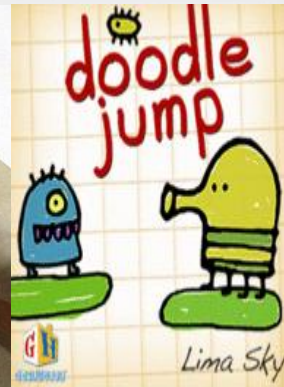# Mobile Gaming

An overview of the ecosystem

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Conférence et Atelier d'Experts

Innovation & Regulation Chair. École Polytechnique Telecom Paris Tech

Paris, 13-14 Sep 2011

Based on the teamwork "*ASSESSING THE COMPETITIVENESS OF THE EU VIDEOGAMES SOFTWARE*"
by Giuditta de Prato, Claudio Feijoo, Daniel Nepelski, Marc Bogdanowicz, Jean Paul Simon

Overview

- Context - The evolution of mobile gaming
- The ecosystem
  - Techno-economic models
  - Software platforms
  - Business models
  - Users' perspective
- Opportunities and Challenges
- Some conclusions – Policy implications

The **emergence of the mobile 2.0 - wireless** web

- Opportunities: in 2011 **3/4 of the planet's population** have use of a mobile handset.

- Opportunities: **creative content, media and Internet** industries go mobile

- Opportunities: unlimited **time and space**, **ubiquity**, **personalisation**, **social** and **context-aware**

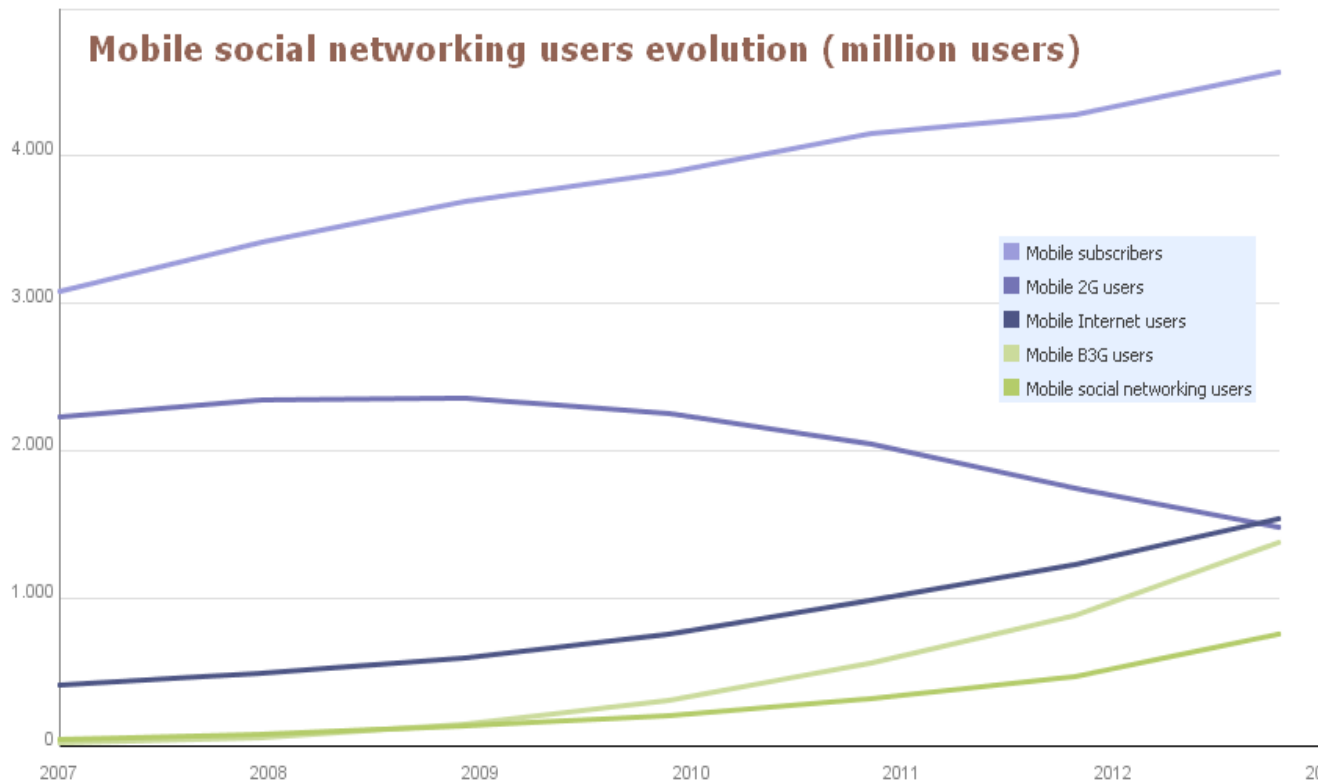- Challenges: **disruptive** effect of **new technologies / new business paradigms**

Moboogle

The policy twist: What can be done to increase the probability that the next **mobile innovators** happen in Europe?

Mobile Gaming

Drivers : **available and affordable mobile broadband** connectivity and **smart devices**

Mobile social networking users evolution (million users)

- Mobile subscribers
- Mobile 2G users
- Mobile Internet users
- Mobile B3G users
- Mobile social networking users

Source: own elaboration from data of ABI Research, EC, eMarketer, EITO, Eurostat, ITU, Juniper Research, Informa Telecoms & Media and Netsize

➜ Twitter: 180% growth Jan 2010 – Jan 2011 to 26 million users (source: Twitter)

Mobile Gaming

## Mobile gaming attracting **innovators and entrepreneurs**

Angry Birds, most successful mobile game in **2010**
- Created by Rovio, a game studio located in **Finland**
- Published in Dec 2009, **50 million** downloads in one year
- Paid application (12 million downloads, US$0.99 each, mostly from the Apple platform) and Free application supported by advertising (monthly revenues expected to reach US$1 million in 2011)
- During 2011 the game has been **ported to consoles**
- Company valued at US$1,2 billion in Aug 2011

Talking Friends, most successful mobile game in **2011**?
- Created by Outfit7, a **USA** mobile entertainment developer
- Gamers interact with animated 3D characters
- Expanded into **film, television and books** during 2011
- **135 million** downloads in under a year
- Last sequel of the game Talking Tom Cat 2, generated 2 million downloads within the first 2 days of release.
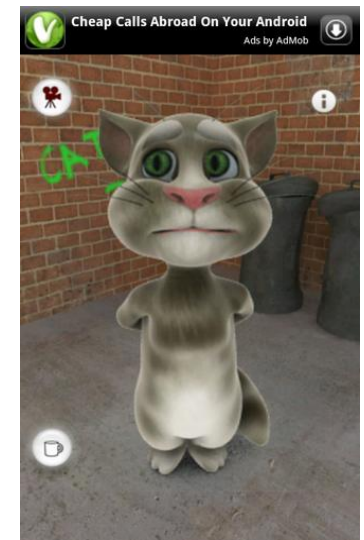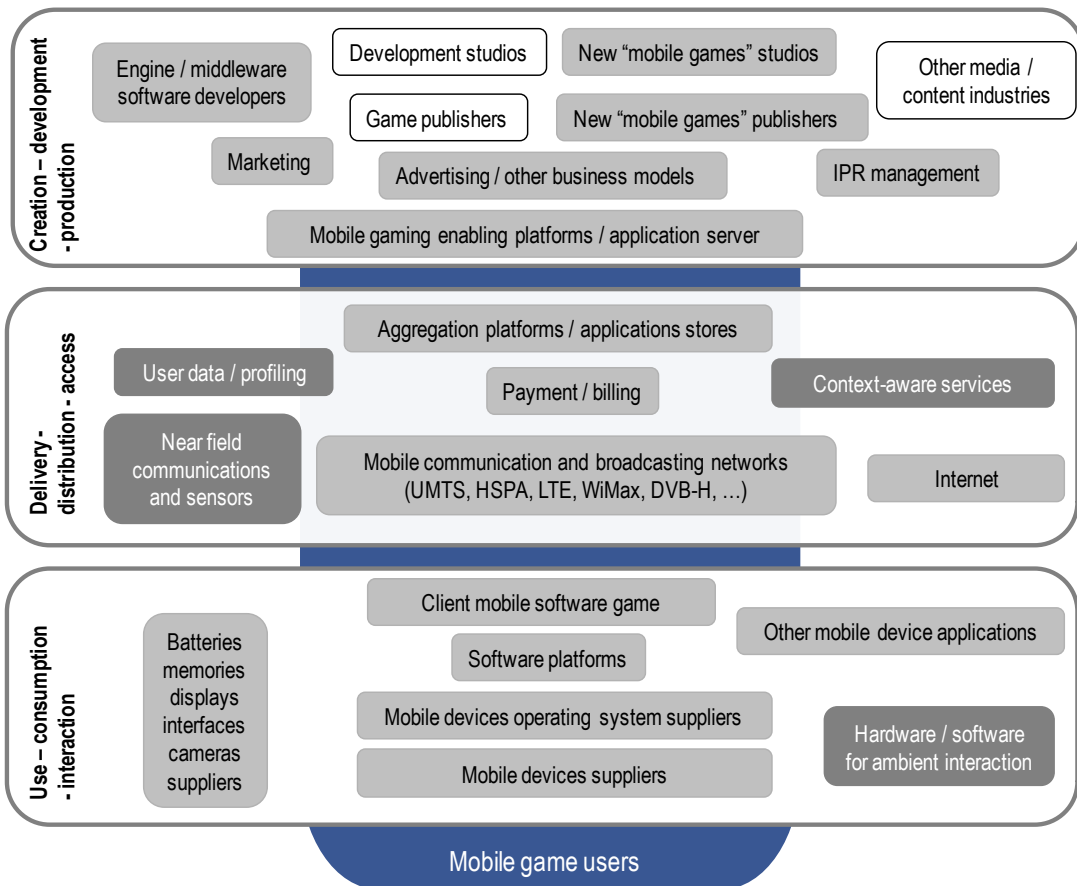
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The evolution of mobile gaming

➡ (I) Before 2002, just **games embedded** in the mobile handset

➡ (II) From 2002 mobile operators sold phones able to download **additional games** (simple, similar to console games 10 years before) from their **own portals** -> new stream of revenues. **Casual** games used as "**time fillers**" (up to 30 min/session) -> **widening of demographics**

➡ (III) **Dramatic change** (2006-7) with "first wave of smartphones" (higher computing power, storage capacity, graphics, audio capabilities) -> **shift from operators to handset suppliers and app providers**:

- the availability of mobile **broadband** connections with **flat data fees**
- the appearance of the **iPhone** (late 2007), app stores (2008), SDKs, …
- innovations in terms of **business models** (advergaming, …)
- blurring boundaries with **Internet and social media**

➡ (IV) From 2008 no longer **mobile gaming** is a delayed-in-time "poor brother" of console and pc games, but **a rather distinct experience** with exciting and unexplored avenues -> **new** wide **ecosystem**

The ecosystem

Creation – development - production
- Engine / middleware software developers
- Development studios
- New "mobile games" studios
- Other media / content industries
- Game publishers
- New "mobile games" publishers
- Marketing
- Advertising / other business models
- IPR management
- Mobile gaming enabling platforms / application server

Delivery - distribution - access
- Aggregation platforms / applications stores
- User data / profiling
- Payment / billing
- Context-aware services
- Near field communications and sensors
- Mobile communication and broadcasting networks (UMTS, HSPA, LTE, WiMax, DVB-H, …)
- Internet

Use – consumption - interaction
- Client mobile software game
- Other mobile device applications
- Batteries memories displays interfaces cameras suppliers
- Software platforms
- Mobile devices operating system suppliers
- Hardware / software for ambient interaction
- Mobile devices suppliers

Mobile game users

➔ **Three-stage** model for digital mass consumption + role of users

➔ **Market power**: game publishers, mobile operators, handset suppliers and app platforms

➔ **Complex** structure due to layers of technical and business specifications

➔ **Multiple** choices (adv & disadv) for game developers

Mobile Gaming

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Techno-economic models

➔ From "**walled gardens**": **vertical integration** – silo model with the mobile **operator** taking centre-stage (failed due to demand pressure to enjoy an unrestricted, wide and innovative choice of content and applications)

➔ To "**platforms**" within the mobile ecosystem: main players try to group together all the required roles for the provision of the mobile offering on a **common set** of hardware, software and techno-economic specifications

- **reduces** transaction **costs** and development **costs** (one order of magnitude!)

- how to control the platform? Looking for the "**gatekeeper**" roles:

    - (i) the **development** environment,

    - (ii) the **profile / identity / context** management,

    - (iii) the **provisioning** / brokerage,

    - (iv) charging and billing (**customer relationship**)

➔ Example A: The success story of the **Apple App Store**

➔ Example B: **Android**, first imitator / alternative to Apple's, and now leading

➔ Example C: **Nokia**, then pioneers, and now in Microsoft's hands

➔ Which role left for **mobile operators**?

"from single-firm revenue generation to multi-firm control and interface issues"

(Ballon, 2007)

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Which platform?

Platform	Main constituents	Main strategies	Main gate-keeping roles
Apple	iPhone-iPod-iPad + OS X	Closed model with tight control over hardware, software and applications	Development environment
	App Store		Provisioning / brokerage
	iTunes		Charging and billing
	SDK		
Nokia	Nokia devices	Increasingly open model with control of software and hardware developemnt	Development environment
	Ovi		Provisioning / brokerage
	Symbian / SDK		
Google	Nexus One + other devices	Open model with control of software development	Development environment
	Android marketplace		Profile / identity / context
	Android / SDK		Provisioning / brokerage
RIM	Blackberry	Closed model with tight control over hardware, software and applications	Development environment
	Blackberry Store		Provisioning / brokerage
	RIM / SDK		Charging and billing
Microsoft	Windows Marketplace	Closed model with tight control over software development	Development environment
	Windows Mobile / SDK		
Linux	Linux for mobile	Open model with loose control over software development	Development environment
Sun	J2ME	Relatively open model with control over software development	Development environment
Qualcomm	BREW	Closed model with control over software development	Development environment
Mobile operators in general	Mobile networks	Closed model with control over hardware and networks	Provisioning / brokerage
	Portals		Profile / identity / context
	Handsets subsidising		Charging and billing

(Experimenting with) Business models

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	Main revenues models	Secondary revenue options	Additional revenue options
Game developers and publishers	Retailing (**pay-as-you-go**) **Premium** retailing (basic functionality free) **Subscription**	**Advertising** Sponsorship Merchandising Packaged with the mobile	**Value-added applications** Packaged with product or service not related with mobile ICTs Others (not a commercial revenue models)
Mobile operators	Connectivity fee (indirect revenues) Retailing (sharing revenues) Subscription (sharing revenues) Packaged with operator's services Wholesale provision	Advertising Brokerage Billing services User profiling - marketing information	Branding Value-added applications
Hardware and software suppliers	Retailing (sharing revenues) Subscription (sharing revenues) Packaged with the device or software License fees / royalties for usage of platform (development kit)	Advertising User profiling - marketing information	Branding Value-added applications
Application stores	Retailing (sharing revenues) Premium retailing (sharing revenues) User profiling - marketing information License fees / royalties for usage of platform (development kit)	Advertising Brokerage Billing services User profiling – marketing information	Branding Value-added applications Maintained by user community (not a commercial revenue model)

Sources: compiled from (Feijoo & Gómez-Barroso, 2009; C. Feijóo et al., 2009; C. Feijóo et al., 2010, forthcoming; S. Ramos, Feijóo, C., Castejón, L., Pérez J., Segura, I., 2002)

(Understanding) The user perspective

➔ The most **intriguing** element in the mobile gaming ecosystem: the consumer

➔ Some elements are **common** with other mobile/digital content and applications segments, but **possibly more intense** due to the very **personal** nature of user relationship with the mobile device:

- ▪ **Privacy** – user profiling
- ▪ **Trust** (the precedent of the Jamba/Jamster case and many "bad practices")
- ▪ **Consumer protection** – content rating

➔ Other are more specific of the mobile gaming domain

- ▪ Wide and potentially even **wider demographics** of mobile gaming explains the relevance that the **long tail** could have
- ▪ **Ubiquity**: suited to **casual** gaming killing "dead" time while keeping connected with the **social network**
- ▪ **Ease of use** – **smartphone** success
- ▪ **Personalisation: lifestyle and context**

Opportunities (1/3)

➔ Second to music, mobile gaming is one of the fastest growing segments in mobile creative content industry

Value and forecast of main mobile content and applications market segments

Market segment	2007 (B €) EU market share (%)	2008 (B €) EU market share (%)	2012-2013 (B €) EU market share (%)
Mobile TV	0.7 − 1 (45%)	1 -	2- 8.7 (23%)
Mobile advertising (total)	0.6 − 1 -	1 − 2 -	4 − 8.7 -
Mobile gaming	**2.1 − 4.1** **(20%)**	**2.6 − 6** **-**	**4.8 − 12** **(22%)**
Mobile music	6 − 6.5 (23%)	8.8 -	12.8 (11%)
Mobile social networking and user-generated content	0.4 -	1.3 (24%)	7.4 − 8.2 (20%)
Mobile search	- -	1.1 (37%)	2.8 − 3.5 (21%)
Mobile location based services	0.4 (42%)	- -	9.4 (19%)
Mobile application stores (including value added services)	- -	5 -	16 -

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Opportunities (2/3)

Mobile gaming: an industry in quest of its **next stage**

➔ Mobile gaming could have a long way to reach saturation departing from its present state. However it requires:

- **moving beyond the simple model** of mobile gaming being a "time filler"
- offering the image of a "serious" industry able to offer **value and usefulness** for users

➔ Disruption-types of mobile games that can impel this market segment into **new growth** require intensive use of:

- (affordable and available) next generation mobile communications (**interactive gaming** through mobile broadband, **personalisation** through context-awareness)
- 2.0 mobile Internet (**on-line** and **social gaming**)
- (affordable and available) advanced **smart devices** and embedded technologies
- new **business models**

Mobile Gaming

Opportunities (3/3)

Social, personalised and context-aware mobile gaming

➔ The main **potential disruptions** in mobile gaming lie in the leverage of context and the social network

➔ **Multiplayer games** are in fact an early version of a social network for gaming. Social networks add to the concept two additional possibilities:

- building a community around the game

- the viral distribution

➔ A new panorama opens whereby mobile **users** take on **new roles** of service delivery: as **creator of content** and as a **source of innovation**

➔ With regard to the use of **context** in gaming, context characteristics are typically derived from sensors–both **users' bio-parameters and their physical environment**–and from **cognitive technologies**

➔ **Mobile augmented reality** (MAR) where information coming from the virtual –Internet- world is superimposed on physical objects and browsed through a mobile device is the concept usually associated to the use of context

Challenges for developers

The ecosystem **challenges for mobile game developers**

➔ The **heterogeneity and current fragmentation** of the mobile ecosystem causes the unavailability of widely accepted common technical rules. The absence of standards avoids that innovators and established companies profit from economies of scale and increases the transaction costs involved

➔ As a consequence the mobile gaming ecosystem is evolving towards **a collection of "open, but not open" approaches**; the already-mentioned platformisation

➔ The lower entry barriers for the development of games in each of the mobile platforms in comparison with other game platforms have caused a proliferation of **small mobile game software developers**; they lack strong marketing and distribution tools; they cater for the long tail, but bargaining / market power lies somewhere else in the ecosystem

The (hugely important) role of devices and their dynamics

Different from web?

Forecasts?

Market segment	2007 (B€)	2008 (B€)	2012-2013 (B€)
Mobile ad (text-pictures)			1 - 2
Mobile ad (web based inc. search)			**3,9 – 5,8**
Mobile ad (tv based)			1 – 4,3
Mobile ad (total)	0,6 - 1	1 - 2	4 – 8,7
Mobile gaming	2,1 – 4,1	2,6 - 5	4,8 – 9,7
Mobile music (total)	6 – 6,5	8,8	12,8
Mobile tv (total)	0,7 – 1	1	2 - 8,7
Mobile SN and UGC	0,4	1,3	7,4 – 8,2
Mobile app stores	-	**5**	**16**

Source: Feijoo et al (IPTS, 2009)

➔ **0,1%** of mobile revenues; **0,2%** of advertising expenditure

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Disruptions: which, when and how?

Relevance	Time frame
1. **LTE-4G**	1. Location awareness of presence
2. **Cognitive technologies**	2. Cloud computing
3. Artificial intelligence	3. **LTE-4G**
4. Internet of things	4. **Cognitive technologies**
5. New user interfaces	5. Semantic structured knowledge
6. Location awareness of presence	6. New user interfaces
7. Semantic structured knowledge	7. Internet of things
8. Cloud computing	8. Mobile P2P - Mesh networks
9. Augmented reality – 3D	9. Augmented reality – 3D
10. Mobile P2P – Mesh networks	10. Artificial intelligence

Source: panel of mobile content and applications experts (IPTS workshop 2009)

➔ Mobile as the tool to **bridge** the **real** and **virtual worlds**

Conclusions and policy options (1/3)

➔ Much sougth-after **necessary (but not sufficient!) conditions for** the **success** of mobile content and applications, mobile games in particular, **are already met** in most of the developed countries, and about to be met in the developing economies

➔ Every industry analyst agrees on the **high potential growth** of the mobile gaming market

➔ **Europe** has relevant **opportunities** in this market:

- a main **platform** fighting for its market share (Nokia's)
- although with a decreasing role, some of the world's main **mobile operators**
- successful mobile **entertainment publishers**
- low entry barriers, but requiring **talent** from developers and innovators
- cultural diversity – **niche / long tail markets**
- critical **mass of early adopters**

Mobile Gaming

➔ From a software game **developer** perspective there are important **challenges**

- Low cost of development and availability of direct-to-consumer channel, but **high number of competing platforms** with different implementations and requisites (avoiding further economies of scale)

- Increasing **relevance of marketing and advertising** due to increased competition among games, shifting power away from developers to publishers and platform owners (app stores as "market shapers")

➔ Mobile gaming is not mature yet. There is **room for many innovations**, potentially disruptive, both in the technological and economic domains

➔ From a technology perspective, the possible innovations are manifold and they are fundamentally related with adding new **sensors** in and around the mobile device and bridging the **real and virtual worlds**

➔ From a business perspective, the traditional business models could be complemented with **advertising** and **value-added applications**
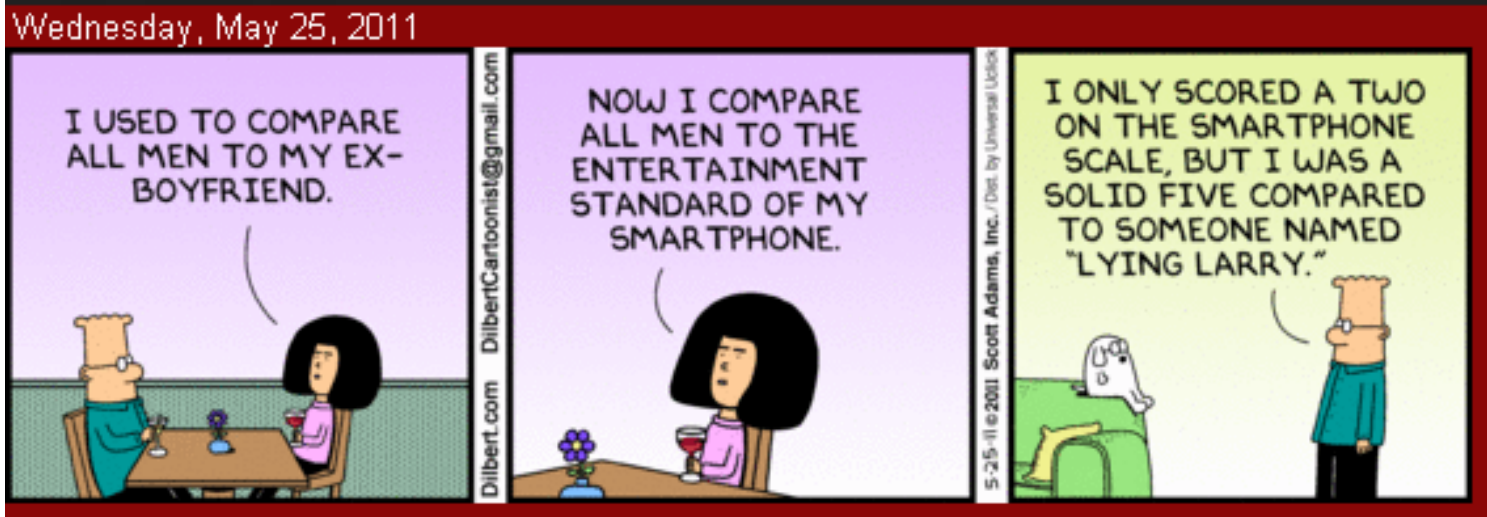
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Conclusions and policy options (3/3)

➔ What is the potential role for an European- policy in mobile gaming?

- The **obvious** (but requiring some "market failure" and mostly not specific to mobile gaming):

    - **fostering enabling technologies** (next generation mobile communications, smart devices, etc)

    - **supporting research, development and innovation** (FP-type, "living labs", etc)

    - **increasing consumer protection, privacy and trust** (codes of conduct, labelling, "user empowerment", etc)

    - **strengthening the institutional framework** (venture capital, support to innovators, education, etc)

    - **harmonising of internal market** (mobile data roaming, ecommerce, etc)

    - **improving content regulation** (use of advertising, etc)

    - **promoting standards**

- The "different" (based on industrial policies and public goods theories):

    - **promoting and innovating in "edutainment"**, shifting public resources to creation and broadcasting of content to this new media

    - **using mobile games in areas of public interest**: health/wellness, energy efficiency and awareness, civic responsibility, citizens participation and creativity

Bottom line: sending a signal to the industry to think about mobile games as a serious industry

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Content and media in our (mobile) digital lives

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