The Evolution of Organisational Forms in the Digital Games Industry

[Extended Abstract]

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The digital games industry - along with the music, film and book industries - is commonly referred to as part of the creative industry. However, although they can all be grouped under the same label, the digital game industry is the only one that is natively digital. During the past decade, the industry experienced a phenomenal growth in terms of social and economic significance. However, the impact of the industry, in socioeconomic terms, has remained unexplored in academic literature. Our project, NEMOG[1], leverages on the impact that the high degree of innovation has on all the stakeholders along the industry value chain, it addresses the changes enabled by technology in terms of business models and industrial organizational structure. To do so, the first year of research has focused on three research issues: the analysis of the impact of technology on business models innovation in the digital game industry, the mapping of the evolutionary trajectory of the industry's business model innovation process [8], the innovation mechanisms that fuelled this particular path and growing areas of potential uses of digital games outside of purely entertainment purposes [6].

Despite the existence of multiple definitions, the business model concept is generally used to refer to how a firm creates, delivers and captures value [13]. A growing literature addresses this concept to provide definitions, look at its building blocks, and interpret it as a stand-alone concept providing taxonomies [3]. Authors have looked at business models as a tool to help scholars and practitioners to more clearly define its own components. Moreover, as recently explained by [1], literature looks at static business models as a "basis of company success" and "a framework to make money", or as the dynamic result of their building blocks. The first approach leads to a search for "sources of revenues (and costs), with descriptions of business architecture [...], the value chain position, and relevant industries, as well as the benefits which customers and suppliers can gain from a company's business model [11]". The second approach leads to investigations of, for instance, the complex and still quite unexplored relationship between business models and innovation (see [2]). In this sense, it is important to expand the focus of the analysis of business models from a single company perspective to the interaction among systems of companies, alternatively competing and cooperating. This new perspective addresses technology mostly as a means to innovate product and service solutions through collaborative networks. As a consequence, the overlap between the notions of technology and innovation in business models literature emerges and the distinction of companies' external (technology) and internal (innovation) factors fade out. In other words, there exist a lack in defining how technology can be brought into an existing business model to enable innovation in value creation, capture and delivery. Technology has then become an innovation field per se as companies can differently adapt to it and internalize its single components. The digital games industry allows us to test theoretically and practically the overlap between technology and innovation and understand how this overlap impacts on the evolution of business models across the industry.

Historically, the digital games industry has been, and continues to be, shaped based on a sequence of rapid technological advances. In our research we aim to capture the evolutionary trajectory of the digital-games industry through the classification of the industry's business models through time. For that purpose we performed a historical, event analysis in the form of a series of 20 case studies regarding the industry's business models. Arguably, in organisation theory, economic and societal organisations are multidimensional structures. As a result, any approach that aims to group organisations together should take into consideration this particular multidimensionality [10]. We argue that business models, based on their multidisciplinary and holistic approach, when it comes to describing an organisation's economic activity, are a valuable means of identifying the

[1]New Economic Models and Opportunities for digital Games www.nemog.org

salient organisational, and consequently, classification characteristics. The description of the business model in each case study was focused on component analysis [4]. Assuming that business models evolve through time based on the three principles of evolution (i.e. selection, variation and replication), we employed Cladistics Classification to group organisations together. Cladistics classification, groups entities together based on how recently they share a common ancestor providing us with an objective reference point [9]. Ancestry is determined by a set of characters that is used to describe each entity. In our case [8], we identified a set of 46 characters (Table 1) that were used to identify 4 classes of business models, which consists of, in total, 13 business model archetypes (Figure 1).

Our studies to date of the games industry have focussed, much like the industry itself, on games designed primarily for entertainment. However, games can have impact far larger than purely hedonistic purposes as demonstrated by the growing number of games for education, public awareness, self improvement and scientific discovery [6]. In recent years, customer segments continue to fragment vertically by the introduction of new value propositions that are directed to these games that serve societal and scientific purposes. It remains an interesting open question and a key topic of our ongoing work to research how best to monetize such games, which business models are applicable and where they fit within the existing industry. The ongoing project will further explore how business models could evolve into the future in order to accommodate these new value propositions and the effects on the industry's value chain. Furthermore, the digital implementation of modern games and growing ubiquitous presence of an internet connection has made the collection of large scale gameplay data plausible causing a growth in game data mining and analytics [7]. These methods are typically used to improve the game's monetization either directly (e.g. our recent work on predicting players that will quit [12]) or indirectly by improving the game design (e.g. our recent analysis of the differences in play style of human players and artificial opponents in Spades [5]). However, as we recently argued in depth [6], the analysis of this data could have wider social and scientific impact via the generation of Game Intelligence; knowledge generated by gameplay but transferable to contexts outside of the game.

To conclude, the digital game industry, despite it's youth, is a multi-billion creative industry with the potential to greatly benefit science and society. As a first step, we explored and mapped the evolutionary path of the industry by developing a formal classification system. This serves as the basis before proceeding into an explanatory, or even predictive research, that will focus on capturing the mechanisms currently needed to see a wider uptake of games for education, public awareness, self improvement and scientific discovery. Alternatively, it may be the case that these types of games require new economic models to be successfully monetized; a concept we will address in future work.

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APPENDIX

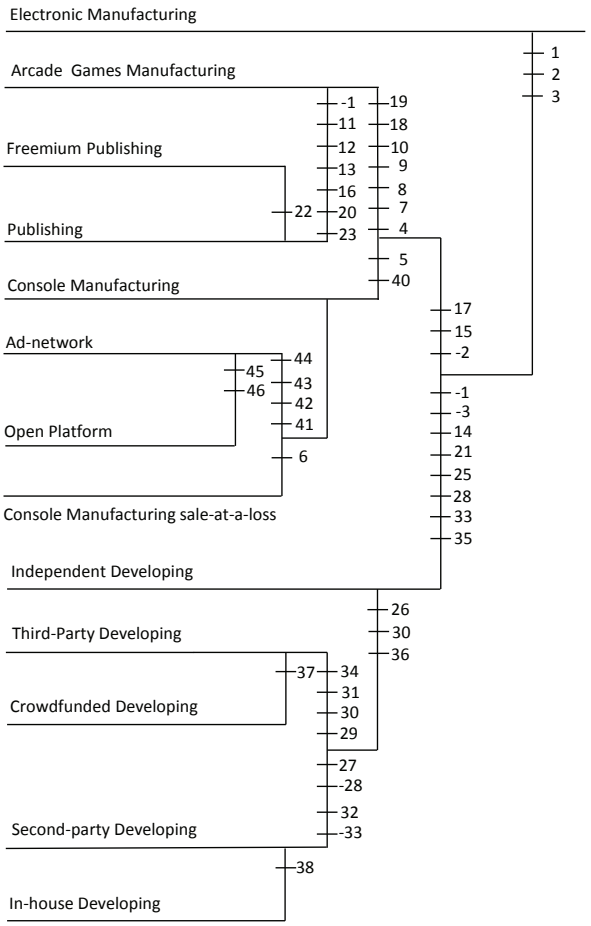

Figure 1: The Video-game industry' s business model classification cladogram. The numbers correspond to the characters presented in Table 1. Characters with a "minus" indicate the loss of the corresponding character (apomorphic event)

Code	Character
1	Platform manufacturing
2	Video-games Development
3	Own Publishing
4	Game-dedicated platform
5	Console Manufacturing
6	"Razor-blade" model
7	Own distribution channels
8	Third-party distribution channels
9	Own development studios
10	Outsourcing game development
11	Localisation Services
12	Layout design and printing
13	IP acquisition
14	IP Creation
15	Universal development support
16	Production risk minimisation
17	High Marketing costs
18	Hit driven strategy
19	Royalty Payments
20	Physical copies
21	Outsourcing publishing
22	Micro-transactions
23	In-game advertisement
24	Own digital distribution channels
25	Third-party digital distribution
26	Multidisciplinary development team
27	Exclusive publishing agreements
28	Development independence
29	Revenue stream via royalties
30	Multiple publishing contracts
31	Small, close-knitted teams
32	Big production studios
33	Middleware use
34	Exit strategy
35	Cost minimisation
36	Cost minimisation
37	Crowdfunding
38	Total publisher dependence
39	Game development self funding
40	Royalties from publishers revenue stream
41	Royalties from ads
42	Royalty payments to online hosts
43	Servers as platforms
44	Online host partnerships
45	Video game streaming
46	Subscription based revenue stream

Table 1: The list of character and their corresponding codes. The character states are in binary form $[0, 1]$ stating either the lack or the existence of the corresponding character in a given business model archetype (Figure 1).