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**CONTRIBUTION OF GOVERNMENT FUNDING TO
START-UP SUCCESS IN THE DIGITAL ECONOMY**

Tekes funding for Finnish young innovative companies

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ABSTRACT

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<p>The digital economy has urged start-ups to adopt a new business model that enables all business processes to take place at the same time. However, they are facing more challenges in fundraising due to the emerging requirements of huge amount of capital for innovation, and business development process, including commercialisation, market development and globalisation.</p> <p>Finland, where the country's national pride was grounded on Nokia icon for decades, has recently beheld an explosion of start-ups. They were expected to be the next economic engine creating innovations, employments and economic growth, and hence securing the Finnish welfare state. Finnish government annually provided hundreds of millions for funding young innovative businesses via a sophisticated support system. Tekes was among others, however, the key player in the system.</p> <p>This thesis is thus based on the author's interest in public policy and its impacts on start-ups. Its goal was to investigate how public funding may contribute to start-up success in the new digital economy. At its scale, a new business model in the digital economy, associated with financial requirements alongside the lifespan of a start-up, would be analysed. Tekes impacts on Finland's innovative start-ups would be then observed as an example of one of the most successful funding agencies worldwide.</p> <p>However, the contribution of public funding is not the same in different countries. Further researches regarding circumstance of a certain country are necessary for policy makers to adjust appropriate policies in entrepreneurship and entrepreneurs.</p>		
Key words Tekes, government funding, star-up, entrepreneurship, digital economy.		

DEFINITIONS & ABBREVIATIONS

ETLA – Elinkeinoelämän tutkimuslaitos [The Research Institute of the Finnish Economy]

ICT – Information & Communication Technology

IPO – Initial Public Offering is the first sale of stock by a private company to the public. IPOs are often issued by smaller, younger companies seeking the capital to expand, but can also be done by larger privately owned companies looking to become publicly traded. (Investopedia 2016.)

TEM – Työ- ja elinkeinoministeriö [The Ministry of Employment and the Economy of Finland]

Venture capital (VC) is money provided by investors to start-up companies and small business with perceive long-term growth potential. This is a very important source of funding for star-ups that do not have access to capital markets. It typically entails high risk for investors, but it has potential growth for above-average returns. (Investopedia 2016.)

ABSTRACT
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1 INTRODUCTION

Competitive advantage is determined by a system of factors, according to Porter (1990), including the factors of production, the market demand, the supporting industries and the company strategy and structure. Market opportunities and public policies; meanwhile, built up an external framework influencing every single factor in the system. Porter's model, thus, explains the significance of government in assisting a company to gain competitive advantage. Additionally, due to the pace of current technological progress, a government is required to adjust its policies to promote renewal in companies' technological capacity, and adoption in new business models.

Since the financial crisis 2008, policy on entrepreneurship and entrepreneurs has been the key concern in many countries due to its influences on employment, growth and innovation. To encourage new enterprises, new policies have been issued, and the role of government has been adjusted. In France, for instance, the legislation supporting auto-entrepreneurs was introduced in 2009 aiming to boost birth rate of start-ups. However, according to OECD (2015), start-up rates are still below pre-crisis levels in some countries, particularly, the Eurozone economies.

In most countries, public funding in R&D is considered major stimulus for start-ups. The United States, Finland, Iceland, Portugal and Korea have the largest R&D budgets as a percentage of GDP (2010). Finland and Korea are also known as the start-up welfare states where the governments annually pour hundreds of millions into loans, grants and investments in start-ups. OECD's studies (2015) show that government is an important alternative source of finance, in particular for innovative and fast-growing start-ups with a higher risk-return profile, when more rigorous prudential rules have been effected restricting them to access bank credit since the crisis.

Finland is the most 'remote' country of the Eurozone to the north, the emergence of Nokia as a global market leader in mobile telecommunication a decade ago raised it to the forefront position of the global digital economy. Finland is ranked one of the top innovation leaders in Europe, according to the Innovation Union Scoreboard 2014.

Finland, after the fall of Nokia, is facing a rapid rise of start-ups in recent years. "Nokia era Finnish", BBC (2015) commented, "But the sinking of Nokia has led to an explosion of

start-ups, as skilled workforce jumps ship and begin businesses”. Successful start-ups will bring in welfare, new jobs, radical innovations, and hence increase productivity and competitiveness. The trend is making a new economic engine that is expected to take the country back to growth track. Indeed, Finland is currently well-known for gaming start-ups that make up a billion euro industry. The game maker Supercell alone contributed some €176 million of the state revenues through corporation taxes in 2015. The recent emergence of high growth start-ups in digital health is being considered the ‘Next Finnish Gaming’. (Belton 2015.)

To keep start-ups growing, Finnish government provides strong support through a sophisticated innovation support system. Finnish public funding Tekes, however, is argued to be a key part in Finnish start-up success. Tekes pumped more than €500 million into R&D in 2015; about half of that has gone directly to start-up companies. There are many studies that have been carried to explain the impacts of Tekes funding. For example, the evaluation of Tekes (2012) completed by TEM concluded that Tekes is the key players in the Finnish innovation support system and also among the global leading innovation agencies. Tekes has had broad impacts on Finnish society and economic activities as a whole, from increasing R&D to raise Finnish enterprises’ competitiveness, and create networking, according to TEM’s report. By the analyses on the Finnish high-growth entrepreneurship ecosystem (2014), Autio claimed that Tekes funding increased growth companies’ business planning, management and attractiveness to private investors. Additionally, Rouvinen and Pajarinen (2012) specified the impact of Tekes funding on improving labour productivity in funded start-ups as they had experienced a higher rate of growth in employment figures and added value than other companies.

This thesis thus tries to explain how public funding can contribute to young business success in the new digital economy. To answer the question, the author focuses on investigating how Tekes assists Finnish innovative start-ups to thrive by utilising previous literatures analysing the positive impacts of Tekes on Finnish society and innovation. Thesis finding, however, is relied on successful case of Tekes funding for start-ups in Finland. Since policy priorities and government roles are different from countries to countries, policies in public funding and their impacts are not the same. Therefore, the thesis finding is not definitely applicable in all cases. Further studies are necessary at larger scale to understand and reflect the most common political agenda regarding promoting enterprise creation and their success.

2 START-UP IN THE DIGITAL ECONOMY

2.1 Contemporary concept

Over the past few decades, the term “start-up” has been popularised, which is generally understood as the very first stage of operations of a company (Investopedia 2015). Some experts, however, argue that to describe a start-up company, it is not enough to just look at the company’s lifespan. Many start-ups may be older than five years old. According to the founder of Y Combinator – an American seed accelerator, Paul Graham, a company is running in its start-up-hood, if it has less than 80 employees, revenues below US\$ 20 million and at most five people on the board. He also adds another key factor of being a start-up: the ability of growth. He explained:

A start-up is a company designed to scale very quickly. It is this focus on growth unconstrained by geography which differentiates start-ups from small businesses. (Forbes 2013.)

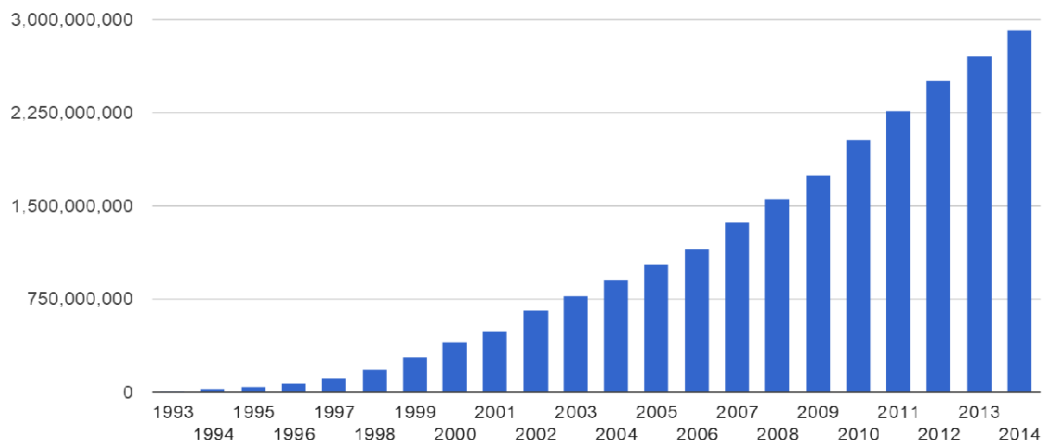
2.2 Most talked-about trends

The digital economy refers to a technology-based economy in which digital networking and communication infrastructure, such as the Internet, computer and mobile, provide a platform for all economic and social activities. The emerging digital economy may imply either opportunities or challenges for start-ups companies. By adopting e-commerce business models, they have plenty of opportunities to run a business globally despite of scarcity of resources. Simultaneously, in such a dynamic environment, they need to be more adaptive by shortening the time-to-market. (Turban, Leidner, Mclean & Wetherbe 2007, 2-6.)

Today’s start-ups are thus becoming more tech-oriented. One fourth of start-ups in the U.K, which is enjoying an outstanding annual growth rate, fall into ICT sector. The share of such start-ups is followed by 15 %, 12 % and 11 % in German, France and Spain, respectively. The hottest categories in terms of their operations, meanwhile, are software solution, e-commerce and mobile application (Startup Europe Partnership 2014.). The key trends that influence start-ups in the digital economy generally pointed in the following.

2.2.1 Growth of the Internet

Since the Internet was born on September 1, 1969 by the U.S. Department of Defence, it has been changing the history of technology (Castells 2010, 45.). In the early of 1990s, less than 1 % of the world population used Internet, while it is currently up to 46 % in 2014 (GRAPH 1). Nearly half of the world Internet users live in Asia, with 43 % of those are Chinese. North America has the highest proportion of Internet users in total population. Many countries in Europe are in the world's Internet penetration top ten such as Denmark (96 %), the Netherlands (95.5 %), Luxembourg (94.7 %), Sweden (94.6 %) and Finland (93.5 %) (Internet World Stats 2015.). The Internet users are forecasted to continue growing worldwide, especially, at higher rate in emerging economics (Internet Society 2015.).



GRAPH 1. The world's internet users from 1993 to 2014 (Internet Live Stats 2014.)

2.2.2 Mobile technological development

The pace of smartphone development has stimulated utilisation of mobile Internet. The growth of global mobile Internet penetration is expected to rapidly rise to 71 per 100 inhabitants in 2019 (Internet Society 2015.). In OCED countries, the penetration is definitely higher than the world average as it has reached 72.4 % already since the end of 2013 (OCED 2014.). Although mobile internet is more popular in developed countries, it is rising by more significant rate in emerging markets. In Central and Latin America, for instance, mobile internet adoption is expected to expand by 23 % in 2015 (Internet Society 2015.).

The popularisation of mobile Internet, on the other hand, has encouraged new services on mobile phone access to the Internet, as well as broader range of applications. The Global Internet Report 2015 estimated that two thirds of current online usage on a smartphone were via mobile apps, with over 1 million apps available that had been downloaded more than 100 billion times. (Internet Society 2015.)

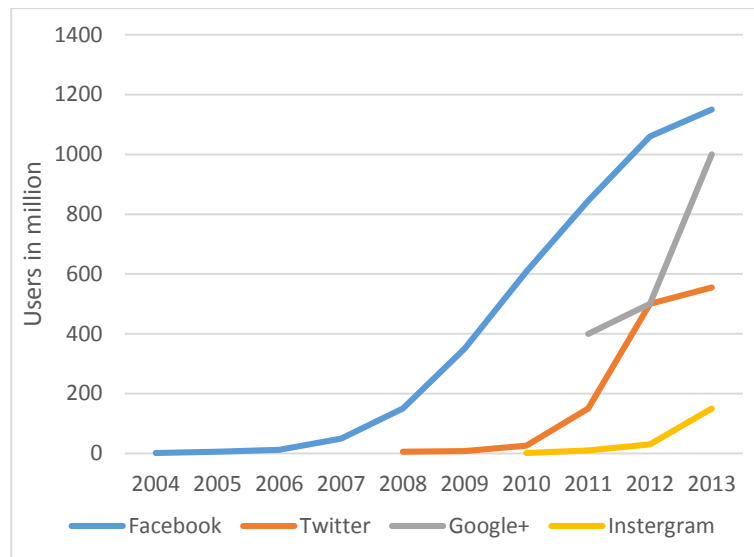
Smartphones and mobile Internet have changed consumer behaviour. A recent study conducted by Nielsen, an international market researcher, has found that people in many countries are spending more time using their smartphone, which has already surpassed online time spent on their computers since the end of 2013. Table 1 below presents the study's outcomes of Nielsen in the U.S, the U.K and Italy.

TABLE 1. The average time monthly spent per person on PC vs. smartphone (Nielsen 2014.)

	The U.S	The U.K	Italy
Monthly time spent on computer	26 hours, 58 minutes	29 hours, 14 minutes	18 hours, 7 minutes
Monthly time spent on smartphone	34 hours, 21 minutes	41 hours, 42 minutes	37 hours, 12 minutes

2.2.3 The explosion of social media

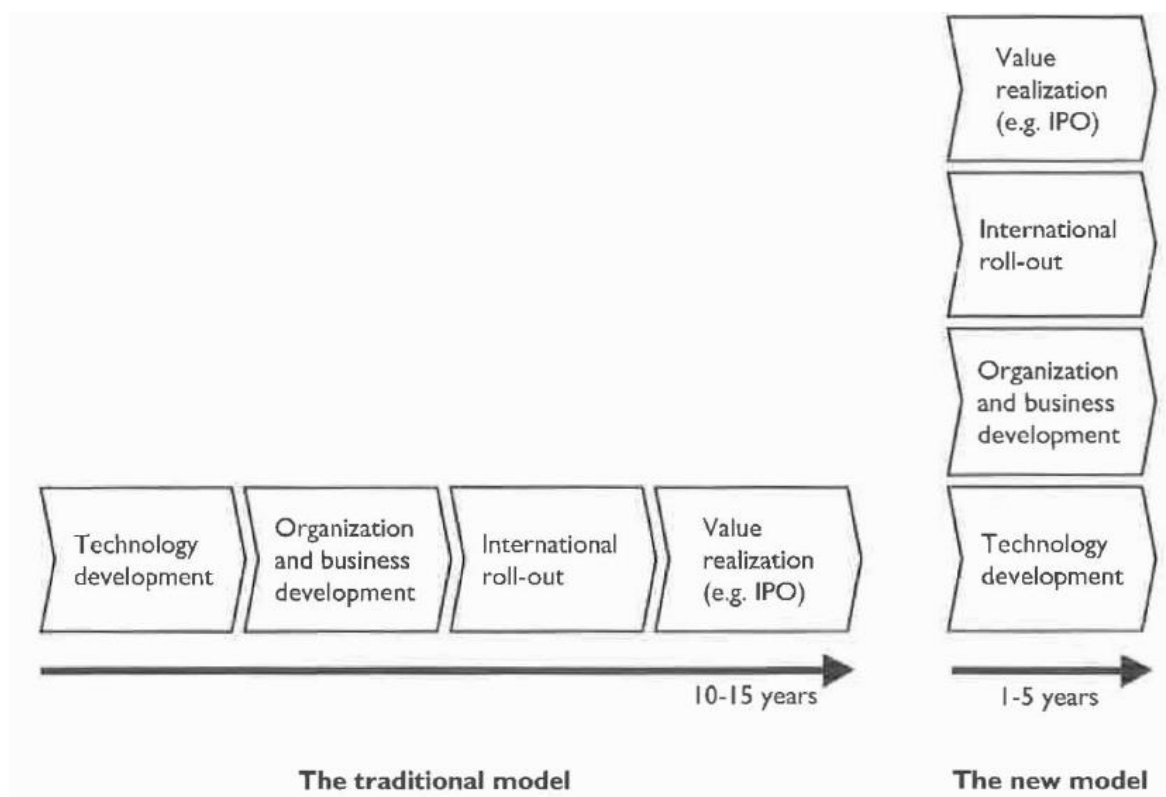
Social media was seen to be in full flourish during the past decade. Social media is getting, more or less, a way of life, definitely changing the way humans communicate and entertain. The latest statistics estimate that more than 1.5 billion people are using Facebook at the end of 2015, making it the world's most popular social network site (Statista 2015). Usage of social media is not for only pleasure, but significantly for business too. In 2013, Search Engine Journal showed that 93 % of businesses used social media for marketing; Facebook, Twitter and Google were the most used sites by marketers (GRAPH 2).



GRAPH 2. Growth of global social media from 2004 to 2013 (Jones 2013.)

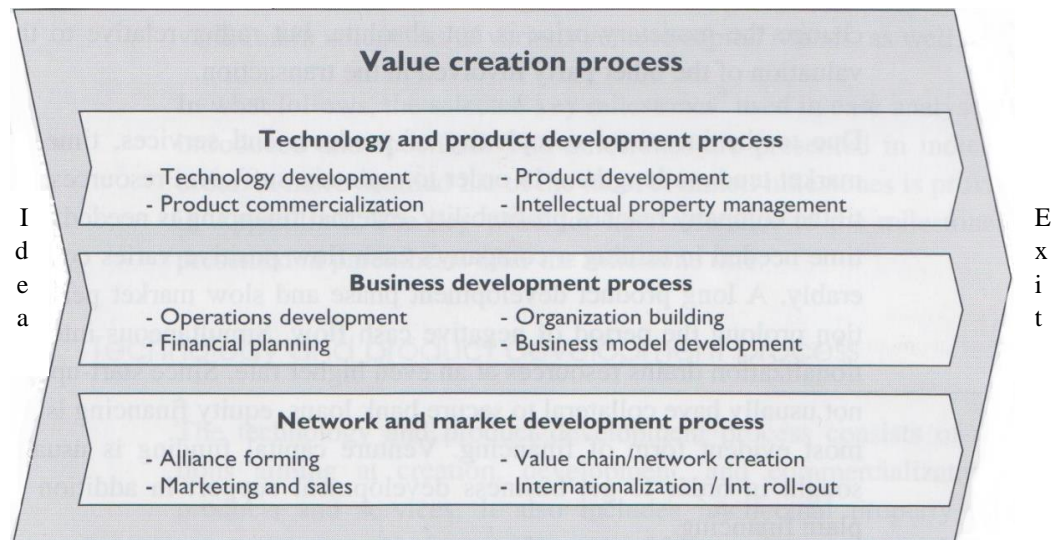
Social media is essential for modern business, most start-ups and small businesses today use social network for business networking. In 2013, 85 % of American small businesses used social media for building up their business networking. LinkedIn was claimed the best tool for searching people and companies as it was used by nearly 60 % of small businesses. Facebook was also an effective tool for business networking whereby 70 % of marketers were successful in capturing new customers. In the U.S, half of the small businesses were active on Facebook. (Carthy 2014.)

2.3 New model for start-ups in the digital economy



GRAPH 3. Start-up new vs. old model (Rönkkö 2001, 84.)

Start-up companies used to follow the step-by-step model in which they began at the development of technology, followed by the establishment of the organisation. To go global in the next stage, they needed to attain sufficient capacity. Companies finally reached the last phase as their value was well recognised by the market, through either trade sale or shares. In this model, companies may need at least ten to fifteen years from the initial business idea to the value realisation. (Rönkkö 2001, 84.)



GRAPH 4. The evolution model for start-up in the digital economy (Rönkkö 2001, 85.)

The digital economy stimulates the application of a new business model (e.g. e-commerce model) to all business areas (Turban, Leidner, Mclean & Wetherbe 2007, 6.). New companies have to remain competitive by constantly developing new technologies, coincidentally, seeking new markets and business opportunities (Frinking, Hjelt, Essers, Luoma & Mahroum 2002, 12.). The new model (GRAPH 3) thus enables all the business processes to develop at the same time, which accelerates growth of new companies in the digital economy. Besides that, an evolution model has also been introduced to analyse and understand the structural change during the development phase of start-up companies from the beginning ideas to the stage where their value is publicly realised (GRAPH 4). The value creation process is the most important process, on which the other three core processes of a start-up, the technology and product development process, the business development process and the network and market development process, are adjusted.

3 FINNISH SUCCESS STORY

3.1 An economy based on forest

At the time of gaining independence in 1917, Finland was a poor country; the GDP per capita was lower than the average level of the rest of Europe. Finnish economy slowly caught up with the more affluent western countries over the post-war period. The GDP per capita of Finland was 46 % of the U.S level in 1950, falling behind its Nordic neighbours. (Sölvell & Porter 2011. 2.)

Finland was historically a forest-based economy. The abundance of forest provided foundation for Finland's economic growth for decades after the Second World War. In 1980, 43 % of export income came from the forest industry. In GDP, forestry shared 4.6 % and 6.7 % by primary forest-industry production. During peak season at that time, forestry offered 63,000 jobs representing 2.7 %, and another 120,000 people was employed by forest industry representing 5.2 % of the active workforce. (Sevola, Ovell, Elomaa & Oksanen 2013, 16-24.)

Until the 1970s, Finland got closer to the world's most advanced economies. Finland's GDP per capita rose to 69 % of the U.S level and outpaced that level of the U.K as soon as in the end of 1970s. The gap between Finland and other Nordic countries was also getting smaller as its GDP per capita reached approximately 90 % of Sweden's in 1985. (Hjerppe 1989, 53.)

Capital inflow from pulp and paper cluster was invested in the metal and engineering industries and, importantly later, in the high-tech electronics industry. That stimulated Finnish economic growth and diversification in the 1980s. R&D expenditure dramatically increased by about 10 % annually during that period making Finland one of the top OECD nations in share of GDP for R&D. (Sölvell & Porter 2011, 4.)

In addition to the economic boom, the 1980s in Finland was characterised by many policy changes, notably, the deregulation of Finnish capital market:

Interest rate regulation ended during 1983-1986, and restrictions on the cross border movement of capital were gradually abolished during 1986-1990. Due to the liberalisation, borrowing from banks more than quadrupled, and foreign

credits grew almost ten-fold during the 1980s. Since 1993, there no longer restrictions on foreigners purchasing shares of Finnish company. (Rönkkö 2001, 73.)

The Great Depression in the early 1990s plunged 6.2 % of Finnish real GDP in 1991 and 3.3 % in 1992. Export dropped by 13 % in 1991. Unemployment jumped from 3.5 % in 1990 to 17.9 % 1993. Devaluation of the Finnish markka and a series of other tight policies was adopted that helped in promoting rapid economic recovery initially in 1993. Finland's GDP kept growing between 3.8 to 6.3 % throughout the rest of the 1990s. (Sölvell & Porter 2011, 7.)

The 1990s was also characterised by the Internet explosion and rapid globalisation, followed by a wave of new process and new products, urging productivity growth and stimulating economic competition (Castells 2010, 166.). Finland reacted by adopting the new national industrial policy that was on basis of the cluster approach initiated by ETLA (1992) – The Research Institute of the Finnish Economy. Technology, education and competition became the key concerns in the new policy (Sölvell & Porter 2011, 7.).

The innovative capacity of Finnish industrial clusters was continuously promoting by annually increasing government funding for R&D activities (TABLE 2), while several austerity packages had been undertaken since 1992. At the turn of the new millennium, major investments had shifted to the ICT industry. There were €77 million invested in the Finnish ICT industry representing nearly one third of aggregate venture capital investments. The rapid development of Finnish ICT start-ups has attracted more international investors and, simultaneously, the rise of venture capital market has accelerated their growth (Rönkkö 2001, 75-79.).

TABLE 2: Finnish government funding for R&D in 1989-1999 (Sölvell & Porter 2011, 7.)

	1989	1991	1993	1995	1997	1998	1999
Enterprises	€924.8	€975.1	€1,048.5	€1,373.4	€1,916.7	€2,252.8	€2,643.9
Public sector ^a	286.1	357.5	379.7	374.4	408.6	443.8	470.1
University sector ^b	290.2	378.0	367.5	424.6	579.5	657.9	764.8
Total	1,501.2	1,710.6	1,795.8	2,172.4	2,904.9	3,354.5	3,878.8
as % of GDP	1.8	2.0	2.2	2.3	2.7	2.9	3.2 ^c
Enterprises	61.6%	57.0%	58.4%	63.2%	66.0%	67.2%	68.2%
Public sector ^a	19.1	20.9	21.1	17.2	14.1	13.2	12.1
University sector ^b	19.3	22.1	20.5	19.6	20.0	19.6	19.7
Total	100	100	100	100	100	100	100

The emergence of the Finnish ICT picked up the demand for skilful labour resources. The government, hence, decided to expand the capacity of Finnish higher education. The students' intake in universities nearly doubled and tripled, respectively, in universities and universities of applied sciences from 1993 to 1998. Finnish government also implemented programmes to encourage education in information and communication area initiated at the beginning of 1998. (Sölvell & Porter 2011, 8.)

3.2 Transformation into the 'Digital Number One'

The flourish of the telecommunications cluster was a cornerstone of changes in the industrial structure and international position of Finland. From a forest-based economy, Finland evolved into one of the world's most innovative and competitive economy by 2001. Different from most other European countries, telephone network was always perfect competition in Finland. At the end of the 1990s, Finnish government decided to withdraw from the telecommunication, which liberated the market and hence urging competition. (Sölvell & Porter 2011, 9.)

Until 1999, Finnish industry was dominated by electronics and telecommunications equipment sector with 21 % shares of value added. Pulp and paper's share, however, dropped behind with 15 %, followed by chemical and machinery and equipment. In 2000, revenue from telecommunications cluster relative to the total export's income overtook that of pulp

and paper cluster, representing 6.9% of GDP. The cluster was included over 4000 firms employing 83,000 people with average annual growth rate of 20%. (Sölvell & Porter 2011, 8.)

Nokia played a key part in the development of the Finnish telecommunications cluster. It contributed a quarter of Finnish growth from 1998 to 2007, according to ETLA. In 2000, Nokia dominated the mobile communications equipment market with 31 % market share. The company employed 60,289 people, 24,000 of whom worked in Finland. Nokia also drove the substantial growth of investment in Finnish IT and telecommunications-related R&D as 60 % of its researches were conducted in Finland, accounting for 45 % of all private R&D expenditure in the country during the 1990s. The company's R&D created potential supply of well-educated human resource, particularly, highly skilled IT professionals. (Sölvell & Porter 2011, 14-17.)

4 FUNDRAISING FOR START-UPS

4.1 Alternatives to fundraising for start-ups

A solid financial planning is vital for saving start-ups' life. Searching capital is thus vital for all new businesses. There are three questions that any company is suggested to respond before making financial decisions: how much money is they needed, how to best get finances and how much to return of the profits to the investors (Dow 2009.). Start-up companies can be financed by either investors, or funding via various fundraisers, loans, or grants. The major sources of financing to start-ups are outlined in Table 3. According to OECD (2015), debt financing is among others the most common source of external finance for star-ups and many SMEs to fulfil their launch, cash flow and investment needs.

TABLE 3. Main forms of financing to start-ups (Rönkkö 2001, 74.)

Debt financing	Made through financial intermediaries, or directly by issuing bonds. The loans must be repaid over certain of time, plus interests.
Private venture capital	Made through venture capital funds and investment companies, usually in the form equity, but possibly in loans and convertible loans, as well.
Public venture capital	Made through public and semi-public venture capital funds.
Business angle investment	Raised by accredited investors known as wealthy individuals, who invest their own funds professionally in similar way to venture capital funds. Angle investors are interesting in ICT start-ups at the most. Nearly half of them have invested to start-ups operating in those fields related to Internet and mobile & telecom (Prive 2013.).

Petite angle investment	Raised by start-up's owners themselves, or their friend, or relatives, which is only in small amount of equity. Petite angle investors operate less professionally than business angle investors, and are usually passive investors.
Government funding	Organised in the form of soft loans, investment subsidies, collateral and tax breaks. Today's Subsidies of many governments is to support R&D development and internationalisation.

4.2 Start-up financing cycle

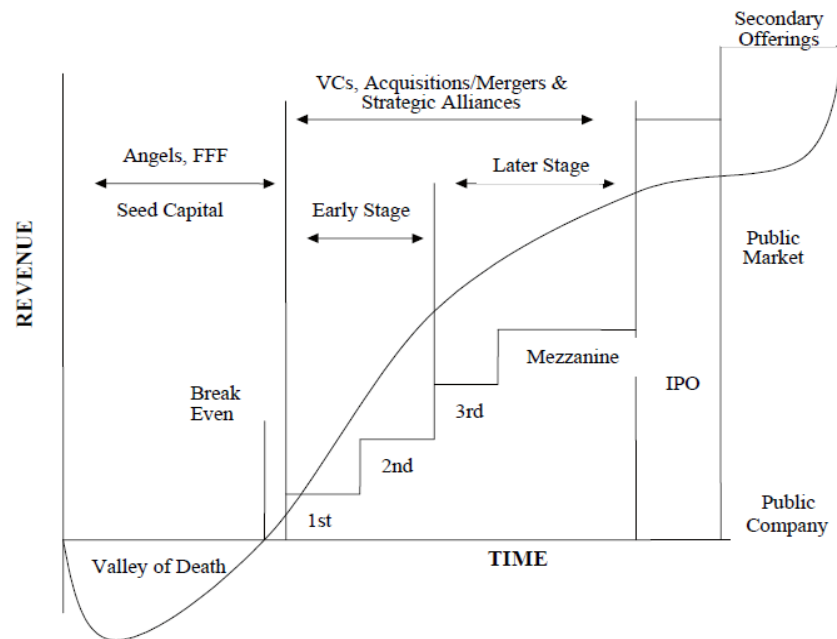
For start-ups, alternatives to business financing is limited, and they are likely to change associated with different growth phase (GRAPH 5). At the first stage, start-ups are characterised by suffering high risks with the lack of resources, and negative earnings. Since these features make them incapable of securing a bank loan, personal funding, including self-investment, family and friend supports, are the most important alternatives of start-up financing during this stage. Additionally, government plays a key role in helping these companies to fill their initial financial needs. In the second phase, personal funding is insufficient for a start-up to grow, so external investments definitely become more crucial. High failure rates are still in store, however, making start-ups less attractive to the attention of venture capitalists. Business angles are thus able to narrow this gap by not providing only financing, but they also contribute the invested business with expertise, knowledge and networking. (OECD 2004, 10.)

At the turning of the early stage, start-ups need a vast amount of capital for further business development e.g. in finding new markets, R&D and so on. Venture capital is important for the evolution of start-ups in later phase as it reduces uncertainty and informational asymmetries by examining them broadly before providing capital and monitoring them afterward.

All venture capitalists expect to maximise rates of return on their investments, which accelerates more or less growth of start-ups. They provide start-ups with two major exit mechanisms: an IPO by which companies' shares are sold to the public for the first time, and a trade sale by which they are sold or merged. (OECD 2004, 11.)

Once start-ups grow into larger business, institutional investors and banks become their major source of finance. In this case, IPOs help them to access to bank credit at cheaper costs, thanks to the improvement of financial information in relation to stock exchange listing. Many believe that the decrease in financing costs from banks may be also arisen from the stronger bargaining position of companies compared with banks, as well as the more tangible business assets from receivables and inventories. (OECD 2004, 11.)

The emerging digital economy tends to generate more challenges for start-up companies at the seed phase. They need even more investments from external sources rather than only from personal funding to develop new technologies, products and services that are the key for its survival. Debt financing is highly risky due to regular payments to principal and fluctuations of interest rate. Public venture capital is also considered uneconomical for start-ups because extra business costs can be raised. There are initial costs of underwriting, registration and advisory fees, as well as a certain amount of overhead expenses regarding auditing, certification, dissemination of accounting information, and stock exchange fees. However, private venture capital is illustrated to be more helpful for start-ups in the digital economy. In all cases, private investors more actively involved in the company governance, and hence influence their growth and profits significantly. (OECD 2004, 12-13.)

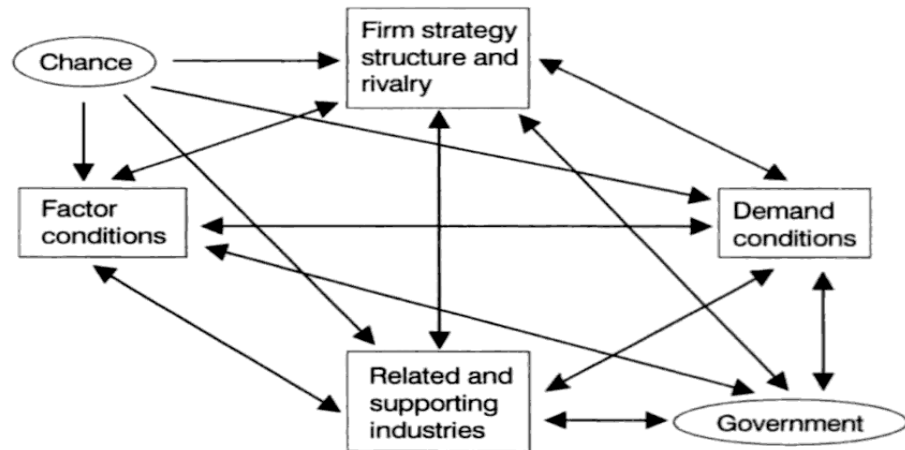


GRAPH 5. Start-up typical financing cycle (OECD 2004, 10.)

4.3 Key role of government in start-up funding

4.3.1 Competitive advantage model

Porter (1990) developed the diamond model to explore the core attributes of competitive advantage. The Porter's diamond model consists of four key determinants: factor conditions, demand conditions, related and supporting industries, and firm strategy structure and rivalry (GRAPH 6). Government and chance are the two external forces that affect competitiveness via their impacts on the other points of the diamond. Porter believes that those six factors create an environment that helps businesses gain a competitive advantage and renew such strategic advantages in the future (Paija 2001, 12-13.). Nevertheless, government plays a major role in advocating favourable framework conditions for pushing companies to reach superior competitive performance. However, competitiveness is only created by companies, government is not able to do that. For this reason, government is seen as a catalyst and challenger rather than a controller; it is to give companies essential tools to grow, but does not involve directly in their businesses (Frinking et al. 2002, 11-13.).



GRAPH 6. Diamond of Porter (Paija 2001, 12.)

4.3.2 Stimulation of new technologies

By means of funding, government affects the key determinants of Porter's diamond (Labonte 2010), through which it has influences on companies' favourable environment to gain a competitive advantage. In today's digital economy, government funding highly emphasises on promoting application-oriented researches; it is to help start-ups without R&D units upgrade their technologies (Frinking et al. 2002, 12.). Once the technological capabilities are improved, start-ups can quickly strengthen their competitive position in the marketplace. Therefore, government funding is the most important source in supporting technological development for start-up companies amid the pressure of adopting new business model.

Government offers funding to start-ups in different forms of soft loans, investment subsidies, grants, and tax breaks:

Soft loan is a loan with no interest rate, or at that lower than the market rate, usually offered by government. Accessing to the government's soft loans are easier for start-ups in contrast to borrow money from banks with numerous security requirements. However, start-ups have to demonstrate their potential growth to become eligible for the loans.

Subsidy is defined as a benefit given by government to groups or individuals in form of cash payment or tax reduction. Many experts agree that government subsidy can increase production, while some others argue it has adverse effects to international trade.

Grant is a financial award provided by government to an eligible grantee. Government grants do not require either paid-back plan, interest rate, or revenue

sharing. Most grantees need to write reports about their grant project's progress. Government grants are most popular in funding R&D activities focused on ICT development. Many government grant programmes are introduced over the recent decades. In the U.S, for instance, the most common programmes are the Small Business Innovation Research (SBIR) Programme, the Small Business Technology Transfer (STTR) Programme, the Federal and State Partnership (FAST) Programme, and the Programme of Investment in Micro-entrepreneurs (PRIME).

Tax break is a reduction on a taxpayer's liability. This is one of the policies in government transfer aiming to provide savings for start-ups through tax incentives. Indeed, start-ups are allowed to subtract some expenses from gross income to reduce taxable income (tax deductions); or they may be entitled to the government's tax reduction or non-tax policies (tax exemptions).

(Investopedia 2015)

5 TEKES FUNDING FOR FINNISH INNOVATIVE START-UPS

We at Tekes encourage and development teams to think big. With the help of Tekes funding, small and medium-sized companies can involve the best expertise and connect with the best partners. We share the risk that companies take when investing in challenging research and development work, or exploring totally new market areas

Pekka Soini - Tekes Director General 2015.

5.1 Tekes facts and figures

Tekes - The Finnish Funding Agency for Technology and Innovation is a prime public organisation for funding research, development and innovation in Finland. Its funding has significantly impacted the Finnish economic for the last three decades. Accordingly, in the period 1985-2009, Tekes funding contributed 65 % of well-known Finnish innovations; many of those were Nokia's projects. Since innovation activity is a key driver of economic growth, the organisation promoted the Finnish economic progress and hence secured the welfare state (Tekes 2013).

Tekes works with the most promising innovative companies and research institutes in Finland. Every year, it funds around 1,500 business research and development projects and almost 600 public research projects at universities, research institutes and universities of applied sciences. In 2015, €575 million was funded for companies and research organisations; over half of that was company funding. There were 702 star-ups financed, representing approximately 38 % of Tekes' total company project funding. Many indicated that all of the most outstanding Finnish start-ups had been supported by Tekes, say, Rovio Entertainment (Angry bird) and Supercell were probably the 'hottest' names.

Tekes currently emphasises on boosting a broad-based view on innovation; it is not only to encourage technological innovation via R&D aids, but to emphasis also the significance of service-related, design, business, and social innovations. (Tekes 2015a.)

5.2 Strategy in brief

Tekes strategy concentrates on supporting growth companies who are seeking renewed growth in global market, as well as researches that tend to raise renewal and utilised in business. It aims to:

- Create opportunities for global growth
- Promote customers' renewal
- Supporting upcoming business ecosystems
- Build, together with its partners, a top-level innovation environment
- Offer a path to market in Team Finland cooperation.

Vision, based on Tekes' values, is to be an active game builder bringing about renewal in the business sphere.

Mission is to create the development of Finnish economy and society by means of technology, innovations and growth funding.

Focus areas cover five major fields that are broadly contributed by digitalisation and intangibility and value creation:

- Natural resource and resource efficiency
- Digitalism renewing business and industry
- Wellbeing and health
- New business ecosystems
- Market access.

Strategic goal is to create the world's best innovation environment in Finland, as well as improve the competitiveness of Finnish businesses and clusters in global market.

International operations are expanded to emerging markets and other major markets of Finland in cooperation with network of Team Finland. The major target market for Tekes globally are those, who have either a leading or rising position as a driver for innovation, an important status as a Finnish partner and market or a developer of technology, competence and business models. Tekes services are now available in Belgium, China, Germany, India, Japan, Russia and the United State. (Tekes 2015b.)

5.3 Principle of economic growth

In line with the strategy, Tekes expects to see more new innovations and double rise in export by small and medium companies by 2020. While new innovations can refresh Finnish companies' competitive advantage, export growth creates new jobs and economic growth. They altogether, hence, are improving Finland's quality of life. Tekes believes that its scheme tends to thrive, if:

- (i) Enterprises are given more freedom to run their business. The more regulations and restrictions are eliminated, the more renewals are implemented.
- (ii) Attitudes to failure have changed. Emendation of law in bankruptcy is essential to at least keep a roof over entrepreneurs' heads and encourage them for trying again.
- (iii) New taxation model is adopted, which will promote new entrepreneurs. Estonian model can be a good example that growth companies are allowed to reinvest their profits in new growth without paying tax.
- (iv) Public acquisitions are boosted to serve Finnish companies. Let us target 10 % (approximately €3.5 billion) of public investments at innovative companies and expand tendering exercises to support innovation.
- (v) Digitalisation has accelerated. Tekes will be more proactive in providing funding and services that speed up the utilisation of digitalisation in the renewable of Finnish industries, in health care and in creating new businesses.
- (vi) Tekes funding has reinforced in stimulating growth and renewal. That helps Finnish enterprises to reduce risks associating with new innovations, as well as to raise Finland's innovation funding to European level. (Tekes 2015c.)

5.4 Tekes company funding

Tekes project funding is targeted towards Finnish companies seeking to run businesses in the global market; it is to help in developing or renewing companies' products, services and

business model. Usually, just half of project costs are funded by Tekes, so companies have to arrange their own share of the required funding of the project. Tekes funding is available either in grant or loan depending on the project's content and goals. According to Tekes, grant is allocated for companies' research-oriented projects, and loan for development works and testing. Loans can be obtained in advance at low rate of interest and free of collaterals. They are able to be partly translated into grant in case companies fail to reach the project goals (Tekes 2015b.). By offering both grants and loans, Tekes improves Finnish companies' competitiveness and hence promotes commercial success (Arnold, Veen, Boekholt, Deuten, Horvath, Stern & Stroyan. 2012, 88.).

Tekes has recently shifted its earlier concern mostly in technology to more focus on business impacts and institutional change. As a result, besides funding, Tekes offers various programmes that provide companies with finance and expert services. Those programmes are the Tekes tools for reinforcing business networking and development potential. According to Tekes, all programmes are evaluated, and most of them are concluded to have catalytic effects:

Firstly, those programmes have promoted networking between companies and R&D organisation in the targeted fields and clusters and brought together researchers and industry professionals from many backgrounds

Secondly, they have strengthened R&D and increased research collaboration between researchers within fields and across discipline borders.

Thirdly, they have increased research collaboration within industries

Fourthly, they have contributed to establish capabilities and developing competencies in companies which have had positive impacts on competitiveness.

Finally, they have supported awareness raising, clustering and emergence of communities of practices among actors in a field or cluster. (Arnold et al. 2012, 88-89.)

5.5 Tekes in the Finnish innovation support system

The cluster approach in early the 1990s significantly promoted the evolution of the Finnish innovation systems by creating a favourable environment for interaction and cooperation between the government, research institutes and enterprises. The policy has been conducted by a number of public players that make up a complex support system. At the national level, the Academy of Finland, TEM agencies (incl. Finnvera, Finpro, Finnish Industry Investment) and Sitra, apart from Tekes, are also the major players; whereas the ELY centres play the most important role at the local and regional level. All of them have their own strategies, and they influence the Finnish innovation system in different ways (TABLE 4). Most of the players, however, show similar concerns in start-ups, growth and globalisation, while some others concentrate on Finnish sustainable development. Difference in strategies also means that they offer various sorts of financing and subsidies and thereby providing Finnish companies with numerous options seeking to fund their businesses.

Tekes, regarding its specific goals, is closer to Finnvera than any other institution at the national level. The two players had more than 1,000 overlapping customers in 2012, according to a study conducted by the Ministry of Employment and the Economy, accounting for 31.5 % of Tekes customers (Arnold et al. 2012, 97.). Additionally, there are several programmes that have been run by Tekes together with other players. For instance, Tekes works with the Academy of Finland in The Finnish Distinguished Professor Programme (FiDiPro) that primarily concentrates on science, and with Finpro in the FinNode network of which the Ministry of Foreign Affairs and TEM which are also members. At regional level, the ELY centres are crucial for Tekes as their regional functions are assigned to the local ELY centres. There are currently 15 ELY centres across Finland in which 87 Tekes experts are working.

TABLE 4. Major players in the Finnish innovation support system (Arnold et al. 2012.)

	Mission	Target group	Form of financing
Academy of Finland	Financing scientific research as a science and science policy expert	Research projects, research programmes, Centres	Research grants

			of Excellence in research, research posts, foreign guest professors working in Finland, researcher training, international networking and collaboration between universities or research institutions and companies	
TEM Agencies	Finnvera	Promoting employment and regional development by strengthening enterprises' competitiveness	All companies with financing needs for starting, growing and going global	Loans (mainly for start-up phase), venture capital investment (mainly for growth phase), domestic guarantees, export credit guarantees and other financing services of exports
	Finpro	Boosting internationalisation of Finnish companies, appealing foreign direct investment to Finland, and promoting tourism	Finnish SMEs with financing needs for growing into global market	Project grants, internationalisation services (e.g. business and finance consulting services)

	Finnish Industry Investment	Improving Finnish business, employment and economic performance through venture capital and private equity investment	Rapid growth companies seeking to go abroad, spin-off and restructuring companies	Venture capital investment and private equity
	Sitra	Supporting social change, and promoting new business operating model, regarding sustainable well-being in Finland	All companies with needs to change and enable that changes	Change project grants and venture capital investment
	ELY centres	Promoting local and regional competitiveness, well-being and sustainable development	Regional start-ups, growth companies who are planning to run global business, as well as desire to develop technology and innovation and improve business efficiency, management skills and employee skills	Regional grants for investment and development projects, as well as advisory, training and expert services

In a survey in 2011, Tekes customers were asked for giving feedback about whether Tekes funding really helps in accessing global markets. Many Tekes customers thought that they did not obtain enough essential information on future international development from Tekes. However, more than half of them agreed that the R&D funding was important for them to

initiate business abroad. The more innovative companies were indicated, according to the survey, to receive more benefits from Tekes funding than less innovative ones in terms of improving their scale in globalisation. (Arnold et al. 2012, 117.)

5.6 Case study

5.6.1 Blueprint Genetics in adopting new business model

Blueprint Genetics is a genetics start-up based in Helsinki and San Francisco. The business idea was inspired by new technology of sequencing the genome developed in Stanford University by a Finn, Samuel Myllykangas. The development of the new method helps us to analyse genetic factors that cause a predisposition to disease.

In 2012, Blueprint Genetics was established by Samuel and his fellows, clinicians Tero-Pekka Alastalo and Juha Koskenvuo, after they returned to Finland. Since the first product was introduced in summer 2013, the company has been growing rapidly. Turnover of Blueprint in 2014 was over €1.3 million with 130 clinic customers in 17 countries. As the company continues strengthening its position in Europe, Canada and the US, the Middle East is the next promising destination in 2016. Blueprint's new office in Dubai will be opened in March.

At the beginning, the major sources of financing to Blueprint were Tekes and Finnish business angels. On August 29, 2014, the company obtained the first venture capital investment from Inventure and Avohoidon Tutkimussäätiö – a Finnish foundation, raising the total funding for its business to more than three million euros. The latest equity capital to Blueprint came from a private equity and real estate investor – Pontos Group, in early 2015. These funding altogether have been formed a solid momentum allowing the company accelerate global expansion.

According to Tommi Lehtonen, Blueprint's managing director, Tekes funding is a cornerstone of his company in term of product development:

All the products have been developed, which were developed via Tekes's projects. (Tekes 2015d.)

It was challenging for Blueprint, during the first year 2012-2013, to turn a new finding in the laboratory into a commercial product. Tommi explained:

The laboratorial phase and subsequently the IT process were quite sophisticated, so our product development process needed vast investments. (Tekes 2015d.)

Tekes funded projects starting in 2012, thus, helped the company to shorten the product development process, finalise the sale process and plan for market growth. (Tekes 2015d, 28-31.)

After its first product launched in 2013, Blueprint participated in the Young Innovative Company funding (YIC) programme. YIC is a Tekes funded programme that supports start-ups and innovative companies for comprehensive development of their business activities. YIC programme aims to accelerate these companies' global growth. It consists of three stages (GRAPH 7) with 75 per cent of the eligible project costs funded by maximum amount up to €1.25 million, of which €500,000 million would be funded as a grant, and the rest of that as a loan. In the first phase, €250,000 grant is funded, typically for 6-12 months. The funded companies have to reach the goals set by Tekes in its funding decision in order to move to the next phase. The goals of Tekes usually concern the company's development of turnover, ability of appealing other investments and new market development alike. (Tekes 2016f.)



GRAPH 7: Tekes YIC funding (Tekes 2016f.)

In 2015, Blueprint almost reached the funding's target as it inaugurated the first office in the US. At the same time, the last funding package was accepted. According to Tommi, the company's business network are quickly expanding in the new market, the US. During the first year, Blueprint has participated in over 25 clinical conferences and 10 investment forums, which is broadly networking business partners in pharmaceutical industry and insurance compensation consulting. He believes that the new contacts release potential growth in sales for the company in the future. (Tekes 2015d, 28-31.)

able to be published in time- and cost-efficient manner. There are three games that have been published since 2010: Shoot for Your Loot, Battle of All Ages and Sing to Be King. In-app purchases and advertising are the two other primary revenue's sources of the company.

In order to improve the performance of games towards delivering superior experiences to players, Toukio developed a new game and service platform Seurapeli 2.0 in 2012. The project was funded by Tekes' Tempo funding that was targeted to quick, effective projects designed to bring the most potential products to global markets. The new service concept and technology enable service-like delivery of Toukio's games to mobile users through game updates and challenges, as well as innovative community and commerce features. On the other hand, the project was geared towards adopting Tuokio freemium model in publishing Seurapeli 2.0 and market testing, associated with improving "Tuokio Tools", the technology service platform, and the toolbox "games a service". By that, the company was able to make its games distinct, and importantly, to provide new game delivery service.

According to Jouni, Tuokio was also funded by the ELY Centre. "Tekes funding, however, is definitely important for us", Jouni said, "particularly in terms of hiring new employees, developing new technology and participating in business conferences". Jouni also added that accessing Tekes funding was easy; it was more a matter of formulating developing projects, online or offline forms to provide information on his business and typically also meeting with Tekes.

Tuokio is just one out of hundreds of game start-ups funded by Tekes who have been successful in the global game industry. Supercell has been recently emerged as a high-profile game company worldwide, for instance. On March 9, 2016, Supercell registered continued success in 2015, when it announced €2.1 billion turnover making profits of €848 million before taxes (Yle 2016.).

Game industry currently becomes a key part of the Finnish economy. The turnover of the Finnish game industry has grown from €40 million to €1.8 billion in 10 years (2004-2014) representing 20 % of the country's ICT output by the end of 2014. In that period, the number of companies in the Finnish game industry rose from 40 companies to approximately 260 companies. The total value of financial transactions got a peak at about €1.5 billion in 2012-2014, of which €53 million was the total amount of private investments to the Finnish game

industry. Currently, more than 2500 people are working in the Finnish game industry. (Tekes 2015e.)

According to Tekes, €67 million have been funded to the game industry in 2004-2014 accounting for 1.84 % of the industry's turnover over that period. The relative share of Tekes support has decreased since 2013 due to the sharp increase in the Finnish game industry's turnover. However, 20 % of Finnish game companies (2014) have received Tekes funding at least once during their life-span, and almost all of them was able to raise money from private investors. Tekes expects to attract more global game companies to base in Finland, as well as to see long-term development in Finnish game industry as whole. (Tekes 2015e.)

Game start-ups are always evaluated when they apply for funding. Only those, who have excellent know-how, outstanding game ideas and business potential, are able to get funding. Tekes offers either loans or grants. In most cases, game start-ups are funded by spending on the companies' R&D projects, of which half of the project costs are shared by themselves. (Tekes 2015e.)

Apparently, Tekes has not only helped a single company to thrive, but also significantly contributed to the rapid growth of the Finnish game industry:

Relatively small public investments have boosted Finnish game companies to create a billion euro hi-tech industry that is global by nature and cannot be easily copied nor move away. This make Finland an attractive location for private investments and foreign game companies. (Tekes 2015e.)

5.7 Summary

In such a sophisticated support system, Tekes is not only an important source of start-up funding, but also a bridge connecting different players in the system, and across Finnish border to foreign investors. Although Tekes likely concentrates on globalisation, it has a strong presence at local and regional levels as well. To support that role, Tekes is working close to the regional ELY centres by sharing experts and task management.

Tekes offers funding for start-ups through specific programmes, providing management support and project financing; whereas, Finnvera prefers to support with specific venture capital

funds for the seed and start-up phase. Additionally, the two players are also different in the strategic funding instruments. Tekes funding is well combined by both grant and loan, while Finnvera rather focuses on lending. In this sense, Tekes funding is more significant for innovative start-ups and growth companies in their seed phase as debt financing is quite risky for them during that time. The grant enables these companies to commercialise their business ideas, and accelerate their product development process, thereby shortening their time-to-market. On the other hand, the loan is expected to help in promoting globalisation, and gaining sustainable competitive advantage.

Since venture capital become more important in start-up's growth phase, Tekes funding targets to make Finnish start-ups more attractive to foreign investors. Venture capital supports their network and market development process, and also remains the companies competitive in global markets. Moreover, venture capitalist may bring in huge capital inflow that simultaneously boosts the growth of Finnish industries and the GDP as whole, and hence to secure the country's well-being.

6 CONCLUSION

The digital economy has urged start-ups to adopt a new business model that enables all business processes to take place at the same time. However, apart from benefits gained from the new model, start-ups are facing more challenges in fundraising. Huge amounts of capital is required for innovation during the first stages, and for business development process, including market development and globalisation, at the later stage.

Understanding difficulties faced by start-ups, as well as their significant part in boosting economic growth, Finnish government has attempted to build up a start-up ecosystem that maximises the success of young innovative businesses. Hundreds of million euros are pumped into Finnish start-ups' grants, loans and investments each year via numerous public institutes making up a complex innovative support system. Tekes is among others the key player in the Finnish innovative support system. In 2015, Tekes alone launched over half of billion euros for supporting start-ups. It focuses on innovation and globalisation aiming to stimulate breakthrough technologies, and reinforce the competitiveness of the Finnish national economy.

The contribution of Tekes to start-up success, however, is not only the massive inflows of cash that start-ups may be receiving. It is rather important that, with appropriate policies, Tekes has made its money more effective tool accelerating start-ups. In other words, Tekes funding itself cannot bring in a major accomplishment of start-ups, it is to guide them towards the right path to success.

Tekes funding for start-ups has thus illustrated a new role of government as a catalyst in the new digital economy. By issuing appropriate funding policy, the government is able to create a favourable framework for start-up success; it is to diminish risk of failure in the seed phase, and maximise the rates of growth during their growth phase. Due to the rapid pace of technological progress and globalisation, government funding has a significant part in improving start-up innovative capacity and their ability of continually renewing. Effective policy in funding will thus help start-ups to gain a competitive advantage in global markets, when their innovations are quickly commercialised, their new products are rapidly developed, and their networking keeps expanding.

Public funding institutes make up a support system bridging other players in national innovation system, and hence strengthen the competitiveness of start-ups in the global market. They particularly get research institutes and companies closer together, which exploit R&D activities into a potential source of profits. By this way, public funding promotes start-ups to grow based on their innovative activities without a separate R&D department. Successful start-ups can contribute to the competitiveness of the whole industry in which they are operating. They attract foreign investment into the country thereby raising economic growth and creating new jobs so far.

The research, all in all, draws up the contribution of public funding to start-up success in the digital economy. Accordingly, public funding is a catalytic instrument to encourage entrepreneurship, and technology innovation. However, the contribution of public funding varies from country to country. In some countries, there are probably other core factors that may influence the achievements of start-ups. At the scale of this research, the key funding instruments were evaluated based on the case of Finland, in general, and Tekes, in particular. Researchers and policy makers need to observe them in the circumstance of their own country, and adjust appropriate policies in entrepreneurship and entrepreneurs.

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Interview

Jouni Salonen, J. 2016. Interview of Tuotantoyhtiö Tuokio's co-founder. 30 January 2016.

APPENDIX 1

Discussion topic with Jouni Salonen, the co-founder of mobile game producer, Tuotantoyhtiö Tuokio Oy

Key questions for the interview at a glance:

Could you please generally introduce your company?

What were the most challenges at the beginning of your business?

What was your main sources of finance?

Describe your funding:

- Funding providers
- Target group of the funding
- Funding schedule or how it works?
- How to access

From your standpoint, generally evaluate the efficiency of the funding. How was the funding really essential for your business? And what could be the funding's limitations?

Do you find any difficulties in funding access?

During the interview, the details about the company's project funded by Tekes was also gathered. The key information was, for example, the project's background, plan and objectives. After the interview, Jouni also attached a "cut & paste" of the main parts of his project plan for my further observation.

Jouni's project plan (In Finnish only)

1.1 Tavoite

<p>Kuvaus</p> <p>Projektin tarkoitus on kehittää "Tuokio FanFun" tekninen alusta ja työkalupakki "pelit palveluna" tyylisten pelien tekemiseen ja pelipalvelun toimittamiseen. Projektin tavoitteet ovat:</p> <p>1) Kehittää "Tuokio Tools" tekninen palvelualusta ja työkalupakki seuraavilla ominaisuuksilla:</p> <ul style="list-style-type: none"> ñ Kilpailu (Leaderboards, Levels, Achievements). ñ Keräily (Challenges, Collections, Rewards). ñ Kaupankäynti (Shop, Customization, Campaigns). ñ Kanssakäynti (Invites, Friend Challenges, User Created Content). ñ Kehittyminen (Ratings, Reviews, Analytics) <p>2) Kehittää ja koemarkkinoida "Seurapeli 2.0" "freemium" liiketoimintamallilla ja "Tuokio Tools" ominaisuuksilla.</p> <p>3) Kartoittaa kumppaneita "freemium" liiketoimintamallin pelien julkaisuun.</p>
<p>Projektin tausta:</p> <p>Tuokio on keskittynyt uuden tyylisten seurapelien tekemiseen ja julkaissut kolme peliä AppStoreen. Tuokion pelit ovat olleet ominaisuuksiltaan minimaalisia, jotta pelit on saatu julkaistua sekä aika- että kustannustehokkaasti pienten tiimien toimesta.</p> <p>Markkinapalaute pelaajilta ja pelien liiketoiminnallisesti heikohko menestys kertovat että peleihin kannattaa lisätä ominaisuuksia jotka tukevat pelien löytämistä, pelin pitkäkestoisempaa pelaamista ja seurapelaamiseen kannustamista pelimäisemmin keinoin. Tätä taustaa vasten olemme suunnitelleet "Seurapeli 2.0" pelin, eli pelin jonka "pelituote- ja palvelumalli" on markkinalle sopivampi tuotemalli kuin Tuokion "1.0" sarjan peleissä.</p> <p>Lisäksi yrityksen menestymisen ja kasvattamisen kannalta on nähty oleelliseksi siirtyä "freemium" liiketoimintamalliin. Mallista tuntuu muodostuvan pääasiallinen malli myös mobiilipeleissä lähivuosien aikana. Mallin etuna on myös riskirahoittajien pääomasijoituksen tai pelijulkaisijoiden markkinointisijoituksen</p>

mahdollisuus minkä avulla voi hankkia pelaajia “freemium” palveluliiketoimintamallin peleille.

1.2 Onnistumisen mittaaminen

Kuvaus

Tärkein onnistuminen projektista kehittynyt markkina-asema, ja kilpailuedut erikoistumalla erinomaiseen moninpeli- ja palveluosaamiseen. Onnistumisen mittarit ovat:

- ñ Tuokiolla on uusi ja parempi monipelituotemalli.
- ñ Tuokiolla on hyvin toteutettu ja hiottu Tuokio Tools työkalupakki palvelumallin pelituotantoon.
- ñ Tuokion peleillä on 500 000 kuukausittain aktiivista pelaajaa (MAU, Monthly Active Users).
- ñ Tuokiolla on käsitys kumppanuuksista projektin jatkon tueksi ja rahoittamiseksi.

1.3 Jatko

Kuvaus

Seuraavassa vaiheessa Tuokio tekee seuraavia toimenpiteitä:

- ñ Palvelumallisten pelien liiketoimintaosaamisen ja kumppanuuksien vahvistaminen.
- ñ Kehittää Tuokio FanFun työkaluja, ja erityisesti siihen liittyviä prosesseja eteenpäin.
- ñ Laajentaa FanFun teknologiaa ja työkaluja kattamaan verkkomoninpeli.
- ñ Laajentuminen Android markkinalle.

Ylläolevat kyvykkyydet mahdollistavat kasvun erityisesti Kiinassa, jossa Freemium, Android ja verkkomoninpelit ovat kaikista suosituimpia.

Älypuhelinpelaamisen, sekä iOS että Android, kasvu tulee luultavasti olemaan suu-rinta Kiinan markkinoilla, jonka pelimarkkina on hyvin erilainen suhteessa Yhdysvaltoihin ja Eurooppaan.

1.4 Hyöty käyttäjälle

Kuvaus

Lisättävät ominaisuudet ovat pääasiassa yksin- ja yhteisöpelaamisen ominaisuuksia joita Tuokion pelien pelaajat ovat toivoneet peleihin. Uudet ominaisuudet tuovat peleihin lisää pelattavaa, ilman varsinaisen pelisisällön lisäystä, ja edesauttavat kavereiden houkuttelua pelaamaan seurassa.

Lisäksi kehittyneemmät tavat antaa palautetta ja seurata pelien eri ominaisuuksien käyttöä edesauttavat Tuo- kiota kehittämään peleistä paremmin käyttäjille sopivia ja laittamaan kehityspanokset sinne mihin pelaajien palaute ja pelien ominaisuuksien käyttöaste sen ohjaa.

1.5 Rajaus

Kuvaus
Ideana on poimia vain keskeiset avainominaisuudet sosiaalisista peleistä, ja tehdä niistä erittäin hyvä sovitus mobiiliin ja toteutukset. Keskeiset rajaukset ovat: • iOS markkina, keskittyen erittäin hyvään iPad pelikokemukseen. • Peleissä ei ole mitään palvelinominaisuuksia pl. mitä Applen GameCenter mahdollistaa. • Peleissä ei ole reaaliaikaista moninpeliä minkä tekeminen vaatisi isompaa panostusta.

1.6 Jakelu

Kuvaus
• Apple iPhone ja iPad laitealustat Applen AppStore kaupan kautta. • Itsejulkaisu nykyisten pelien osalta. • Uuden pelin osalta kartoitetaan julkaisukumppaneita kotimaassa ja Yhdysvalloissa.

1.7 Ansaintamalli

Kuvaus
Freemium, pelit annetaan ilmaiseksi ja rahaa tehdään myymällä erilaisia virtuaalituotteita peleissä.

1.8 Markkinointi

Kuvaus
- Pelin koemarkkinointi ja prospektien kerääminen Facebook ja Google mainoksilla. - Pelin markkinointi peliarviointi- ja pelialan blogeissa. - Pelin ristiinmarkkinointi Tuokion pelien sisällä. - Pelin ristiinmarkkinointi Tuokion ja Tuokion pelien seuraajille Twitterissä ja Facebookissa. - Pelien viraalimarkkinointi Applifier jakeluverkostossa olevissa peleissä. - Kuuden viikon pelaajasta kiinnipitämisen kampanja pelin lataajille (sähköposti, push notifikaatiot, Facebook). - Potentiaalisesti - pelien mainostaminen ja pelaajahankinta Flurryn kanssa heidän jakeluverkostossa. - Mahdollisesti – pelien tuotenostot Applen toimesta AppStoressa.

Tavoiteltu asiakasmäärä ja liikevaihto

Aika julkaisusta	(kirjoita	+3kk	+6kk	+9kk	+12kk	Yhteensä

	julkaisupäivämäärä)					
Asiakasmäärä	15.2.2012	50K	150k	250k	500k	500k aktiivia
Liikevaihto	2% käyttäjistä maksaa pelissä, ARPU: 2.50€/kk	2500€/k	7500€/k	12500€/k	25000€/k	

2 Projektin tehtävät ja aikataulu

Työpaketti 1: Liiketoiminnan kehittämisen tavoitteet

Tehtävä 1: Liiketoimintamallin vaihto Premium peleistä Freemium peleihin.

Tehtävä 2: Julkaisijakumppanuuksien kartoitus.

Työpaketti 2: Sovelluskehityksen tavoitteet

Tehtävä 1: Tuokio Tools ominaisuuksien määrittäminen ja prototyypit.

Tehtävä 2: Kilpailu (Leaderboards, Levels, Achievements) ominaisuuksien toteutus.

Tehtävä 3: Keräily (Challenges, Collections, Rewards) ominaisuuksien toteutus.

Tehtävä 4: Kaupankäynti (Shop, Customization, Campaigns) ominaisuuksien toteutus.

Tehtävä 5: Kanssakäynti (Invites, Friend Challenges, User Created Content) ominaisuuksien toteutus.

Tehtävä 6: Kehittyminen (Ratings, Reviews, Analytics) ominaisuuksien toteutus.

Tehtävä 7: Freemium liiketoimintamallin pelin minimiversion toteutus.

Project Description in Tekes Application

1) Minkä asiakas- ja markkinatarpeen ratkaisemiseen projekti tähtää?

Projektin tähtäimessä on lisätä Tuokion peleihin pelaajien toivomia ja markkinassa menestymisen kannalta tärkeitä yksinpeli-, yhteisö- ja monipeliominaisuuksia, jotka mahdollistavat freemium mallin käytön.

2) Millaiseen uuteen tuotteeseen, palveluun tai osaamiseen projekti pyrkii?

Projekti pyrkii luomaan uuden palvelukonseptin ja - teknologian mobiilipeleille, ensimmäisessä vaiheessa ottamalla sosiaalisista palvelumallin peleistä avainominaisuudet, ja tekemällä niistä erinomaiset sovitukset Tuokion peleihin. Toteutus kattaa sekä "Tuokio FanFun" palvelualustan ominaisuudet sekä yhden pelin minimiversion toteutuksen tulevien pelien "tuoterungoksi".

Projekti täyttää markkinan tarpeen luomalla peleihin enemmän tekemistä haaste, yhteisö, kilpailu jne. pelin faneille ominaisuuksilla luomatta lisää varsinaista pelisisältöä.

Projektin tekee ainutlaatuiseksi 1) sosiaalisten pelien uudenlainen sovitus mobiiliin, ja tiukka integraatio Applen eri palveluille (GameCenter, iOS5 ominaisuudet) ja 2) yritys yhdistää ja keksiä seurapelaamisen muotoja joissa yhdistyy pelaaminen yhden laitteen ympärillä ja verkon yli. Jälkimmäinen on potentiaalisesti tulevaisuuden tuotemalli sosiaalisille peleille.

3) Mistä vaiheista projekti koostuu? Mitä on valmiina projektin jälkeen?

Projektissa ei ole varsinaisesti vaiheita, määrittely- ja prototyypivaiheen jälkeen, sen sijaan on rinnakkain tapahtuvaa ominaisuuspakettien tekemistä ja etupainotteista seuraavan vaiheen liiketoiminnan suunnittelua.

Projektin jälkeen on valmiina Tuokion FanFun palvelualusta eri ominaisuuspaketteineen sekä yksi "freemium" liiketoimintamallin peli joka toimisi Tuokion tulevien pelien pelituoterunkona.

Liiketoiminnalliset tavoitteet ovat siirtymä freemium liiketoiminta- ja palvelumalliin, ja kumppanien kartoittaminen ao. mallin pelien jakelun ja julkaisun tueksi.