



First International Workshop on Affective  
Computing for Requirements Engineering.  
RE2018 Workshop, August 21 2018, Banff,  
Canada

# Digital Motivation, Digital Addiction and Responsibility Requirements

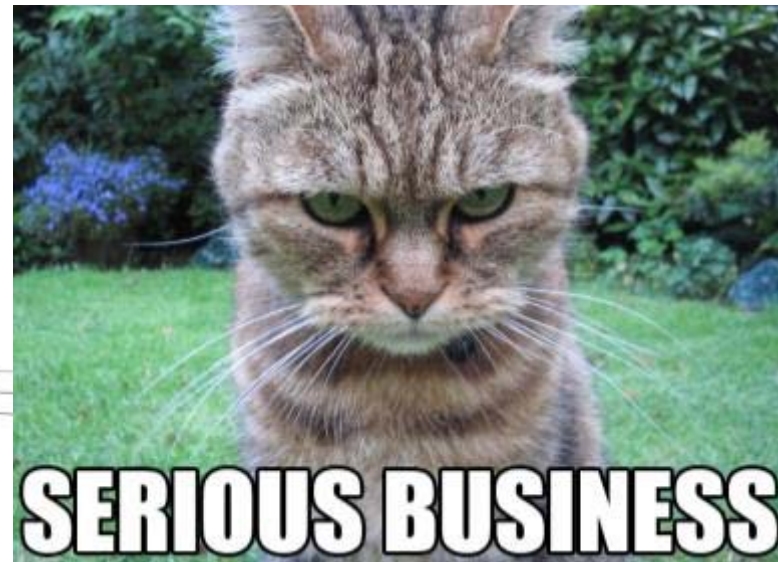
Raian Ali

@bu\_esotics

# Digital Motivation



... but in a

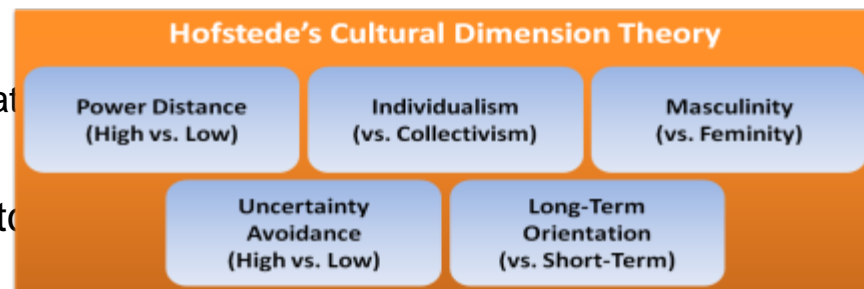


# Motivation as a Requirement

- ▶ Motivation is a requirement..
  - ▶ Perhaps a supplementary/weak one. i.e. linked to an underlying task
- ▶ Digital Motivation
  - ▶ Facilitating motivation through digital means, e.g. points, steps
- ▶ Motivation to handle with care
  - ▶ Compulsive and obsessive usage
  - ▶ Impulsive and hasty
  - ▶ When used in social/organizational settings
    - ▶ Group dynamics
      - Cooperative/Competitive tasks
      - Social loafing and social compensation
      - Bribe for exchange
    - ▶ Roles, membership, hierarchy, etc
- ▶ Personality



**O**penness to experience  
**C**onscientiousness  
**E**xtraversion  
**A**greeableness  
**N**euroticism



# It is not a risk-free business

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- ▶ Ethical concerns: a border line between motivation and
  - ▶ Manipulation, Exploitation, Obsession
- ▶ Performance side-effects
  - ▶ Fractioned groups, less productivity
  - ▶ Trivializing the work environment
  - ▶ Reward driven vs. quality driven
- ▶ Corporate social responsibility
- ▶ Ethical/Social Software Engineering
  - ▶ Informed consent
- ▶ Employment Law
  - ▶ Implied terms, Equity act, GDPR compliance



# How to motivate/persuade?



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

# How to motivate/persuade?

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## 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.

# Some psychology: motivation types

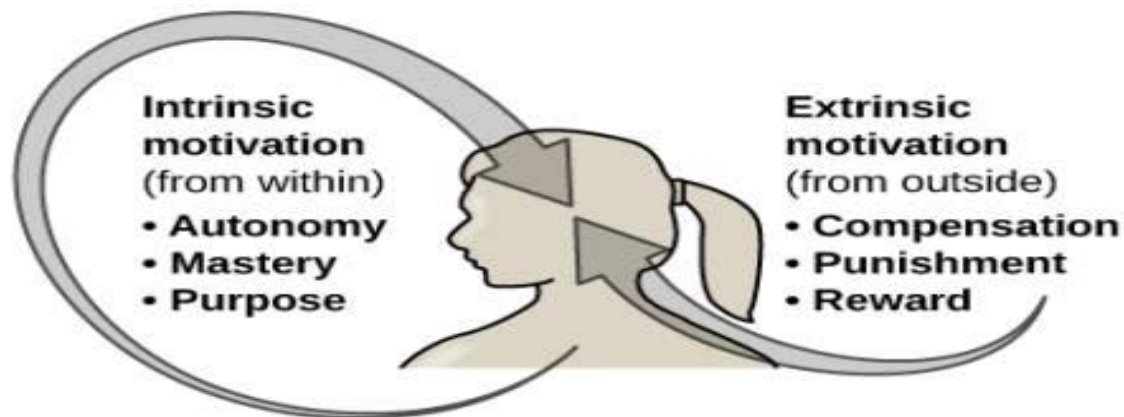


## ▶ **Extrinsic Motivation**

- ▶ 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 psychology: Motivation via Conditioning

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- ▶ Techniques based on conditioning used by teachers, government, commercial organizations to shape attitudes, emotions and behavior
- ▶ Conditioning is an example
  - ▶ **Classical** conditioning: association, involuntary
    - ▶ Perfume reminding you someone
    - ▶ The authoritative look of the website is an example
  - ▶ **Instrumental** conditioning: rewards and punishment, voluntary
    - ▶ 10% pay increase for top 10 performers in a call centre
    - ▶ - People rating you low when you write bad comments



# Some Social and Cognitive Psychology

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## Social Psychology - 3 elements in a persuasive interaction:

- ▶ Communicator (credibility: expertise, trust, attractiveness)
- ▶ 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..



# DM: game-design perspective

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

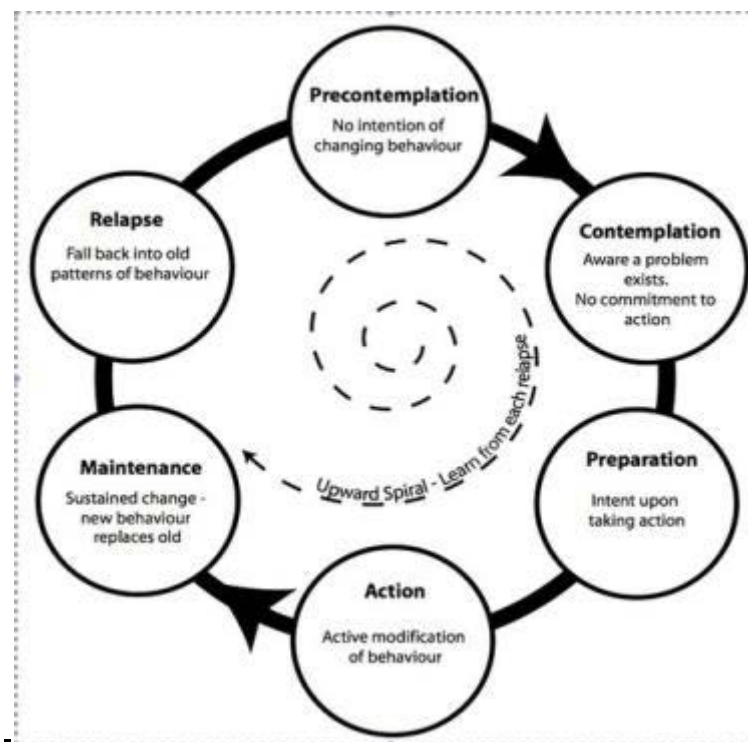
TABLE 1. SUBCOMPONENTS REVEALED BY THE FACTOR ANALYSIS GROUPED BY THE MAIN COMPONENT THEY FALL UNDER

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

# DM as a Behaviour Change

## ► Behaviour Change

- Reasoned action
- Planned behaviour
- Transtheoretical
- Social learning
- Social cognitive theory
- Fogg model
- Self-efficacy
- .....



## ► A green field for RE and SE...

- E.g. should we ask people “how do you like to be motivated?!”
- Participatory Design necessarily good? Some motivations are based on **uncertainty**! How to sustain motivation, adapt it and what are its “KPI’s”?

# Digital Motivation scenario ..

- ▶ International Labor Organization (ILO) report found out that 47.7% of business process **outsourcing** BPO workers surveyed are suffering from insomnia while 54% are suffering fatigue.
- ▶ Carlos Dominguez, vice president at Cisco:
  - ▶ Call centres are very stressing. We **gamify** by measuring the anger at the beginning and end
  - ▶ The bigger the delta, the more points given
  - ▶ Agents will be **wishing for angry customers**
- ▶ But .. that is the **business** thinking!
- ▶ **Value sensitive design** issues..



A call centre personnel presses her hand to her forehead at an online brokerage company in Tokyo October 23, 2008.  
CREDIT: REUTERS/YURIKO NAKAO

[HTTP://WWW.REUTERS.COM/ARTICLE/2009/04/27/US-STRESS-DEPRESSION-INDUSTRE53Q5IA20090427](http://www.reuters.com/article/2009/04/27/US-STRESS-DEPRESSION-INDUSTRE53Q5IA20090427)

[HTTP://WWW.INTERAKSYON.COM/INFOTECH/IN-STRESS-FILLED-BPO-WORLD-GAMIFICATION-COULD-OFFER-RELIEF](http://www.interaksyon.com/infotech/in-stress-filled-bpo-world-gamification-could-offer-relief)

# DM & Social and mental well-being



## Monitoring

	Likely to Raise Issues
Rank Visibility	Not in the top list
	Frequently shown to all
Level of Details	Fine-grained details
Nature of Task	Creative
	Quality-based
Management Style	No direct contact
	Pressurising for more profit
Personality	Doing the task as any job
	Moderately ambitious

## "Exploitation-ware"

	Likely to Raise Exploitation Issues
Rewarding Strategy	Comparing to others progress
Nature of the Reward	Intangible costs
Policy	Non-transparent, unexplained
Tasks	Non-concrete/ subjective
Underlying Mechanism	Seen negative
Personality Type	Online "ultras"
	Looking to compensate online

## Privacy-related stress

	Likely to Raise Issues
Stored Information	Personal, or likely to lead to infer personal information
	Subjective judgement
Information Accessibility	Public/non-relevant peers
	Real names
Personality	Introvert
	Non-competitive
	Ambitious
Right to View Information	Actual collected data and their interpretation are hidden



# Risks and Mitigating Strategies

Risk	Exemplar of Mitigation strategy
<b>Free-Riding</b>	Auditing, member checking, random monitoring, get everyone involved, commitment, voting, common ground rules, reward individual contribution
<b>Meet the minimum requirements</b>	Get everyone involved, commitment, voting, common ground rules, norms
<b>Performance Misjudgements</b>	Auditing, peer-rating, member checking, self-assessment,
<b>Clustering groups</b>	Auditing, commitment, facilitator
<b>Lowering self-esteem</b>	Reward for of individual contribution, random monitoring
<b>Counterproductive comparison</b>	Auditing, Anonymity
<b>Negative pressure</b>	Auditing, reward for helping others, reward individual contribution
<b>Anchoring bias</b>	Common ground rules, commitment, transparency
<b>Bribe for exchange</b>	Get everyone involved, commitment, voting, common ground rules
<b>Work Intimidation</b>	Auditing, member checking, random monitoring, reward for helping others, norms
<b>Novelty effect</b>	Anonymity, rotations sensitivity
<b>Deviation from goal</b>	Reward for of individual contribution
<b>Lack of engagement</b>	Peer-rating, member checking, self-assessment
<b>Reduce task quality</b>	Reward for of individual contribution, random monitoring
<b>Social loafing</b>	Auditing, member checking, random monitoring, get everyone involved, commitment, voting, common ground rules
<b>Infringe autonomy</b>	Anonymity, managerial level monitoring, rotations sensitivity
<b>Kill of the joy</b>	Anonymity, rotations sensitivity, random monitoring

# Digital Motivation Modelling Language (DMML) .. An overview

*Alimohammad Shahri, PhD thesis*

# What is DMML?

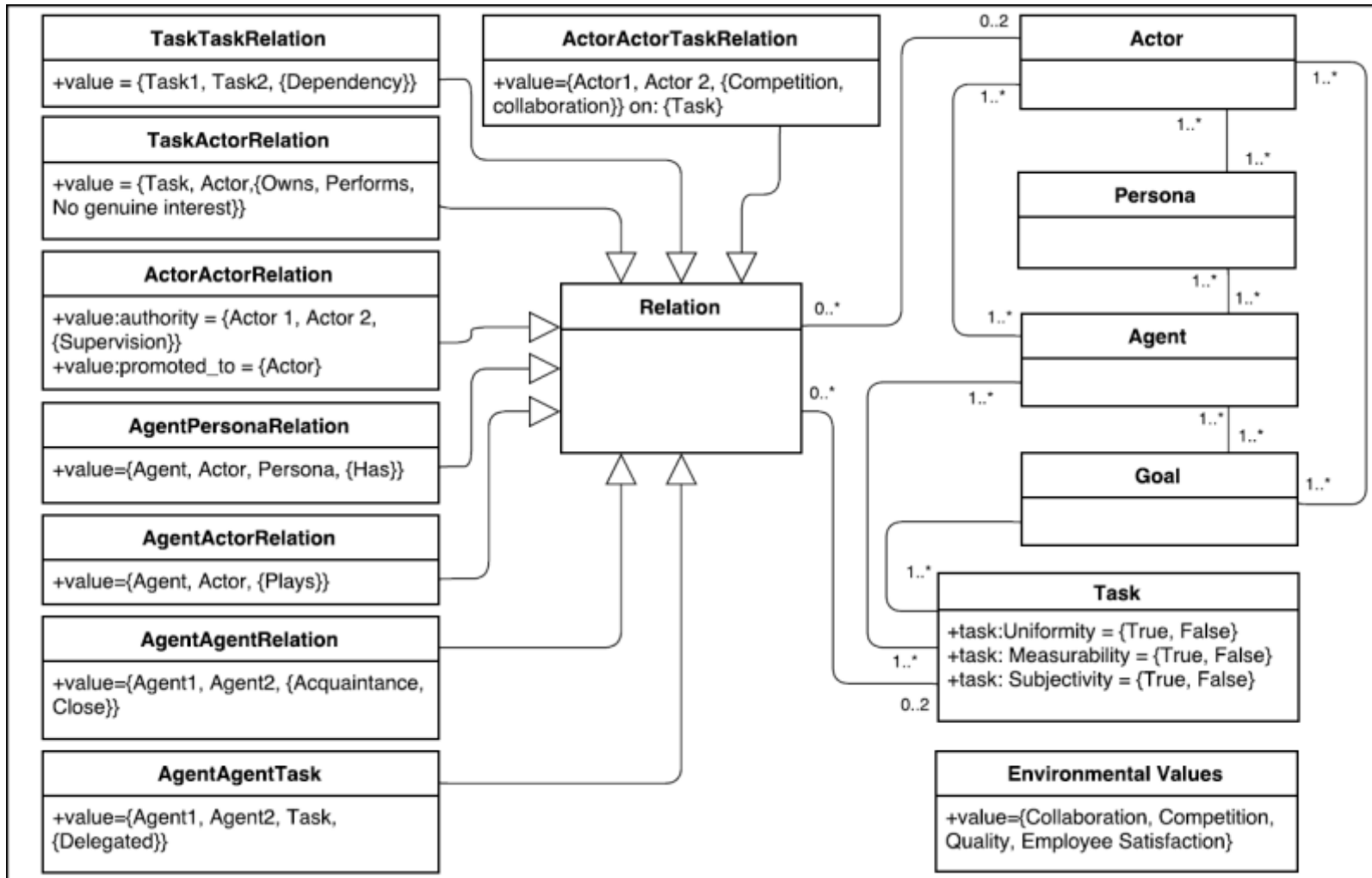
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- ▶ It uses the concepts and relations provided in GORE but not limited to
- ▶ It has a specialized concepts set for DM
- ▶ DMML enables:
  - ▶ Better thinking of motivational requirements
  - ▶ Better communication and documentation of them
  - ▶ Automated detection side-effects of DM early on
  - ▶ ...

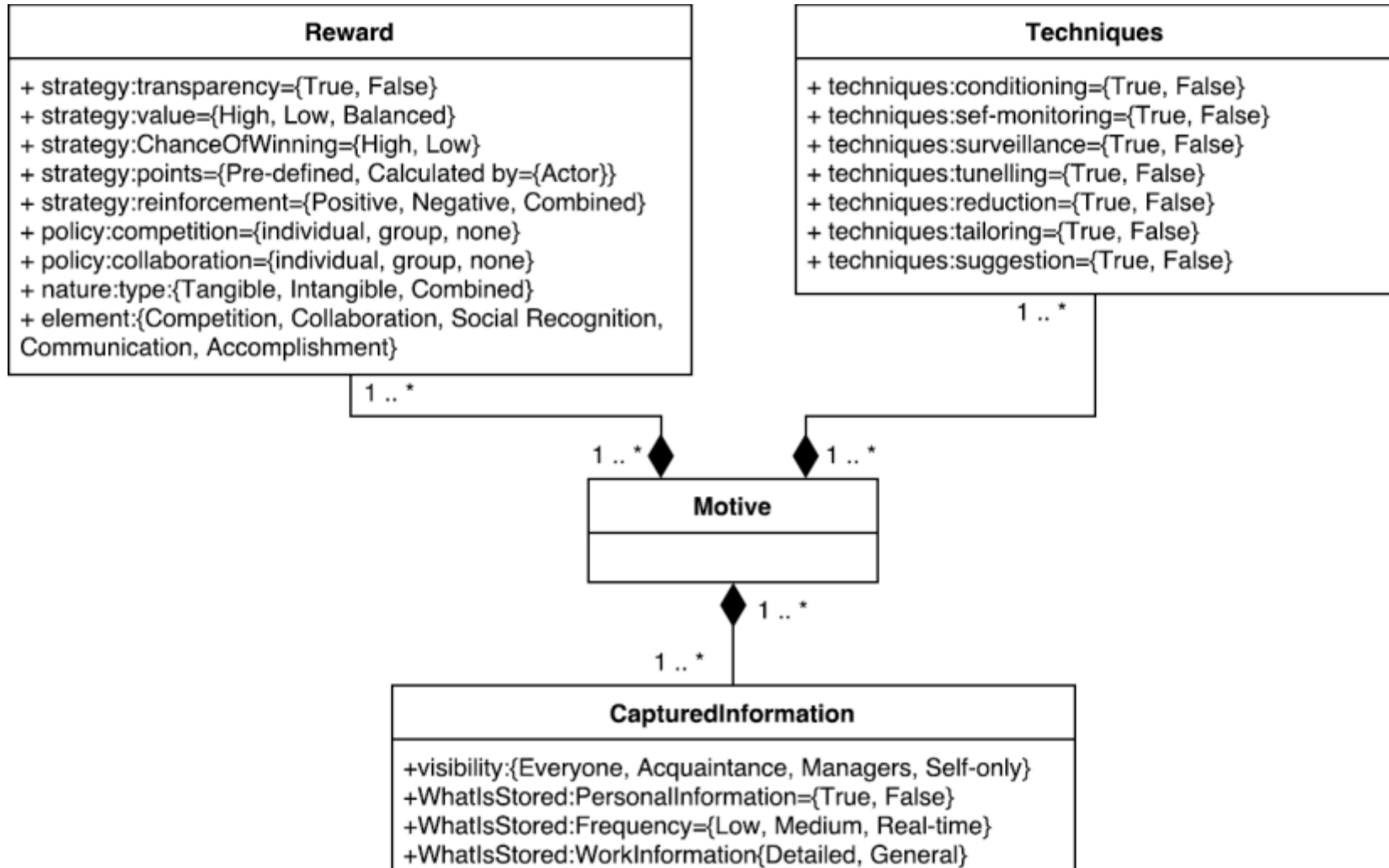


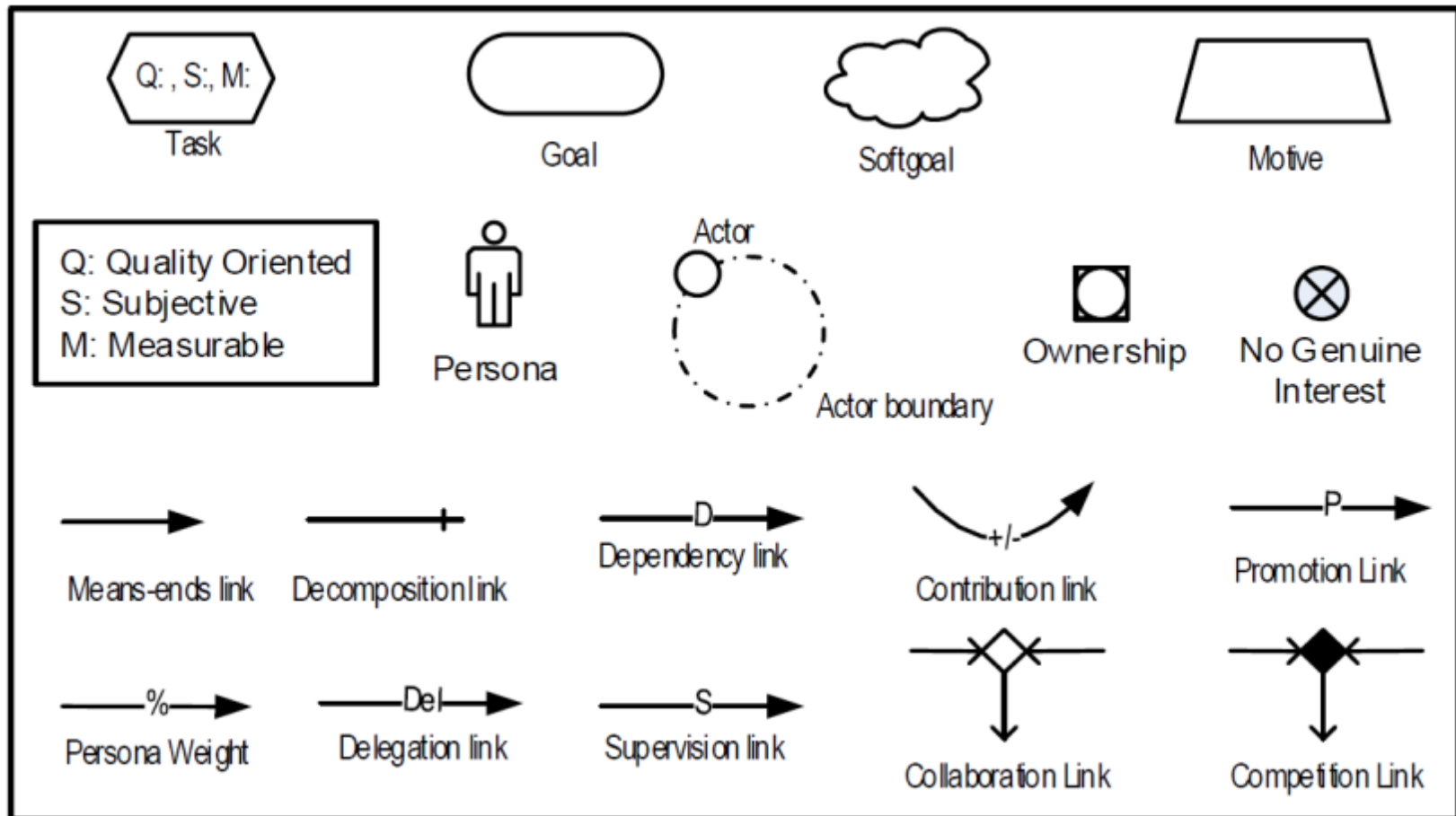
- ▶ **DMML separation of concerns:**
  - ▶ The business environment it is being introduced to
  - ▶ The motives being added to the environment

# DMML- Environment



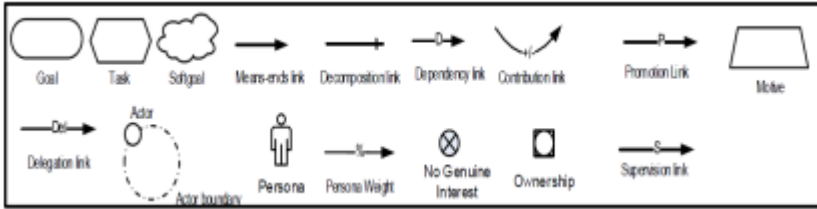
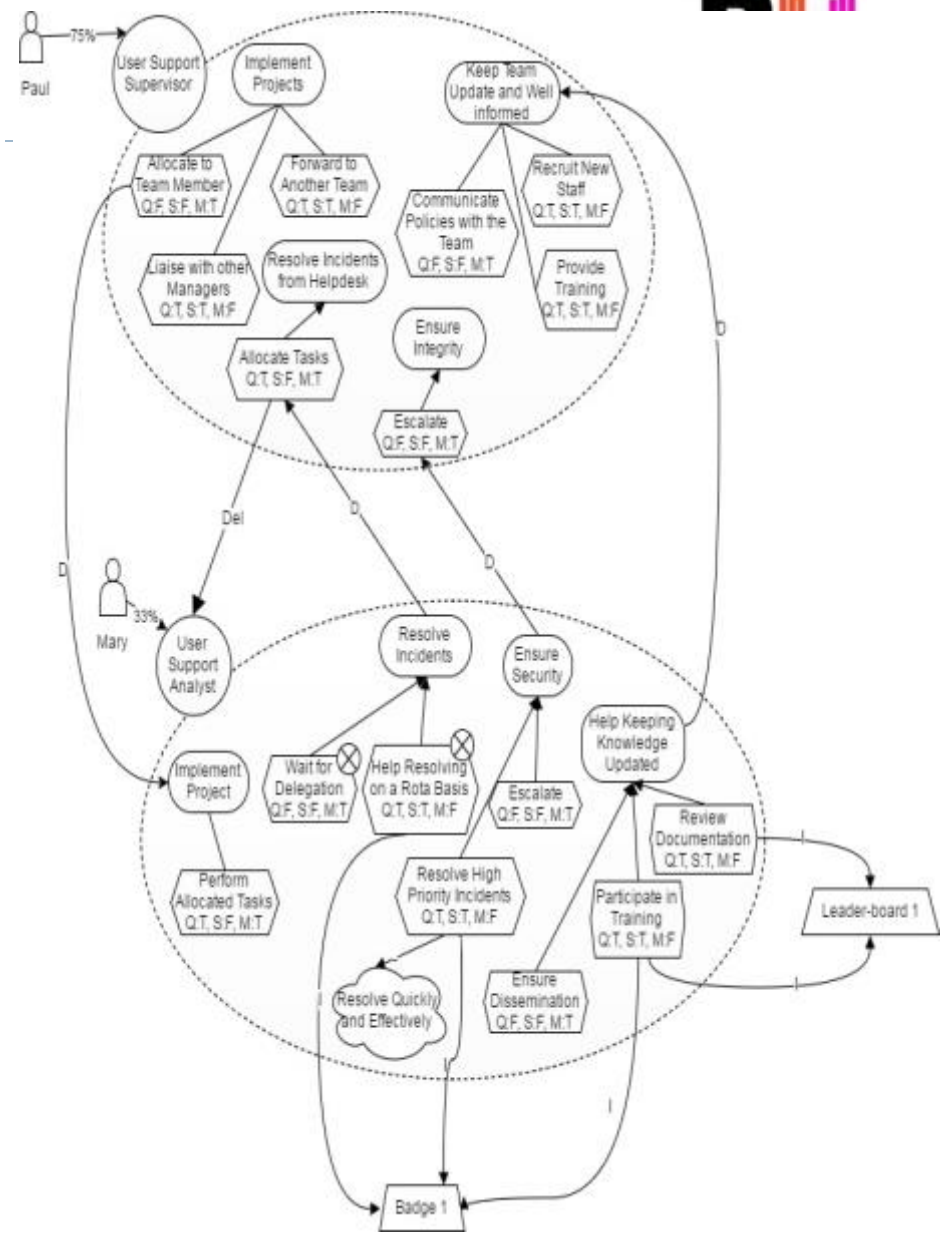
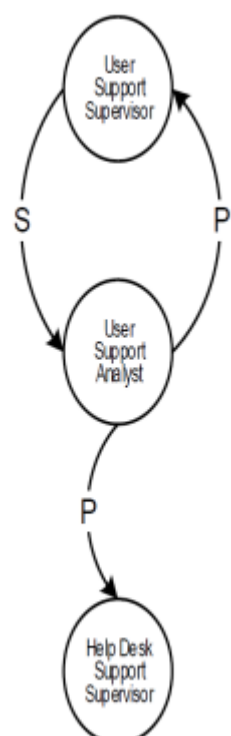
# DMML - Reward





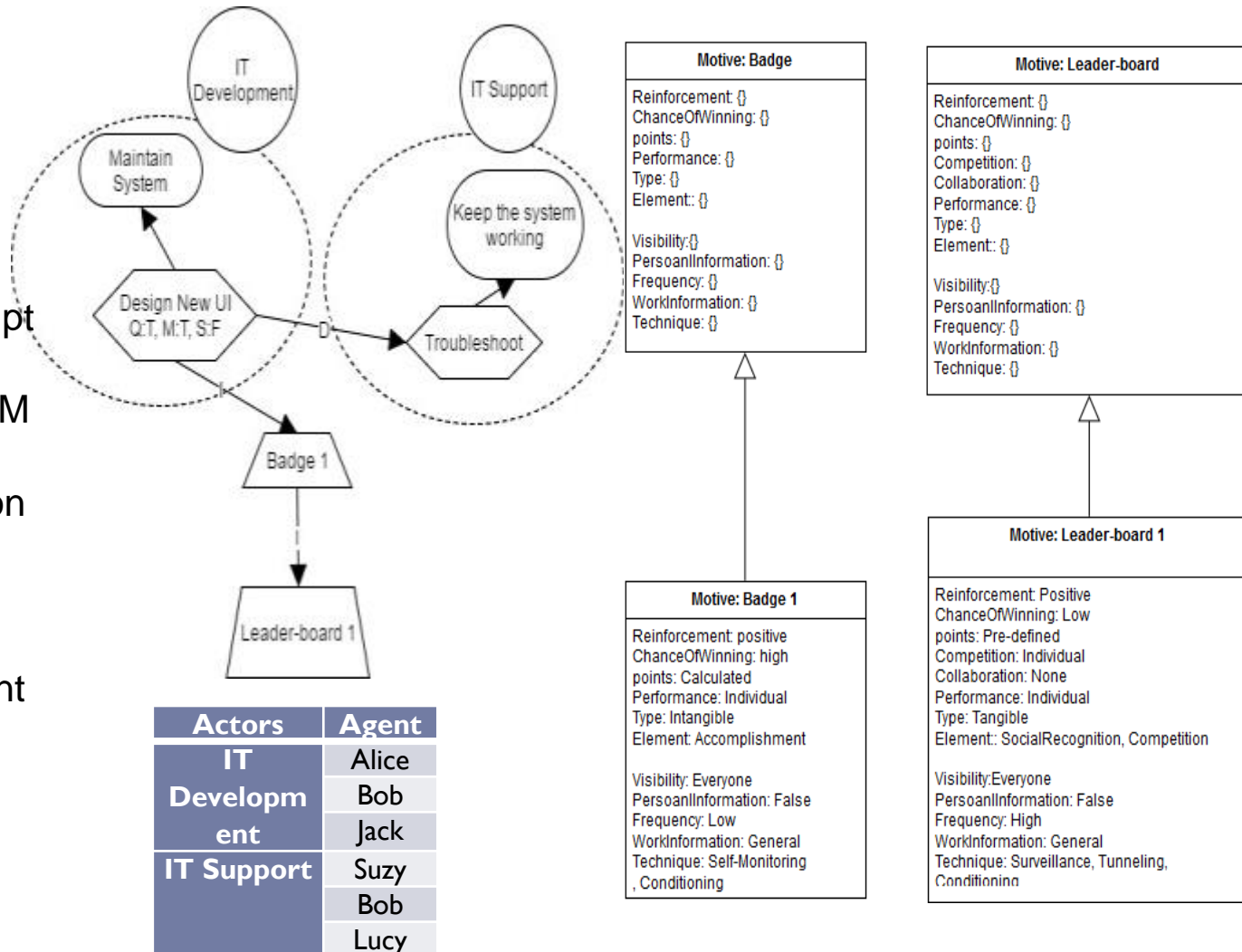


# Example – IT Services



# 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.



---

**Algorithm 1: Conflict of Interest 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 “Conflict of Interest”

```

1 foreach  $t \in T$  do
2   foreach  $m \in M$  do
3     if  $((t \subset m) \&\& (\text{“competition”} \subset m))$  then
4        $\text{competitive\_tasks} [ ] += t$ 
5     end
6   end
7 end
8 foreach  $t \in \text{competitive\_tasks}$  do
9   if  $t.\text{Check\_for\_dependency}() = \text{True}$  then
10    if  $((\exists (ag \in AG \mid t \subset ag)) \&\& (\exists (t.\text{dependee} \subset ag)))$ 
11     $\&\&$ 
12     $(\exists (ag \in AG \mid t \subset ag)) \&\& \exists (t.\text{dependee} \not\subset ag))$  then
13      RETURN “Risk of Conflict of Interest”
14    end
15  end
16 end

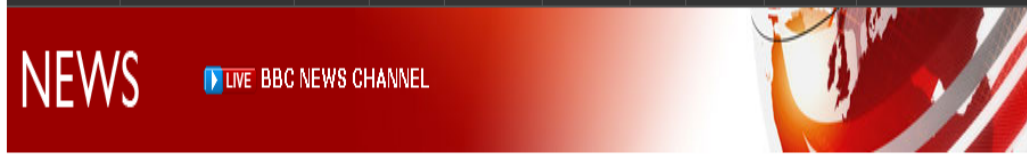
```

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# Digital Addiction .. From Motivation to Obsession







## Man finds his feet have ROTTEN after playing video games for six days non-stop

- 19-year-old spent six days straight in an internet bar in Hangzhou, China
- When he left the premises, he said he became disorientated
- Police found him lying on grass unconscious with rotten mosquito bites
- The man told officers that he had not eaten or drunk water for three days

By SOPHIE WILLIAMS FOR MAILONLINE  
 PUBLISHED: 12:28, 24 June 2016 | UPDATED: 12:40, 24 June 2016

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A man in China has been found in a dazed state with rotten feet after a six-day-long internet gaming session.

Police found the man, surnamed Chen, lying unconscious in Hangzhou on June 16 near a railway track with his feet infected, reports the *People's Daily Online*.

According to the young man's father, he had run away after becoming addicted to online gaming.



Addicted to games: The 19-year-old was found lying on grass unconscious with rotting feet in Hangzhou

News Front Page Page last updated at 10:31 GMT, Friday, 5 March 2010

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## S Korea child 'starves as parents raise virtual baby'

time.com/63033/south-korea-gaming-toddler-death/

8:58 AM ET Icahn Denies Insider Trading

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WORLD SOUTH KOREA

## Gamer Dad Arrested After Toddler Dies of Neglect

Charlie Campbell @charliecampbell | April 15, 2014

Sgt. Bowie Bergdahl, Lone American Still Held in

Carl is Facing FULL ON

NBA O Starlin

Sulaidi Orlizer

THE INDEPENDENT TUESDAY 14 JULY 2015

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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

### SEE ALSO

- ▶ Tech addiction 'harms learning' 15 Sep 09 | Education
- ▶ China to ban beating web addicts 05 Nov 09 | Asia-Pacific
- ▶ US shows signs of net addiction 18 Oct 06 | Technology
- ▶ How to survive the internet 26 Mar 02 | Sci/Tech

### RELATED BBC LINKS

- ▶ Headroom: Depression

### RELATED INTERNET LINKS

- ▶ Psychopathology

# 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)

## Stay Connected



Mobile



Facebook

# More reports

- ▶ 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



# Relevant Projects: Digital “Addiction”



- ▶ <https://research.bournemouth.ac.uk/project/dar/>
- ▶ Digital Addiction
  - ▶ Motivation and Persuasion vs. Obsession,
  - ▶ Impaired Decision Making, and Deception
- ▶ Software Engineering
  - ▶ Corporate Social Responsibility
- ▶ Persuasion and Anti-Persuasion
  - ▶ Labels on cigarette packs



**BU Bournemouth University** Research

Home Themes Centres Projects REF 2014 Research Environment Events Research briefings Student Engagement Innovation Funding

Home > Research Projects > Digital Addiction Research

## Digital Addiction Research

**Faculty:** Faculty of Science and Technology

**Research Centre:** Computing and Informatics Research Centre

**Links:** UAA UAF

**Research Centre for Behaviour Change**

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 aiding people adjust their usage style through the use of digital technology itself. This research is led by **Dr. Raian Ali** and it 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. We also have a rich outreach knowledge exchange programme with which input from colleagues across external national, European and International academic and professional collaborators. This work has been featured in reports in the *Telegraph* and *Huffington Post* and *La Stampa* and the team has been interviewed frequently on radio stations including BBC Solent, Wave 105 and

**Latest news from this project:**

- 01st June 2017 **EROCamb: a New Project with GambleAware on Enabling Responsible Online Gambling**  
The Engineering of Social Informatics research group (ESOTICS) in the Department of Computing and Informatics has recently obtained a research fund from GambleAware to support a project titled "Empowering Responsible..."
- 1st February 2017 **Partnership between ESOTICS Research Group and the Gambling Therapy**  
The growth of online gambling and the proliferation of smart phones has enabled people to gamble in different ways, and outside of

# EROGamb: Responsible Online Gambling



- ▶ With **GambleAware** UK
- ▶ Informed usage
  - ▶ Explaining user's behaviour
  - ▶ Real-time interventions
- ▶ Counter-persuasion
  - ▶ Goal settings
  - ▶ Self-monitoring
  - ▶ Surveillance
- ▶ Infographics



- ▶ How to design for informed persuasion?

The screenshot shows the Bournemouth University Research website. The header includes the BU logo and the word 'Research'. A navigation bar contains links for Home, Themes, Centres, Projects, REF 2014, Research Environment, Events, Research briefings, Student Engagement, and Innovation Funding. The breadcrumb trail reads: Home > Research Projects > EROGamb: Enabling Responsible Online Gambling.

The main content area features a large image of a hand holding a red chip over a tablet displaying a game interface, with the text 'EROGamb: Enabling Responsible Online Gambling' overlaid. Below the image are social media icons for Facebook and Twitter, and metadata for the Faculty of Science and Technology, Computing and Informatics Research Centre, and the user 'UoB'.

The text below the image states: 'This project is hosted by The Engineering of Social Informatics research group (ESOTICS) in the Department of Computing and Informatics and funded jointly by GambleAware and Bournemouth University. The project is titled "Empowering Responsible Online Gambling with Predictive, Real-time, Persuasive and Interactive Intervention" and led by Dr. Ralan Ali. The overall cost of the project is £118,136 and it is match-funded by Bournemouth University.'

Below this text is a paragraph: 'In this project we will 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 on their gambling behaviour. It will also implement various software-assisted behaviour change mechanisms to try and reduce problem.'

To the right of this paragraph is the EROGamb logo, which consists of a circular pie chart with four segments in blue, green, red, and yellow, and the text 'EROGamb Aware Online Gambling' below it.

On the right side of the page, there is a section titled 'Latest news from this project:' with two news items. The first is dated 12th June 2017 and is titled 'EROGamb: a New Project with GambleAware on Enabling Responsible Online Gambling'. The second is dated 1st February 2017 and is titled 'Partnership between ESOTICS Research Group and the Gambling Therapy'.

# “Motivate Responsibly”

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## 888 told to pay record £7.8m by Gambling Commission. Does the industry need tighter controls?

Vulnerable customers who tried to self exclude were allowed to play on, while the company was also found to have failed to identify problematic behaviour which saw one customer dropping £1.3m including money stolen from their employer

James Moore Chief Business Commentator | [@jimMooreJourn](#) | 2 days ago | [1 comment](#)



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Often about underlying issues .. But software should try not to exacerbate the situation

# People are realizing what Tech are doing! It sounds like largely unregulated business



## 'I lost £250,000 on betting machines'

The maximum stake for fixed odds betting terminals should be **cut to £30 or less**, the UK's Gambling Commission has recommended.

Currently people can bet up to £100 every 20 seconds on electronic casino games, such as roulette and blackjack.

The Association of British Bookmakers has claimed that a £30 maximum stake would see 2,100 betting shops closed and 10,000 jobs lost.

Terry White says he lost up to £15,000 per day on fixed odd betting terminals in shops on the high street.

🕒 19 Mar 2018





# askreddit

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Posted by u/Lmar13 1 year ago 2

32.8k **What dirty little secret does your profession hide that the consumer should know?**

27.0k Comments Share Save

cyberdrunk 1.9k points · 1 year ago

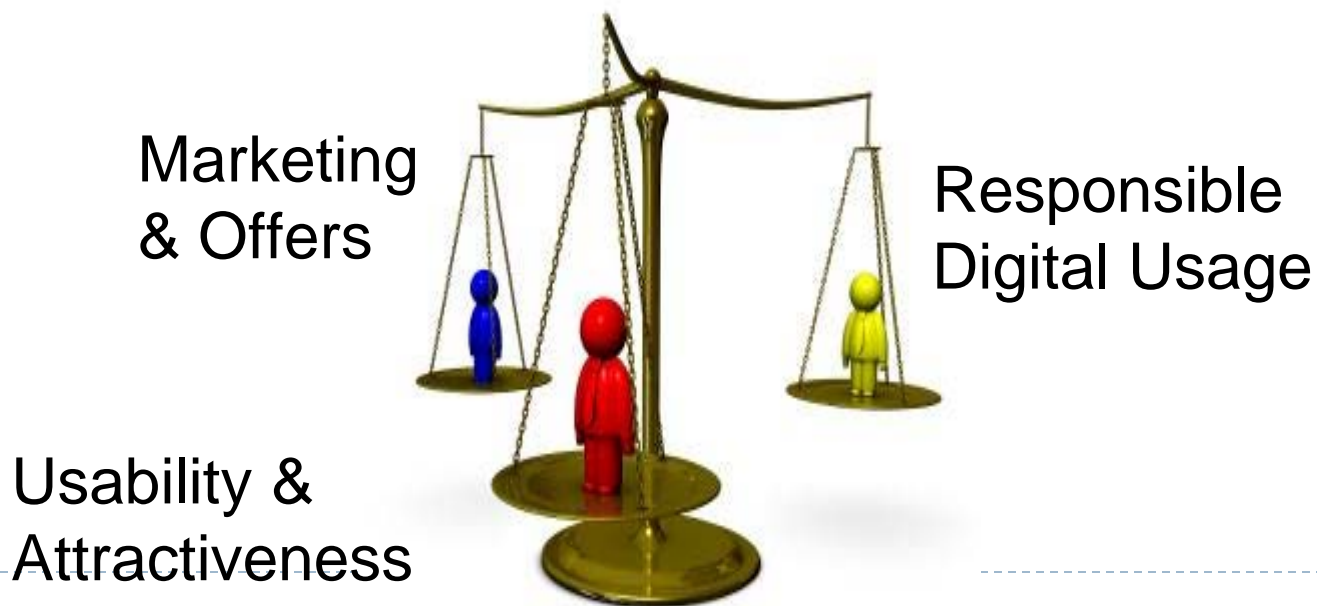
I work in video games. Our job is to make our game as addictive as possible so that we can make the most money out of micro-transactions. (Think mobile phone games) A lot of our game design is by marketing telling us what people will most likely buy in the game by watching data. Sure, it starts free-to-play,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

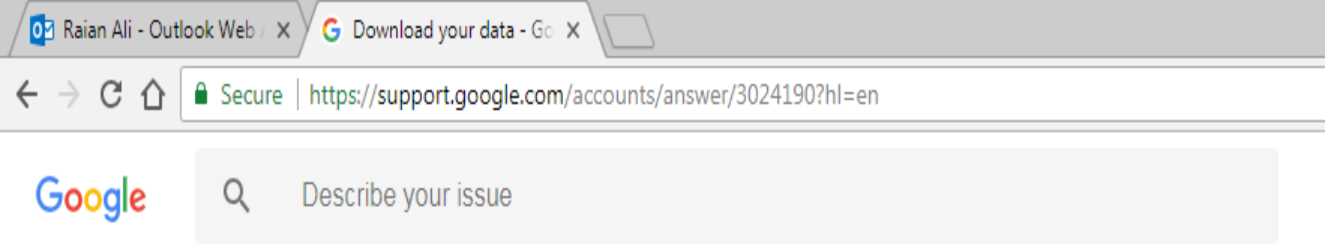
After a while I felt like I was working for a drug dealer and quit recommending our games to people I knew. Sure, people have fun playing the games we make, but I don't want to hear later about how much money you or your kids wasted on it.

Share Save

263 more replies

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





Choose [privacy settings](#) that are right for you, and receive reminders to check them regularly.



## Download your data

You can export and download your data from the Google products you use, like your email, calendar, and photos. In a few easy steps, create an archive to keep for your records or use the data in another service.

**Note:** Downloading your data does not delete it from Google's servers. Learn [how to delete your account](#) or [how to delete your searches and browsing activity](#).

## Create an archive of your data

### First, choose which products to include

1. Visit the [Download your data](#)  page. You might have to sign in to your Google Account.
2. Choose which Google products to include in your download. To see more details and options for a product, select the Down arrow  .
3. Select **Next**.
4. Choose your archive's "File type."

<https://support.google.com/accounts/answer/3024190?hl=en>

Next, choose how your archive is delivered



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- Login and Password
- Your Profile and Settings
- Names on Facebook
- Keeping Your Account Secure
- Notifications
- Ad Preferences
- Accessing & Downloading Your Information**
- Deactivating or Deleting Your Account

## Accessing & Downloading Your Information

### Tools & Resources

How do I view my information on Facebook?

How do I download a copy of my information on Facebook?

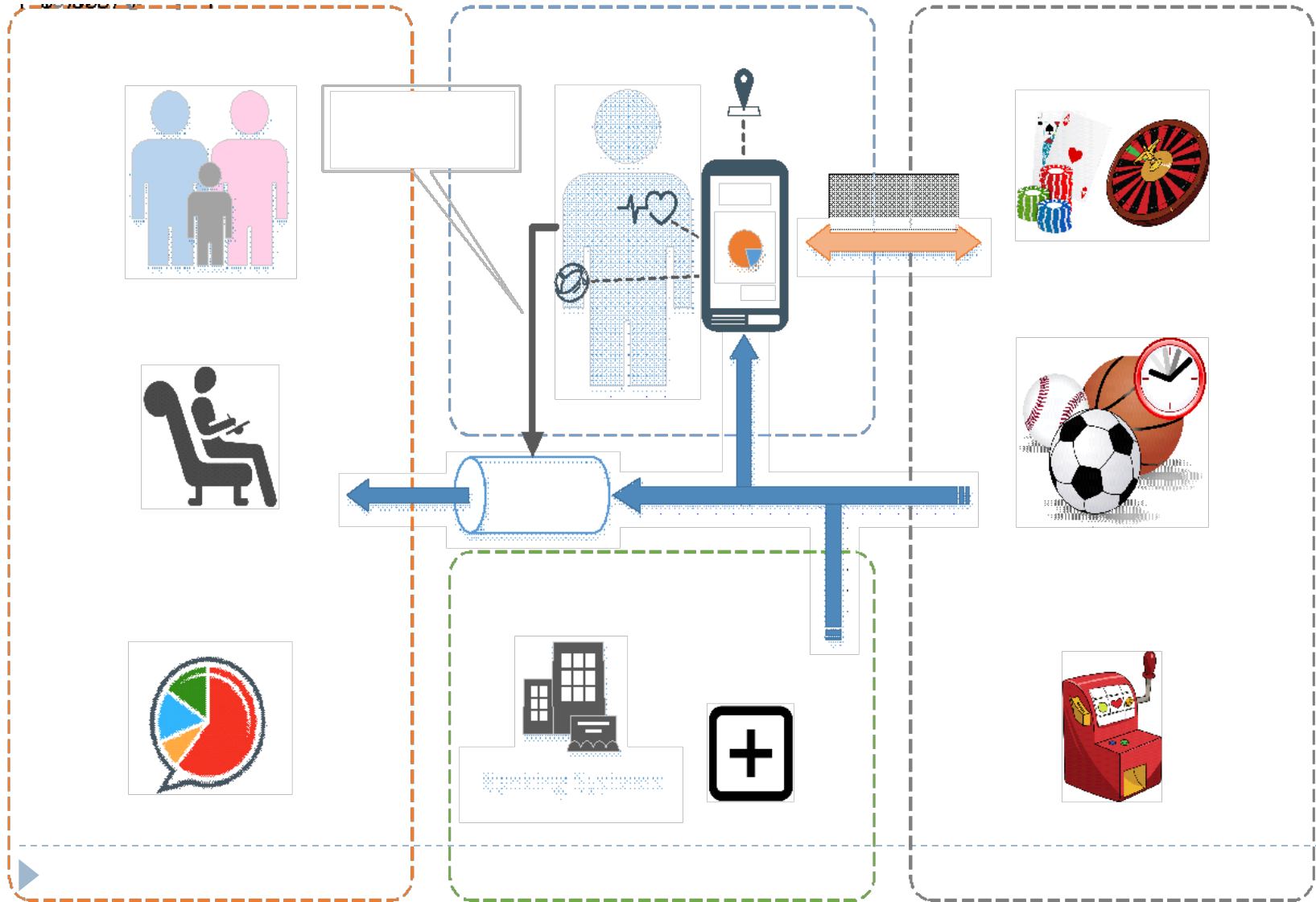
If you want to download a copy of your information from Facebook, you can use the **Download Your Information** tool.

#### To download a copy of your Facebook data:

- 1 Go to the top right of Facebook and click .
- 2 Click **Settings**.
- 3 Click **Your Facebook Information**.
- 4 Go to **Download Your Information** and click **View**.
- 5 To add or remove categories of data from your request, click the boxes on the right side of Facebook.
- 6 Select other options, including:
  - The format of your download request.
  - The quality of photos, videos and other media.

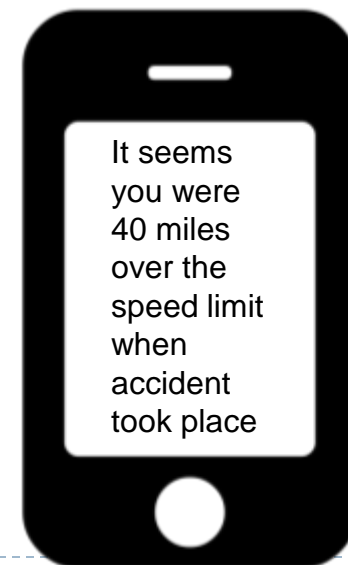
[https://www.facebook.com/help/1701730696756992?helpref=hc\\_global\\_nav](https://www.facebook.com/help/1701730696756992?helpref=hc_global_nav)

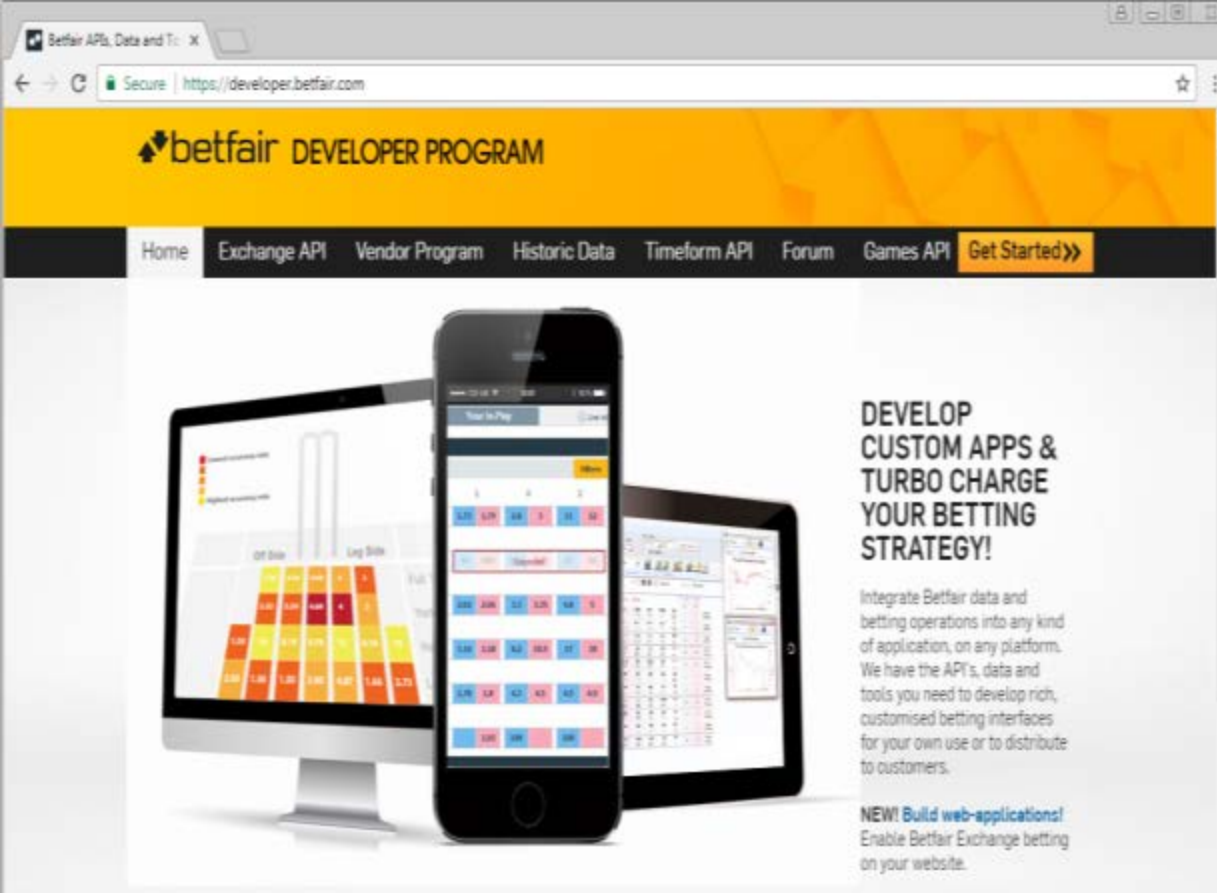
# In the case of online gambling



## Digital Addiction: Real-time intervention

Tech Companies to do more, e.g. to provide a **real-time access to digital usage data is key**: you would not want to tell a driver they were over-speeding or they looked sleepy after an accident takes place!






# API's Application Programming Interfaces



Think of them as a proxy which allows 3<sup>rd</sup> parties to network with the Gambling Site and Read Data (betting history, limits, pending bets, etc.)

They could also do more.. E.g. setting limit, self-exclude, etc.

## YOU HAVE THE FOLLOWING PRODUCTS TO CHOOSE FROM

 <b>EXCHANGE API</b>	 <b>TIMEFORM API</b>	 <b>EXCHANGE HISTORICAL DATA</b>	 <b>VENDOR WEB APPS API</b>
Create automated betting systems or custom interfaces with the Exchange API. Read market data, place bets, check current bet details and more.	Founded in 1948, Timeform's opinions have widely been accepted as the definitive measure of racing merit and indispensable for betting punters	The Betfair Historical Data service provides time-stamped Betfair Exchange data for purchase & download. This data should be used for analysis & test...	Enable Betfair Exchange betting on your website using the Vendor Web API and Exchange API.

## William Hill APIs

Here at William Hill we have the best service to help you easily develop the coolest and most trust-worthy betting products. Take a look at what APIs we have to offer. We have dedicated API documentation for each API and you can also download the WADL file for each of our APIs.



Most API's are **not** originally designed with the goals and spirit of responsible and conscious gambling in mind. With GDPR and the increased pressure for more

API Version 1 ▾



The image shows a grid of API cards. Each card has a title, a brief description, a 'View documentation' button, and a footer with 'HTML', 'WADL', and 'VERSIONS' options. The cards are: 'Wallets API' (description: 'A collection of methods used to perform financial deposits into a user account.'), 'Locations API' (description: 'A collection of methods that support geographical information and speed up registration.'), 'Profiles API' (description: 'Modifies data on the customer's profile, this being the public face of their private account. Anyone with a William Hill account can have a profile with a public name (an alternative to the customer private name as...'), and 'Commu API' (description: 'Displays to the cust... a bet and can be use... suggesting popular... Comments are sho... on their followers...').



## Is tech addiction making us far more stressed at work?

By Padraig Belton  
Technology of Business reporter

13 June 2016 Business



We are the distracted generations, wasting hours a day checking irrelevant emails and intrusive social media accounts.

Technology of Business

## The plan to ban work emails out of hours

By Hugh Schofield  
BBC News, Paris

11 May 2016 Magazine



Should governments step in to regulate work emails and so rescue harassed staff from the perils of digital burnout? The answer in France appears to be "Yes". President Francois Hollande's Socialist Party is about to vote through a measure that will give employees for the first time a "right to disconnect".

In today's Magazine

How do EU people in the UK feel about Brexit?

Story of India told through a samosa



# RESEARCH & INNOVATION

## Participant Portal

European Commission > Research & Innovation > Participant Portal > Calls

HOME FUNDING OPPORTUNITIES HOW TO PARTICIPATE EXPERTS SUPPORT Search PP LOGIN REGISTER



**Topic:** [ICT-35-2016:Enabling responsible ICT-related research and innovation](#)

Open

**Publication date:** 13 October 2015

**Types of action:** RIA Research and Innovation action

**DeadlineModel:** single-stage

**Deadline:** 12 April 2016 17:00:00

**Opening date:** 19 October 2015

Time Zone : (Brussels time)

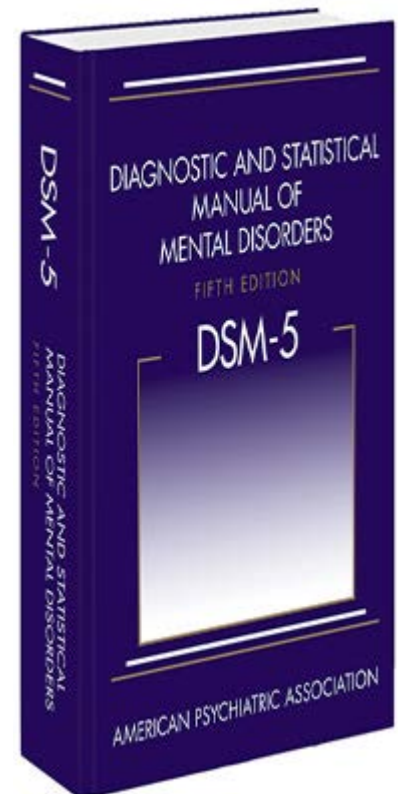
From this wide range of issues, proposals are expected to focus on one or both of the following clusters:

- How can we avoid the traps of ICTs ending up in isolating humans behind their screen, or harnessing them in a passive role? In the forthcoming hyperconnected era, it is essential to acknowledge the dual human aspirations for relationships and for freedom, and the dynamic nature of the relationships between humans and artefacts.
- What are the conditions for ICT-enabled innovations to generate interesting and rewarding jobs, and reduce the risk of excluding sections of society from the labour market? What economic models can ensure a fair sharing of the created added value?

# Gambling Disorder

## Diagnostic Criteria 312.31 (F63.0)

1. Persistent and recurrent problematic gambling behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:
  - Needs to gamble with increasing amounts of money in order to achieve the desired excitement.
  - Is restless or irritable when attempting to cut down or stop gambling.
  - Has made repeated unsuccessful efforts to control, cut back, or stop gambling.
  - Is often preoccupied with gambling (e.g., having persistent thoughts of reliving past gambling experiences, handicapping or planning the next venture, thinking of ways to get money with which to gamble).
  - Often gambles when feeling distressed (e.g., helpless, guilty, anxious, depressed).
  - After losing money gambling, often returns another day to get even ("chasing" one's losses).
  - Lies to conceal the extent of involvement with gambling.
  - Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of gambling.
  - Relies on others to provide money to relieve desperate financial situations caused by gambling.
2. The gambling behavior is not better explained by a manic episode.



# Internet Gaming Disorder



## INTERNET GAMING DISORDER

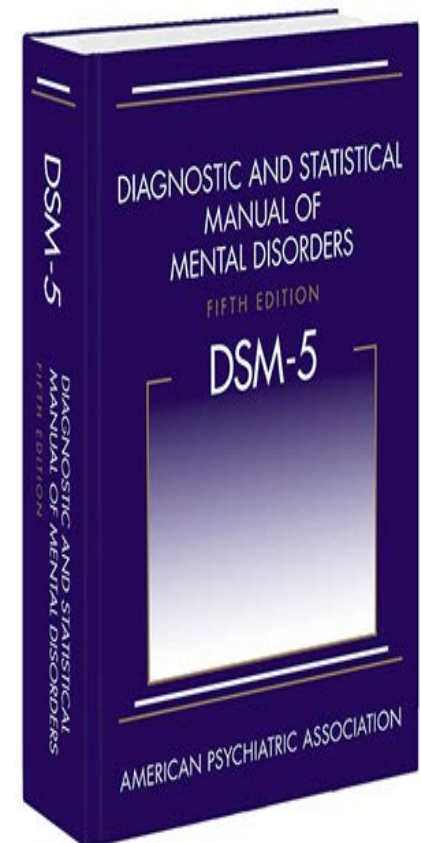
In the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, Internet Gaming Disorder is identified in Section III as a condition warranting more clinical research and experience before it might be considered for inclusion in the main book as a formal disorder.

### *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.



## ▶ Who recently recognized Gaming disorder

The screenshot shows the WHO website page for 'Gaming disorder'. At the top left is the WHO logo. Below it is the text 'World Health Organization'. A blue navigation bar contains 'Health topics', 'News', 'Countries', and 'Emergencies'. The main heading is 'Gaming disorder' with a sub-heading 'Online Q&A January 2018'. There are social media icons for YouTube, Email, Facebook, Twitter, Google+, and a plus sign. A 'Question and answer archive' section includes a 'Submit a question' link. A 'Video' section features a video player with the title 'WHO: Gaming disord...' and a play button. The page content includes a definition of gaming disorder and information about the International Classification of Diseases (ICD).

**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.

# Symptoms .. for “addictive behaviours” in general

- ▶ SNS addiction incorporates the experience of the ‘classic’ addiction symptoms:
  - ▶ Mood modification
  - ▶ Salience
  - ▶ Tolerance
  - ▶ Withdrawal symptoms
  - ▶ Conflict
  - ▶ Relapse



Fear of missing out...



Withdrawal symptoms...



Escalation of commitment...

*Griffiths, M.D. A “components model of addiction within a bio-psycho-social framework.” J. Subst. Use 2005, 10, 191-*

# Responsible Design

- ▶ Technically, we can easily detect addictive usage style
  - ▶ When driving, while crossing the road, when sleeping, etc
- ▶ It is still not seen as an ethical responsibility
  - ▶ At least to offer the service for an informed usage



## 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



# Digital Addiction Labels

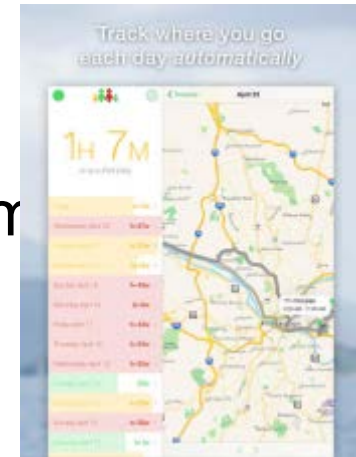


Since we are in Banff 😊



# Digital Diet Technology

- ▶ ICT for DA Behaviour Change.. Is it really profound?
- ▶ Diary Study
- ▶ Addiction is **not only** about time spent
- ▶ Apps exist in the market for time management



## QualityTime - My Digital Diet

ZeroDesktop Inc. Productivity

★★★★☆ 4,741

PEGI 3

This app is compatible with some of your devices.

Installed



## BreakFree Cell Phone Addiction

Mobifolio Productivity

★★★★☆ 11,001

PEGI 3

Offers in-app purchases

This app is compatible with all of your devices.

Installed

## Forest: Stay focused, be present

By ShaoKan Pi

Open iTunes to buy and download apps.

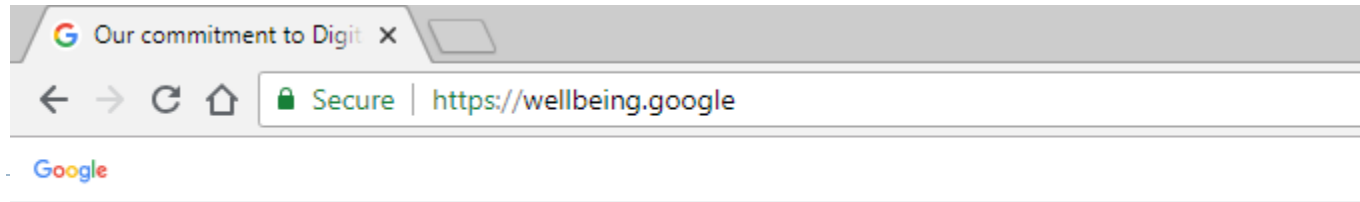


### Description

The best cure for phone addictio

## Featured by Apple as "Best N  
## Top 5 Productivity apps in ov

Have you ever been addicted to  
beat your phone addiction. You  
a tree. However, if you cannot re



Digital Wellbeing



android

Learn more about your time spent in apps. The Dashboard gives you a complete picture of how you use your phone. Get a daily view of the time spent on your phone, how frequently you use different apps, and how many notifications you get. Pixel user? Sign up for the beta.

YouTube

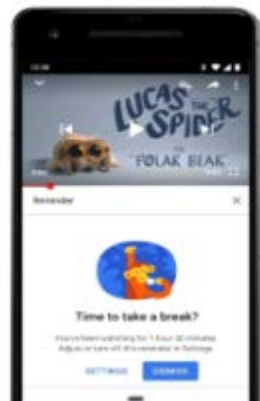
Remind yourself to take a break. Schedule custom breathers as often as you want, pausing what you're currently watching and encouraging you to step away.

Learn more

See how much you watch.

Your time watched profile gives you a closer look at how much time you spend on YouTube, as well as comparisons to previous time periods.

Coming soon



...Google Digital Well-being Initiative

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

# DIGITAL DIET APPS: SIDE EFFECTS



Unwanted or harmful reaction.

## Current practises:

- **Combining behavioural change techniques is **RISKY** like combining medications**
  - **Competition VS. the ‘Helper’ principle**
- **“Overdosing”!**
- **Neglecting treatments conditions, e.g. contextual factors.**
- **Neglecting personal diversity, e.g. age groups, gender, traits etc.**



# DIGITAL DIET APPS: A **DECEPTIVE DESIGN!**



“I was using it about 200 times a day. Now I check it about 200 times a week, **thanks to much for curing me.**”

**BUT .....**

- “How will the system monitor off-line behaviour or **preoccupation!!**”
- “I got so tired of **thinking** in Facebook statuses. Fellow addicts know what I am talking about”
- Addiction **scoring!**



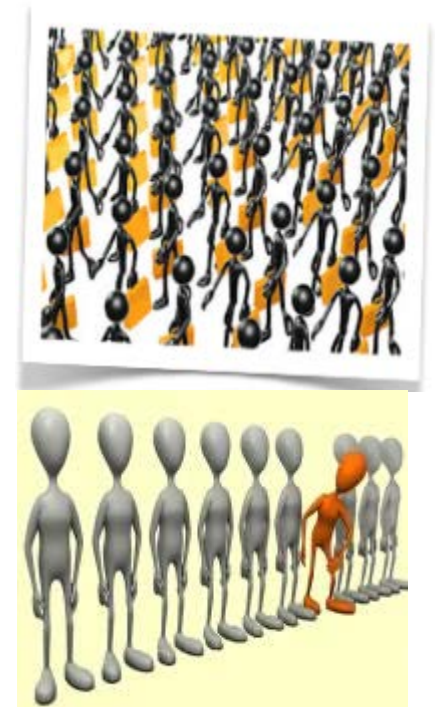
# DIGITAL DIET APPS: JUST A **SHORT-TERM CHANGE!**



“the **conformity** to groups' norms is considered a **positive** behaviour to speed up achieving collective goals”

**BUT** .....

- Users temporary change their behaviour only to conform with peers.
- So, the validity of long term change might be distorted due to conformity effect



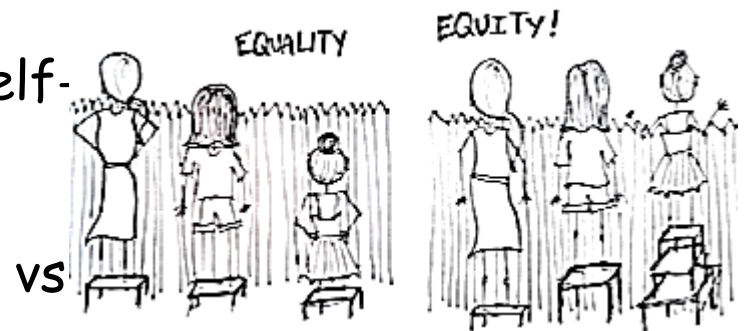
# DIGITAL DIET APPS: IMPACTING **SELF-ESTEEM!**

“**Comparing** self-performance to others can help to define the self and **increase performance!**”

**BUT** .....



- “What about non-addicts appearing in a leader board!”
- The level of privacy vs. social status/self-image impact
- Upward comparison (inspiration **lowering self-esteem**)



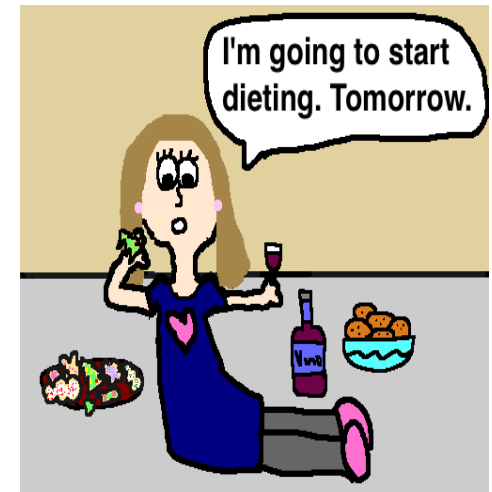
# DIGITAL DIET APPS: SUPPORTING **SELF-BIAS!**



"I wish the application would allow me to set a time limit **I feel** is appropriate"

**BUT** .....

- Downward comparison (self-evaluation **defensive tendency**)
- Minimizing the problem : "**My problem is not that bad!**"
- Past experience **influence** self-setting goals.





## ... AND ALTERNATIVE ADDICTION!



"Implementing some **gaming elements** will create a more **engaging experience!**"

**BUT** . . . . .

- "Would members want to get addicted to the points/rewards to make their avatar better?"
- The **Pull** approach Vs. **Preoccupation**
- The **Push** approach Vs. **Stimulus triqgering**



# Risk assessment and User Trust



## Videos



KID HIT BY CAR  
WHILE PLAYING  
POKEMON GO

623SmokeBreeze  
YouTube - Jul 14, 2016



Pokemon Go Kid get hit  
by car!!!!

DeadCow Studios  
YouTube - Jul 16, 2016



KID GETS HIT BY CAR  
WHILE PLAYING  
POKEMON GO!!!!

The Scheme Of Things  
YouTube - Jul 9, 2016

## Pokémon Go: Teenager Hit By Car While Playing Game | Time

[time.com](http://time.com) › Tech › Video Games ▼

Jul 13, 2016 - Pennsylvania Teenager Hit By Car While Playing Pokémon Go ... don't let your kids play this game because you don't want to go through what I ...

# The EROGamb Charter

1. Recognized benefits
2. Multi-beneficiary and multi-stakeholder processes
3. Accessible data provisioning and integrated design
4. Authentication and informed consent
5. Transparency of service existence and its purpose
6. Complementary data sources
7. Granular data access
8. Acknowledged approximation
9. Acknowledging potential unintended consequences
10. Complementary approaches
11. Multiple modality and stages of usage
12. Freedom of sharing

Bournemouth National Workshop  
25<sup>th</sup> of April, 2018

<https://research.bournemouth.ac.uk/>



b/



# ESOTICS: [www.bournemouth.ac.uk/esotics](http://www.bournemouth.ac.uk/esotics)



The screenshot shows the homepage of the Engineering of Social Informatics Research Group (ESOTICS) at Bournemouth University. At the top, there is a navigation menu with links for 'Students', 'Staff', 'Alumni', and 'myBU'. Below this is a secondary menu with 'Home', 'Why BU?', 'Study', 'Research', 'Collaborate', 'Global BU', and 'About'. A blue banner below the menu contains links for 'Our people', 'Our faculties', 'Vision and values', 'Regional engagement', 'Sustainability', 'Professional Services', 'Governance', 'Awards', 'Jobs', 'News & Events', 'Contact us', and 'TEF'. The main content area features a large image of four people using mobile devices, overlaid with various social media and technology icons like Twitter, SMS, Wi-Fi, and a thumbs up. The text 'Inspired technology' is prominently displayed. Below the image is a breadcrumb trail: 'Home / About / Our faculties / Faculty of Science & Technology / Our Departments / Department of Computing & Informatics / Our research / Engineering of Social Informatics Research Group'. The main heading is 'Engineering of Social Informatics Research Group (ESOTICS)'. The introductory text states: 'The Engineering of Social Informatics Research Group (ESOTICS) has two strands: the Engineering of Social Requirements strand and the Social Informatics Analytics strand.' A paragraph follows: 'In the **Engineering of Social Requirements strand**, we view software as an integral part of a larger ecosystem that, besides technology, incorporates business and social aspects. We focus on the interrelation and mutual dependency between software and its dynamic organisational and social context. We study various kinds of social requirements and the engineering challenges to build a system able to accommodate them and adapt to their changes and dynamics. We focus on the engineering of:' This is followed by a bulleted list: '• Transparency requirements' and '• Motivation requirements'. On the right side, there is a sidebar with links to 'Computing in Education Research Group', 'Cyber Security Research Group', and 'Engineering of Social Informatics Research Group'. Under the last link, there are sub-links for 'People', 'Projects', 'Publications', and 'Research topics'.

► Engineering of Social Informatics Research Group

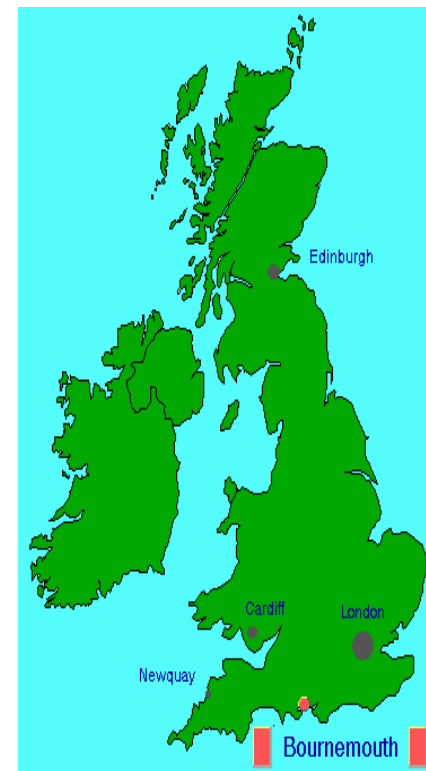


Demo ~ 6 min

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[https://www.youtube.com/watch?v=spN\\_bTe5PiY](https://www.youtube.com/watch?v=spN_bTe5PiY)



Come and visit us in **sunny** Bournemouth!

Contact:

Dr Raian Ali – [rali@bournemouth.ac.uk](mailto:rali@bournemouth.ac.uk)



**@bu\_esotic  
s**

# Finally

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- ▶ Addiction is a choice, we try to make it more informed
- ▶ While alcohol and tobacco can not tell someone to stop, software can predict and raise awareness

Thank you

@BU\_ESOTICS

