

TECHNOLOGICAL INNOVATION: A NEW MORAL COMPASS?

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*With thanks to
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MAKING A MEAL OUT OF 'IT'

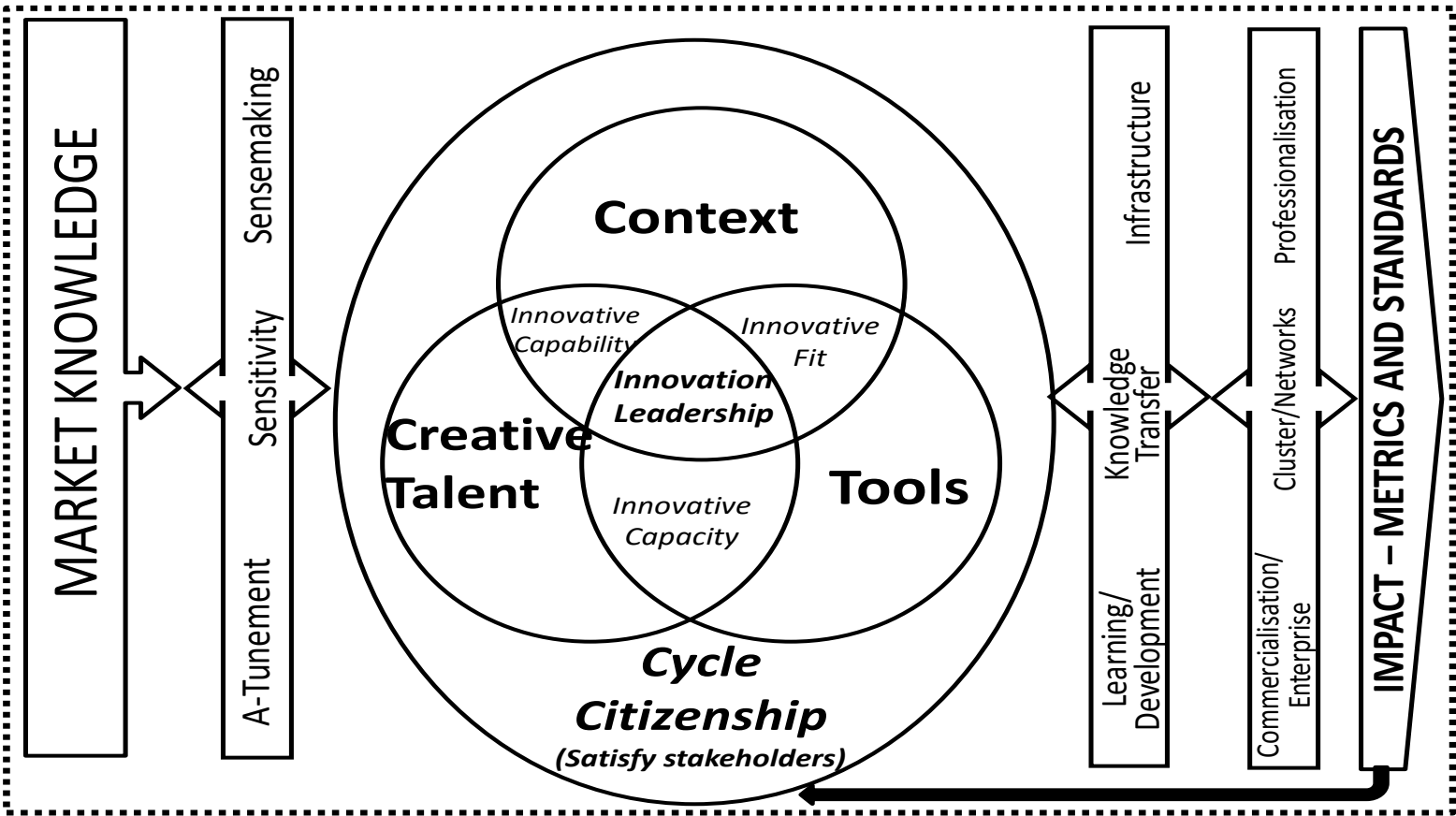
- **Aperitif**
 - Some things to think regarding technological innovation
- **Starter**
 - Exploring technology based trends
 - A new approach looking at emerging technologies
- **Main Course - Challenges – Technological Innovation**
 - Dark Technological Innovation
 - Everyday Technological Innovation
 - 'Sticky' Technological Innovation
 - Discovery Innovation – on-line
- **Dessert**
 - Probity Innovation
- **Coffee & Port**
 - Questions and, I hope, some answers

OPENING SALVO

Are we, as IT/IS Professionals, in 'sync?

1. meddlesome academic research – ‘blockchain’ game changing disruptive innovation or just another protocol layer?;
2. re-balancing the “rigour” of research and the relevance demanded by practitioners – bimodal IT (sequentially focused on stability and reliability vs exploratory, focused on agility and flexibility);
3. thinking with data not just from it – rise of cognitive informatics;
4. tend to study what has been done – immediacy of solutions and outcomes of innovation – how do we deal with SMAC (social, mobile, analytics and cloud technologies) – IoT; personas, context, intelligent automation, 3D printing, etc;
5. need to study technological innovation as it happens – new breed of research tools needed (Basile (2008));
6. transfer of technical knowledge – bi-directional & co-creation/discovery of knowledge/ new forms of Triple Helix organisational forms.

“MANAGEMENT “OF AND FOR INNOVATION PROCESSS



“MANAGEMENT” OF AND FOR INNOVATIVE TALENT

- Internet, data and innovative cognitive technologies are creating new ways of working, living and playing, but also on how we socially interact and behave as human beings;
- Millennials (anybody born after 1985) are - mobile first; social media the norm; care about the world, society; purpose not just profit; the triple bottom line (financial, social and environmental) and 'ethical'.

HOW TO EXPLORE 'EMERGING FIELDS'

Characteristics of emerging field:

- Radical novelty
- Relatively fast growth
- Coherence
- Prominent impact
- Uncertainty and ambiguity

(Rotolo, Hicks and Martin 2015)

How we can study emerging areas:

- *Indicators and trend analysis*
- *Overlay mapping*
- *Citation analysis (including direct citation, co-citation analysis, and bibliographic coupling)*
- *Co-word analysis*
- *Hybrid approaches that combine two or more of the above approaches*

PROVIDING NEW INSIGHTS

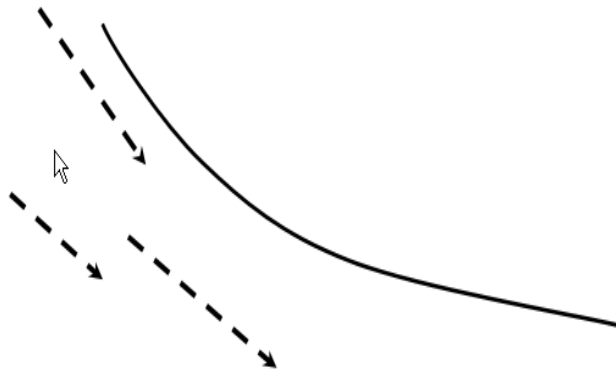
- Actors engage with emergent technologies necessarily with incomplete knowledge and imperfect information;
- They face *open-endedness* (Gustafsson et al., 2015), i.e. a variety of *competing propositions*, associated with different expectations and guiding images [technological innovation];
- Nevertheless, they *continue to invest* substantial resources despite uncertainty to lead or *benefit from newly emerging paradigms* (Ávila-Robinson & Miyazaki, 2013);
- Simple idea: *To use bibliometrics to uncover new areas in real time* while a field such as 'big data', augment reality, cognitive informatics, ekoslections, etc. are emerging, conclusively (Merkerk & van Lente, 2005), guiding images or shared expectations (Gustafsson, 2010, Kuusi & Meyer, 2002, 2007) appear more fragmented.

BUT IT IS POSSIBLE...

“the future is already here, it’s just not very evenly distributed”

- William Gibson (1993)

Combining bibliometric and 'STS' heuristics



Overlay Maps:

At field level, present a bird's eye view
At actor level, describe the broad position

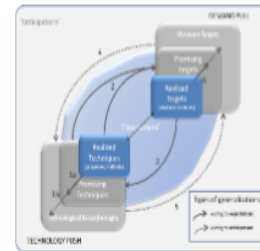
Co-citation:

- Clusters may be seen as potential origin of a new paradigm, at least a possible starting point for a set of trajectories
- Should allow us to formulate potential emergent themes

Coupling:

- 'where we are currently' on our trajectories
- Coupling clusters that 'connect' to co-citation clusters may be pointers towards potential 'emergent irreversibilities'

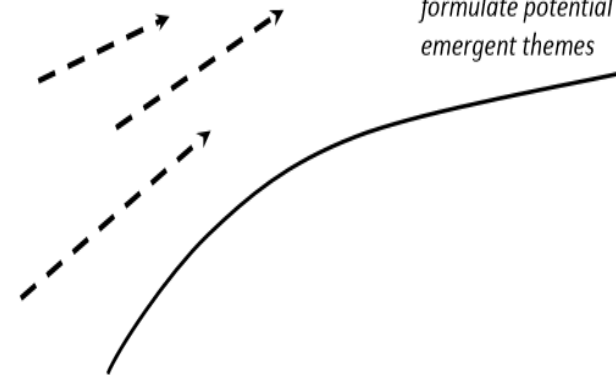
Foresight Heuristics:



- Explore 'irreversibilities' through structured qualitative approaches, such as Delphi studies

Expectations

Anticipations



BUTWE

- mainly focus **on what is emerging** rather than on characterising the **potential of what is detected to be emerging**



DARK INNOVATION

From visible innovation to 'dark innovation'

- conceptualised, defined & measured in terms of dominant forms of innovation from several decades ago;
- missing much innovative activity – (i) incremental, (ii) not in form of manufactured product innovations, (iii) involves little formal R&D, (iv) not patented – e.g. incremental process innovations in factories of China etc;
- financial innovations, organisational innovations, social innovations, frugal innovation, open, user, crowd innovation, co-beneficiary innovation, green innovation, everyday innovation, ethical innovation, etc;
- Challenge = to conceptualise, define and devise methods for measuring, analysing and understanding 'dark innovation'.

EVERY DAY INNOVATION

Search on *Google Scholar* – “innovation” AND

- computer/PC 2,630,000
- car/automobile 1,864,000
- Television & Phone 3,480,000
- technology 2,943,000

28th March 2016

EVERYDAY INNOVATION CONT...

VS

- refrigerator/freezer/fridge 6
- washing machine/tumble dryer 117
- vacuum cleaner 18,600
- toothpaste 18,000
- nappies 2,100
- domestic/toilet/kitchen/bathroom cleaner 6,100

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- to give more equal treatment to mundane, everyday innovations that have done/could do more for society

STICKY INNOVATION

- From – bigger, better, faster, cheaper

Little concern regarding sustainability etc. current and historic ways of exploring technological innovation focused on productivity and organisational performance since the 1980s

➤ ‘eco and green innovation’

➤ ‘responsible & probity-based technological innovation’

IT/IS INNOVATION A GOOD THING?

- As a Platonic Ideal
 - heavenly etymology
 - underpins notions of re-invention and renewal
 - signifies virtue, perfection and a good thing, in terms of process, product and paradigm based innovations
 - essentially unachievable, a perpetual goal
 - striving is all and is the key
- As surpassing and then the brand
 - the laurels are to the few, to the winners of the race, the leaders.
 - signifies elite performance and then becomes the norm
 - unashamedly supremacist.
 - do something, whatever it is, better than all the rest do it, and this is recognised by common consent, and by an external referent
 - all have to be 'world class'
 - entirely self-referential (Readings)
 - risks becoming an empty referent

■ As regulation

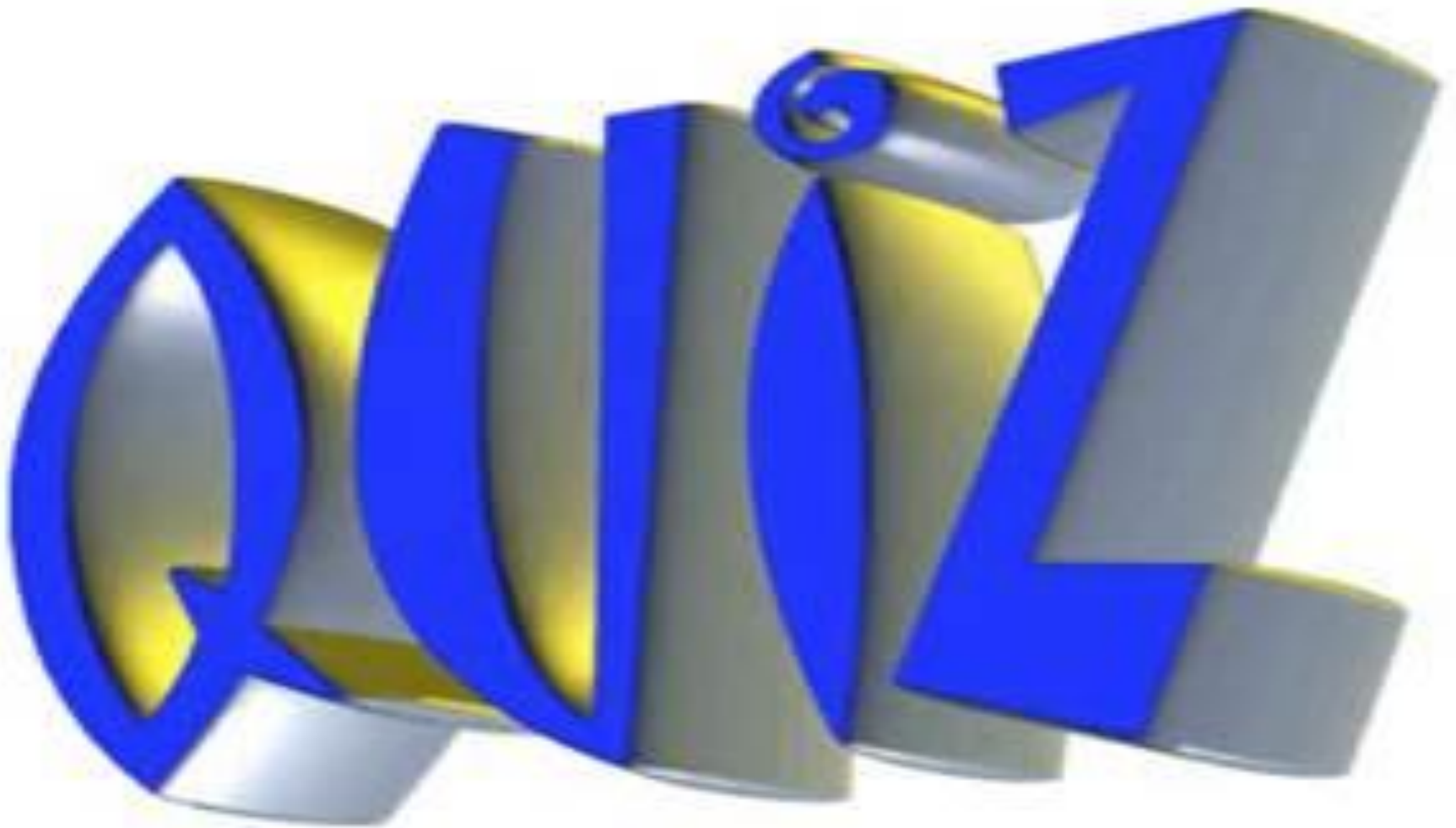
- used in a *normative* capacity
- a regulatory and disciplinary measure
- ensures performativity [an act or a performance]
- practices rendered more visible
- processes of standardisation introduced

(Foucault 1975)

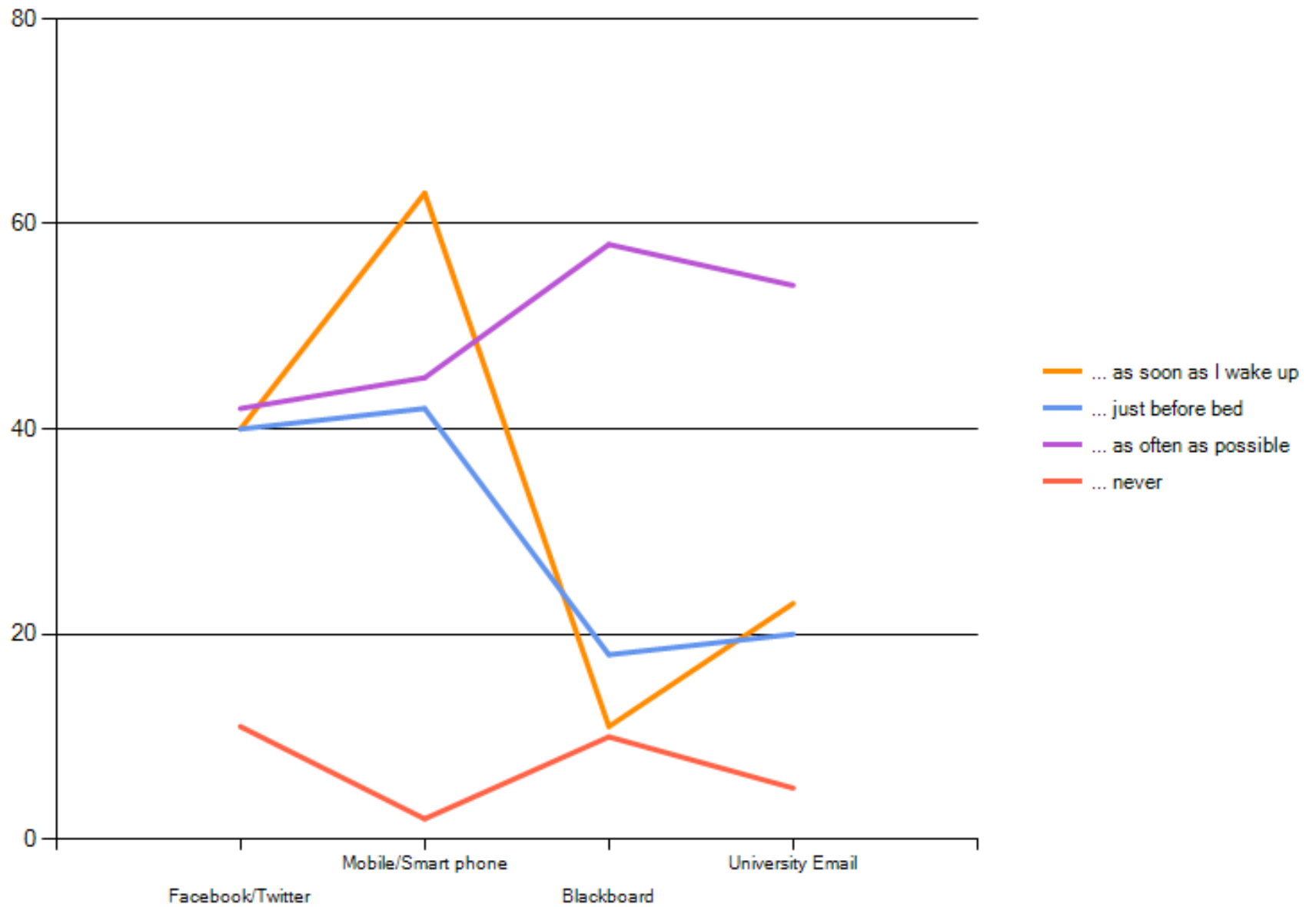
- 'internet addiction disorder' (Plos One, 2012);
- Psychologists such as Kubey (1996, 2001, 2002) and McIlwraith (1990, 1998) have explored the unintended consequences of viewing television (TV); passive, or active usage (Widyanto and Griffiths, 2006);
- internet based gambling (LaPlante et al 2009), gaming on MMORPG platforms and more recently on text messaging by Barto and Wang (2010).
- Beaudry and Pinsonneault (2010) introduces the concept of emotional [attachment] in the adoption of technology;
- South Korea - internet addiction one of its most serious public health issues of the modern time (Hur, 2006).

SOME FIGURES

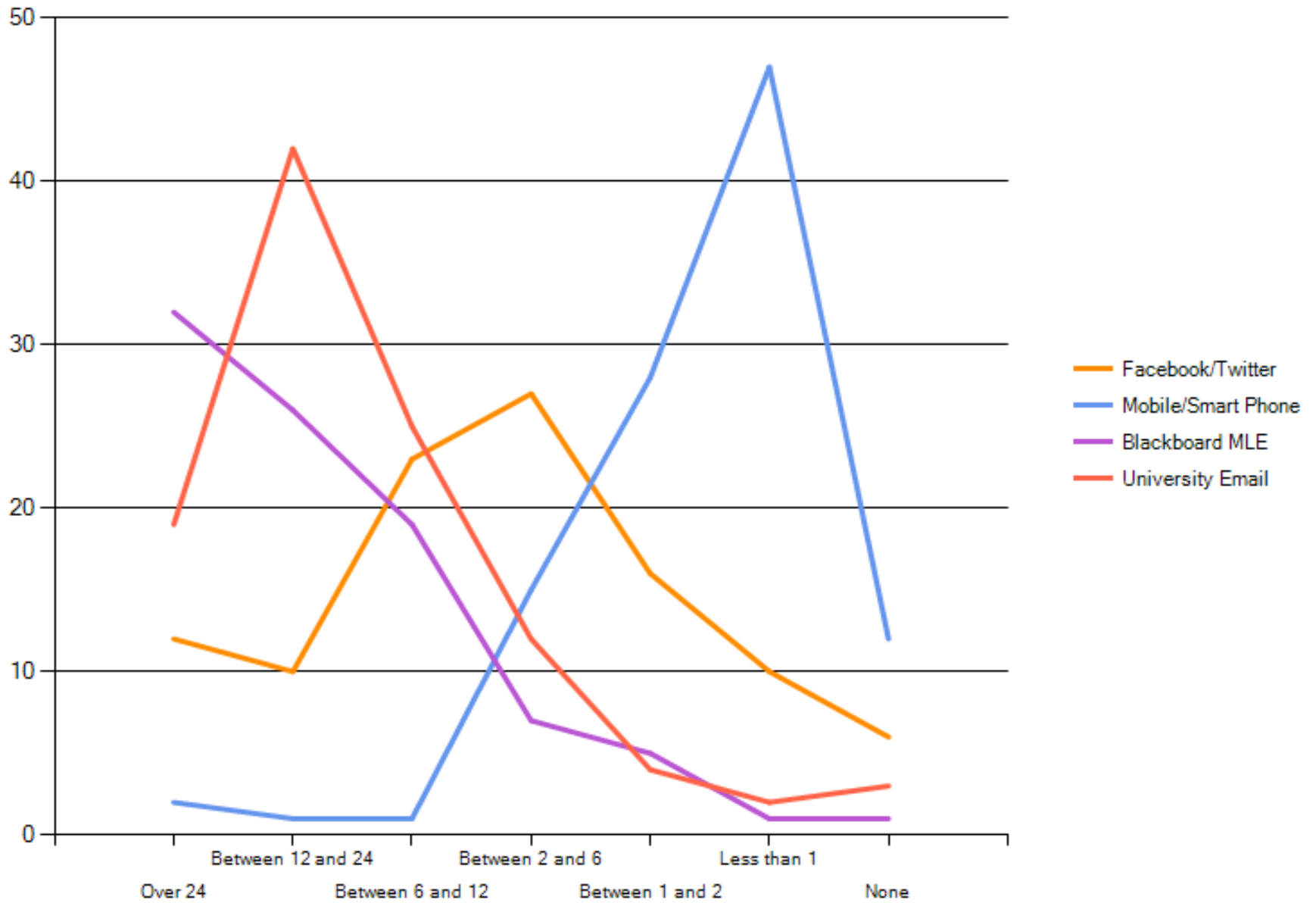
- Longer commuting times;
- Working week longer;
- Adoption of smart technologies;
- Wearable technologies;
- Daily quiet space is shrinking;
- Average 'millennial' 18 hours of media use a day;
- The first thing ever bought and sold across the Internet was a bag of marijuana around 1971 (Powell, 2013);
- China has treatment camps for internet addicts. 200 million Internet users in China are between the ages of 15 and 35;
- Incapsula, 61.5% or nearly two-thirds of all the website traffic is caused by Internet bots;
- If the Internet went down for a day, 196 billion emails and 3 billion Google searches would have to wait (Economist, 2015)



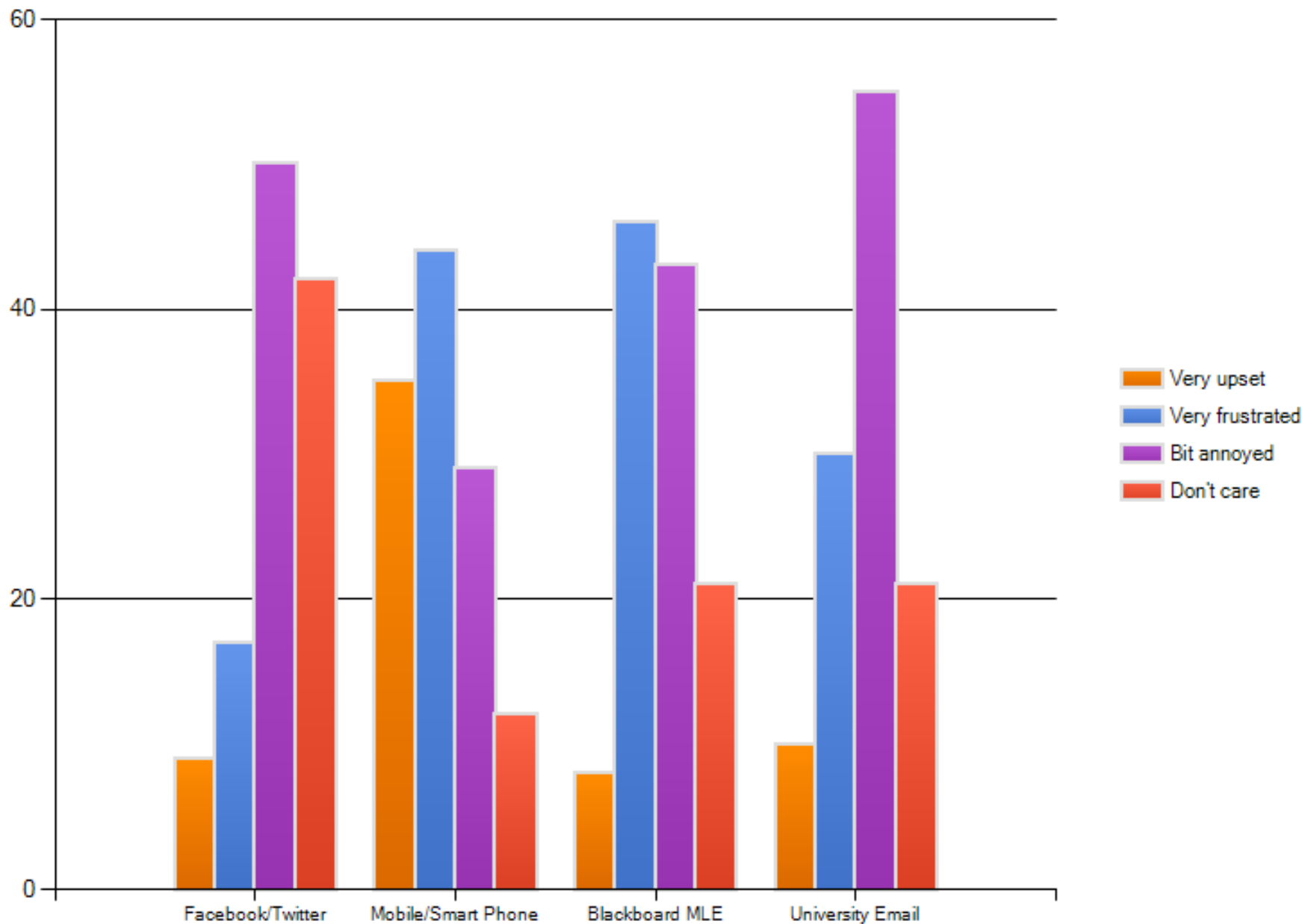
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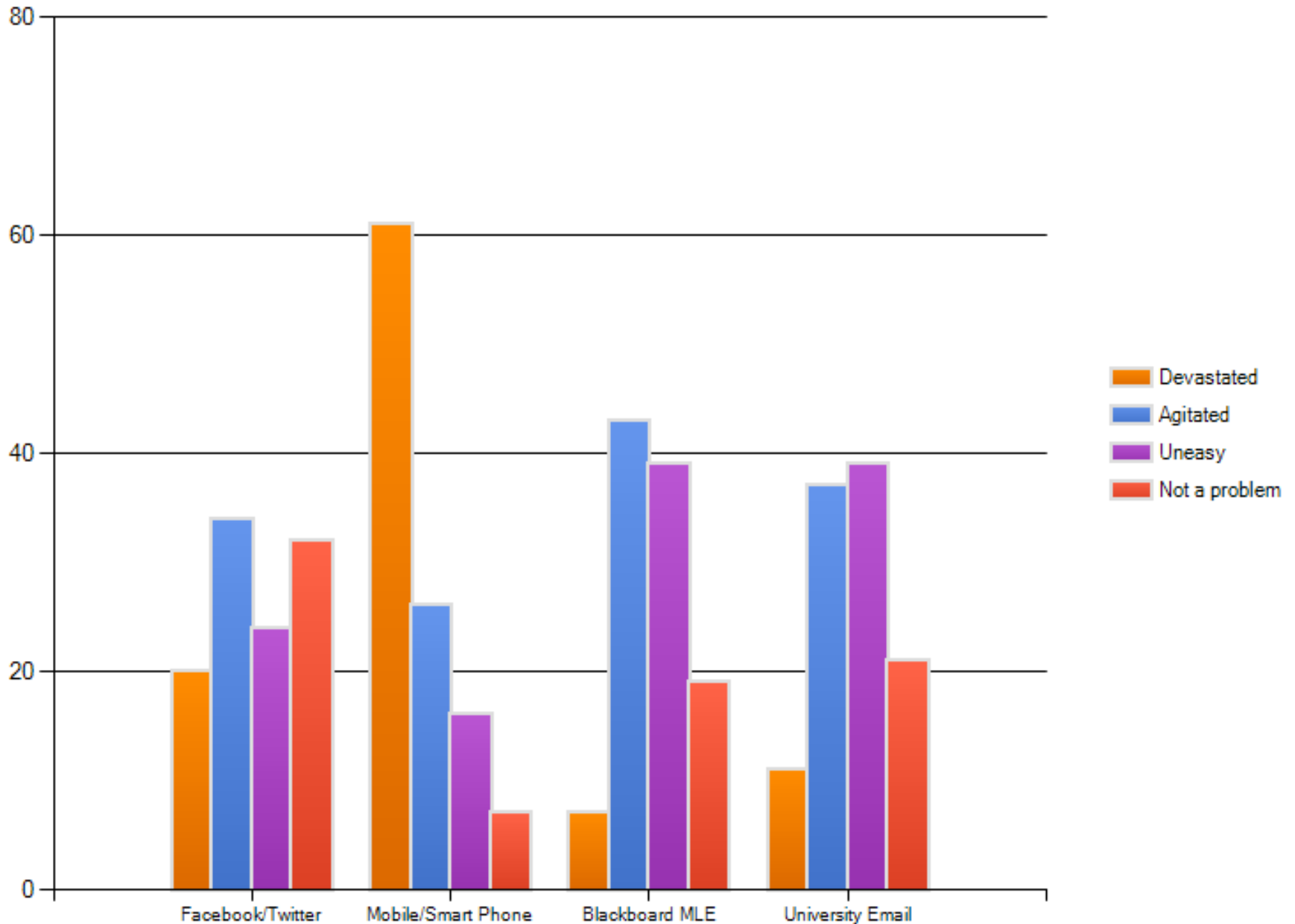
How many hours do you go without checking your



How do you feel when you can not use your



How would you feel if you had to give up using your...



SOME ISSUES

- Evidence of dependency;
- The fantasy of 'limitless';
- The fantasy of actions without consequences;
- The fantasy of being separate (and the crisis of fragmentation);
- Ghosal (2012) said, the “pretence of knowing” is more harmful than the genuine acknowledgment of not knowing;
- Tipping point

DISCOVERY INNOVATION?

Discover new, valuable information – cognitive innovation

Get Discovered by others

- “Who is paying attention to me?” “Who is checking me out?”
“Who is following me?” “Who is connected to me?”
- “Am I being recognised?”
- “How many connections?” “How many tweets?”

Discovering more about themselves

- “Who am I to others?”
- “What do I like?”
- “What am I?”
- “What am I to others?”

OTHERS.....

- Burberry blending physical with digital;
- Crowdsourced health - new generation of digitally-enabled and patient-led research;
- the challenge of trusting strangers in the sharing economy - WikiHouse - own regulations;
- Decentralised finance - e.g. open bazaar and slock It
- Health computer games - Therapeutic role-play e.g. Sparax, Superbetter

The Third Era of Enterprise IT

We are here

| | IT Craftsmanship | IT Industrialization | Digitalization |
|-----------------------------|---|--|---|
| Focus | Technology | Processes | Business models |
| Capabilities | Programming, system management | IT management, service management | Digital leadership |
| Engagement | Isolated, disengaged internally and externally | Treat colleagues as customers, unengaged with external customers | Treat colleagues as partners, engage external customers |
| Outputs and Outcomes | Sporadic automation and innovation, frequent issues | Services and solutions, efficiency and effectiveness | Digital business innovation, new types of value |



PROBITY BASED TECHNOLOGICAL INNOVATION

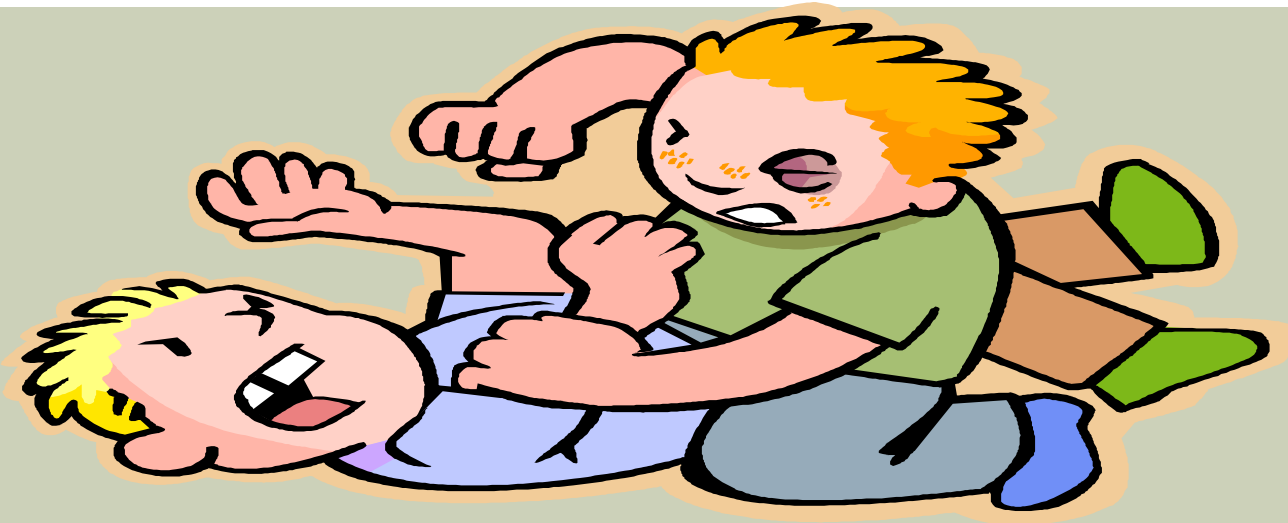
- the quality of having strong moral principles; honesty and decency:



Not all right things
for right reasons are right.
Sometimes, they are the worst
possible option that
could happen.

Thoughts

THANKS FOR LISTENING/ REMAINING AWAKE



Any questions, challenges, insults,
observations.....