Mobile Gaming
An overview of the ecosystem

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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*

The policy twist: What can be done to increase the probability that the next *mobile innovators* happen in Europe?
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 3G 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 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.
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**
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
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)
### Which platform?

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

Main revenues models

- Game developers and publishers
  - Retailing (pay-as-you-go)
  - **Premium** retailing (basic functionality free)
  - **Subscription**

- Mobile operators
  - Connectivity fee (indirect revenues)
  - Retailing (sharing revenues)
  - Subscription (sharing revenues)
  - Packaged with operator’s services
  - Wholesale provision

- 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)

- Application stores
  - Retailing (sharing revenues)
  - Premium retailing (sharing revenues)
  - User profiling - marketing information
  - License fees / royalties for usage of platform (development kit)

Secondary revenue options

- 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)

Additional revenue options

- Branding
- Value-added applications

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
### 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

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

<table>
<thead>
<tr>
<th>Market segment</th>
<th>2007 (B€)</th>
<th>2008 (B€)</th>
<th>2012-2013 (B€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile ad (text-pictures)</td>
<td></td>
<td></td>
<td>1 - 2</td>
</tr>
<tr>
<td><strong>Mobile ad (web based inc. search)</strong></td>
<td></td>
<td></td>
<td><strong>3,9 – 5,8</strong></td>
</tr>
<tr>
<td>Mobile ad (tv based)</td>
<td></td>
<td></td>
<td>1 – 4,3</td>
</tr>
<tr>
<td>Mobile ad (total)</td>
<td>0,6 - 1</td>
<td>1 - 2</td>
<td>4 – 8,7</td>
</tr>
<tr>
<td>Mobile gaming</td>
<td>2,1 – 4,1</td>
<td>2,6 - 5</td>
<td>4,8 – 9,7</td>
</tr>
<tr>
<td>Mobile music (total)</td>
<td>6 – 6,5</td>
<td>8,8</td>
<td>12,8</td>
</tr>
<tr>
<td>Mobile tv (total)</td>
<td>0,7 – 1</td>
<td>1</td>
<td>2 - 8,7</td>
</tr>
<tr>
<td>Mobile SN and UGC</td>
<td>0,4</td>
<td>1,3</td>
<td>7,4 – 8,2</td>
</tr>
<tr>
<td>Mobile app stores</td>
<td>-</td>
<td>5</td>
<td>16</td>
</tr>
</tbody>
</table>

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

Source: Feijoo et al (IPTS, 2009)
## Disruptions: which, when and how?

<table>
<thead>
<tr>
<th>Relevance</th>
<th>Time frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>LTE-4G</strong></td>
<td>1. Location awareness of presence</td>
</tr>
<tr>
<td>2. <strong>Cognitive technologies</strong></td>
<td>2. Cloud computing</td>
</tr>
<tr>
<td>3. Artificial intelligence</td>
<td>3. <strong>LTE-4G</strong></td>
</tr>
<tr>
<td>4. Internet of things</td>
<td>4. <strong>Cognitive technologies</strong></td>
</tr>
<tr>
<td>5. New user interfaces</td>
<td>5. Semantic structured knowledge</td>
</tr>
<tr>
<td>6. Location awareness of presence</td>
<td>6. New user interfaces</td>
</tr>
<tr>
<td>7. Semantic structured knowledge</td>
<td>7. Internet of things</td>
</tr>
<tr>
<td>10. Mobile P2P – Mesh networks</td>
<td>10. Artificial intelligence</td>
</tr>
</tbody>
</table>

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

→ Mobile as the tool to **bridge** the real and **virtual worlds**
Much sought-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**
Conclusions and policy options (2/3)

- 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**
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
Content and media in our (mobile) digital lives

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**Wednesday, May 25, 2011**

**I USED TO COMPARE ALL MEN TO MY EX-BOYFRIEND.**

**NOW I COMPARE THE ENTERTAINMENT STANDARD OF MY SMARTPHONE.**

**I ONLY SCORED A TWO ON THE SMARTPHONE SCALE, BUT I WAS A SOLID FIVE COMPARED TO SOMEONE NAMED "LYING LARRY."**
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An overview of the ecosystem

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