHANGE
WORKER
Intention
0.559
Behaviour
CULTURAL ISSUES
0.198
0.28
0.13
0.364
Subjective Norm
Perceived Behavioural Control
THIRD PARTY ACCREDITATION
INSURANCE COMPANIES
LACK OF INVOLVEMENT
LACK OF ACCOUNTABILITY
CLIENT

Next Steps

- *Interviews with DM*
- *Interviews with Insurance Company*
- *Collective workshop with industry experts*
- *The identification of leverage points for intervention*
- *Establish means of undertaking research with front line workers*
- *Write a journal article*

Any Questions?

Steve Carpenter – Health of Health, Safety & Risk Management for WSP