Lessons from the cinema case: the new middlemen of the digital age, intrasectorial dynamics v. transectorial.

Toward an ecosystem of network collaborators

Presentation prepared Jean Paul Simon

Disclaimer: The views expressed are those of the presenter and may not in any circumstances be regarded as stating an official position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this presentation.
Summary

- Innovation in audience reach
- The digitization of the production stream
- Film as an R&D lab
- Conclusion
Innovation in audience reach: distribution and exhibition
Ymagis (1)  
a “specialist in digital technologies for the film industry”

- Ymagis: an integrated offer that covers the entire value chain: from production to distribution and operations.
  - It supplies services to assist in the production of feature-length films, the distribution of content (encryption, valuation, duplication, and transport).
    - The services offered include the sale and installation of cinema equipment, maintenance and facilities management of digital projection, equipment, sale and rental of 3D glasses, post-production of content, and the preparation and delivery of Digital Cinema Package (DCP) and Key Delivery Message (KDM).

- As of 2013, the company had a €47.3m of turnover (+19.1% compared with 2012), 2,785 screens already installed by end December 2013 (from 19 in 2008), 188 exhibitor clients by end December 2013, an operating profit of almost 15%, and 138 employees.

- It aims to become the leading European provider of digital services and technologies for the film industry
  - With the acquisition, in 2014, of DCinex group it will reach/maintain 7,200 screens (out of 36,000) under contract in 21 countries in Europe.
The competitive environment of digital film distribution in Europe

Source: Ymagis
Ymagis (2)

Source: Ymagis
Ymagis (2)

- Ymagis provides financing to help exhibitors bear the costs of the transition from 35mm to digital projection.

- It seems to have been conceived
  - around a financial option to support the equipment of theatres for digital exhibition, the company indeed blends financial and technical services.
  - borrowing a contractual arrangement from the US, a toll on the delivery of contents: virtual print fee.

- focused on innovation,
  - with almost half of the staff composed of engineers and technicians,
  - integrated laboratories working on post-production and the distribution of copies (Barcelona, Berlin, Paris).
  - The firm develops proprietary software solutions (TCS, TMS).
UFO Moviez:  “Technology enabled business innovations”

- UFO Moviez India Limited, an India based company founded by the Valuable Group in 2005, claimed to be the world’s largest satellite-based digital cinema network with 4000 digital screens across the globe.
  - Pioneered the use a MPEG-4 technology based Digital Cinema System.

- The firm from Mumbai offers end to end digital cinema solutions and delivers films via satellite directly to theatres:
  - 3,513 digital cinema installations spread in over 1,350 cities across India.

- The innovation brought by the MP3 technology for the distribution of films triggered a positive effect on film production, boosting the production of 3D films.
The Netflix case (1): “an ecosystem for Internet-connected devices”

- Established in 1997 as an online solution for the problem of late fees when renting movies.

- The Netflix web site (April 1998):
  - Initially focused on the plain delivery by mail of DVDs (via pre-paid mailing envelopes) on a rental basis.
  - Revenues of 270.4 US $ million in 2003, when just relying on mail delivery.

- Revenues of 4,374 US $ billion in 2013
  - 9% of its revenues invested in “technology and development”

- A complex network of commercial relationships
  - Netflix relies on a number of partners for the supply of contents, their distribution, and streams of additional revenues.

- Netflix launched its 4K stream early April 2014
Netflix value network (2)

Source: De Vinck and Lindmark
The Netflix case (3)

- Netflix is making the most out of the new segments brought by digitization:
  - enabling technology services (new forms of billing and payments are important components as well),
  - and connectivity (core network, interchange, retail Internet access).
- Based on data, Netflix reinvented the video rental business.
- The company is meeting the needs of consumers by creating more options for audiences to view content.
New relationships/ new investments (1)

- New distribution channels ushered in new forms of relationships between edited contents and consumers
- Because of initial defensive behaviour from legacy players, much of the initiative has been left to these newcomers that are:
  - more agile for identifying opportunities in a new environment.
  - This may mean as well that innovation is left to these challengers.
- Technology not only lowers costs, but adds piracy protection, and provides new sources of revenue to theater owners by helping them show live events such as concerts and soccer matches.
New relationships/ new investments (2)

- Investment flowing from newcomers is a common feature of new media players as illustrated historically
  - by the growth of cable networks and the creation of CNN, the series from HBO,
  - the films from Canal +,
  - and now much more recently with Netflix and the role of pure players for on-line news.

- These new players display a specific value network with various technical intermediaries like Akamai for content distribution.
The digitization of the production stream: Filming technologies, post production

Source: Weta Digital
Rapid advances, better content and lower costs

- Digital production comes with cost-efficiencies, increased flexibility and quality improvements.
- It becomes potentially easier for producers to connect with business partners as well as with the audience at the earliest stages of a film project (crowdsourcing).
- The MPAA, Executive Vice President and Chief Technology Officer, stated in May 2014:
  - “On the IT and Internet side, the rapid advances in these technology segments are now being broadly applied to content creation, distribution and consumption across all aspects of the media and entertainment industry in ways that are driving rapid advances, better content and lower costs” (Mc Coskey, 2014).
R&D spin-off: Image Metrics (1)

- Image Metrics provides facial animation technology for films and video-games
  - Lighting and skin movement are pivotal for creating realistic virtual characters as illustrated with *The Curious Case of Benjamin Button*

- Founded in Manchester, U.K in 2000 by an R&D team – comprised of Ph.D.s, physicists, engineers and technologists
  - focused on advancing consumer applications around computer vision, facial analysis and recognition technologies.

- Their early work served as the foundation for technology breakthroughs
  - in real-time, nuanced facial expression, self-representation, and personalized content control, along with human-computer interfaces for digital devices.
  - Additional applications in the medical and security fields were researched and developed, that led later to a spin-off of a medical imagery company.
  - In 2012, Image Metrics spins out its professional animation software business (Faceware Technologies Inc) to focus on developing new consumer applications of its core technologies.
R&D spin-off: Image Metrics (2)

- The company holds since numerous patents in facial recognition, analysis and animation technologies.
  - In 2006, the company is issued its first patent in the area of computer vision.
- Image Metrics now delivers a vital element to companies looking to enable immersive, new experiences on devices, in games and in other online environments.


Source: Image Metrics.
Weta Digital (1)
“a world leading visual effects company based in Wellington, New Zealand”.

- Weta, created in 1993, offers rendering, virtual studio and simulation, a suite of digital production services for feature films and high end commercials,
  - from concept design to cutting edge 3D animation.
  - Through two specialized entities, Weta Digital (digital effects) and Weta Workshop (physical effects).

- Weta Digital has developed several proprietary software packages.
  - For instance, the shooting of *The Lord of the Rings* film trilogy led to the creation of “Multiple Agent Simulation System in Virtual Environment” (MASSIVE):
    - a high-end computer animation and artificial intelligence software package used for generating crowd-related visual effects for film and television
  - Its flagship feature is the ability to quickly and easily create thousands (or up to millions with current advances in computer processing power) of agents that all act as individuals.
  - For James Cameron's "Avatar", Weta modified MASSIVE to give life to the flora and fauna on Pandora.
The company highlights its research activity and working in partnership with universities and other centers of research as well as other visual effects facilities.

New Zealand has witnessed the rise of digital media companies.

- A network of creative companies based in the Wellington suburb of Miramar: Park Road Post Production, Stone Street Studios and Portsmouth Rentals

  - “there is movement of people between companies in the screen industry, like Weta Digital, and game developing studios” (NZ, Ministry of Economic Development, 2012)

- backed by a collection of New Zealand-based new media research laboratories

- and fed, in part, by graduates from media design schools who have trained in 3D animation, visualisation, game development, visual effects and digital media.

  - The schools attract students from more than 35 countries, drawn to New Zealand by its reputation in high-end computer graphics and technical innovation
UK video games and visual effects industries: the Soho VFX cluster

- Visual effects are one of the fastest growing creative industries in the world and the fastest growing component of the UK’s film industry over the last ten years according to Livingstone and Hope:
  - with a growth of 16.8%, and an employment of 5,000 people, between 2006 and 2008
  - the four largest UK visual effects companies are “Double Negative”, “Framestore”, “Cinesite” and “MPC”, all based in Soho.
  - “Double Negative”, founded in 1998
    - prides itself to have “grown to become one of the industry's success stories and is now Europe's largest provider of visual effects for Film (operating from locations in both London and Singapore)” (company website, 2014).

- “Double Negative” highlights the role of its R&D: “our VFX R&D team (Europe’s largest) create the tools for our artists”.

- In general, 8 of the 10 top grossing films in 2009 had a strong visual effects component.
  - “It is hard to think of a Hollywood blockbuster over the last five years which has not benefited from the creative expertise of talent working in Soho’s visual effects hub” (Livingstone and Hope).
New forms of cooperation/ new companies (VFX)

- Productions’ technical quality levels have been enhanced thanks to new equipment and software generations and more reasonable costs to devise innovative machine and action cameras.
- For post-production technologies, the decrease of the cost of hardware and software triggered the creation of small evolving companies in the special effects subsector.
- New forms of cooperation with film makers from the first stages of projects; producing ideas and concept imagery and developing pre-visualization (previs) and VFX production plans.
  - previs techniques are even used to help filmmakers and studios to rise funding for projects in development.
  - These companies often participate in projects from their very inception:
    - Many provide expert advice during the pre-production and production stages,
    - after which they create and integrate visual effects with live footage.
    - As with video games, visual effects companies draw on support services such as technology and tools developers” (Livingstone and Hope)
Film as an R&D lab

Source: Dreamworks
“A rather large village”

- The film sector clearly displays a complex set of players and relationships
- Coordination is a key aspect involving of several kinds of expertise all along the value chain, although its scope may vary in time and space.
  - production costs are sunk costs as each film can be considered as a prototype.
  - Film production is especially project-based in the EU.
- As the animation company DreamWorks puts it: “It's no secret that it takes a rather large village to create an animated film”
- Movie production no longer takes place within integrated structures: artists, technicians, technical suppliers, locations are all independent and each production requires a new project, new contracts…
“A rather large village” (2)

- It is, therefore, difficult to accumulate the technical expertise and to capitalize on R&D: the mobilization of new technologies for creative innovations can be carried out only during a specific movie project.
- This stimulates, at the same time, the creation and/or specialization of technical post production companies that invest specifically in certain equipment or technological solutions and then improve them contributing on different feature films.
- A large part of the R&D in film industry takes place and is made through successive movies, through the very collaboration of the different involved parties, within the “large village”

Source: Massive Software
DreamWorks (1)
“where arts meet technology”

- DreamWorks Animation started operation as an animation division of Old DreamWorks Studios,
  - an entertainment company formed in October 1994 by Steven Spielberg, Jeffrey Katzenberg and David Geffen

- DreamWorks Animation creates “high-quality entertainment”, including computer-generated ("CG") animated feature films, television specials and series and live entertainment properties, meant for audiences around the world.
  - All of DreamWorks Animation’s feature films are produced in 3D.

- Dreamworks exemplifies a business based on a few prototypes, their business is currently substantially dependent upon the success of a limited number of film releases (around two or three animated feature films per year).
DreamWorks (2)

- An interesting example of cooperation within the firms of different technical resources, of a firm combining technology and the “artistic” dimension for the creation of full features animation films.

- The company relies on heavy investments in the latest technology (including cloud technology) so as to reduce the cost of their working installation.

- Introducing a technical middleman:
  - the supervising technical director (Sup TDs) who manages all the technology (software and hardware) for a feature film, defines the workflow and the process itself.

- And new technical functions:
  - E.g. “crowds supervisors”, a function that appeared as a side project to later become “a new art form in app development”
    - To bring the scale of the circus to life in “Madagascar 3: Europe’s Most Wanted” (2012); the largest, most detailed crowd in the company film’s history with 35,361 characters in the scene was created.
Technology plays an important role in the production of projects.
The company focuses on user interface and tool development enabling their artists to use existing and emerging technologies, allowing the company to leverage the artistic talent.
Like in the case of Zoetrope, some technological innovation can be triggered by dissatisfaction with the state of the available technology

- as in the early ‘90s, current lighting software was not evolving quickly enough
- In 1996, DreamWorks animation engineers saw the opportunity to change the lighting workflow and started development on a state-of-the-art tool designed to advance the way light is applied to an animated film.

In addition, the company works under strategic relationships with leading technology companies that allow to benefit from third-party advancements and technology at the early stages of their introduction.

- The company has strategic alliances with McDonald’s, Hewlett-Packard, Intel, Autodesk, Oracle, Polycom and RedHat
As part of its CG filmmaking and other processes, the company developed a variety of software tools and other intellectual property.

- Occasionally they may seek to exploit their intellectual property in applications outside of their traditional filmmaking business, directly or in partnership with technology companies or other business partners.

The company computes 310 persons (engineers, out of 2400 total) “primarily engaged in supporting and developing” its animation technology indicating some kind of R&D team

- No data available for expenditures

The company has several patent applications pending in the U.S. or other countries.

- No further indication.
F.F. Coppola and American Zoetrope “a Renaissance technophile”:

- US director F.F. Coppola was not satisfied by some of the shooting techniques, dating back from the beginning of the century.
- Therefore American Zoetrope was founded (in 1969) with the mission of finding creative, fast, and economic approaches to film.
- Since its inception, the maverick company produced over 60 films
  - The studio has produced not only the films of Coppola (including *Apocalypse Now*, *Bram Stoker's Dracula* and *Tetro*),
  - but also George Lucas's pre-Star Wars films (THX 1138), as well as many other directors as Tim Burton (*Sleepy Hollow*), Jean-Luc Godard (*Passion*), Akira Kurosawa (*Kagemusha*), Wim Wenders (*Hammett*) …
- The story of the American Zoetrope is not exactly straightforward:
  - “For 30 years, Zoetrope, Coppola’s production company, has ricocheted between blockbusters and bankruptcies, owning studios then losing them but always plowing ahead with new ventures” (Bart, 2000).
- The story shows how it is difficult to capitalize on the tools created for a specific film.
The company claims having embraced new technology and innovatively applying it to movie production, and pioneered unconventional filmmaking techniques.

American Zoetrope was an early adopter of digital filmmaking, including some of the earliest uses of HDTV.

The company prides itself of the 1st use of social network over the Internet in 1999.

American Zoetrope introduced the use of automated equipment and digital electronics in filmmaking ("electronic assist" method).

Zoetrope also provided the foundation for the next step in filmmaking: electronic nonlinear editing.

- In 1989, the editing of “the Godfather, Part 3” used the Montage Picture Processor, an ancestor to today's digital Avid editing systems.
Conclusion
Bridging gaps: companies as middlemen

- Digitization is almost complete; new technologies are spreading.
- The willingness to encompass changes cannot be taken for granted as it is perceived as an element of disruption of existing patterns and value chains.
  - Therefore, some companies are benefiting more than others.
- However, it opens up a space for challengers and newcomers to enter the field,
- Bringing along some innovations in any of the streams (digital editing, visual effects in production, on-line distribution, and digital screens) elbowing their way to create their own spot within the ecosystem.
- Middlemen providing services to the various players within the value chain
- They can also bridge any of the streams: like Ymagis bringing the content to digital theaters, Akamai to on-line distributors.
A more technology oriented vision?

- In a fast changing technological environment, the relationships between two complementary visions of the industry (technological/artistic) are evolving toward a more technology oriented vision.
  - New technologies may contribute to reconcile the two or to further widen the cut between the two visions.
- This may offer an opportunity to move away from the doom of stranded investments in tailor-made but non-reusable technologies.
  - within a complex value network, some of the players are or will be able to achieve some commercial autonomy,
  - to extend their customer base to closer sectors such as the video games (Image Metrics) or broadcasting (Avid, Mc Guff, Massive, Weta) advertising (Buf, Ymagis), but also medical imagery (Image Metrics).
Beyond “film as lab”

- The companies we reviewed in our case studies do stress the role of R&D even if its economic weight often remains difficult to assess.
- A growing role of R&D means that it may bring the cinema industry closer to more standard forms of innovation, built on the accumulation of R&D and the ability to re-use/reproduce the same innovation for other projects.
- Going beyond the former limitation of the “film as lab” model brings benefits, allowing third parties to build on their experience and technical achievements.
  - The new middlemen may be in a position, thanks to their expertise, to find the fruitful combination between the “project team” model and an “enterprise” model.
- Economic success in the media industry is “naturally dependent on the ability to adjust to and capitalize on technological advances.” (Doyle, 2013).
A new digital ecosystem?

- One may wonder if we are not seeing the emergence of a new digital ecosystem, around computing and software activities with a new allocation of tasks.
- The cooperation of the different players of the value chain within the “rather large village” is turning into an “ecosystem of networked collaborators”.
- The new companies acting as middlemen are actively liaising between players.
- But the other side of the coin is that the newcomers, the new middlemen, are less dependent of the “command and control” once exerted by the production segment, not to mention the new distributors (i.e. the “digital dragons”: Amazon, Google…).
- Besides there is a tension between the logic of prototype firmly rooted in this industry (supply driven) and the logic of demand that is gaining much momentum.
Some policy issues: in a nutshell

- It may be needed moving forward and beyond the mere logic of support to supply (logic of production).
  - Increased R&D expenditures would be then more likely to irrigate the whole sector.

- This will require departing from “silo thinking”, partitioning of industrial policies and any kind of “automatic funding” mechanism in a fast changing world.

- This also means bringing together through enabling policies in education, science and technologies all the kind of expertise needed.

- Existing policies may have to be strengthened both by Member States and at EC level to that end.
  - In a way, some elements are present in the EU, be they parts of clusters or fast growing start-ups.
  - However, they are still scattered, as often stressed by the EC.
Thank you

jpsmultimedia@hotmail.com

Source: Desclozeaux