Digital Games for Empowerment & Inclusion (DGEI)

GALA conference 2013, Paris Oct 23-24

Challenges and Opportunities for research, industry and policy

James Stewart
JRC-IPTS, Information Society Unit

The views expressed by the author are not necessarily those of the EC
The JRC DGEI project for DG CNECT (2011)

A study to:
“provide a better understanding of the industrial, market, social opportunities and limitations of digital games for empowerment and as a tool for socio-economic inclusion of people at risk of exclusion”

Identify both opportunities and challenges for deployment in practice

Propose a draft roadmap of stakeholder actions

Identify potential role of policy and policy options
Effective Games-based approaches

Widespread Games-based practices

Positive Impact on social exclusion in Europe
DGEI Project

A comprehensive study covering research, development, deployment, practice business and policy

Contracted to team from iMinds (Belgium):
Literature review, original short case studies, analysis and framework

Drew on industry research – IDATE and JRC studies on ‘Serious Games’ and Videogames

‘Policy and deployment cases for impact at scale

Review of Policy actions

Expert, policy and stakeholder workshops providing input and feedback during 2013
B. Evidence from social inclusion and empowerment, inc. the role of intermediaries

A. Evidence from digital games in learning and culture

D. Understanding the Innovation, impact and Appropriation of DGEI

C. Evidence from the supply and development of digital games and game-based practices
Other JRC Reports:
The Industry and Policy Context for DGEI: Market Analysis, Future Prospects and Key Challenges in Videogames, Serious Games and Gamification.


Working Paper
A Roadmap for Action on Digital Games for Empowerment and Inclusion in Europe.

Reports on IPTS website
A resource for stakeholders in your engagement with policy
POLICY AND GAMES
<table>
<thead>
<tr>
<th>Policy domain</th>
<th>Types of actions</th>
</tr>
</thead>
</table>
| **Support to the video games industry**   | Support to industry in the form of tax credits FR, CA, UK  
Programmes of education and training of professions to work in digital games production.  
Regional and National policies to provide multi-dimensional structural support to the video game industry. SCO, SW |
| **Research and development**              | Funding of basic and applied research on digital games and all related technologies.  
Funding of research on GBL, games for health etc  
Funding for research on digital game culture |
| **Support for serious and applied games industry and use** | Funding of development and innovation of digital games in a range of applied sectors  
Commissioning and supporting use of digital games in education  
Commissioning of 'serious games' and simulations especially for and by the military. US  
Commissioning of ‘serious games’ for social inclusion DE  
Public procurement of games to stimulate innovation and industry US |
| **Regulation**                            | Regulation of content, EU US  
Regulation of consumer markets EU |
| **Leadership**                            | Championing the digital games industry US+EU  
Leading the development and use of digital games approaches in applied domains. US, FR |
Selected EC Activities

*Commission has very limited competence in these areas application.* but

Commission has funded Over 75 Projects

- Lifelong Learning Programme
- Framework Programmes
  - **Where’s the impact?**

**Networking**

- **GALA (Games and Learning Alliance) NoE** supported by Technology Enhanced Learning Unit, with 31 partners
- **SEGAN (Serious Games Network)**

**Policy support and systemic adoption**

- **IMAGINE** (*Increasing Mainstreaming of Games In Learning Policies*[1]*)*
- **ENGAGE** (*European Network for Growing Activity in Game-based learning in Education project)*

**Safer Internet programme (DG CNECT)** has addressed safety in online games since 2005.

**MEDIA programme** only starting to address interactive videogames directly.
Summary of Opportunities
Summary of Opportunities

- Capitalise on culture: widespread uptake of digital games
- Exploit Dynamic and Innovative videogame sector
- Digital Games have multiple strengths supporting learning and participation
- Positive empowerment and inclusion outcomes from digital game-based approaches
- Digital Game practices empower the gatekeeper intermediaries
- A nascent ‘Serious Games’ sector is growing and developing knowledge and viability in some markets

- But Evidence for these claims still anecdotal and fragmented. Effectiveness and cost-effectiveness at scale not clear.
General opportunities for policy

**Employment and growth** derived from attracting, rewarding and sustaining innovation in the digital gaming industry in general, and serious game industry in particular;

**The social cohesion and individual and community empowerment outcomes** of the availability and use of through of appropriate digital game-based practices and products;

The contributions from digital gaming to the **effective provision of public services** meeting public policy goals, such as education, health and social welfare.
Policy Interest in the Commission

- DG EAC
- DG CNECT
- DG ENTR
- DG EMPL
- DG RTD
- DG DIGIT
- JRC
BUT
Many Challenges requiring many actions

Need for short, medium and long term actions

- A field heavily dependent of public spending
- Coordination of policy across many different areas
- Policy actions in domains of application
- Policy action to develop industry
- Policy action to support knowledge development

Proposed a Draft Roadmap requiring action by many stakeholders.
SOCIAL EXCLUSION: A KEY CONCEPT IN EUROPEAN POLICY
• 23% of the EU’s population is considered to be at risk of poverty or social exclusion (EUROPE 2020 TARGETS) >110m
  • Poverty risk for the unemployed is particularly high at 45.2%

• “very expensive, economically counterproductive and lays a heavy social and political burden on society” Bianchi et al. 2006

• Complex and Multi-factor process: lack of basic competences, poverty, discrimination, unemployment, poor health, disability, poor access to basic services such as child-care and housing and life long learning etc

“Isolated […], individuals feel powerless and unable to take control over the decisions that affect their day to day lives.” (EU Council 2004)
People with specific sets of problems

**School Dropouts and NEETs:** disengaged from education, low attainment, often due to multiple factors related to poverty and deprivation of community and family, but also mental health. Complicated with crime, drug abuse, pregnancy etc. *Nothing to offer employers, cannot get into education*

**Young people with ADHD:** problems holding down a job.

**Young people with autism:** problems with integration into workplace.

**Older people with chronic illness:** unable to manage health (little support), unable to work and lose skills.

**Carers struggling to balance care and work:** give up work

**Migrants:** lack of local language skills, understanding of culture, local social capital makes finding a regular job hard.

**Older women wanting to re-entering the workforce:** formal skills out of date, lack of confidence
Empowerment & Social Inclusion

“Enabling people to do what is important to them, to grow as competent subjects who have control over their lives and surroundings” (Makinen, 2006, p.381).

**Personal Empowerment**
- Attitudes and Motivation
- Self-efficacy and Self Confidence
- Social Support – community and family
- Social participation: social network, social capital.
- Context and personal relevance – identity reinforcement
- Skills and Knowledge: core skills, transferable skills and specific skills
- Wellness and personal coping

**Social Inclusion**
- Access to essential services
- Education
- Good Housing
- Health services
- Civic Participation
- Equity
- Security
- Employment
- Income
- Consumption

10/29/2013
Social Inclusion Policy

**Active inclusion** polices enrol multiple *social inclusion actors* or *intermediaries* to empower individuals and communities

- **Public sector**: health professionals, teachers, social workers, etc working in health, educational, employment and social services;

- **Third Sector, social enterprise and community**: community workers, carers, family, sports and cultural associations etc

- **Employers**
Actions to support inclusion and empowerment

Need to address:

- **Personal empowerment and participation***
- **Social context** *
- **Services and Infrastructure** *

*Digital Games appear to be relevant to many of these processes*
Social Inclusion Services and Intermediaries

- Fragmented provision to individuals
- **Fragmented** across localities, regions, organisations and professions
- Often **resource constrained** at local and practitioner level
- Little time to learn new approaches, and risk averse
- **Bureaucratic:** Leadership important in decision making
- Innovative intermediaries often ‘**under the radar**’ – outside mainstream services
- **Bound by rules** of procurement, quality, evidence etc
- Require **evidence of impact** on their own terms
Definitions

Digital games:

“Games played using any kind of digital device”

but also *game-based approaches*

- that build on the 3D graphics and interfaces of games.
  - *Simulations and virtual worlds*
- that focus on ‘gameplay’ aspects of games
  - *digital play, Pervasive games, and Gamification*
- That use *co-creation*

Meaningful Play
Game-based approaches: ways of using digital games to support instrumental outcomes in DGEI

1. **Commercial entertainment games from leisure market (COTS)**
2. **Special-purpose games:** games not primarily for entertainment
   - *Gamification:* using game elements (e.g. challenge, competition, progress) in other activities
3. **Game Making**

**Game Based Practices:** the way that digital games approaches are integrated into broader practice and context of social inclusion interventions by social inclusion actors
Practice: Examples

Extensive review of games working in practice (beyond research)
7 game-focused cases
5 initiative or policy focused cases
DGEI application domains in E&I

1. **Skills, Knowledge through learning:** disengaged and disadvantaged learners, improve employability and integration into society e.g. job applications, tenancy, computer skills

2. **Health & well-being:** prevention and treatment of illness, promote healthier living e.g. healthy eating, brushing teeth, safe sex

3. **Civic participation:** raise awareness, build communities e.g. poverty, democracy, cultural understanding
Issue: Homelessness, Housing quality

Inliving

Who: Kirklees Neighbourhood Housing, 2008

Intervention: Course on independent living – Including a Free mobile phone game

Aim: Raise awareness of dangers of independent living among young tenants to support inclusion and save money

Outcomes: successful tenancies have increased by 10%; supports reengagement of NEETs
Support Disadvantaged learners

Gamestar Mechanic

Who: MacArthur Foundation, 2010
Aim: support education through digital literacy

Intervention: Browser-based game-design platform to be used in class or at home. Community platform, detailed qualitative and quantitative feedback on games by peers

Outcomes: Improves digital and game design literacy
Impact: ??
Raising awareness of poverty and civic engagement among European youth

*Poverty is Not a Game (PING)*

**Who** King Baudouin Foundation, 2010  
**Intermediaries:** Teachers

**Intervention:** Classroom and home support of young people to learn about poverty with Free online browser game & manual, five languages

**Use:** 40k online players, 5k downloads  
**Extended research on impact.**

**Outcomes:** high perceived learning
Suicide and mental health

At-Risk

Who: Mental Health Association of New York City, 2009

Intermediaries: professors, universities

Intervention: university staff to identify mental distress, prevent suicide supported by Commercial browser-based game

Outcomes: Research shows attitudinal and behavioral changes in staff and students
Combat Extreme beliefs and social exclusion

*Choices and Voices*

**Intermediaries:** Schools, West Midlands Police Department, 2008

**Intervention:** Computer role-playing game

**Aims:** Enhance understanding among teenagers of various belief systems, social exclusion

600 schools in Birmingham area adopted, 60k users

**Outcomes:** high engagement...
Improve educational outcomes

Consolarium

Who: Scottish Education
Intermediaries: Teachers and Heads

Aim: Supporting teaching and learning in mainstream classroom education

Intervention: Programme since 2006 to support teachers and supply COTS games and game equipment in over 170 schools in Scotland, engaging children with products familiar from home environment

Outcomes: e.g. increased scores on maths among primary school children in deprived areas, particular those with low achievement scores
NEETs and deprived communities

Intermediary: LearnPlay

**Intervention 1:** employability training through game making

**Outcomes:** 100% retention over 1 year of 175 students, building confidence and motivation,

**Intervention 2:** Community regeneration through game making (600 people reached)

**Intervention 3:** Apprenticeships in Game development (200 apprenticeships in game tech firm)
Practice: analysis
Individual Outcomes of using DGEIs

Personal empowerment –
Increase participation,
Develop knowledge and skills
Raise awareness of social exclusion
Intermediaries play a key role

Schools, unemployment offices, social housing offices, educational institutions, neighborhood and community centers, poverty organizations,…

Can function as

• Initiators of projects
• Domain experts, inform projects
• Gatekeepers, able to mobilize groups at risk
• Implementers: introduce, facilitate & guide use of DGEIs, incorporating games in their practice

• Recommendation: RDI for and with intermediaries
Observations regarding case studies

Broad variety in:
- **Goals, Strategies, Platforms, Project sizes:**

- **BUT**

Socially innovative yet often isolated, *temporary* initiatives

Sketchy information, figures regarding effectiveness, impact
Scaling, knowledge transfer and replication in DGEI

- Unique +isolated development of practice
- Packaged game with training material and language localisations
- Customised game and practice, redeveloped for different user and locations
- Sharing of good practice and developing local expertise without a key product
- Disseminating an approach and building local practice around a key game product
- Individual game-making trainers providing courses and training
Funding and Sustainability
- Public, private or mixed funding
- Budget beyond mere production
- If revenue expected or needed: business model

Marketing and Distribution
- Pre-launch: Stakeholder involvement, assessment of market demand
- Launch: Multi-channel strategy

Research and Development
- Research: consult design/content and domain experts and target users to gather/co-develop requirements
- Development: Iterative Process – earlier changes = cheaper

Follow Up
- Maintenance: Updates and improvement
- Support: Technical and functional
- Intermediary training
- Assessment: game evaluation and longitudinal and multilevel impact evaluation

Piecing together a multi-stakeholder and stepwise approach
Summary: Supporting game-based practice
B. Inclusion Intermediaries (individuals and organisations)

C. Digital game industry, distribution, research and expertise

D. Institutions: Régulations, Public Policy Public service professions etc

Social inclusion research

Contribute Frameworks and institutional support and leadership or barriers

Contribute to products, service, expertise, research and practices

A. Individuals, Groups and Communities at risk

Goal

Empowerment and social inclusion outcomes

Broader Society

Digital Game-based Practices supporting learning and participation
Ecosystem of products and services for DGEI

- Videogame and Interactive media industries
- "Serious game" industries
- Special-purpose games for DGEI
- Other Supply Sectors (e.g., elearning, healthcare)

DGEI: the use of digital game approaches
Videogame industry: Relevance to DGEI

**Indirect contribution:** Audiences, Platforms, Games, delivery systems, genres, and business models.

**Direct contribution?**
1. Some consumer markets: demonstrated by Nintendo
2. SMEs have opportunity to diversity into less risky business in non-leisure markets
3. Image of industry very important. Serious games and DGEI could help can improve this.

**Potential contribution:**
- Enter applied markets building on existing skills and platforms,
- provide tools and platforms to SG developers,
- provide and support skills development,
- leadership, CSR

Challenge: get video game industry engaged
Non-Leisure market and a ‘Serious Games’ Industry

Does it even exist?

Constituencies of ideas and action
(research, business, conferences, journals etc)

- Digital Game based learning
- Meaningful Play
- Gamification
- Accessible Gaming
- Games for Good/Change
- “Serious Games”
3 modes of organisation of production

1. Products
2. Multi-stakeholder Projects
3. Research-led development

- Dominant role of Key Accounts (commissioners), sponsors and research funders.

Dynamics (according to IDATE)
- Early 2000–2010s: *Experimental period*. Many small projects, pure-play serious games developers
- 2011 Project size grown, total projects shrunk. More external interest, executive producers, some *markets* have developed. ‘serious’ being dropped.
SG Market sectors

Defence Sector
Strong market
(US Dept of Defense $50 million 5 year programme of game development for recruit training in 2010) Leading edge

Information and communications sector:
Advertising, Policy and political communication. Established in the Youth market Youth and business

Corporate Training Sector:
2.2m EUR exergame for Macdonald’s employees on Nintendo DS
Gamification mainstreaming

Education Sector:
Oldest but "low budget, low tech, poor cousins of the computer game industry. “ ENGAGE project.
Education policy approach fragmented, but v.big

Health and Wellness Sector:
Professional market, Clinical trials, Consumers: Brain training, Aging

Activism and Games for change:
Community building and attitude and behaviour change.

Cultural sector
inc Tourism (cf videogames are culture)

Science: citizen science innovative
What could the ‘serious game’ industry and research community do for DGEI?

• An ecosystem of supply and support in associated markets
  – Products
  – Services (training, customisation etc)
  – Tools
  – Research and Development
• A scientific approach to games that produce instrumental outcomes
• Business Models
• Increased pool of skilled professionals
How to create a *sustainable industry* capable of developing, delivering and supporting services and products for DGEI?

What is the link between the videogame industry, and the ‘serious’ game industry?
Important differences vv entertainment videogames

Publishing, Distribution and Platforms
- Privacy, security more important than videogames
- Distribution often via private or public procurement processes

Technology
- Video games industry focused on platforms, tools and market
- ‘Serious games’ often focused on technology + techniques for particular problem

Industry, skills and employment
- Game designs requires specific skills, not widely available outside video game industry (in house development)
- Challenge to involve game designers and business in ‘serious’ application
- Challenge to train people in game design to apply this in non-game situations (e.g. gamification)
Role for Policy in ‘ Serious’ Games market

Some domains with potential for impact are not developing use, and sustainable markets are not appearing Why?

- Customers have few financial resources
- Public sector customers with high barriers

Public policy can address both these factors
Challenges for DGEI innovation and use
Inter-dependent Challenges

- Barriers to Empowerment of intermediaries
  - Low awareness and Negative Stereotypes
  - Knowledge and gaps and best practice
  - Challenge to Develop production and distribution capacity
  - Lack of skills
    - Low quality and sustainability of DGEI projects
      - Lack of Evaluation and Impact Assessment tools
Need for joined up, long term action to promote innovation, social learning and sustainability
Potential actions to support DGEI in the context of serious games and video game industry
Potential actions to realise policy goals 1/2

Domains of practice: Health, education and training, social inclusion etc

- Promote the development and use of innovative and cost-effective solutions: experimentation; demonstrators and impact analysis
- Develop evidence of impact
- Identify and promote Good Practice, and Knowledge Transfer within domain specific practice networks and between domains
- Develop skills and tools in application sectors
- Develop sustainable practice: support to intermediaries, standardisation, procurement, etc
- Provide Leadership from decision makers and policy
- Address of structural and institutional barriers, e.g. procurement
Potential actions to realise policy goals 2/2

Engaging Industry

• Engage videogame industry
• Support SMEs to apply assets in both leisure and non-leisure markets
• Support an emerging ‘serious games industry’ in Europe, e.g., by regional industry specialisation policy or multi-sector regional centres of excellence across Europe.
• Develop Skills for industry and users
• Connect industry with application domains (intermediaries) and research.

Research:

• Generic ‘Serious Game’ research – a ‘scientific’ approach to game design and application
• Connect game and application domain research
• Build and share knowledge about practice and context including evaluation and evidence production
• Build stronger links from research to practice.
Draft Roadmap

**Challenges**

- Low awareness / negative stereotypes
- Lack of empowerment of inclusion intermediaries
- Low quality/sustainability of game-based inclusion and empowerment projects
- Lack of impact assessment tools
- Barriers to development of production and distribution of DGEI
- Knowledge gaps about DGEI technology, use, supply, impact and innovation
- Low skill base of people trained in development and use of digital games

**Priority Actions**

1a. Building scientific evidence of impact of DGEI
1b. Raising general awareness and positive value of digital games
1c. Supporting the development of a DGEI research-practice community
1d. Promoting an Europe wide Communication campaign on the potential of DGEI
1e. Stimulating the creation of DGEI Communities of Practice and Knowledge Exchange Hubs
2a. Promoting awareness, basic skills and basic use of Digital Games by individual inclusion intermediaries
2b. Engaging intermediaries and enhancing their capacities for DGEI use
2c. Stimulating DGEI skills enhancement within professional education
2d. Supporting training and capacity building of DGEI developers
2e. Promoting DGEI adoption through integration into mainstream policies
3a. Supporting research and development for European DGEI
3b. Promoting a large scale DGEI research network to assess impact and facilitate knowledge transfer in Europe
3c. Facilitating the creation of an enabling environment to support the production of DGEI
3d. Stimulating innovation through DGEI applied experiments
3e. Building innovative partnerships for long-term sustainability of DGEI in Europe
Few Key Recommendations in research and implementation to look out for...

- Develop games-based approaches to support intermediaries.
- Games in education – preventing educational failure
- Focus on Youth
- Bridging application domains and research
- Focus on support to disabled people and their carers
- Cross over of SMEs between leisure and non-leisure sectors
- Tool development for intermediaries, and application domains – open-source, and commercial 'dual use'

Authors: James Stewart, Lizzy Bleumers, Jan Van Looy, Ilse Marlin, Anissa Ali, Dana Schumans, Koen Willaert, Frederik De Grove, An Jacobs, Gianluca Misuraca

Editor: Clara Centeno

2013
THANK YOU
ANNEXES
Theory: Games for learning and participation
Why do digital games support EI? (1/2)

Using digital games can be...

**Engaging, intrinsically motivating**
→ learning, participation without external rewards

**Experiential, interactive**
→ hands-on, user takes perspective, makes decisions

**Social**
→ competition, cooperation, peer support, online communities
Why do digital games support EI? (2/2)

Using digital games can be...

**Creative**
→ role-play, co-creation, engagement in game community

**Personalized**
→ content adapts to level, preferences user

**Safe**
→ allows to experiment without suffering the consequences due to virtual nature, anonymity
What can Digital Games offer to action and policy in the field of social exclusion and empowerment? A *use* perspective

- Tap into game-playing culture (49% at least of 16-24 y/o play console games, UK 2012)
- Game culture elements incorporated into communication (images, gamification)
- Use of commercial of the shelf game products and services
- Use of game device platforms (consoles, handhelds)
- Use of online game platforms
- Creation of specially made games
- Use of game technologies, tools and engines to create games, simulators etc
- Use of gameplay element (gamification)
- Use of game developers (to produce products and services)
- Use of game industry (to promote use of games)
- (Videogames are key pathway to eInclusion)
Considering Opportunities

Can we prioritise those which areas and approaches have most opportunity for impact and widespread use?
Considering challenges?

**Challenges to sustainable and innovative use**
- Address underdeveloped production and distribution
- Empowerment of intermediaries
- Low awareness and Negative Stereotypes
- Tackle low quality and sustainability of DGEI projects
- Lack of Impact Assessment tools
- Knowledge gaps and opportunities
- Lack of skills

**Supply industry**
- Reshaping the game-play for non-leisure applications
- Supply and integration of skills designers and technology specialists
- Automating the production processes
- Persuading reluctant users
- Shaping Procurement
- Innovating business models
- Structuring serious games industry by target sector
- Developing for all platforms
- Implementing and Exploiting New technologies
Considering Actions

What actions can be taken, and by whom, and when, to stimulate the effective exploitation and use of digital games to support empowerment and social inclusion?
Challenges to develop a supply sector

(thanks to Alvarez et al, IDATE)
<table>
<thead>
<tr>
<th>Challenge</th>
<th>Example Potential actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reshaping the game-play for non-leisure applications</td>
<td>Simplify, using models from casual games design User-centred design with professionals from application domain.</td>
</tr>
<tr>
<td>Supply and integration of skills designers and technology specialists</td>
<td>Build multi-disciplinary teams Train games design professions for serious game development</td>
</tr>
<tr>
<td>Automating the production processes</td>
<td>Integration and customisation of conventional game design tools</td>
</tr>
<tr>
<td>Persuading reluctant users</td>
<td>Provide convincing evidence and demonstrations Convince SME to invest Invest in R&amp;D Build structured local business environments as part of smart specialisation policy</td>
</tr>
<tr>
<td>Shaping Procurement</td>
<td>Address issues within procurement processes to make serious game adoption easier, and as a tool to support developers</td>
</tr>
<tr>
<td>Innovating business models</td>
<td>Develop specific business models appropriate for each sector and target users</td>
</tr>
<tr>
<td>Structuring serious games industry by target sector</td>
<td>Support evolution towards organisation of firms and expertise that meets the needs of users</td>
</tr>
<tr>
<td>Developing for all platforms</td>
<td>Do not limit develop to the PC an browser, but build serious games for platforms such as mobile phones, tablets, TV and specialised ehealth systems</td>
</tr>
<tr>
<td>Implementing and Exploiting New technologies</td>
<td>Exploit novel technologies being made available on latest gaming platforms Develop and implement new technologies for specific user needs that are not available on game platforms</td>
</tr>
</tbody>
</table>
Summary

• Many opportunities
  ▪ Multiple uses of games, and very active and innovative environment
  ▪ Engage and empower intermediaries
  ▪ Opportunities for policy in employment and growth, social inclusion and public services

• Many challenges
  • Low awareness and negative images
  • Low quality of many products, minimal high quality evidence, lack of large scale demonstrators
  • Difficult field of application
  • Systemic challenges

What actions should stakeholders – industry, practice, policy and research - be taking?