

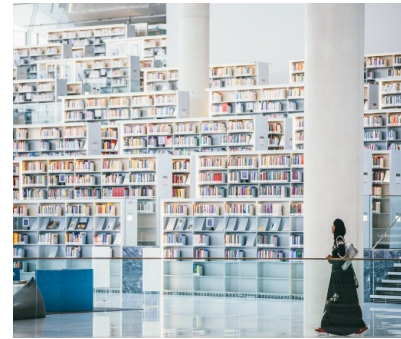


Designing for Digital Wellbeing

Keynote

Raian Ali
Hamad Bin Khalifa University
Doha, Qatar







Raian Ali

Professor, Hamad Bin Khalifa University, Qatar



Professor in Computing and Informatics at Bournemouth University, UK.

Joined as Lecturer in Feb 2012, promoted to Senior Lecturer (Jun 2013), Principle Academic (Sep 2015), Associate Professor (Sep 2016) and then Professor (Sep 2018).



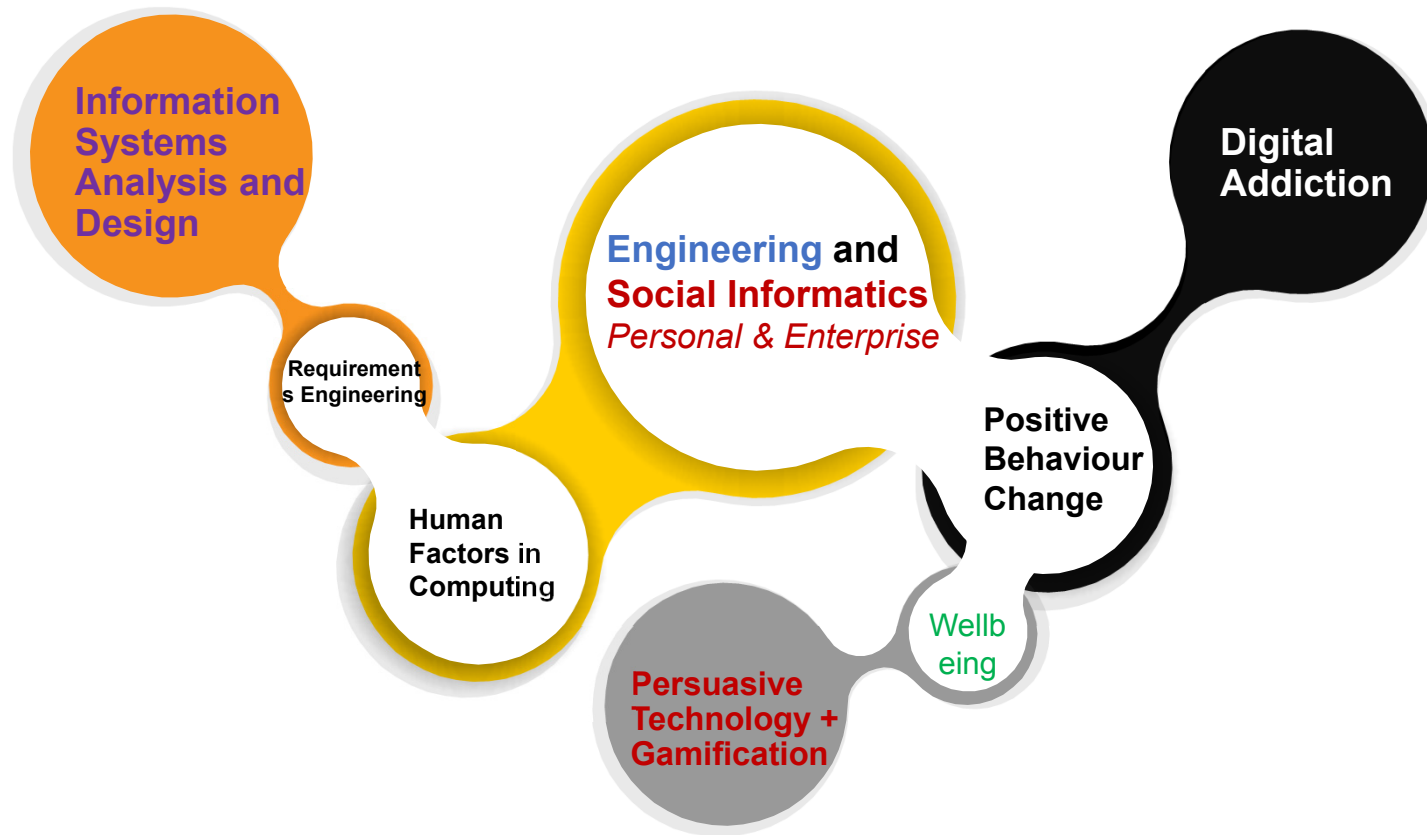
Post-Doc in Lero – the Irish Software Engineering Research Centre, University of Limerick, The Republic of Ireland (2011 – 2012)



PhD in ICT – Computer Science - Software Engineering and then Post-Doc - Trento University – Italy (2006 – 2010)



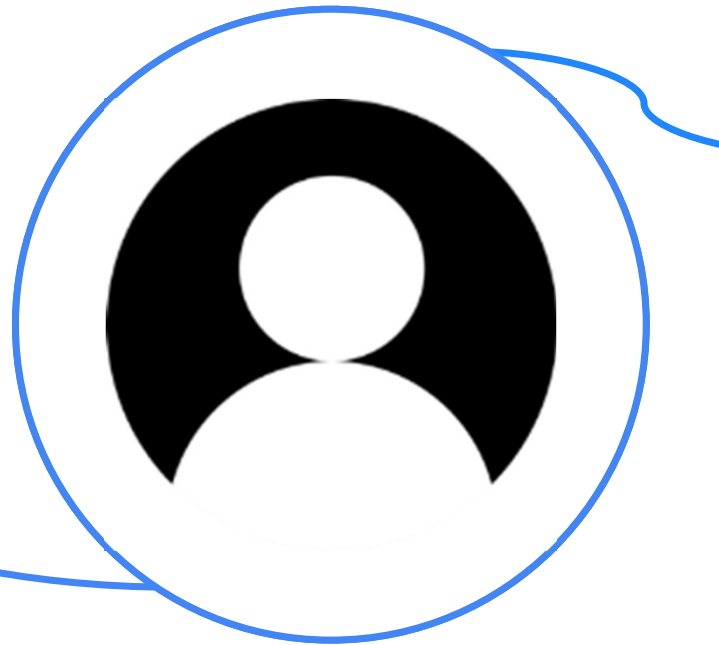
Research mind- map



Digital Motivation vs Digital Addiction

Digital Motivation

using technology to change behaviour and attitude, e.g. Gamification, Persuasive Tech, etc



Digital Addiction

Combatting the problematic attachment to technology through the design of digital media and additional tools and persuasive approaches

Technology for Wellbeing: Digital Motivation

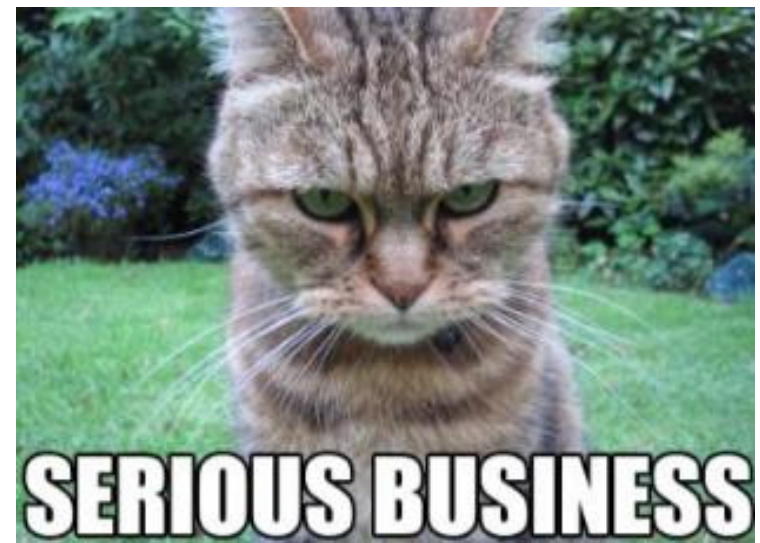


Digital Motivation, Gamification and Persuasive Tech

... but “games” are
not always fun! . And
can lead to serious
harm on well-being
and productivity at
workplace



Games but in a

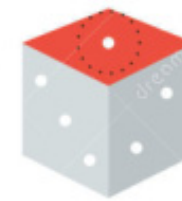


Start the year with Bonus Stars

January 1—January 7, visit us 3, 5 or 7 days in a row to earn Bonus Stars. The sooner you start, and the more you visit, the more Bonus Stars you can earn.



COMPETITION



CHALLENGE



CONTROL



PLAY



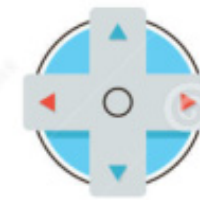
VICTORY



CONQUER



MOTIVATION



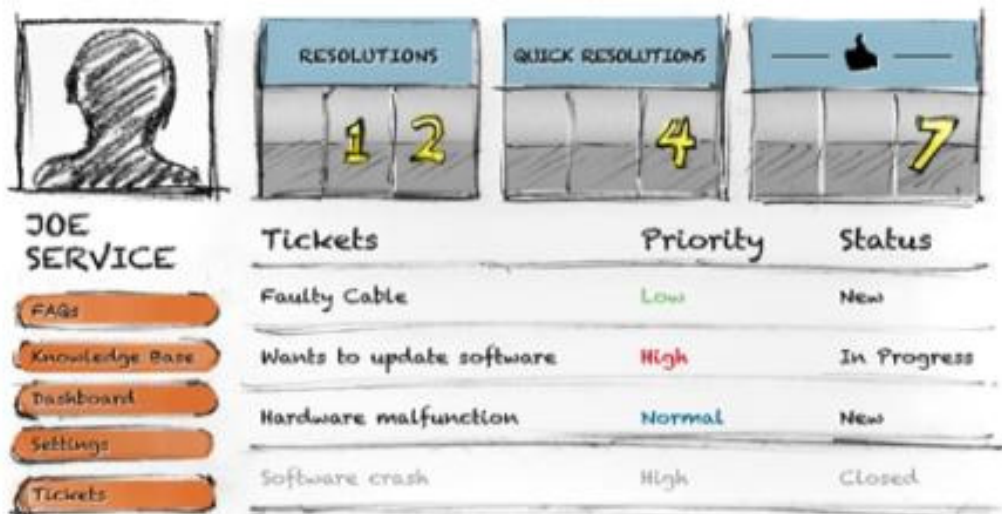
DESTINATION



EXPLORE



In enterprise



CARWINGS
Wouldn't it be cool if you could phone your car?

Now you can.
CARWINGS®. This is the new way of doing things.

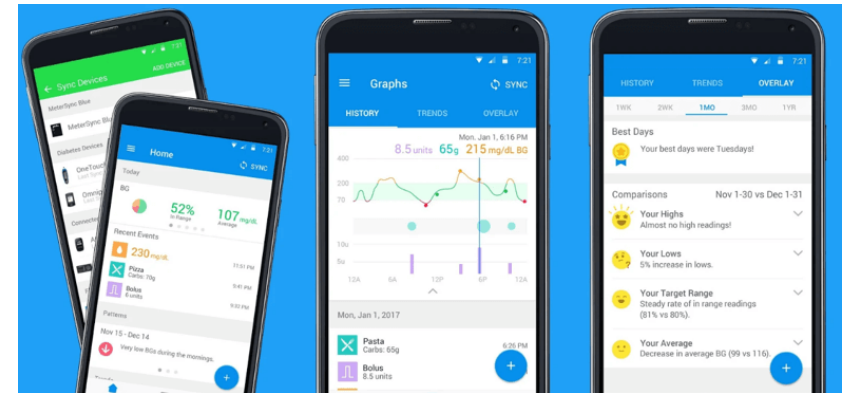
CARWINGS is an innovative new system that lets Nissan LEAF owners communicate remotely with their car. Drivers can check the charging status, lock/unlock the car, and more.

BACK TO NISSAN INNOVATION
Rethinking the way you drive.

View Recent Innovations
Nissan.com/innovations



Gamification .. Example





<https://www.marketingmag.com.au/news-c/top10-gamification-executions/>



Motivation as a Behavioural Requirement

- **Different names**

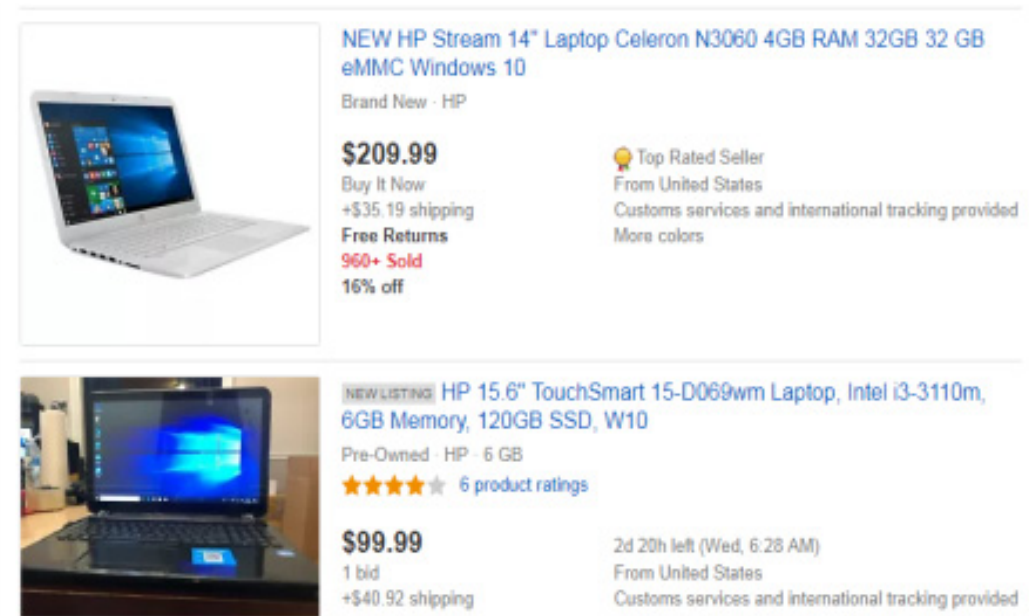
- ICT-Assisted Behaviour Change
- Gamification
- Persuasive Tech
- Incentive Centred Design
-

- **Application areas**

- Health and wellbeing
- E-learning
- Enterprise
-

- **Not a one size fits all**

- Cultural Sensitivity
- Personality



The screenshot shows two product listings for HP laptops. The top listing is for a 'NEW HP Stream 14" Laptop' with specifications: Celeron N3060, 4GB RAM, 32GB eMMC, Windows 10. It is 'Brand New' and priced at \$209.99. It includes a 'Buy It Now' option, a shipping cost of \$35.19, and 'Free Returns'. It has '960+ Sold' and a '16% off' discount. The seller is a 'Top Rated Seller' from the United States, offering customs services and international tracking. The bottom listing is for a 'NEW LISTING HP 15.6" TouchSmart 15-D069wm Laptop' with specifications: Intel i3-3110m, 6GB Memory, 120GB SSD, W10. It is 'Pre-Owned' and priced at \$99.99. It has '1 bid' and a shipping cost of \$40.92. It has a '6 product ratings' of 4.5 stars. It also shows a '2d 20h left' timer and is from the United States with customs services.



Openness to experience
Conscientiousness
Extraversion
Agreeableness
Neuroticism



How to motivate/persuade?

1. Reciprocity

- Have our white paper – just give us your email.

2. Scarcity

- Only 3 left. Call again if line is busy

3. Authority

- E.magination award winning and largest firm 3 years running. Dr. Whalen, PhD

4. Commitment

- We already agreed to black links on black with no underlines.

5. Social Proof

- After looking at this book, most people bought...

6. Likability

- That picture looks just like me and my friends. I like this photo tool.

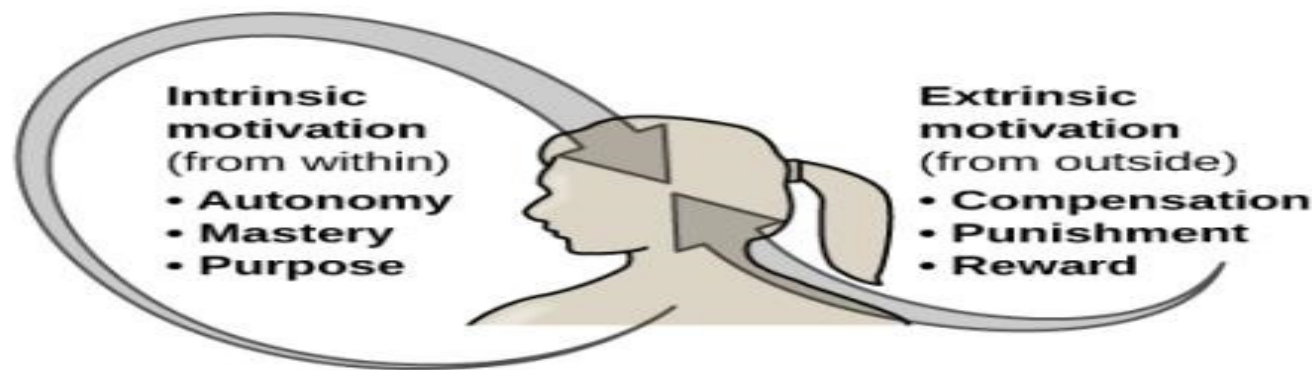
How to motivate/persuade?



- F. J. Fogg (Persuasive technology, 2003)

Some psychology: motivation types

- **Extrinsic Motivation:** to earn a reward or avoid punishment
- **Intrinsic Motivation:** engaging in behaviour because it is personally rewarding
- Offering **excessive external** rewards for an internally rewarding behaviour = **reduction in intrinsic**
- Offering positive **praise** when people do something better compared to others = **improve intrinsic**



Some Social and Cognitive Psychology

Social Psychology - 3 elements in a persuasive interaction:

- Communicator (credibility: expertise, trust, attractive)
- Message (one-sided vs two-sided)
- Audience (age, motivation, ability to process)



Cognitive Psychology - two routes to Persuasion:

- **Central route** - e.g. after a political debate, you decide based on the appealing nature of the argument
- **Peripheral route** - heuristics based, e.g. based on the sound of the voice or closeness of look..



Game design and Motivation

Nick Yee (2005): 3 ways to motivate game-players

TABLE 1. SUBCOMPONENTS REVEALED BY THE FACTOR ANALYSIS GROUPED BY THE MAIN COMPONENT THEY FALL UNDER

<i>Achievement</i>	<i>Social</i>	<i>Immersion</i>
Advancement Progress, Power, Accumulation, Status	Socializing Casual Chat, Helping Others, Making Friends	Discovery Exploration, Lore, Finding Hidden Things
Mechanics Numbers, Optimization, Templating, Analysis	Relationship Personal, Self-Disclosure, Find and Give Support	Role-Playing Story Line, Character History, Roles, Fantasy
Competition Challenging Others, Provocation, Domination	Teamwork Collaboration, Groups, Group Achievements	Customization Appearances, Accessories, Style, Color Schemes
		Escapism Relax, Escape from Real Life, Avoid Real-Life Problems

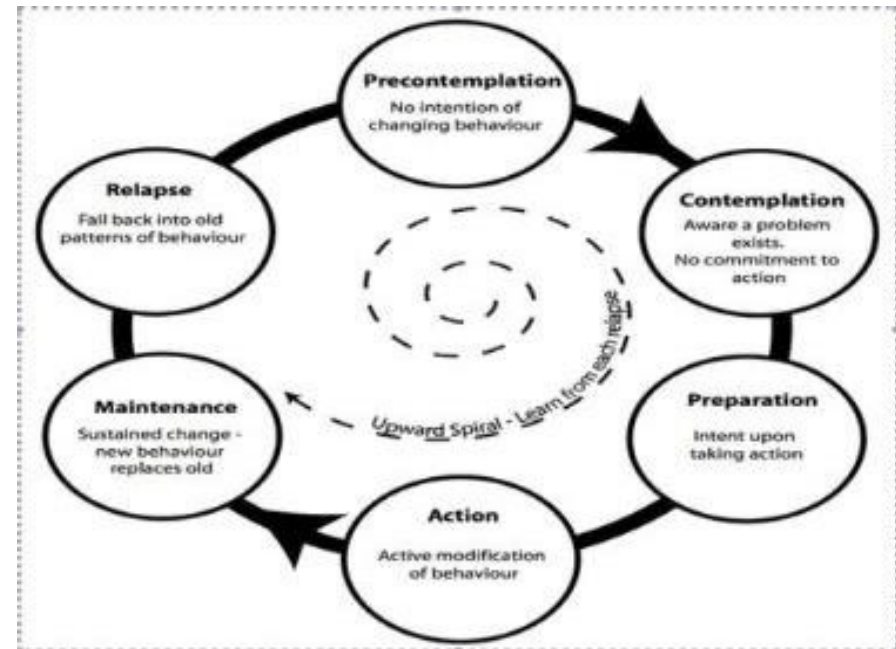
DMML and Gamification Risk Assessment

Digital Motivation Modelling Language and
Risk Assessment

PhD theses of Alimohammad Shahri and
Abdullah Algashami (Bournemouth
University) and ongoing work with AAST
Alexandria (Egypt)

Software-assisted Behaviour Change

- Behaviour Change Theories
 - Reasoned action
 - Planned behaviour
 - Transtheoretical
 - Social learning
 - Social cognitive theory
 - Fogg model
 - Self-efficacy
 -



- Motivational software implementing these theories requires specialised development efforts and mind-set ..Why?

Empirical Research and Interdisciplinary Literature and Team

Category		Risk Item	If Not, consider risks in Table 8
Bac and	Personal and social	a. Are all of the management and subject stakeholders or their representatives involved in the decision-making session?	All
		b. Within the same team and the same gamified task, is the appropriate level of staff: [Skills/Capabilities/Experiences /Training/ Age/Task understanding or familiarity/ Involvement time in a team] fairly decided and grouped?	R5,R10,R11
		c. Within the same gamified task, does the required level of: [performance /cooperation/competition] between the involved team members described and understood?	R1,R2,R4,R9,R15
		d. Are the reward and punishment mechanisms around the gamified task well-defined and specified?	R18
		e. Are the goals of the management and subject stakeholders to be achieved from the gamified task well-defined and not conflicted?	R5,R7,R12,R13,R14
		f. Do the management and subjects stakeholders involved in the decision-making session accept to commit to the session resulted plans and actions?	All
C [[[	Technical	a. For the gamified task, has the performance measurement style (automated or human-based) been well-defined and specified?	R3, R14
		b. Have the support services (hardware or software) needed to achieve the required goals of the gamified task been defined?	R8,R9,R10
		c. Has the expected level of monitoring for the gamification element been well-defined and specified?	R16,R17,R19
		d. In the gamification element, has the level of	

Conceptualisation + Meta-modelling

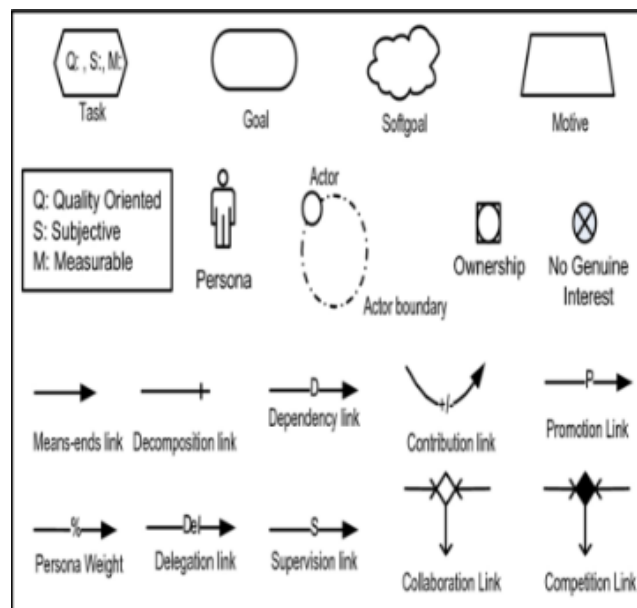


Table 4 Description of DMML constituents

Node	
Actor	Actors can be illustrated using a circle with the name of the actor inside the circle, and can have a boundary that includes their tasks, goals, and their relations
Task	Tasks can be illustrated using a hexagon with the name of the task and the values for the quality-oriented, measurability, and uniformity attributes inside the hexagon. The letters "Q", "M", and "U" can replace the full names to reduce the need for space
Goal	Goals can be represented using an oval shape with the name of the goal inside the oval
Soft-goal	Soft-goals can be represented as clouds with the name of the soft-goal inside the cloud
Persona	Persona can be illustrated as the shape of a sticky man with the name of the persona under the sticky man
Motive	Motives can be represented with a trapezoid and the name of the motive inside the trapezoid
Link	
Actor Task (AAT)	An AAT relation can be represented using a diamond with three arrows A white diamond represents a collaboration A black diamond represents a competition Actors are connected to the diamond via unidirectional arrows starting from the actors and ending in the diamond

Formal semantics + modelling

badges and levelling up, providing a feeling of achievement for the agents. In addition, constraints and coercion are also elements of the reward, such as deadlines and time pressure, warning employees about the time left to achieve their goals.

- **Nature** The nature of a reward could be tangible, for instance, extra paid holidays or intangible, such as virtual badges. People may find these rewards motivational, as a result of their personal preferences.
- **Strategy** Transparency is one of the strategy components. As a strategy, transparency can increase the acceptability of DM in the business, allowing employees to understand how decisions are made. However, this may not be an option for some businesses depending on their business plans. Another strategy element relates to the value of the reward and the likelihood of an agent to win the reward. Despite the appeal a high-value reward may have, generally, the value of a reward depends upon its scarcity. There will be different preferences for reward value or reward scarcity, or a reward setting can be provided which satisfies both views, such as providing scarce high-value rewards and easier to achieve lower value rewards.
- **Points** Points could be given to agents in a pre-defined manner, meaning that agents receive a certain number of points for certain tasks. However, for quality-oriented tasks, human intervention could be necessary.
- **Reinforcement** A motive can have positive reinforcement (such as rewards), negative reinforcement (such as demotion or sacking lower performer employees), or a combination of both. Negative reinforcement might not be obvious but, instead, it

4.2 Formal specification

This section provides the mathematical definitions for the properties that are needed for modelling DM as a system-to-be or as a system-as-is:

4.2.1 Environmental properties

Let $Ac = \{ac_1, ac_2, ac_3, \dots, ac_n\}$ be a set of *Actors*, $P = \{p_1, p_2, p_3, \dots, p_n\}$ be a set of identified *Personas*, $Ag = \{ag_1, ag_2, ag_3, \dots, ag_n\}$ and $T = \{t_1, t_2, t_3, \dots, t_n\}$ be the set of *Agents* and *Tasks* in the environment.

• Definition 1: Tasks

$\forall t \in T, t = \langle \text{Uniformity, Measurability, Quality-oriented} \mid \text{Uniformity, Measurability, Quality-oriented} \in \{\text{true, false}\} \rangle$

• Definition 2: Relation between Agent and Persona

$AgP = \{agp_1, agp_2, agp_3, \dots, agp_n\}$ is defined as a set of relations available between the agents and the personas present in the environment. Then,

$\forall agp \in AgP, agp = \langle ag_i, ac_i, p_i, rel \mid ag_i \in Ag, ac_i \in Ac, p_i \in P, rel = \text{Has} \rangle$

• Definition 3: Relation between Agent and Actor

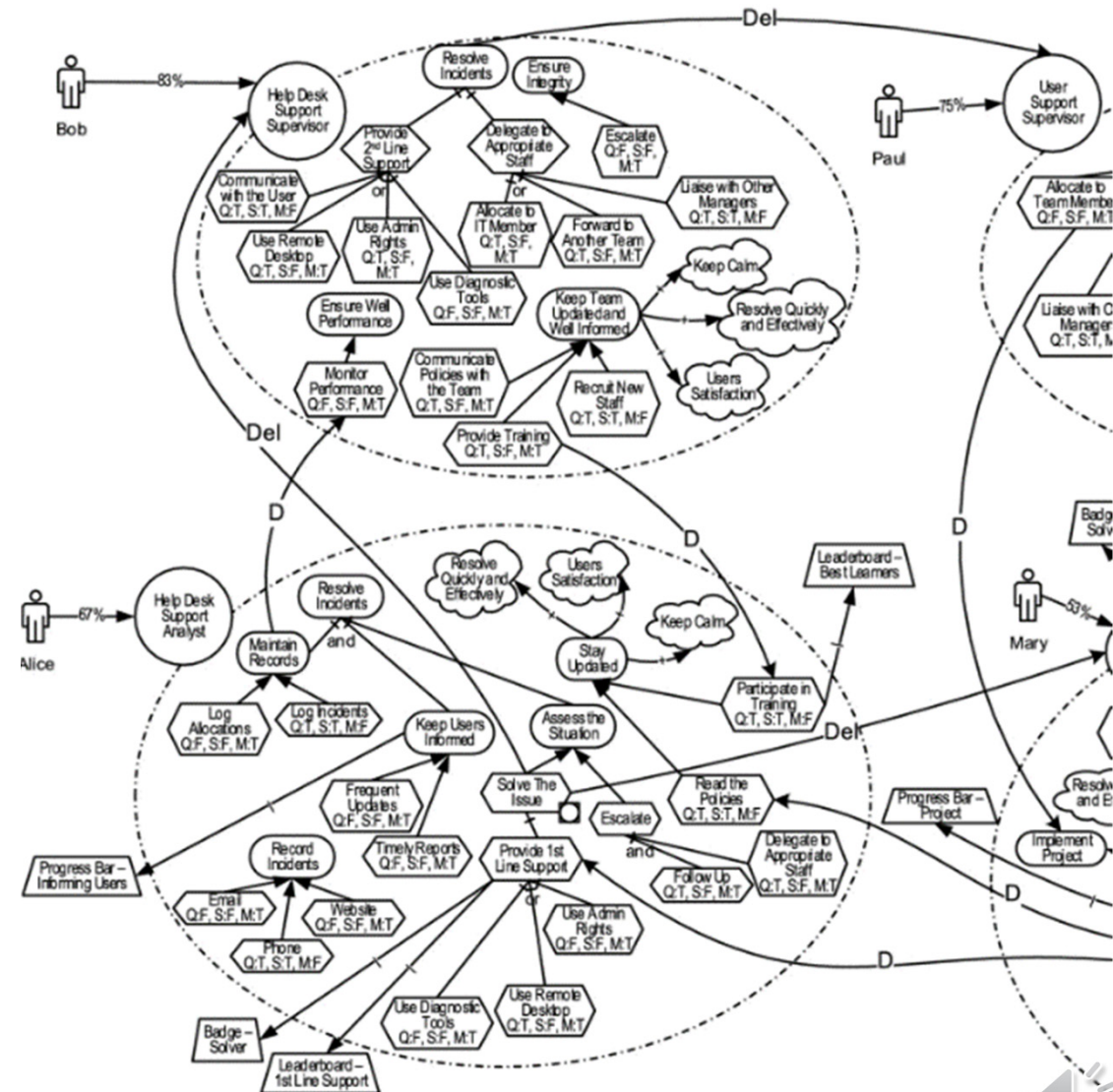
$AR = \{agac_1, agac_2, agac_3, \dots, agac_n\}$ is defined as a set of relations available between agents and actors in an environment. Then,

$\forall agac \in AgAc, agac = \langle ag_i, ac_i, rel \mid ag_i \in Ag, ac_i \in Ac, rel = \text{Plays} \rangle$

• Definition 4: Relation between two Agents

$AgAg = \{agag_1, agag_2, agag_3, \dots, agag_n\}$ is defined as a set of relations available between two agents in the environment. Then,

$\forall agag \in AgAg, agag = \{ag_i, ag_j, rel \mid ag_i, ag_j \in Ag, rel \in \{\text{Acquaintance, Close}\}\}$



Automated Reasoning

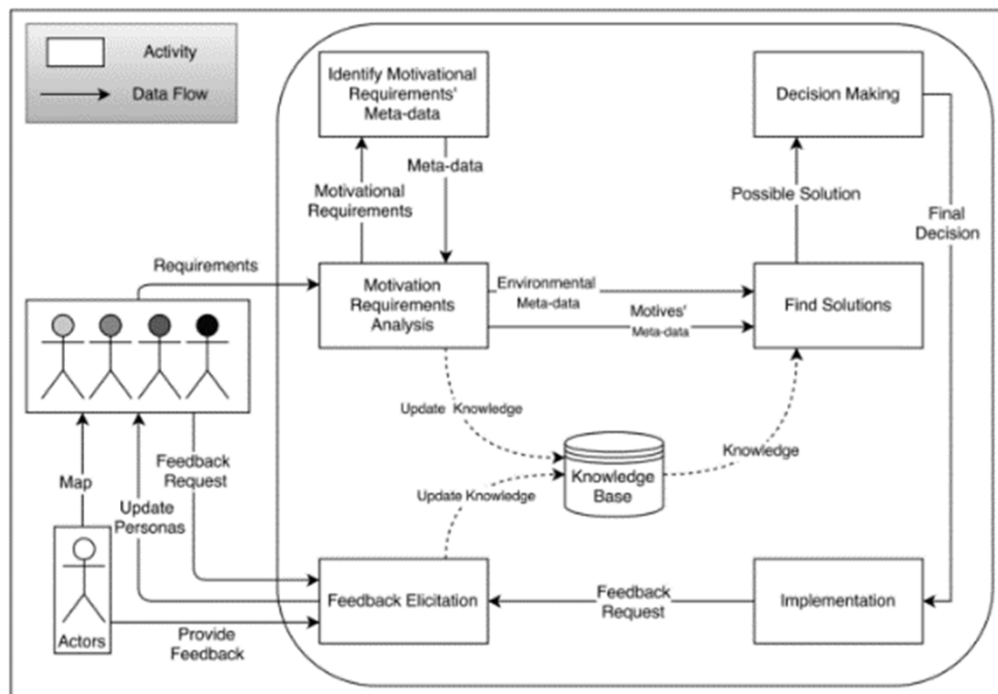
Algorithm 2: Bribe for an Exchange Detection

Input : $A : \{a \mid a \text{ is an actor}\}, T : \{t \mid t \text{ is a task}\}, R : \{r \mid r \text{ is a relation}\},$
 $M : \{m \mid m \text{ is a motive}\}, AG : \{ag \mid ag \text{ is an agent}\}$

Output : Possibility of “Bribe for an Exchange”

```
1 foreach  $r \in R$  do
2   if “Delegate”  $\in r$  then
3     Agents[ ] = r.extract(ag)
4   end
5 end
6 if  $(\exists(m \in M \mid \text{“competition”} \in m))$  then
7   Tasks[] = m.extract(t)
8 end
9 foreach  $t \in \text{Tasks}[]$  do
10   if  $(\text{Agents} \subset t.\text{extract}(ag))$  then
11     RETURN “There is a risk of Bribe for an Exchange”
12   end
13 end
```

Architecture and tools



```
Environment itDepartement = new Environment();

itDepartement.valueSet.add("Collaboration");

/* Here is the built of the motive */
Policy leadPolicy = new Policy(ValueType.HIGH, PolicyType.COMPETITION, PerformanceType.GROUP);
Strategy leadStrategy = new Strategy(true, ValueType.LOW, ChanceOfWinningType.LOW, PointsType.PREDEFINED,
    ReinforcementType.POSITIVE);
WhatIsStored wis = new WhatIsStored(false, FrequencyTypes.HIGH, WorkInformationType.DETAILED);
CapturedInformation ci = new CapturedInformation(VisibilityType.RELEVANT, wis);

Reward leadReward = new Reward(leadPolicy, NatureType.INTANGIBLE, leadStrategy,
    ElementsType.SOCIAL_RECOGNITION);

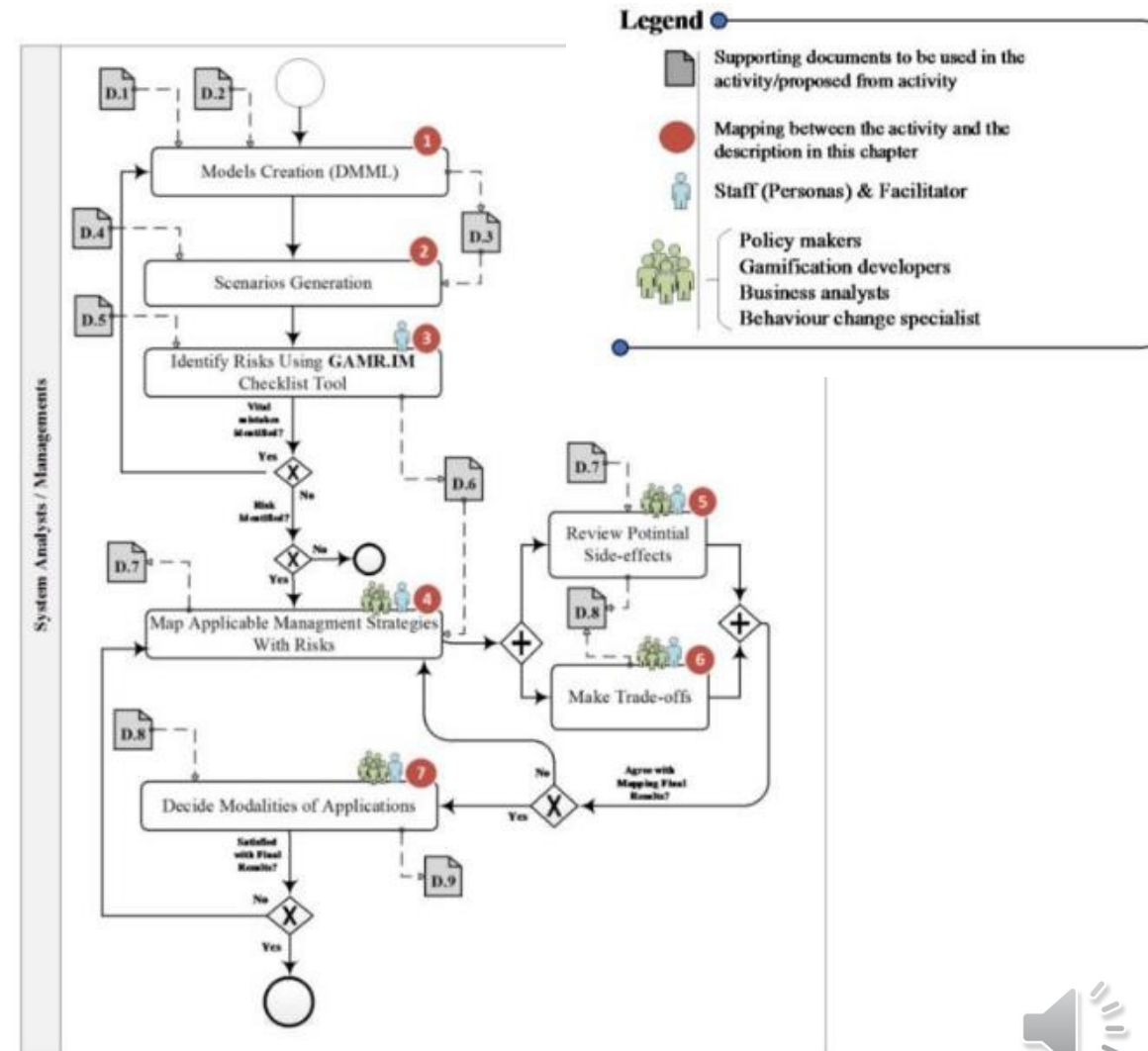
Technique tech = new Technique(false, false, false, true, true, true, false);

Motive m = new Motive(leadReward, tech, ci);
```

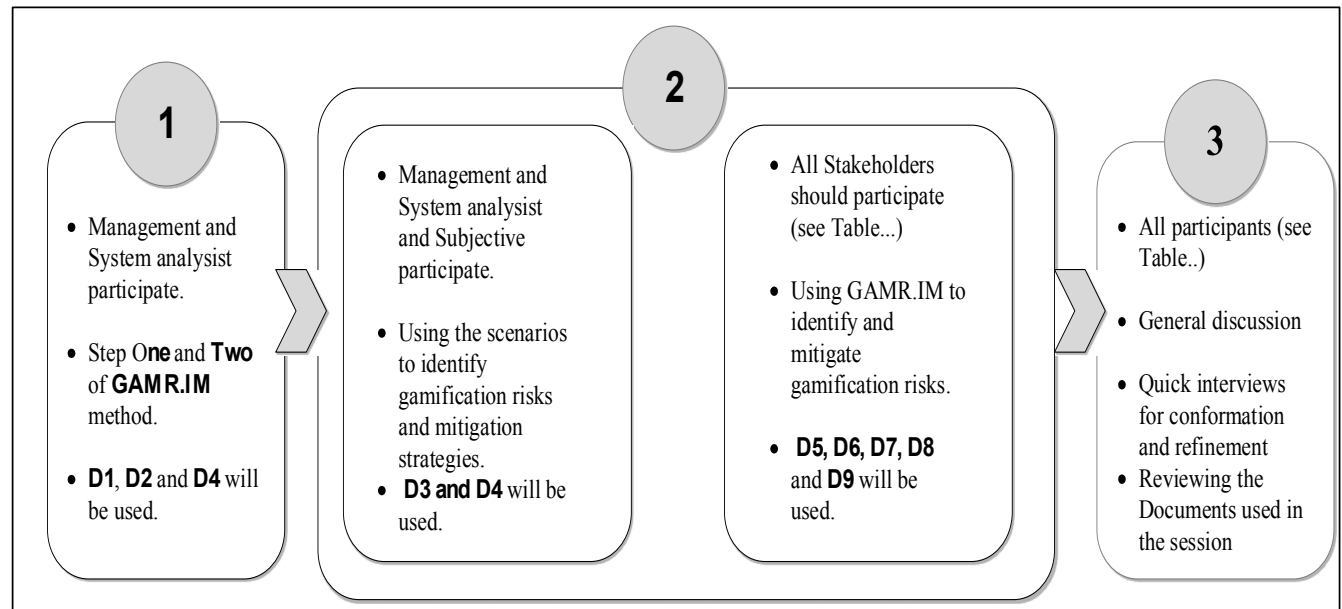
Methods and Users Tools

Personal and Social		 		
1	Staff age in the same team			
2	Level of skills in the same team			
3	Level of capabilities in the same team			
4	Level of experiences in the same team			
5	Level of training in the same team			
1/1				

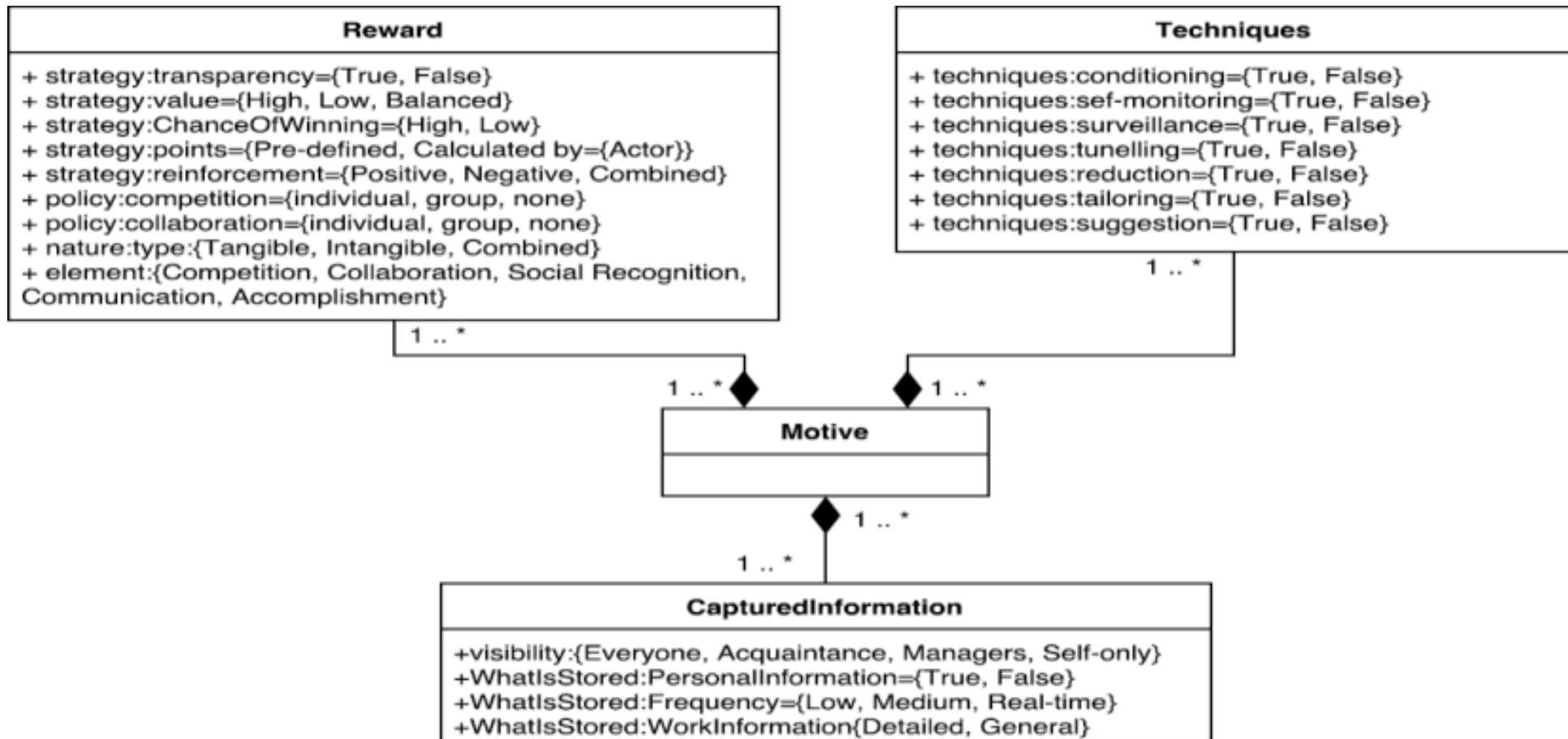
Task	Technical	Goal
1 Task nature with game element nature age	1 Automated Measurement Mechanism	1 Well-defined
2 Level of understanding the task in the same team	2 Level of Monitoring	2 Goals Conflicts
3 Level of familiarity with the task in the same team	3 Level of Transparency	3 Goals Difficulty
4 Involvement time with team in the same task	4 Data Storage	4 Goals Assignment
5 Level of performance/cooperation/competition	5 Data Accessibility	5 Goals Clarity
2/1	4/1	3/1



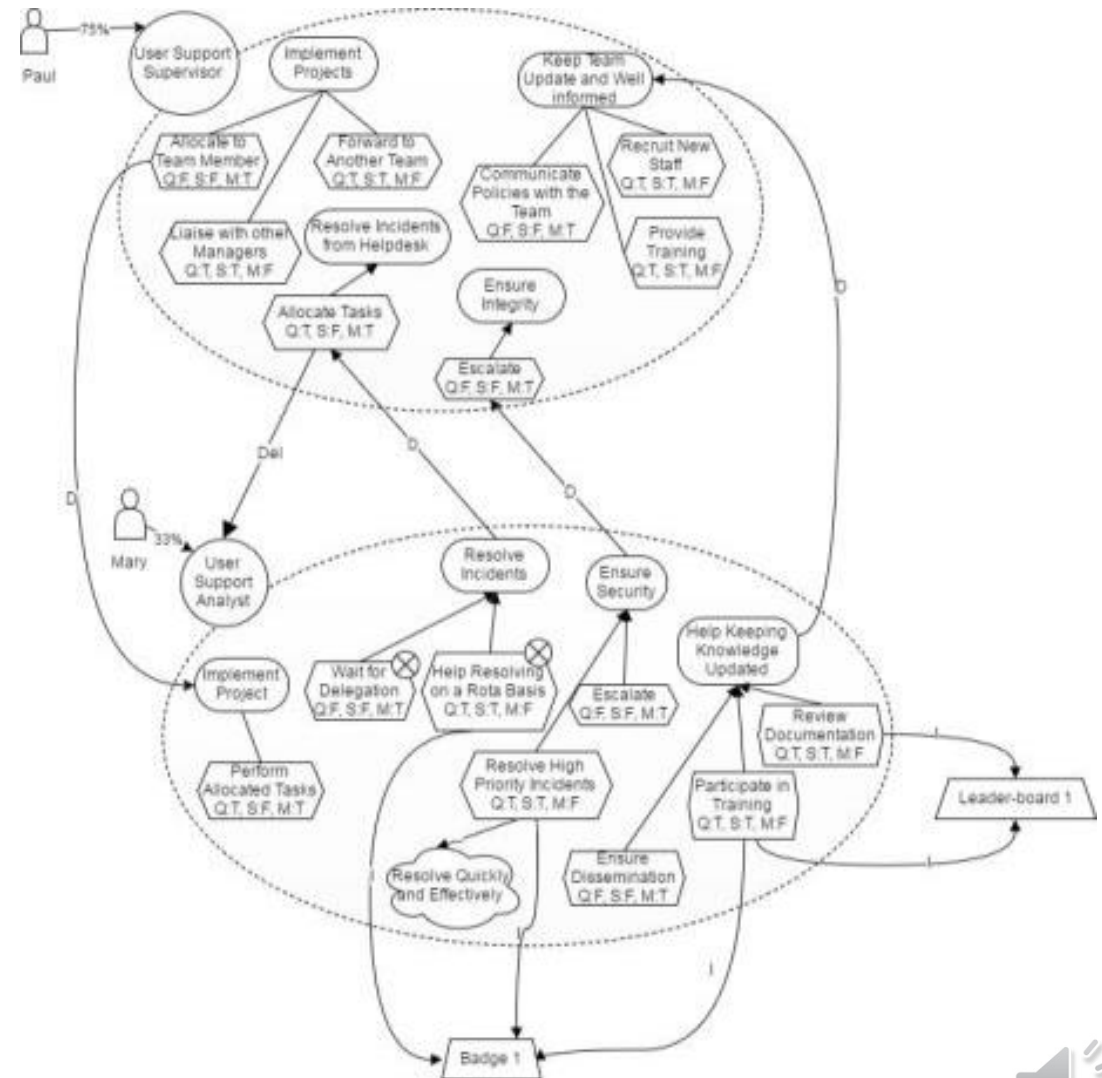
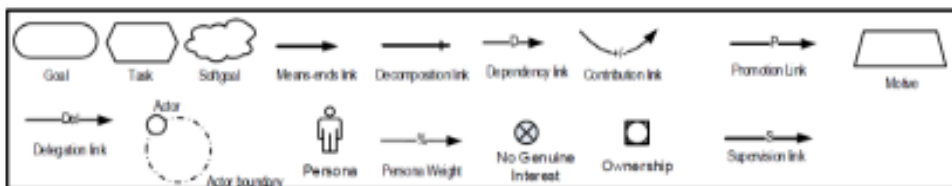
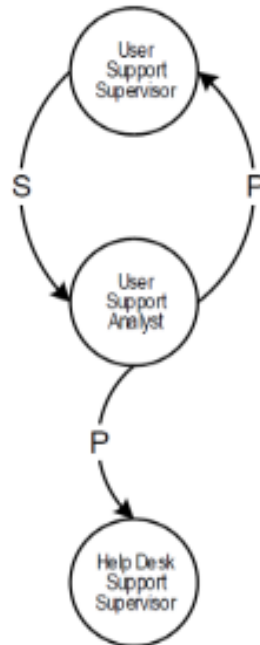
Validation via users studies



DMML - Reward

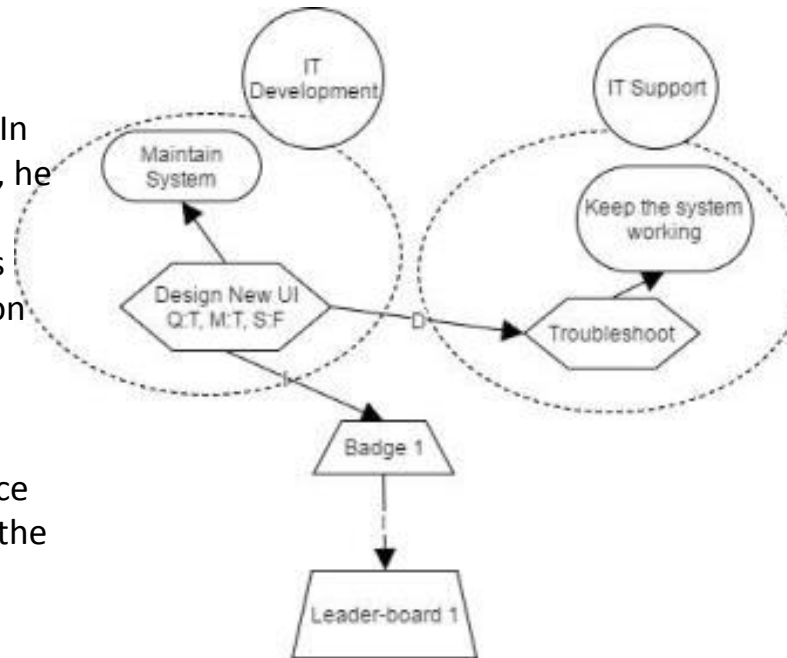


Example – IT Services



Automated Analysis: Conflict of Interest

- Bob is member of both teams. He may be delegated a task by Alice. In order to delay Alice from winning, he may not do it in a prompt style.
- The main fault in the DM design is that using competitive elements on individual performance basis can create this situation.
- Maybe the management can consider having group performance of not allowing Bob or rewarding the troubleshooting one.



Actors	Agent
IT Development	Alice
	Bob
	Jack
IT Support	Suzy
	Bob
	Lucy

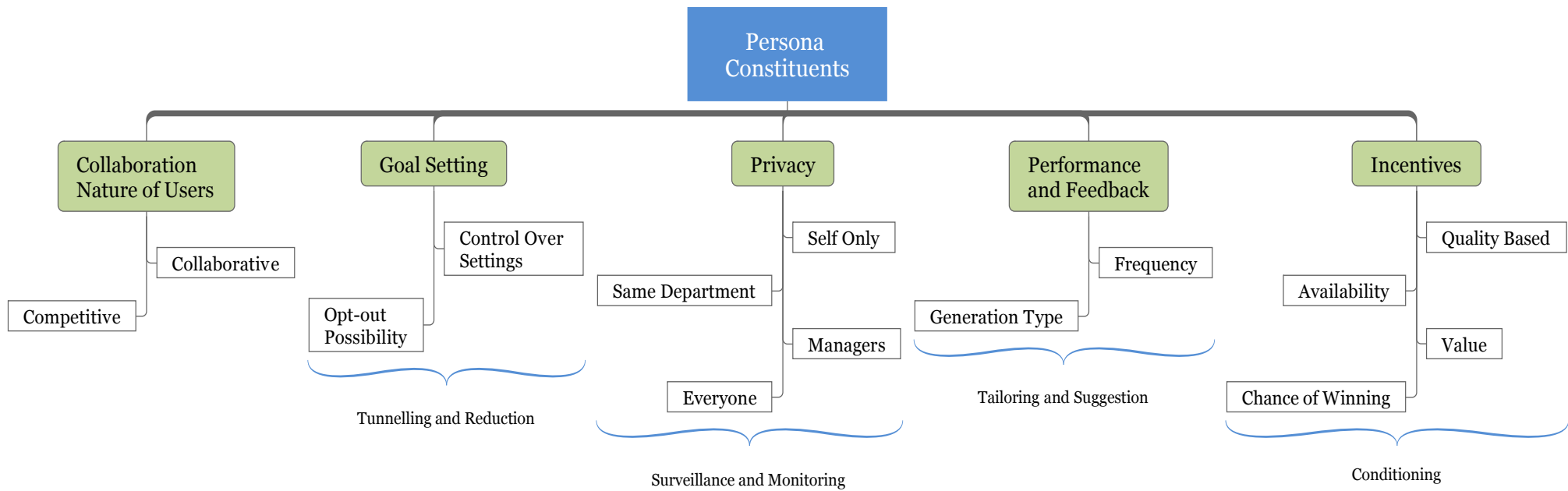
Motive: Badge
Reinforcement: {} ChanceOfWinning: {} points: {} Performance: {} Type: {} Element: {} Visibility: {} PersonInformation: {} Frequency: {} WorkInformation: {} Technique: {}

Motive: Badge 1
Reinforcement: positive ChanceOfWinning: high points: Calculated Performance: Individual Type: Intangible Element: Accomplishment Visibility: Everyone PersonInformation: False Frequency: Low WorkInformation: General Technique: Self-Monitoring , Conditioning

Motive: Leader-board
Reinforcement: {} ChanceOfWinning: {} points: {} Performance: {} Type: {} Element: {} Visibility: {} PersonInformation: {} Frequency: {} WorkInformation: {} Technique: {}

Motive: Leader-board 1
Reinforcement: Positive ChanceOfWinning: Low points: Pre-defined Performance: Individual Type: Tangible Element: SocialRecognition, Competition Visibility: Everyone PersonInformation: False Frequency: High WorkInformation: General Technique: Surveillance, Tunneling, Conditioning

Personas





Name: Clara Age: 31 Gender: Female Job: Data Analyst

Overall statement: The quality of work is important for Clara, however, it is important for her to not fall behind her colleagues. Therefore, she may decrease the quality of her work if she can receive the same points. She is an explorer and wants to have surprises in her work. She is concerned about her detailed work details, however, she finds it helpful for others to be able to access her skills set.

Setting: Method (Conditioning, Tailoring, Suggestion),
Privacy (Detailed Info: Managers, self – General Info: Everyone – Progress Info: Managers, Self), **Collaboration Nature** (Collaborative), **Performance** (Weekly), **Feedback** (Human generated, Monthly), **Incentive** (Higher Value, Lower Chance)

Risks

Main Category of the Risk

Ethical Related Risks

Well-being Related Risks

Productivity Related Risk

Performance Related Risk

Risks

Preserved exploitation, Bias, Work intimidation

Lowering self-esteem, Negative pressure, Counterproductive Comparison

Meet the minimum requirements, Lack of engagement, reduce task quality

Free riding, Social loafing, Bribe for exchange, Clustering groups, Performance misjudgments, Novelty effects, Deviation from goal, Kill the joy, Infringe autonomy



Resolution Strategies

No	Strategy	Brief description
1	<i>Commitment</i>	based on the members' agreement and adoption of the choices and actions characterizing how DM is going to operate
2	<i>Common ground rules</i>	based on deriving and enforcing rules that articulate the set of acceptable behaviours in relation to DM
3	<i>Facilitator</i>	this strategy plays an important role in facilitating the design sessions of DM
4	<i>Anonymity</i>	give opinions or ratings colleagues or managers in an anonymous way
5	<i>Voting</i>	this strategy helps to reach a decision in a facilitated session
6	<i>Norms</i>	having a clear understanding of what the organisational culture is, e.g. normal social behaviours
7	<i>Transparency</i>	allowing everyone to see other's performances in DM system



Results: Resolution Strategies (cont'd)

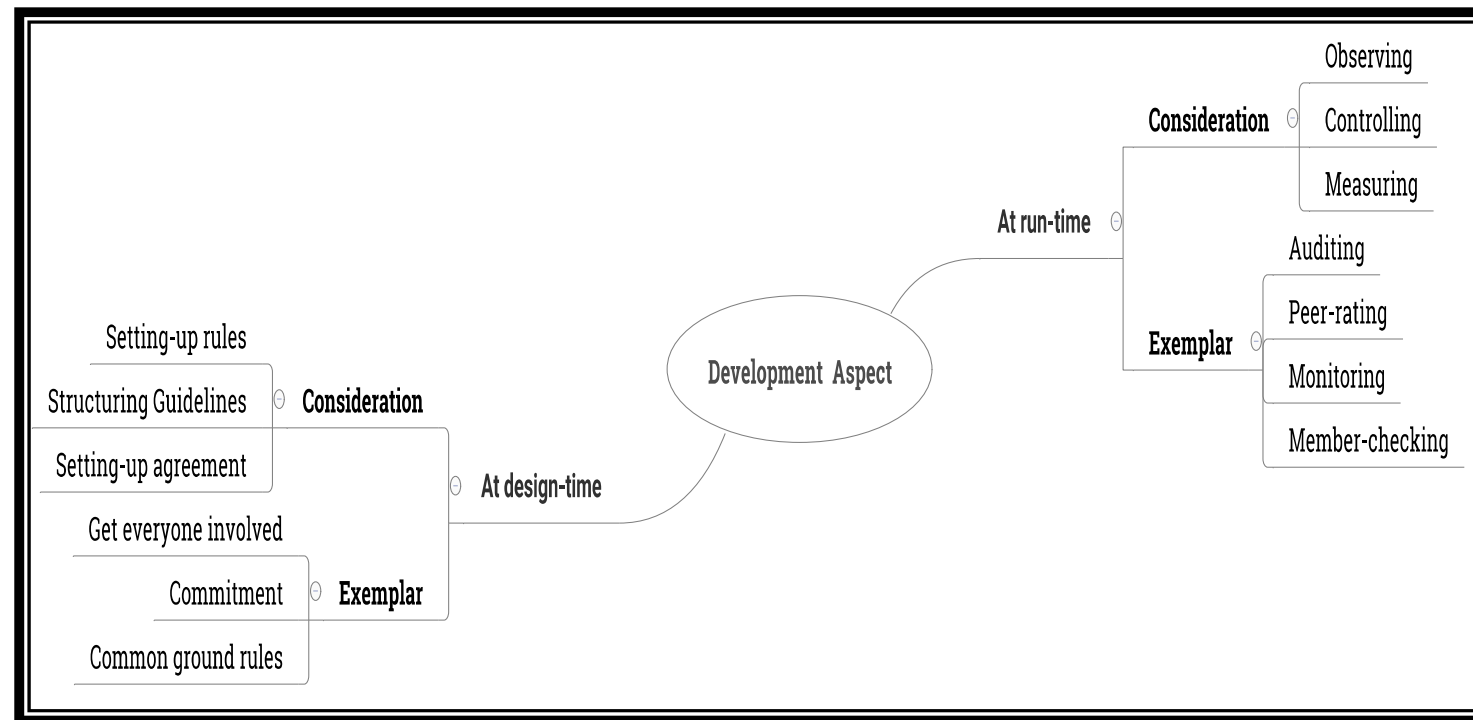
No	Strategy	Brief description
8	<i>Rotations sensitivity</i>	allocating people randomly within DM system so that cliques and rivalries are not created
9	<i>Get everyone involved</i>	encourage people in different roles to become involved in a discussion to decide behaviours and penalties for their DM system
10	<i>Story telling</i>	identify negative effect by asking people to present a situation in a story
11	<i>Round robin</i>	pass the discussion between workers one by one to ensure everyone gives their ideas individually
12	<i>External party</i>	external authority or expert to check workers' performances and to resolve negative effects which might arise in relation to DM
13	<i>Non-contentious bargaining</i>	encourages team members to control their emotions in a professional way
14	<i>Reward for helping others</i>	users can be rewarded for supporting others which can help to encourage collaborative teamwork

Results: Resolution Strategies (cont'd)

No	Strategy	Brief description
15	<i>Acknowledgement of individual efforts</i>	in some DM situations negative effect on teamwork might arise when individual efforts are not equal
16	<i>Auditing</i>	checking individual performances
17	<i>Random monitoring</i>	to keep workers ready all of the time as their performances might be monitored at any time
18	<i>Peer-rating</i>	colleagues can rate each other's efforts and might be checked at any time to avoid a biased evaluation
19	<i>Member checking</i>	this strategy utilises a sample member in order to analyse the eventual DM result after finishing the task
20	<i>Managerial level monitoring</i>	strategy managers take the responsibility to check workers' performances in DM workplace
21	<i>Self-assessment</i>	users assess their own performances, and this might be checked by managers at any time
22	<i>Regular meetings</i>	involving teamwork members in regular meetings would help managers to remain updated with the current use of DM system

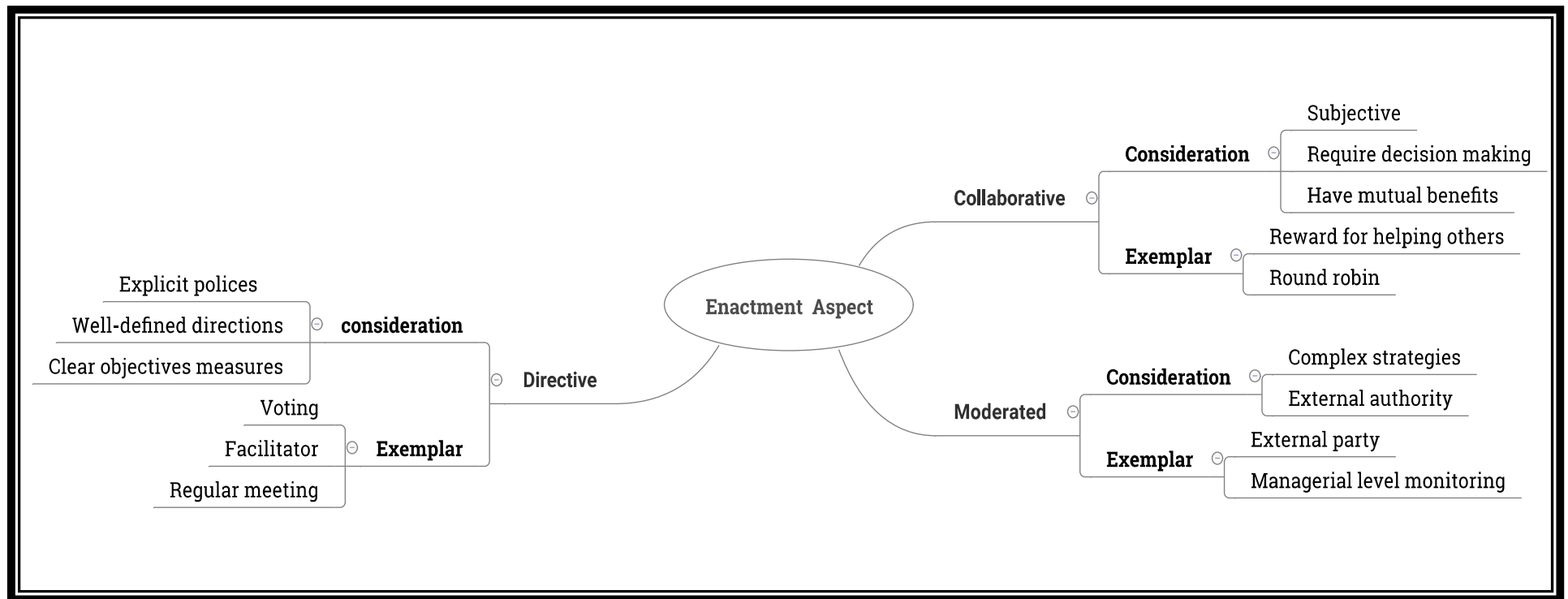
Strategies could be applied in two different times:

- At the design time
- At the run-time



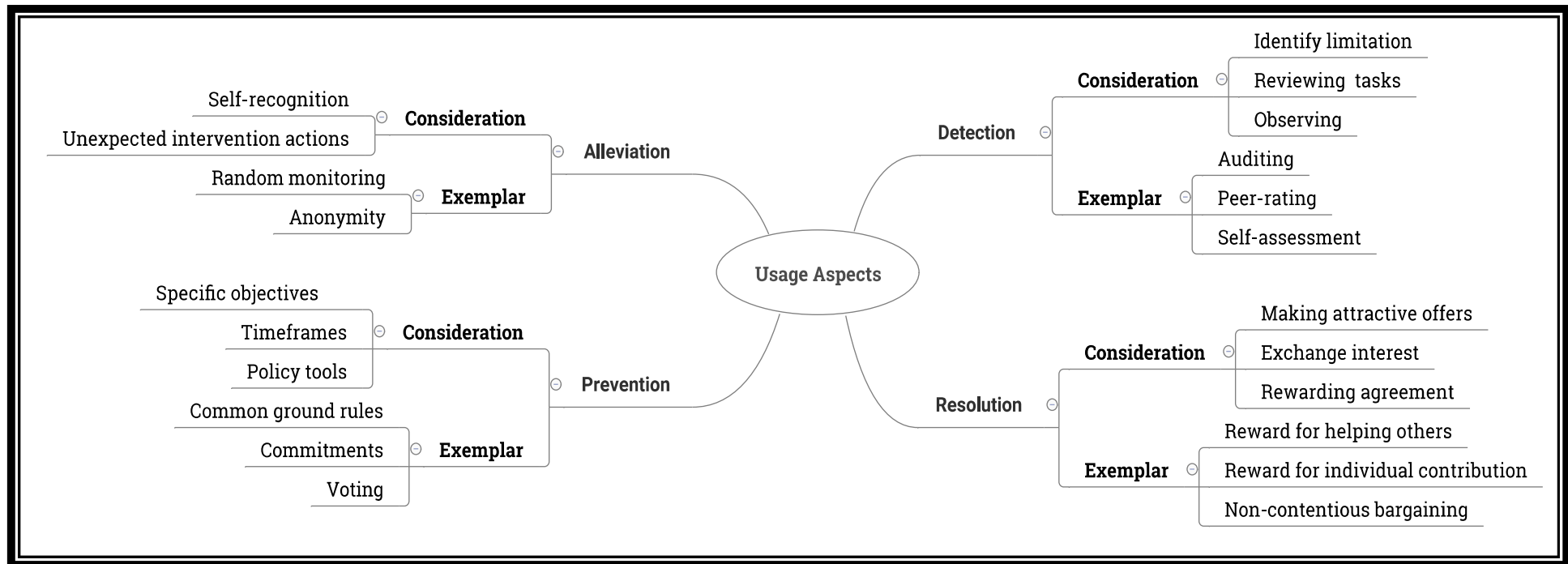
Strategies could be applied and enforced in different styles:

- **Collaborative approach**
- **Moderated approach**
- **Directive approach**



Strategies could be applied for different purposes

- **Detection strategies** **Alleviation strategies**
- **Resolution strategies** **Prevention strategies**





Abdullah Algashami (Jun 2019). Minimising Gamification Risks in Collaborative Information Systems: Taxonomy, Checklist-Based Risk Identification and Management Strategies. PhD thesis

Alimohammad Shahri (Dec 2017). Engineering motivation requirements in business information systems. PhD thesis

15+ MSc and BSc dissertations applying it in various domains including health, security, e-learning and enterprise information systems.

5 companies involved

10+ outreach and keynote speech, e.g. Cambridge University Intellectual Forum, CrowdRE'17, AffectRE'19

4 BSc and MSc module material (both in Computing and Psychology Departments)

3 major external fund (~£500K)



Algashami, A., Vuillier, L., Alrobai, A., Phalp, K., & Ali, R. (2019). Gamification Risks to Enterprise Teamwork: Taxonomy, Management Strategies and Modalities of Application. *Systems*, 7(1), 9.

Alimohammad Shahri, Mahmood Hosseini, Keith Phalp, Jacqui Taylor, Raian Ali: How to Engineer Gamification: The Consensus, the Best Practice and the Grey Areas. *JOEUC* 31(1): 39-60 (2019)

Algashami, A., Shahri, A., McAlaney, J., Taylor, J., Phalp, K., & Ali, R. (2017, April). Strategies and design principles to minimize negative side-effects of digital motivation on teamwork. In *International Conference on Persuasive Technology* (pp. 267-278). Springer, Cham.

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From Digital Motivation to Digital Addiction

Design for Digital Wellbeing





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Man drugs girlfriend so he can keep on playing videogames





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'Internet addiction' linked to depression, says study

There is a strong link between heavy internet use and depression, UK psychologists have said.

The study, reported in the journal *Psychopathology*, found 1.2% of people surveyed were "internet addicts", and many of these were depressed.

The Leeds University team stressed they could not say one necessarily caused the other, and that most internet users did not suffer mental health problems.



Any direct causal link between internet use and depression remains unclear

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Dolphin calf dies after tourists use it for selfies

Footage of tourists mobbing a rare baby dolphin to take photos with it ignites worldwide rage

By Lauren O'Neil, CBC News | Posted: Feb 19, 2016 9:43 PM ET | Last Updated: Feb 19, 2016 10:08 PM ET



Pictures shared by Argentinean animal rights organization Fundación Vida Silvestre show a mob of tourists passing around a dolphin calf to take photos with it. The animal reportedly overheated and died. (Hernan Coria/Facebook)

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AUGUST

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- Ofcom The Office of Communications, UK, report showed 15m UK internet users (around 34% of all internet users) have tried a “digital detox” in 2016. After being offline, 33% of participants reported feeling an increase in productivity, 27% felt a sense of liberation, and 25% enjoyed life more. But the report also highlighted that 16% of participants experienced the fear of missing out, 15% felt lost and 14% “cut-off”.
- [Anne Longfield, Children’s Commissioner for England](#), argued that offering social media to children could be considered similar to giving them junk food.



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Posted by u/Lmar13 1 year ago



What dirty little secret does your profession hide that the consumer should know?

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↑ cyberdrunk 1.9k points · 1 year ago

↓ I work in video games. Our job is to make our game as addictive as possible so that we can make the most money out of micro-transactions. (Think mobile phone games) A lot of our game design is by marketing telling us what people will most likely buy in the game by watching data. Sure, it starts free-to-play, but to keep you playing and paying we mine data to make it more "sticky."

After a while I felt like I was working for a drug dealer and quit recommending our games to people I knew. Sure, people have fun playing the games we make, but I don't want to hear later about how much money you or your kids wasted on it.

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INTERNET GAMING DISORDER

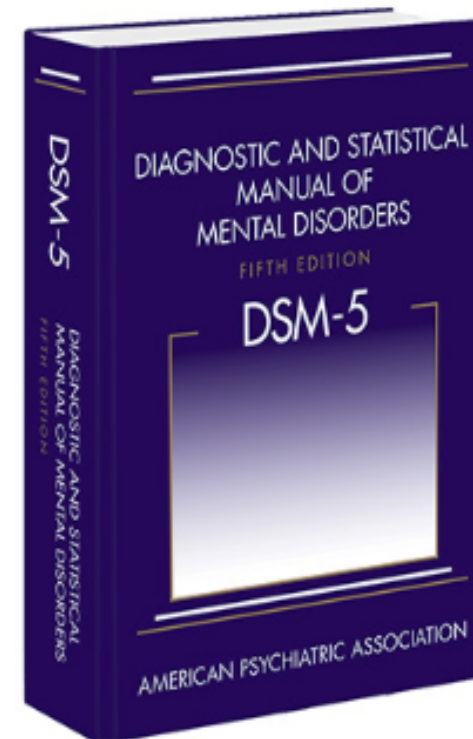
In the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, Internet Gaming Disorder is identified in Section III as a condition warranting more clinical research and experience before it might be considered for inclusion in the main book as a formal disorder.

A New Phenomenon

The Internet is now an integral, even inescapable, part of many people's daily lives; they turn to it to send messages, read news, conduct business, and much more. But recent scientific reports have begun to focus on the preoccupation some people develop with certain aspects of the Internet, particularly online games. The "gamers" play compulsively, to the exclusion of other interests, and their persistent and recurrent online activity results in clinically significant impairment or distress. People with this condition endanger their academic or job functioning because of the amount of time they spend playing. They experience symptoms of withdrawal when pulled away from gaming.

Much of this literature stems from evidence from Asian countries and centers on young males. The studies suggest that when these individuals are engrossed in Internet games, certain pathways in their brains are triggered in the same direct and intense way that a drug addict's brain is affected by a particular substance. The gaming prompts a neurological response that influences feelings of pleasure and reward, and the result, in the extreme, is manifested as addictive behavior.

Further research will determine if the same patterns of excessive online gaming are detected using the proposed criteria. At this time, the criteria for this condition are limited to Internet gaming and do not include general use of the Internet, online gambling, or social media.





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Gaming disorder

Online Q&A
January 2018

What is gaming disorder?

Gaming disorder is defined in the draft 11th Revision of the International Classification of Diseases (ICD-11) as a pattern of gaming behavior ("digital-gaming" or "video-gaming") characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences.

For gaming disorder to be diagnosed, the behaviour pattern must be of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning and would normally have been evident for at least 12 months.

What is the International Classification of Diseases?

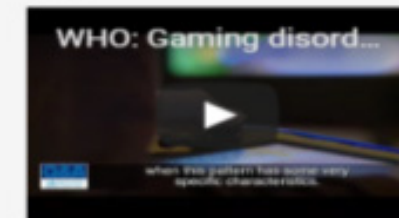
The International Classification of Diseases (ICD) is the basis for identification of health trends and statistics globally and the international standard for reporting diseases and health conditions. It is used by medical practitioners around the world to diagnose conditions and by researchers to categorize conditions.



[Question and answer archive](#)

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Digital Addiction Labels



Editor: US

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AdChoices

MUST LISTEN: Want The Ultimate Set Of Vampire Fangs? Father Sebastiaan Is Waiting

Selfie Accidents Have Killed More People Than Sharks This Year

But both types of fatalities are pretty rare.

Hilary Hanson
News editor, The Huffington Post

Posted: 09/23/2015 01:46 PM EDT | Edited: 09/24/2015 10:35 AM EDT

WATCH: Selfie Accidents Are Apparently More Deadly Than Shark Attacks

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The Washington Post



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Children 'becoming hunchbacks' due to addiction to smart phones

Chiropractor claims that young people who spend hours hunched over electronic devices are seriously damaging their necks and spines, as witnessed by the rise in cases of 'text neck'

3K 0 107 3K Email



Boy using a mobile phone under his desk at school. Photo: Alamy



10 reasons to take out private healthcare insurance
The NHS is stretched in meeting the demands of UK residents. For those seeking quick access to healthcare, there is private health insurance.

Sponsored by AXA
Private Health Insurance

By Victoria Ward

3:00PM BST 10 Oct 2015

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Russian YouTuber facing five years in jail after playing Pokémon Go in church

Ruslan Sokolovsky was filmed catching Pokémon in the Church of All Saints in Yekaterinburg at the beginning of August

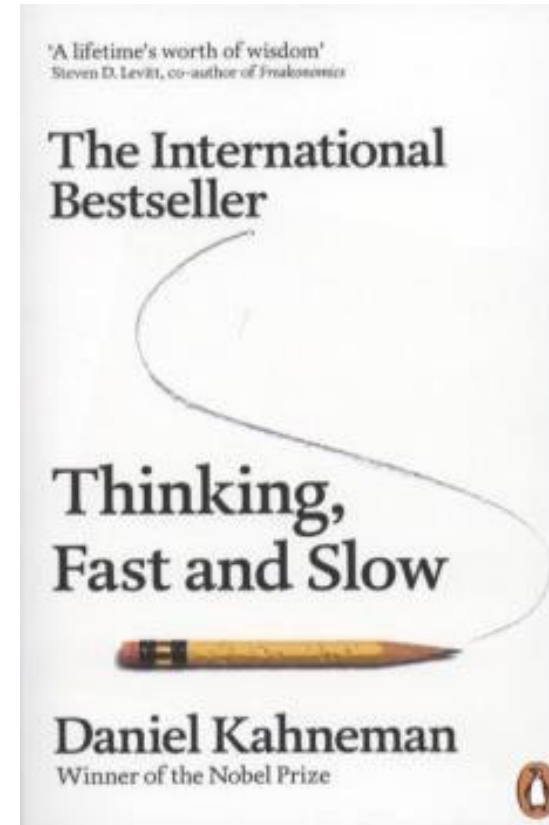
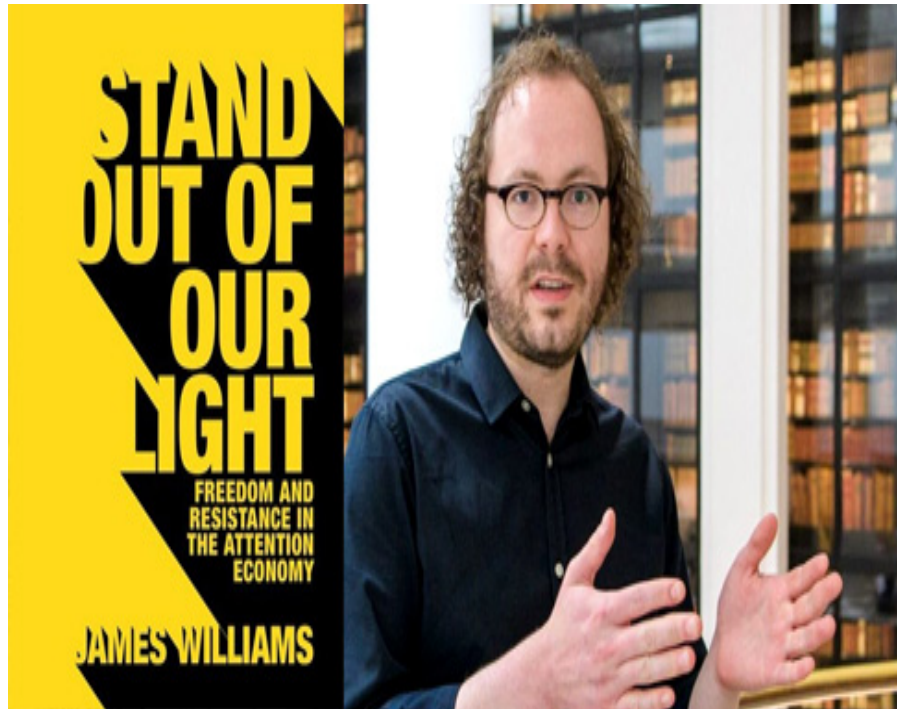


Yevgeny Roizman, the mayor of Yekaterinburg, said the arrest was a 'disgrace'. 'You can't arrest a man for idiocy,' he added. Photograph: Ruslan Shamukov/TASS

Do we do any risk assessment?

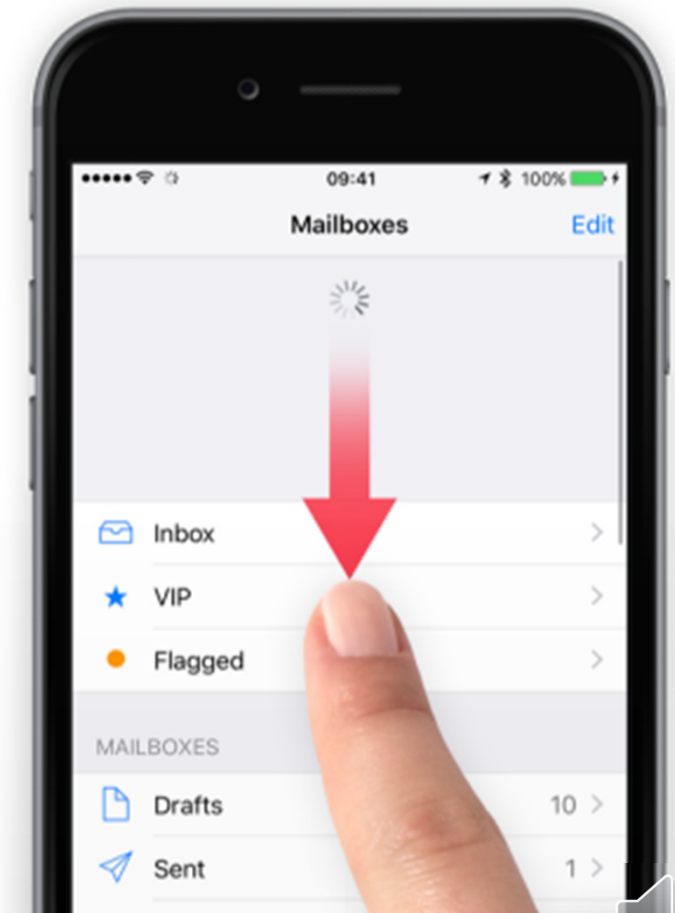
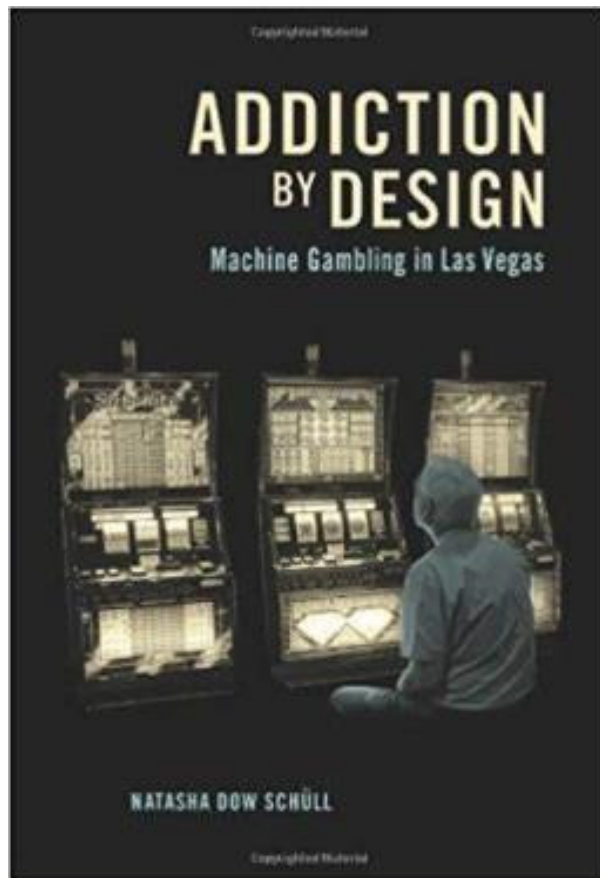
Do we test for compulsive usage and impaired decision making potential?

Is there any liability for tech companies to do that? Similar to other industries

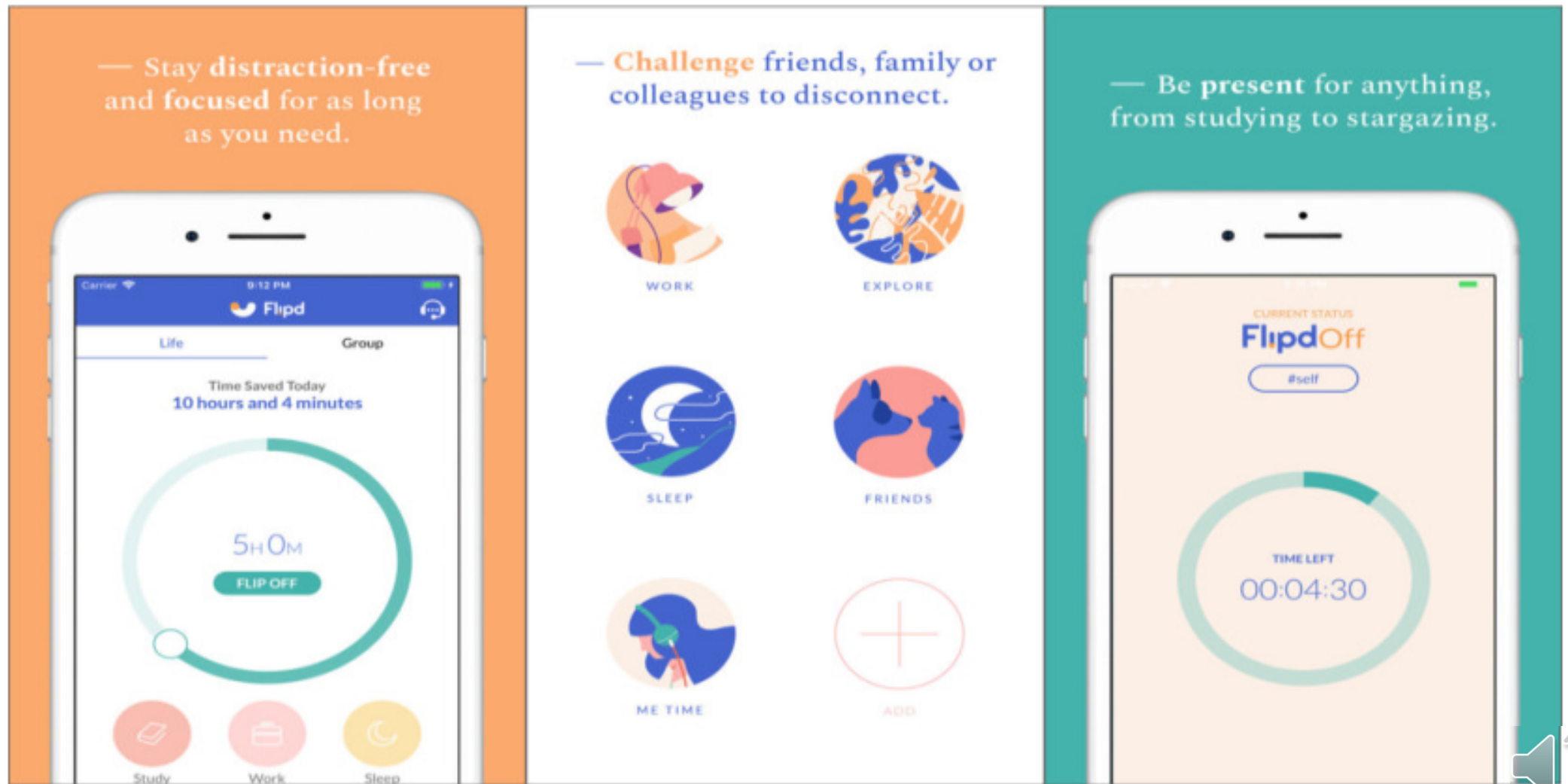


Which type o thinking do social media design trigger?

Gaming and gambling elements are now in social media



↓ 02 – Flipd | Free | iOS | Android



However.. we showed the harmful effect of those gamified solutions to digital wellbeing

User Experience concerns	Source of concerns
Lack of interest	Experience fails to engage, ineffective rewarding system, poor levelling design, willingness and readiness to change
Lack of trust	Unreliable addiction scoring, lack of verifiability and transparency, uncertainty of agenda of application's developer(s)
Lowering self-esteem	Peer-pressure, upward social comparisons, low sense of self-efficacy, assigning to non-matched groups
Creating misconceptions	Addiction scoring, minimising the seriousness of the addicting, providing non-stage matched interventions
Biased decisions	Downward social comparisons, self-set goals, flight into health, denial of reality, influence from past experience and performance
Creating addictive experience	Pull and push feedback approaches, gamified experience, creating pre-occupation with targeted behaviour, poor stimulus control
Impacting user experience	Obtrusiveness, distraction, coercive techniques, affecting workflow, lack of requirements negotiations, neglect personalised experience
Unsustainable change	Social elements (e.g. conformity effect), losing interest
Self-image impact	Identification as addict, experience of relapsing

Problematic Attachment to Social Media

Psychologic al States	Frequency	Occurrences	%	Illustrative example
Anxiety	489/756	12	64.68	When I upload photos to Facebook I feel so anxious till I start to receive a high number of Likes.
Boredom	444/756	10	58.73	I rely on social media to change my mood even at odd times of the day. I feel so bored if no one responds to my posts and messages.
Loneliness	356/756	9	47.09	I feel isolated from society because I stay in my online gaming groups most of time.
Loss of Interest	311/756	8	41.14	I overly check the updates in social media, but I quickly lose interest and stop reading, still cannot stop checking
Craving	267/756	6	35.32	I can not wait to be online and interact, it is part of my daily routine so not having it even during work hours would feel very strange
Depression	89/756	3	11.77	I do not compare favourably to peers profiles and posts on social media. I stop posting and continue watching, and this makes me feel at times depressed
Entry doc. with code(s)	712	18 participants	94.12	
Entry doc. without code(s)	44		5.88	
Analysed doc.	756		100.0	

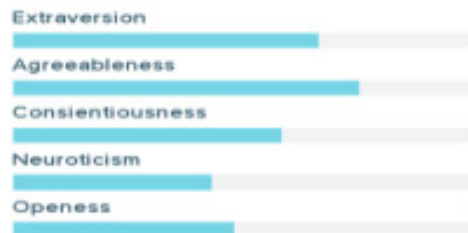
Helping the design for wellbeing

Mark Behavioural Archetype



"I feel happy and secure when people are there when I need them"

Personality



Goals

- Mark would like to manage/reduce the time he spent on searching for information on social media

Online behaviour characteristics

- Social media boosts the feeling of being secure.
- Tracking information
- Socially active
- Committed to his online groups

Social media usage

Mark likes to feel assured. Social media helps him to maintain his feeling by building successful relationships that increase his connectedness and presence. Despite this, he can occasionally lose his sense of security, i.e. when unable to access social media, interact with peers or express himself and receive the responses he feels he needs to maintain his desired level of social presence and connectedness.

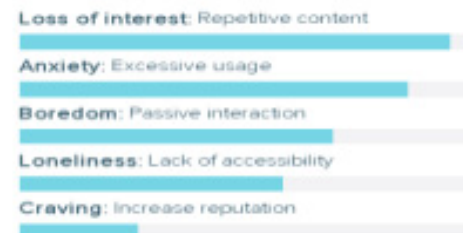
Usage experience and positive emotions



Usage experience and negative emotions



Psychological states and usage experience and



We created
Personas to
help
software
engineers ..
But it is an
interdiscipli
nary
“engineerin
g” team

Digital Addiction

- <https://www.bournemouth.ac.uk/research/projects/digital-addiction-research>
- Motivation and Persuasion vs. Obsession,
- Impaired Decision Making, and Deception
- Software Engineering
- Corporate Social Responsibility
- Persuasion and Anti-Persuasion
- Labels on cigarette packs



Digital Addiction Research

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Digital Addiction Research

We study digital addiction (DA) as an emergent research area and explore the problematic usage of digital media described as compulsive, impulsive and hasty. We particularly focus on aiding people to adjust their usage style through the use of

The research is led by Professor [Raian Ali](#) and is a joint effort between the [Department of Computing and Informatics](#) and the [Department of Psychology](#) in the [Faculty of Science and Technology](#) at Bournemouth University. The team has a rich knowledge exchange programme, with academic and industry colleagues from across the world collaborating to make it a success.

EROGamb: Responsible Online Gaming

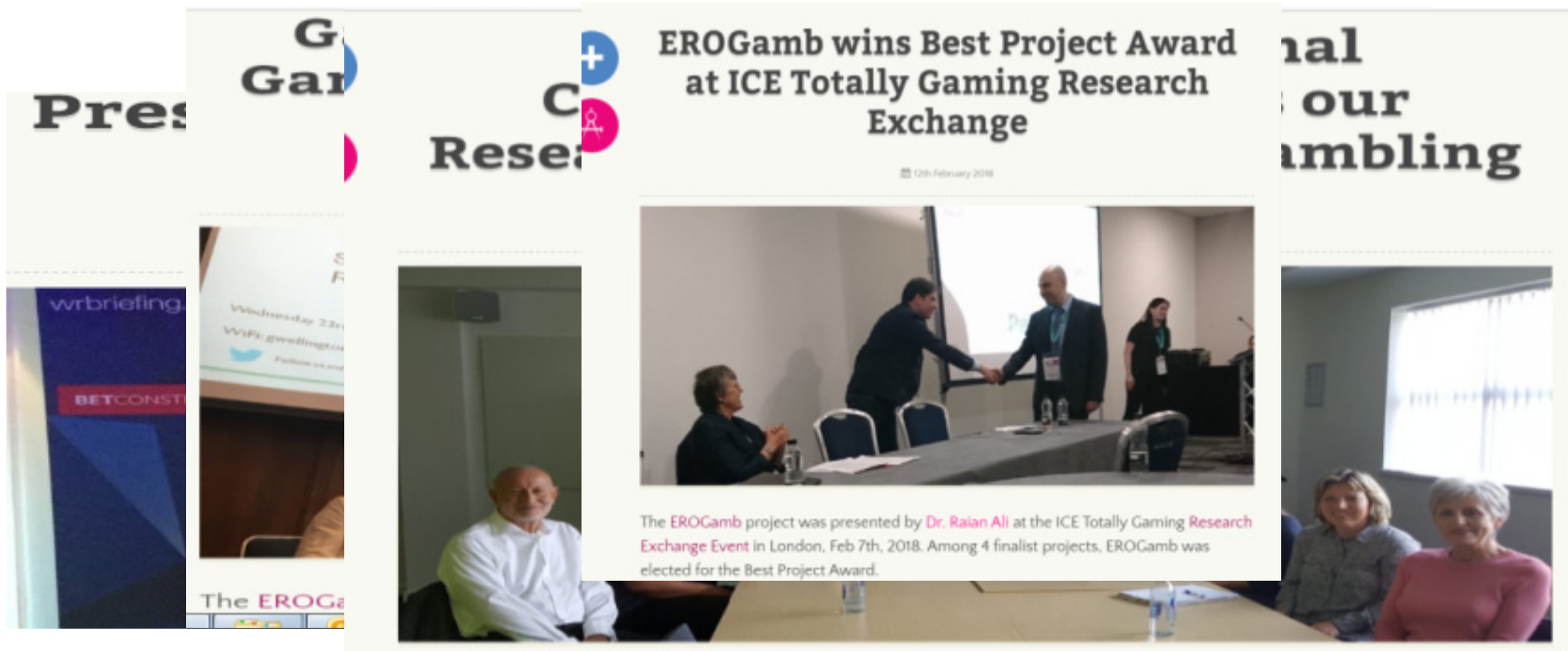
- <https://www.bournemouth.ac.uk/research/projects/erogamb-enabling-responsible-online-gambling>
- With GambleAware UK
- Informed usage
- Explaining user's behaviour
- Real-time interventions
- Counter-persuasion
- Goal settings,
- Self-monitoring
- Surveillance
- Infographics

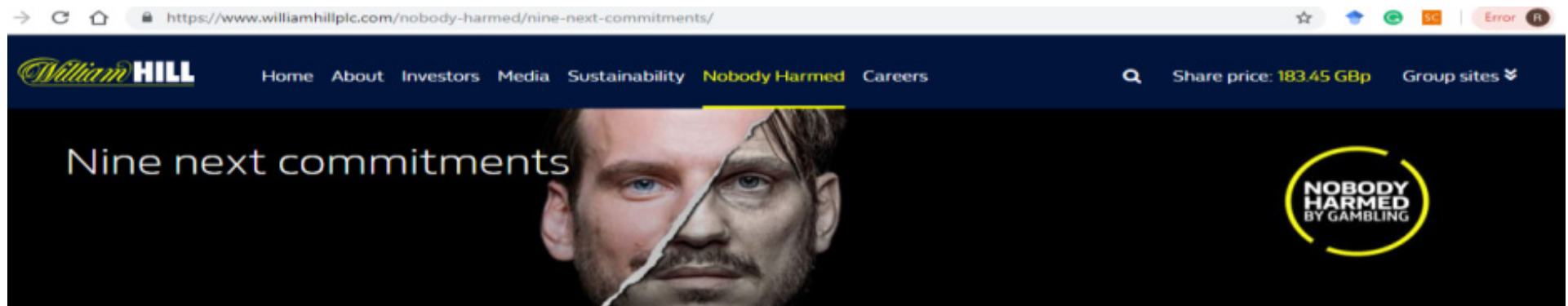


The project is titled *Empowering Responsible Online Gambling with Predictive, Real-time, Persuasive and Interactive Intervention* and led by Prof. Raian Ali. The overall cost of the project is £118,136 and it is match-funded by Bournemouth University.

In this project, we aim to design software and research facilities which retrieve the gambling history of subscribed gamblers and help them visualise this in various forms to inform their decisions

- An Interdisciplinary research that influenced policy –
- The dual side of technology, technology as a problem, technology as a solution
- Co-design and participatory design add credibility and realism





- Responsibility by Design

- New cities are easier to build as smart cities
- Similarly, embedding responsibility from the start as a digital media requirement helps development of tech that is **responsibility-native**, e.g. in collecting behaviour data and inferring behaviour and seamlessly integrate behaviour awareness and change, e.g. nudge



We advocate a **fair** usage and share of digital usage behavioural **Data**



Responsible Design

- Technically, we can easily detect addictive usage style and risky usage, e.g. when driving, crossing the road, sleeping, etc
 - It is still not seen as a responsibility for tech companies
 - We demand to at least to offer the service for an informed usage to users
- The seatbelt analogy



MailOnline

One in seven pedestrians look at their mobiles when crossing the road, survey finds

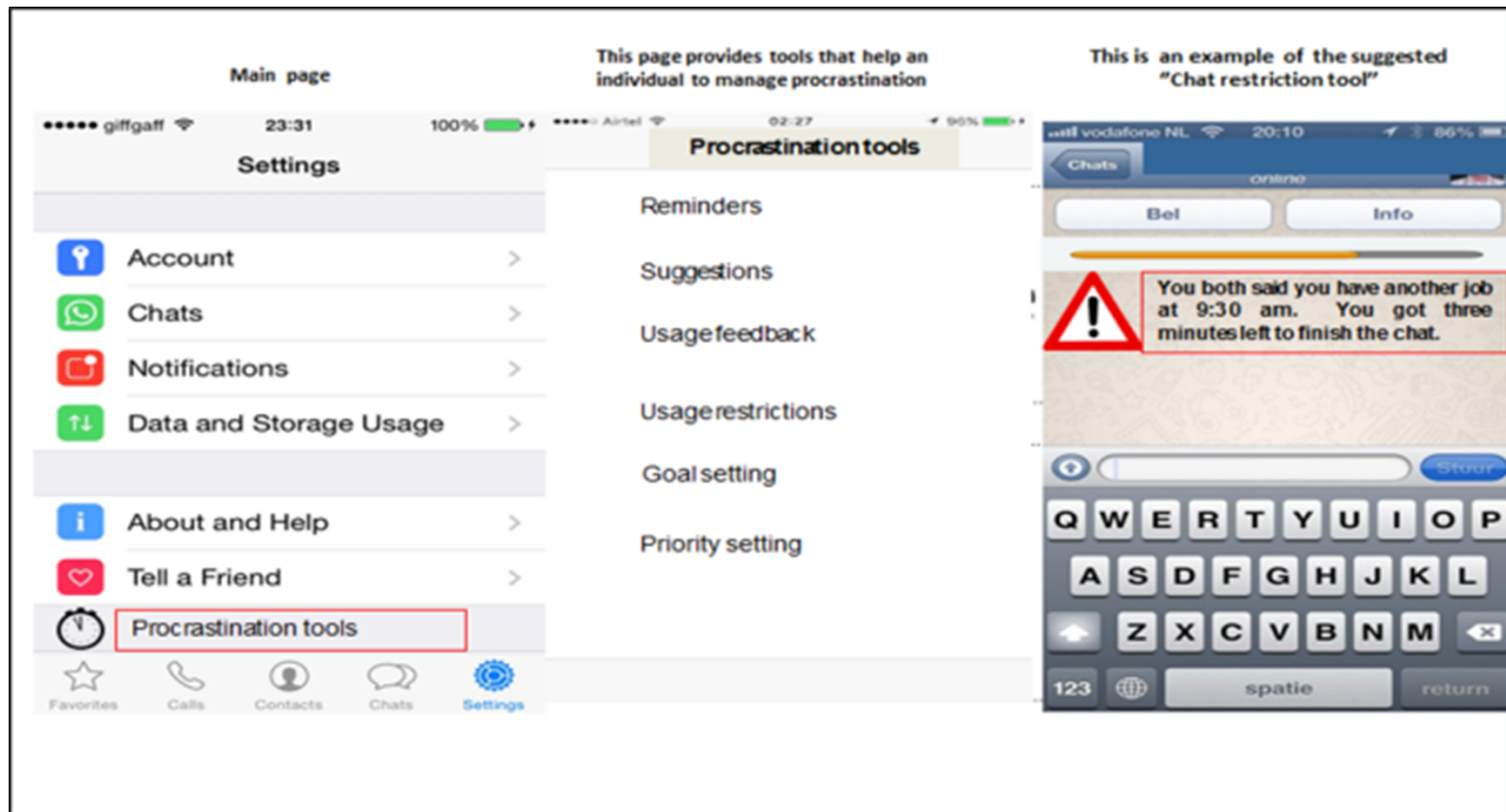
- One in seven pedestrians admit walking onto the road without looking
- Last year there were more than 24,000 pedestrians injured on the roads
- Safety campaigners warn that smart phones are a road hazard

By DAILY MAIL REPORTER

PUBLISHED: 01:47, 18 September 2014 | UPDATED: 03:04, 18 September 2014



An example of suggested designs during our co-design sessions for combatting procrastination on social media



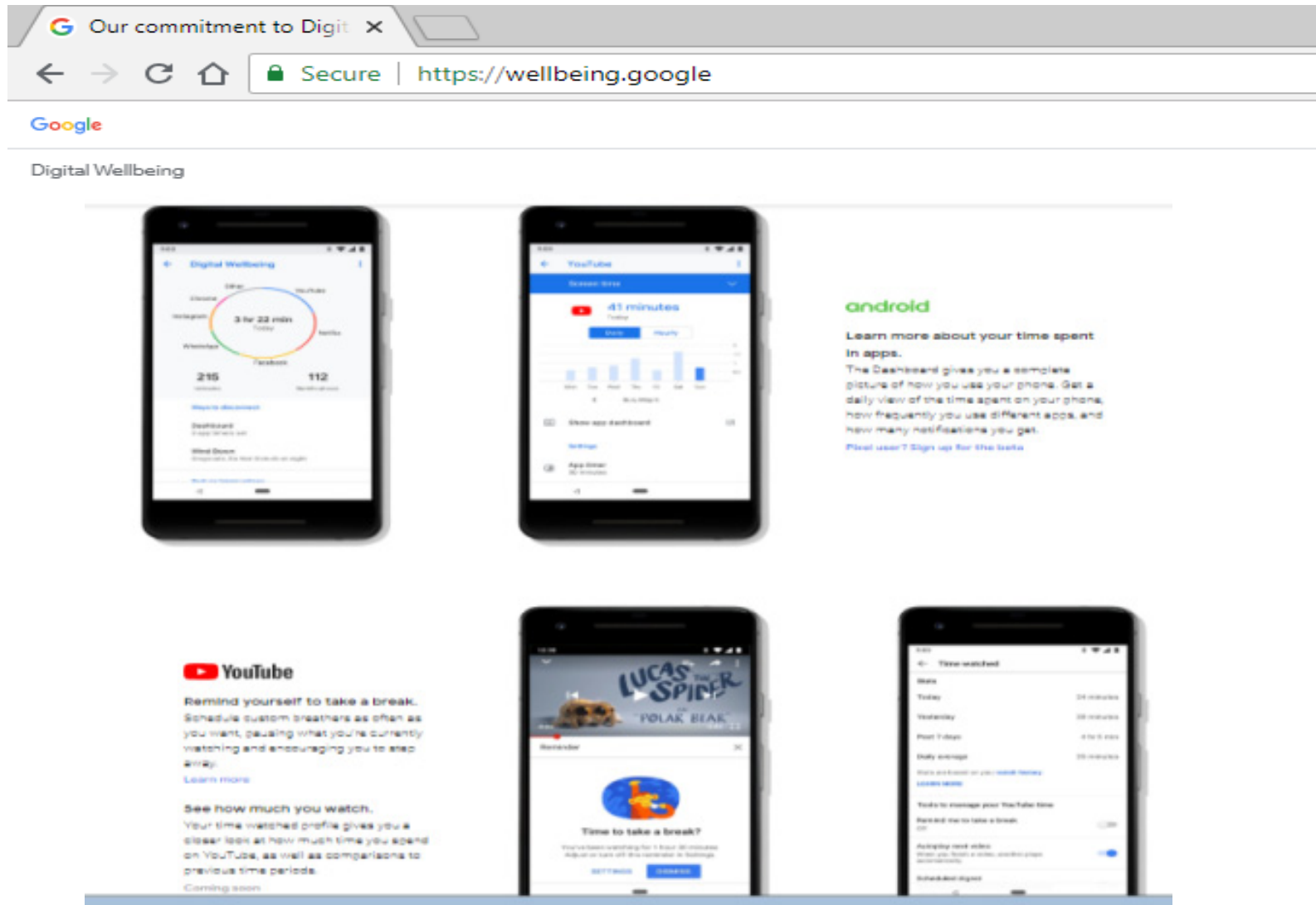
Fear of Missing Out (FoMO) and Social Media Design

- FoMO is a preoccupation with gaining more interaction opportunities and a loss prevention ability when social networks users are offline or unable to connect and communicate on demand.
- e.g. **poor impulse control leading to checking social networks improperly, e.g. while driving or attending lectures**
- FoMO is not only about being disconnected but also:
 - inability to cope with the high volume of social information
 - the inability to understand what is going on, e.g. sending a message and not getting a reply.



Anti-FoMO Social Network Design Features

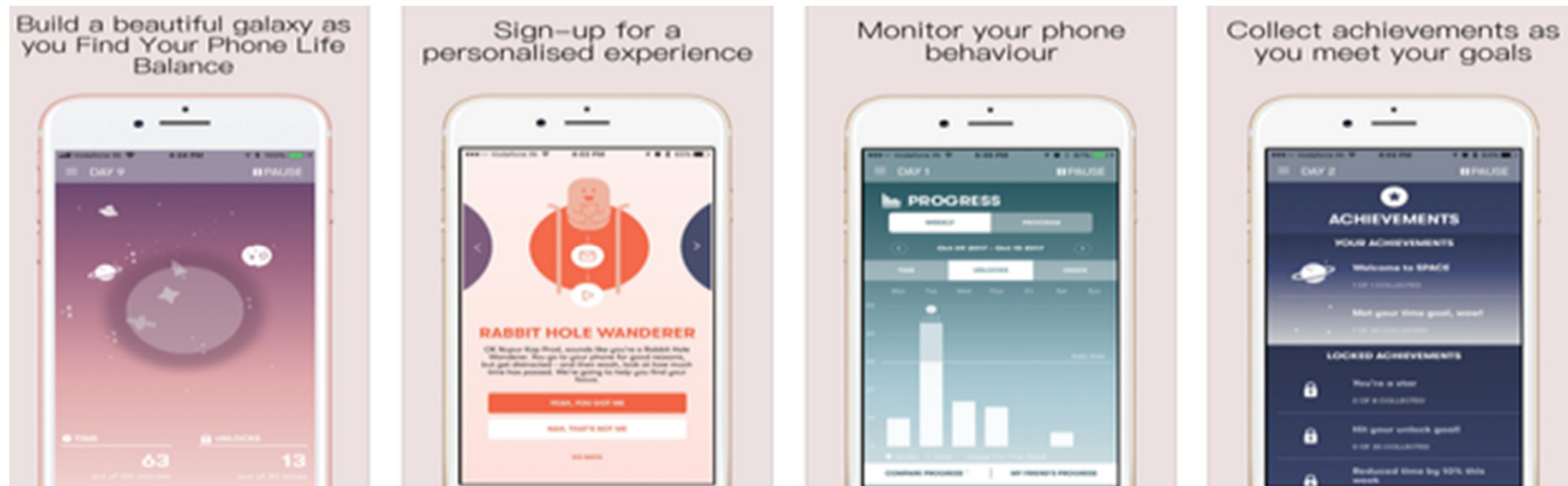
Suggested features	Description
Filtering	This mechanism enables individuals to classify messages and notifications based on certain criteria such as the topic and contacts involved
Event recorder	This mechanism records events and content while a person is offline to be viewed when they are online again
Alternative notification	This mechanism allows people to receive notifications from SNSs without having to use a social media app; e.g. via SMS or a vibration on their smartwatch.
Priority list	This mechanism helps people to specify the level of importance and relevance to topics or contacts so that they are better able to prioritise
Set status and time	This mechanism helps people to set their current status and calendar availability in advance to show their contacts whether or not they are online and available to interact
Auto-reply	This is a technique that informs individuals that a certain person is away in order not to expect an immediate response from the person



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not only
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Traditional addiction experts from Streetscene are collaborating with researchers from The Computing and Informatics Research Centre at Bournemouth University to do research on Digital Addiction. Unlike tobacco and alcohol, software systems could be designed to have a level of intelligence which would enable them react to users' addictive usage style. Streetscene has match-funded a PhD studentship to work on this area and investigate methods and tools to design addiction-aware software.

[Download Digital Addition Information Sheet \(PDF, PPTX\)](#)

GET HELP TODAY

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call back!**





Attention respectful Computing

Attention is a scarce resource.. “**attention is the new oil**”.





It is ultimately decision making online, persuasion and “**attention economy**” ..

National Literacy Trust - UK

Commission on Fake News Teaching of Critical Literacy Schools



- Only 2% of children have the critical literacy skills they need to tell if a news story is real or fake
- Half of children (49.9%) are worried about not being able to spot fake news
- Two-thirds of children (60.6%) now trust the news less as a result of fake news
- Two-thirds of teachers (60.9%) believe fake news is harming children's well-being, increasing their anxiety levels
- Half of teachers (53.5%) believe that the national curriculum does not equip children with the literacy skills they need to identify fake news

Is it time to talk about **Digital Critical Literacy**? E.g. how online persuasion works and how Algorithms are made to influence decision!



Project

Engineering Rightful and Effective Gamification and Digital Persuasion

Raian Ali · Alimohammad Shahri · Mahmood Hosseini · [Show all 9 collaborators](#)

Goal: This project aims to propose an engineering method that enables businesses and software engineers to develop and apply digital motivational approaches, such as Gamification and Persuasive Technology and Entertainment Computing, rightfully and effectively within a...

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Updates 0 new 3
Recommendations 0 new 5
Followers 0 new 14
Reads 3 new 284

Overview Project log References (31) Questions

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Engineering Rightful and Effective Gamification and Digital Persuasion
On
ResearchGate

<https://www.researchgate.net/project/Digital-Addiction-Research>



The screenshot shows the ResearchGate project page for 'Digital Addiction Research'. The browser address bar displays 'researchgate.net/project/Digital-Addiction-Research'. The page header includes the ResearchGate logo, navigation links for Home (with a red badge showing '2'), Questions, and Jobs, a search bar, and user profile icons with a red badge showing '30'. A blue 'Add new' button is also present.

Project

Digital Addiction Research

Raia Ali · Amen Alrobai · John Mcalaney · [Show all 13 collaborators](#)

Goal: We study Digital addiction (DA) as an emergent research area and explore a problematic usage of digital media described by being obsessive, excessive, compulsive, impulsive and hasty. We particularly focus on software-based tools which aid people adjust their usage style...

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Digital Addiction Research On ResearchGate

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Thank you... Questions?

Raian Ali

raali2@hbku.edu.qa

Information and Computing Technology
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Towards a Fair Share of Data

