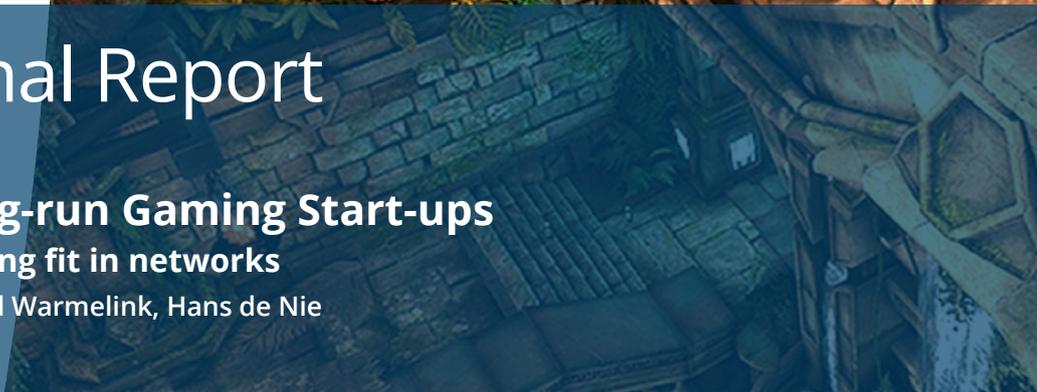




Final Report



Long-run Gaming Start-ups

Staying fit in networks

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1 Introduction

1.1 Serving the Dutch gaming industry's development

As part of its Top Sectors policy the Dutch government pays special attention to the creative industries, and recognises the game industry as an important subsector. In both the *Smart Culture Roadmap* and the *Knowledge and Innovation Agenda Creative Industries*, the need was expressed to render the game industry a bigger player in the Dutch creative economy and society, and to introduce the sector to major societal challenges. To achieve this a healthier ecosystem of companies and researchers and the development of new business models were set as key objectives under the theme Business Transformation¹.

Within the ecosystem of the Dutch game industry, Dutch Game Garden (DGG) has played an important role as an incubator for many years. Since its inception in 2008, DGG has provided physical space, support and education to 100+ gaming and gaming-related start-ups in Utrecht, Hilversum, Breda and Enschede. One of the most important services of DGG is the *Incubation Programme*: an educational programme for its gaming start-ups paying a great deal of attention to all kinds of aspects of entrepreneurship.

The Dutch Games Association (DGA) also plays an important role in the ecosystem. Since 2008, DGA has been the trade association, network organisation and knowledge centre of the Dutch game industry in the broadest sense of the word. DGA wants to create a healthy ecosystem for the Dutch game industry. It has about 100 members (game companies, knowledge institutions and various network partners), whose approx. 800 employees exchange knowledge, network and cooperate thanks to DGA at its regular events and online through various channels.

The Academy for Digital Entertainment (ADE) is a relatively new unit within Breda University of Applied Sciences (BUAs). This Academy's *International Game Architecture and Design* degree programme started in 2007 and has since become one of the largest and highest regarded of its kind in Dutch higher education. Graduates are assisted in their entrepreneurial ambitions through the programme itself as well as BUAs' incubator at DGG's Breda location and on the new campus in the near future. The professorships of *Playful Organisations & Learning Systems*² and *Video Games and the Value of Entertainment*³ reinforce this and other degree programmes within BUAs, or indeed of the international gaming industry at large.

By the end of 2017 DGG, DGA and ADE initiated a long-term collaboration that has resulted in several activities, events and this very report to date. The collaboration was firstly motivated by DGG's interest in continuously evaluating and improving its Incubation Programme to respond to the continuous demand for entrepreneurial knowledge and training. This is not only DGG's interest, it is also the interest of the entire industry, as acknowledged in important industry reports of the recent past⁴. Thus DGG continuously asks the question: How can DGG improve its Incubation Programme in terms of its content, in order to serve gaming start-ups even better, and thus to allow the Dutch gaming industry to grow? The collaboration with DGA and ADE grew out of this particular demand.

1.2 Long-run Gaming Start-ups Project

There was a need and an opportunity to explore this question further, before defining a clear-cut, well-demarcated research project. The need resulted from the vastness of the topic at hand: entrepreneurship

¹ NWO, "[Roadmap SMART Culture](#)" (The Hague, 2015);

TKI CLICKNL, "[Kennis En Innovatieagenda Creatieve Industrie 2016-2019](#)" (Eindhoven, 2015).

² Igor Mayer, [Playful Organisations & Learning Systems](#) (Breda: Breda University of Applied Sciences, 2016).

³ Mata Haggis-Burridge, [Video Games and the Value of Entertainment](#) (Breda University of Applied Sciences, 2016).

⁴ Olaf Koops et al., "[Games Monitor The Netherlands 2015](#)" (Utrecht, 2016);

Monique Roso, Evelien Boshove, and Christel Van Grinsven, "[De Nederlandse Gamesindustrie Onderzocht: Games Monitor '12](#)" (Utrecht, 2012).

knowledge and education for gaming industry start-ups. A first exploration of ideas and assumptions related to that topic would surely help demarcation. The opportunity resulted from the *SiA KIEM Creative Industries* programme. We were granted funds to carry out what we tended to call 'a project for a project', i.e., a short, small preliminary investigation project entitled Long-run Gaming Start-ups: staying fit in networks.

In this project the DGG, DGA and ADE partnership met the aforementioned by looking at longer-term survival and growth of Dutch gaming start-ups. The conducted investigation presented in this report therefore focuses on older start-ups, the so-called long-run start-ups. These start-ups are beyond their launching product and often around four to six years old. We chose this direction because we want to learn from the skills and experiences of experienced companies that are already a step further than their first game product. Moreover, in creative industry research, education and policy much attention is already paid to entrepreneurship during the very first years of business.

It is also important to start paying more attention to survival and growth beyond the first few years of business of a gaming start-up. The (Dutch) game industry is a young and complex industry characterised by creative and artistic design, technological innovations, and large, ambiguous and diverse market demands. These characteristics find different combinations in projects that are often carried out in partnerships or consortia. This makes the game industry interesting compared to, for example the better-established broader ICT industry. Classical management and organisation knowledge might not be sufficient for the gaming industry.

Moreover, while the *long-run* start-ups are the ones that have demonstrable economic impact⁵, the Dutch game industry actually experiences a high number of start-up cancellations after a relatively short period of time⁶. Fortunately, we (the DGG, DGA and ADE partnership) now also know many gaming start-ups in the Netherlands that lasted longer than one or two years. Knowledge can now be developed about how long-run gaming start-ups have managed to survive and grow. With this knowledge young start-ups can get a long-term perspective, ambitions for the sector can be realised, and management & organisation theory can be enriched.

For this preliminary investigation, we therefore aimed to develop and present first, new organisation and management knowledge about survival and growth as a starting game company in the Netherlands over the first few years through a qualitative, exploratory methodology. This report represents the deliverable following the pursuit of this objective.

1.3 Methodology and main questions

Our perspective on the game industry follows complexity theory, a topical theoretical development that fits the industry rather well. The behaviour of the industry itself is very difficult to predict, owing to the multiplicity of emerging and disappearing organisations that form all kinds of temporary and long-term links and networks⁷. This unpredictability and capriciousness are evident from the struggles to define what the game industry actually is, as well as observations of large numbers of new company entrants and cancellations⁸. A complexity-theoretical perspective (originally of natural sciences, and evolutionary in orientation) is also embraced when discussing the desire for a healthy 'ecosystem' for companies and knowledge institutions in the game and broader creative industries⁹.

⁵ Oliver Falck, "[Mayflies and Long-Distance Runners: The Effects of New Business Formation on Industry Growth](#)," *Applied Economics Letters* 14, no. 12 (October 2007): 919-22.

⁶ Koops et al., "[Games Monitor The Netherlands 2015](#)";

Paul Rutten and Olaf Koops, "[Monitor Creatieve Industrie 2016: Nederland Top-10 Steden Ontwikkelingen](#)," March 2017.

⁷ Telli E van der Lei, Geertje Bekebrede, and Igor Nikolic, "Critical Infrastructures: A Review from a Complex Adaptive Systems Perspective," *International Journal of Critical Infrastructures* 6, no. 4 (2010): 380-401;

Eve Mitleton-Kelly, "A Complexity Approach To Co-Creating An Innovative Environment," *World Futures: Journal of General Evolution* 62, no. 3 (April 2006): 223-39.

⁸ Rutten and Koops, "[Monitor Creatieve Industrie 2016: Nederland Top-10 Steden Ontwikkelingen](#)."

⁹ TKI CLICKNL, "Kennis en Innovatieagenda Creatieve Industrie 2016-2019."

The unpredictability of a complex industry introduces risks often mitigated by operating in *networks*. In networks, challenges are risen to more quickly¹⁰. It is therefore logical that operating in regional clusters, often facilitated by incubators or hubs, enjoys great popularity¹¹. We expect the more experienced long-run start-ups to have more and better network competencies and thus offer a good view of this.

Unpredictability also means that organisations must continually invest in evaluating their strategy (or value proposition), and the structure and processes with which it is pursued if they want to be able to survive or grow. Behind this statement are two main interests. First, there is the interest in whether an organisation is fit or resilient enough to shift or evolve its strategy and/or structure given its environment of (potential) customers, partners, competitors and stakeholders¹². Second, there is the interest in survival or growth performance. Essentially, we consider such performance as feedback on the fitness or resilience of organisations (profit or high valuations are indicators that you are fit or resilient). Some gaming start-ups aspire to expand their organisation, others do not¹³. Thus, theoretically, we think it is important to distinguish between organisational fitness or resilience, and organisational performance in order to survive versus to grow.

In this project we explored this theoretical framework in more detail. Through literature reviews and desk research we assessed whether and/or how organisational performance for survival and growth may be measured. Through semi-structured interviews with existing Dutch long-run start-ups we would assess whether and/or how our interest in organisational networks and fitness or resilience was useful and sensible. This led to the following questions:

1. What would be valid and reliable definitions and measures for survival and growth performance of Dutch long-run gaming start-ups?
2. To what extent is a focus on organisational networks and fitness or resilience valid and useful for understanding and further researching the developments that Dutch long-run gaming start-ups go through in their first years of business?

We formed a small project team of professionals from DGG, DGA and ADE. We also formed four panels of co-founders of carefully selected gaming start-ups from all over the Netherlands and the regions in which DGG currently operates (Table 1). These companies were either long-run start-ups with a particular gaming-related business model, or start-ups that recently ceased operations permanently or temporarily. We conducted group interviews with them, which DGG recorded, edited and made available online.

¹⁰ Brian Uzzi, "[The Sources and Consequences of Embeddedness for the Economic Performance of Organizations: The Network Effect](#)," *American Sociological Review* 61, no. 4 (August 1996): 674.

¹¹ P.-a. Balland, M. De Vaan, and R. Boschma, "[The Dynamics of Interfirm Networks along the Industry Life Cycle: The Case of the Global Video Game Industry, 1987-2007](#)," *Journal of Economic Geography* 13, no. 5 (August 28, 2012): 741–65; Karenjit Clare, "[The Essential Role of Place within the Creative Industries: Boundaries, Networks and Play](#)," *Cities* 34 (October 2013): 52–57; HKU, *The Entrepreneurial Dimension of the Cultural and Creative Industries* (Utrecht, The Netherlands: Hogeschool voor de Kunsten Utrecht, 2010); Stefania Środa-Murawska and Daniela Szymańska, "[The Concentration of the Creative Sector Firms as a Potential Basis for the Formation of Creative Clusters in Poland](#)," *Bulletin of Geography. Socio-Economic Series* 20, no. 20 (January 1, 2013): 85–93.

¹² Stuart Ian Young, "[The Relationship between Organizational Fitness and Business Performance: Specific Evidence for SMEs](#)" (2009); Ntandoyenkosi Sibindi & Michael Samuel, "[Organizational Performance and Fitness: Theoretical Differences and Similarities](#)," *Change Management: An International Journal* 16, no. 1 (2016): 1–12; Newnham, C., F.S. Iannuzzelli, and J. Crask. "[The Emerging Capability Every Business Needs: The Art and Science of Enterprise Resilience](#)," 2015.

¹³ Klaas Broekhuizen, "Nederlandse Gamebedrijven Blijven Graag Klein," *Het Financieele Dagblad*, March 2017; Koops et al., "Games Monitor The Netherlands 2015."

Panel	Company name	Year officially founded	Base
Serious & applied gaming companies (12 September 2018) View online	InThere	2009	Leiden
	GainPlay Studio	2010	Utrecht
	GameSolutionsLab	2017 (2014*)	Eindhoven
	ActiveCues	2015	Utrecht
Creative & entertainment gaming companies (10 October 2018) View online	Codeglue	2000	Rotterdam
	RageSquid	2012	Utrecht
	Blue Giraffe	2008	Eindhoven
	Independent, Vincent van Geel	2003	Utrecht
Gaming service-providing companies (14 November 2018) View online	Independent, Ellis in Wonderland	2008	Amsterdam
	Local Heroes	2014	Utrecht
	Independent, het Redactielokaal	2004	Amsterdam
	Improvive	2006	Amersfoort
Temporarily or permanently ceased gaming companies, (12 December 2018) View online #1 View online #2	Monogon Games (entertainment)	2012 (ceased 2017)	Utrecht
	Self Made Miracle (entertainment)	2011 (ceased 2017)	Utrecht
	Game Oven (entertainment)	2011 (ceased 2015)	Utrecht
	Davilex Games (entertainment)	1995 (stepped out 2005)	Houten
	Fourcelabs (serious/applied)	2007	Utrecht
	MonkeyBizniz (serious/applied)	2001	Utrecht
	Vogelsap (entertainment)	2013 (ceased 2016)	Hilversum
	Stolen Couch Games (entertainment)	2010 (ceased 2018)	Hilversum

Table 1. Panels of, in total, 20 gaming start-ups whose co-founders were interviewed.

* Direct result of Games for Health Europe (since 2010) and Idee Brouwerij (since 2014).

2 Measuring performance for survival and growth

What would be valid and reliable definitions and measures for survival and growth performance of Dutch long-run gaming start-ups?

2.1 Defining and measuring performance

Organisational performance is a rather elusive and normative concept. Depending on one's definition it can relate to similar concepts such as effectiveness or efficiency. Moreover, depending on one's position, accounting (e.g. profit margin), financial market (e.g. share price) or mixed/managerial (e.g. a balanced score card) perspectives might be applied to measure it¹⁴. Given its normativity, it is important to realise its context dependence. Although concrete numbers may be gathered on organisational performance across sectors and countries worldwide, clear universal definitions in absolute terms of what constitutes 'good' or 'bad' performance, as well as the threshold between them, are problematic and arguably impossible.

Within the context of this investigation we are interested in a start-up's continued survival (i.e., the organisation continues to exist and employ people) or its growth (financially and/or in number of employees) from one year to the next, over a period of several years. Of course we are also looking into a sector: the Dutch gaming industry. Though admittedly also an elusive concept, we have been able to form distinct panels of companies that fall under it. Still, leaving our definition of survival and growth performance in this industry at that would be insufficient. After all, one could imagine a company ceasing to exist, or not growing, for all sorts of reasons (e.g., its leaders simply choose not to do so) despite performing sufficiently. Thus the question still remains with what measures one might be able to ascertain a Dutch gaming start-up's possibility for survival or growth, beyond simply ascertaining its continued existence, or its increase in staff and funding, in hindsight.

¹⁴ Richard et al., "Measuring Organizational Performance."

We chose to focus on *accounting* measures of organisational performance for a number of reasons. We knew that hardly any (if any at all) Dutch gaming companies are stock market listed companies, and chances were low that enough of them would have in one way or another calculated their worth or a share price. Thus pure financial market measures would be impossible to obtain or too time-extensive to pursue in this project. Given the fact that this was indeed a brief one-year, small-scaled preliminary investigation, it would also be uneconomical to pursue the more elaborate mixed/managerial measures of e.g. a balanced score card. Moreover, pure accounting measures are in no way inferior to other kinds of measures if approached comprehensively and critically. The fact that Statistics Netherlands (CBS) has provided high-quality accounting data concerning most, if not all, Dutch companies for many years is the best reason to go for this approach¹⁵. Thanks to CBS, benchmarking performance from an accounting perspective is actually possible, also for the Dutch gaming industry.

2.2 Benchmarking the Dutch game industry

From the two Games Monitor studies conducted over the past few years¹⁶ we knew that CBS' datasets contain gaming industry companies scattered over several different sector codes (SBI codes). We therefore knew that we could obtain CBS accounting data from all relevant sector codes to develop a benchmark. If specific company accounting figures were subsequently obtained, we would also need to ascertain the CBS sector code under which that company falls. Only then would we be able to compare the specific company accounting figures to the appropriate sector benchmark. Table 2 lists each of these chosen CBS sector codes, as well as the number of companies they each cover for the years 2014-2016.

CBS sector codes	2014	2015	2016
46 Wholesale and trade mediation	43907	44705	46330
58 Publishers	1509	1489	1501
59 Film and TV production; audio recording	1757	1816	1923
60 Radio and TV broadcasters	52	55	48
62 IT services	16267	17895	19027
63 Information services	2445	2016	2140
73 Advertising and market research	6184	6141	6294
74 Design, photography and translation agencies	3915	4087	4425

Table 2. Number of companies contained in the CBS datasets per sector code and year¹⁷.

Within the realm of accounting performance measures, a focus on the following figures would make sense:

- Common, basic operating results (Balance Sheet Total, Net Sales, Operating Profit);
- Liquidity (Current Ratio, Quick Ratio), giving insights into the extent to which a company could meet current payment obligations in the short term;
- Solvency, giving insights into the extent to which a company could meet all payment obligations in case of liquidation;
- Rates of return (on debt, equity or assets), giving insights into the longer-term value of the company's chosen business strategy.

Although all of these figures could be calculated per sector code using CBS data, we concluded that this would lead to a debatable benchmark for Dutch gaming companies. The diversity of companies that each sector code contains is arguably just too high. A better benchmark could be developed from calculating the average

¹⁵ CBS - Statistics Netherlands, "[Financiën Alle Ondernemingen; Niet-Financiële Sector, SBI 2008](#)," CBS StatLine, 2018.

¹⁶ Roso, Boshove, and Van Grinsven, "De Nederlandse Gamesindustrie Onderzocht: Games Monitor '12"; Koops et al., "Games Monitor The Netherlands 2015."

¹⁷ CBS - Statistics Netherlands, "Financiën Alle Ondernemingen; Niet-Financiële Sector, SBI 2008."

performance from a large set of specifically selected gaming companies, e.g. those companies that are DGA members.

2.3 Further work possible and worthwhile

Two activities were initiated to further explore how we may develop a proper benchmark. We firstly purchased an accounting report of an established Dutch gaming company (which will remain anonymous) from the Dutch Chamber of Commerce ¹⁸. In spite of the fact that this was a well-established company, the accounting report contained only limited data, insufficient to calculate all the figures we wanted. We knew that the chances were very high that the Chamber of Commerce would have even less data of our selected panels of companies.

We subsequently wanted to ascertain to what extent we would be able to obtain the figures directly from the companies at hand. To that end, we conducted a pilot interview in June 2018 with a Dutch gaming company (which will again remain anonymous). Although the company at hand indicated that it would be willing to hand over the requested figures, after several months of trials and reminders, we were still unsuccessful in obtaining them. We are not sure about the reason. One has to acknowledge that releasing such figures to anyone is a delicate matter. If figures are wrongly interpreted, a company could suffer from such exposure of its accounting data.

It is clear what we would need to do to obtain reliable measures of organisational performance, and how much effort it would require. We would need to query individual companies directly, with support of the DGA. A survey approach would probably be best although it would require substantial effort to obtain a sufficient response rate.

3 Staying fit organisationally

To what extent is a focus on organisational networks and fitness or resilience valid and useful for understanding and further researching the developments that Dutch long-run gaming start-ups go through in their first years of business?

3.1 The panel interviews

A total of 20 executives from a selection of companies (see Table 1) were interviewed on the developments over the last few years of business. These participants were interviewed in a panel session in which four key questions were discussed:

1. What is the core business? Notably definitions of the product/service, the market, its structure and positioning within it.
2. What is the current organisational structure? Notably number of employees (including interns), line of responsibility, divisions of tasks/roles/authority, key partners, common patterns in organisational structure.
3. What was the latest pivotal change? Notably key changes in business and/or organisational structure: changes in product/service or internal organisation (e.g. growth, performance).
4. What were the drivers of that change? Notably market developments, technological innovations, personal motivation, etc.

We expected these questions could lead to insights on how these companies tried to find better business and organisational models over the years. Moreover, studying the reaction of the company to the changes in the environment could lead to insights on organisational development and learning. This should lead to insights on the organisational capability to adapt to changes and also insights on the capabilities to survive and grow.

¹⁸ KVK, "[Jaarrekeningen](#)," 2018.

3.2 Panel results

3.2.1 Core business

In general terms, we ourselves evidently made a distinction in core business as early as when forming the first three panels. Twelve companies made up these three panels, of which the first four focused on the applied and serious games market, meaning that their core activity is designing, developing and oftentimes applying games for educational and/or behavioural change purposes in one or more sectors (notably health). The second panel of four focused on the entertainment games market, meaning that their core activity is designing and developing games for entertainment purposes. The third panel of four focused on gaming industry service provision, meaning that these companies offered services to other entertainment companies and serious/applied gaming companies one way or another.

Out of this batch of, in total, twelve companies eight of them design and develop games from start to finish themselves, each of a certain genre or theme (e.g. multiplayer games, casual story games, games for health). Three of the twelve companies actually publish or apply games themselves through one or more publishing or application channels they control (often their own websites). One of the 12 companies is committed to a single channel, which is in this case the single bit of hardware to which it caters (the *Tovertafel* or Magic Table; Active Cues). Four of the twelve companies committed to multiple sales channels that are not under their control (notably Steam, game consoles and app stores).

All four serious/applied games companies develop bespoke games, i.e., games tailored to a specific demand or requirements of a specific partner or client ('work for hire'). In one case (GameSolutionsLab) the game production was part of a larger cost-saving project for a health insurance company. This led to a new core business whereby game development is part of larger-scale service provisioning to clients. Most companies, if not all four, subsequently resell or repurpose (parts of) those games more broadly for other clients and target audiences. As a result, these companies are both developing and (re)selling multiple game titles simultaneously.

The four entertainment games companies follow a somewhat similar process, except their business is focused on target audiences rather than clients (except when games are designed in close collaboration with a partner functioning as the client, as in the case of Codeglue). The products of the four entertainment games companies generally have a shorter lifespan than those of the four serious/applied games companies, at least from the perception of use by the target audience. In any case, at least when these companies started, all eight worked from project to project. This is different from the four service providers, who mostly have always had or tried to have multiple projects running simultaneously. These companies are sometimes partners (sharing in revenue), but more often subcontractors (paid for their services only).

The majority of companies who were interviewed in the last two panels concerning temporarily or permanently ceased companies produced entertainment games based on in-house developed concepts. One company worked as an art collective and produced interactive installations as a form of applied gaming. For all interviewed companies the games were distributed via different channels and platforms. The growth cycle of Davilex Games stretches over a period of almost ten years, which appeared to be the longest period within the research population. The company started with a small-scale focus on one game title and evolved over time into a multinational operating in different product divisions (platforms) and multiple markets.

3.2.2 Organisational structure

Seven of the 12 companies were very small, i.e., run by up to five people at the time of the panel interview. Two of the 12 were reasonably big for the Dutch gaming industry: GameSolutionsLab and Active Cues, each with some 25-50 staff. Four were actually independent, self-employed businesses. The interviewees of the small or self-employed businesses clearly had multiple roles in their company. As can be expected, the bigger the company, the more specialised the employees involved.

The self-employed businesses developed project organisations when they would be hired by a publisher or client. Unsurprisingly, all the very small businesses also upheld such a project-based structure. They formed small teams around a specific project for the duration of the project, often working with one or a couple of partner companies for certain game assets, such as sound and audio. Only the two largest companies had a functional structure (e.g., a unit for development, one for marketing, etc., each for multiple products). One company had been growing in number of employees, but preferred to uphold a project-based structure (referring to the cell structure concept of Eckart Wintzen), thereby setting up multiple, parallel project teams as the company grew.

All companies had a small set of key partners. For many companies there was one company that functioned as a key client or publisher. Even service providers developed such longer-term relationships with at least one key client. Four interviewees made a clear connection to a knowledge institution (university) as a key partner, now or in the recent past. Other key partners were asset developers (e.g. graphical or audio assets, or programmers). Only one interviewee (Vincent van Geel; self-employed, independent) operated closely with partners from outside the Netherlands (in this case in China). Others had (often solely) Dutch partners, i.e., they were working with people who they know well and are literally nearby. In most cases, partners offered a flexibility in labour capacity.

The structures found in the first four panels also appeared in the last two panels, which concerned temporarily or permanently ceased companies. One exception was an art collective which started out as a school project and developed into a limited game production company, producing work-for-hire applied gaming projects (FourceLabs). The most remarkable development of different structures appeared in the case of Davilex Games. This started off as a small company willing to produce an in-house developed concept. Through a financial key partner the company was attached to an already established office software development enterprise. With the aid of this larger (in terms of financial resources) enterprise the game business quickly developed into a separate game division. Because there was a lack of skilled designers and programmers in the Netherlands in this period (1995-2000), the company established a game studio in Germany. During this period the company developed a product division structure with two divisions for the main games products.

3.2.3 Pivotal organisational changes

Five main themes emerged from the panel interviews. Most of the twelve companies of the first three panels had undergone a pivotal change that we related to only one or two themes. The self-employed entrepreneurs Vincent van Geel, Ellis Bartholomeus and Matthijs Dierckx had experienced a clear shift in **product/service orientation or value proposition**. Obviously, each shift had its own specificity, if only because each participant was from a different panel (entertainment games, serious/applied games and service providers, resp.). RageSquid had also been experiencing this shift by working towards a focus on extreme sports games as a genre.

Three of the twelve companies had experienced a shift in **revenue model**. InThere had allied itself strongly with an external vocational training company, thereby combining direct sales of its serious/applied 'micro games' with in-house training company. This alliance also represented a change in **key partner and type of partnership** for this company. Gain Play Studio, also a serious/applied gaming company, underwent a very similar kind of change. In both cases this change also came with a change in **staffing and division of labour**, where the company had to let go of some staff and work with other staff with other skills. Entertainment game company Blue Giraffe also underwent a change in revenue model by moving from classical one-time game product sales to a free-to-play in-game asset sales approach.

Codeglue's latest pivotal change concerned a change in **scale of products/services provided**, which also led to a change in staffing and/or division of labour. In this case the company had started working on larger-scale projects, requiring more specialised and differently specialised staff. Improvive and Local Heroes also experienced a change in scale of product/service provided. Interestingly, while the former decided to scale up the projects as it was depending too much on single clients, the latter decided to scale down to focus more on

bigger, longer-term operations for fewer clients. Regardless of the opposite directions, both obviously also entailed a change in key partner and type of partnership.

Finally, Active Cues and GameSolutionsLab experienced a change in staffing and/or division of labour. For Active Cues this was actually an advance towards product/service innovation that had not yet solidified at the time of the panel interview. For GameSolutionsLab this was simply a matter of scaling up, also in terms of products/services provided; the company had been working on developing key partnerships in the health insurance industry for a long time, and following the successes of that it was able to scale up its operations.

Of course, concerning the final two panels the pivotal organisational change meant temporarily or permanently ceasing business. For two companies this was indeed a temporary situation (MonkeyBizniz and Fourcelabs; both applied gaming businesses), whereby the two entrepreneurs interviewed found jobs in higher education in the meantime. Concerning the exact nature of this pivotal change, almost all companies scaled down the capacity of the operation and developed into three to five team game production studios before choosing to shut down business completely or temporarily. Davilex Games dismissed most of its designers and programmers. In hindsight, the owner of the game division should have sold the game studio as a unit to a competitor instead of dismantling the total organisation.

3.2.4 Drivers of change

Concerning the drivers of the above five types of pivotal change, six main themes emerged. Most of the 12 companies were driven to change because of **personal motivation or drive from the entrepreneur**. This was clearly the case for most of the self-employed entrepreneurs, as well as InThere and Improve. The entrepreneurs in this question often found themselves in a situation that caused them stress or simply no longer sparked their interest. In general, the personal motivation to create (designing, researching, or developing) prevailed over the business development driver to create a sustainable operation that needs the management's attention on a daily basis.

For three companies **financial problems or risks** were a key driver of change. This applied clearly to InThere, Improve and Gain Play, whereby the last deemed itself too much reliant on public (research) funding. For InThere and Improve, these two drivers seemed to be the only clearly relevant ones. Gain Play added that it was keen to target (future) client companies' needs more directly following a shift away from public (research) funding dependence. When compared to similar answers provided by GameSolutionsLab and Active Cues, we deemed this type of driver as concerning **reducing business risk**, i.e., a more general entrepreneurial driver of change than specifically mitigating *financial* problems or risks.

For two companies **new technology influencing the market** represented a key driver of change. In the case of Active Cues this concerned its dependence on a quickly aging single piece of hardware (for the 'Tovertafel' or Magic Table). For Codeglue this concerned new and ever-advancing consoles entering the entertainment games market successfully as from roughly 2007. Of course this reasoning prevails in the entertainment game industry, when a game designer and developer are trying to reach consumers playing games on specific devices and platform.

For three other companies **changing market conditions** more generally were key drivers of change. Blue Giraffe observed the normalisation of free-to-play games with in-game asset sales and (albeit hesitantly) deemed it financially more successful than conventional game product sales. Thus it viewed a change in market conditions concerning revenue models. Local Heroes observed a more general decline in game sales, at least the kind of games to which it was oriented as a service provider. This can be deemed a changing market condition in terms of general economic decline. RageSquid observed a waning demand or market saturation, which was in their case a key driver of change towards a new genre of games that they would design and develop. Finally, being a first mover in the Dutch games industry, operating at a time when the Internet began to flourish, Davilex experienced a slow but sustained increase in competition.

Finally, two companies indicated an **attractive new opportunity from partners** in their network as a key driver of change. For GameSolutionsLab the opportunity arose from a key insurance company that chose to collaborate closely with them, which would require the pivotal change described earlier. For Mathijs Dierckx there was a similar answer. Of course in his case he already was and remained self-employed.

Concerning the final two panels there were a small number of drivers behind temporarily or permanently ceasing business. First, four companies experienced financial problems or risks induced by disappointing sales, either from the get-go of a game title, or a quicker decline in sales than expected upfront (Monogon Games, Self Made Miracle, Vogelsap, Stolen Couch Games). For Davilex Games this was also a key driver, but not the only one. The company had become very big and, as a first mover in the Dutch games industry, had become so already at the turn of the millennium. The general economic crisis of the early 2000s certainly did not help the company either. More importantly, the quality of the titles released once the company had become big declined. For the final three companies (Fourcelabs, Game Oven, MonkeyBizniz) the major driver behind temporarily/permanently ceasing business was closely related to the aforementioned theme of personal motivation or drive from the entrepreneurs involved. Only for Game Oven this at last meant ceasing business completely.

3.3 Relevance of organisational networks & fitness

There are remarkable differences and similarities when the stories of the eight temporarily/permanently ceased companies are compared to those of the twelve as yet continuing games companies. It leads us to formulate three main conclusions concerning the relevance of our two core concepts of organisational networks and organisational fitness.

First, we note that particularly entertainment games development is quite a psychologically hard business. When sales disappoint (for whatever reason), the entrepreneurs in question (who probably put their heart and soul into creating the game) have to have a lot of resilience in a psychological sense to be able to make quick, wise business decisions from which they can move on. The entrepreneurs need to have their eyes set on continued business to do this, rather than on nurturing their game. They have to be willing to move on from a disappointing business model quickly and resolutely. Thus, from the personal, psychological perspective of the entrepreneur already, the concept of organisational fitness seems to resonate.

Second, we note that things can seemingly get psychologically tough as well in a serious or applied games business. Many of the entrepreneurs we interviewed for this subsector of the games industry are creative thinkers and doers interested in applying their perspectives and skills to business and societal problems at large. At times the sense of creativity or challenge can apparently get lost. Again, it is then up to the entrepreneurs to have the resilience to quickly and resolutely move in if they want to carry on with their business.

Third, when the personal motivation or drive of the entrepreneur in question is *not* an issue, it would indeed seem that organisational fitness becomes more dependent on the networks said organisation has formed. Arguably, a good organisational network (i.e., trustful relationships with multiple partners in which information and knowledge was shared) could have led Davilex Games to find a new partner and continue business for example, or it could have led Monogon Games to find more projects (under its work-for-hire model) or to a new genre of games development similar to RageSquid. Moreover, it is noteworthy that a change in key partner and type of partnership did not come up in any of the eight interviewed temporarily or permanently ceased companies. In fact, there was hardly any mention of even a potential influence of an external partner. The only external kind of factor that came up concerned the market, notably declining or disappointing sales.

4 Conclusions and next steps

In this report we first presented conclusion on measures for survival or growth performance. We chose to focus on well-known, well-established accounting measures (Balance Sheet Total, Net Sales, Operating Profit, Current Ratio, Quick Ratio, Solvency, and Return rates). We subsequently pursued the development of a benchmark. While relevant CBS data is available and usable for this, CBS distributes gaming companies over multiple, highly diverse sectors. This renders the validity of a gaming industry benchmark based on CBS data questionable. An alternative data source could be the Netherlands Chamber of Commerce. However, data from this source will often be too incomplete to calculate the aforementioned accounting measures. From these investigations, it is clear that, with the help of DGA, relevant accounting data should be obtained directly from the source: the gaming companies themselves (e.g. through a large survey).

We subsequently analysed the outcomes of four panel interviews involving the selected 20 Dutch gaming industry companies, in which we asked about their product/service provision, organisational design, pivotal moments of organisational change, and the key drivers behind that change. Among the 12 long-run start-ups we identified five key themes of organisational change: changes in product/service orientation or value proposition, revenue model, key partner and type of partnership, staffing and division of labour, and finally, scale of products/services provided. Then we identified six key themes of change drivers: personal motivation or drive from the entrepreneur, financial problems or risks, reducing business risk, new technology influencing the market, changing market conditions, and finally, an attractive new opportunity from partners. We noted that personal motivation or drive from the entrepreneur is an important factor for organisational fitness, and when this motivation or drive is *not* an issue, it would indeed seem that organisational fitness becomes more dependent on the networks the said organisation has formed.

Based on these results, we envision a future research project that adopts a mixed-method panel methodology. Basically, this would be a scale-up of this preliminary investigation in terms of number of companies analysed, combined with the application of a quantitative survey approach in addition to semi-structured interviewing. We feel that the work reported here provides sufficient foundation for quantifying many of the variables of interest, which would be necessary for a survey approach.



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