Enterprise Dunedin

FINAL IN CONFIDENCE

Centre of Digital Excellence (CODE)

Single Stage Light Business Case to Support A

Provincial Growth Fund Application

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Centre of Digital Excellence (CODE): Single Stage Light Business Case

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Role	Name	Review Status
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Document Sign-off

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Programme Manager	Fraser Liggett, Programme Manager, Enterprise Dunedin	8 April 2019
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Contents

Executive Summary

The Labour Party Manifesto 2017 includes a commitment to invest $10 million over 10 years to establish a Centre of Digital Excellence (CODE) in Dunedin.

The manifesto recognises that investing in video games development is an opportunity to develop a creative digital industry in New Zealand that can deliver new economic growth and highly skilled sustainable employment.

Its vision is a $1 billion games development industry in New Zealand.

The manifesto also recognises that Dunedin is well-positioned to contribute to this vision through building on the city's emerging gaming and digital businesses, thriving start-up ecosystem, strong Māori partnerships, global linkages, and internationally-recognised academic centres.

The Provincial Growth Fund is the pathway the city has been given for further defining and implementing CODE.

This single stage light business case has been developed to not only outline how the city will deliver on the manifesto's vision, but to propose an ambitious way forward for maximising the benefits CODE can deliver to the people of Dunedin, New Zealand and international partners.

It recognises that maximising the longer-term transformative benefits of CODE lies in both growing the video games development industry in Dunedin and linking it with the city's education and digital health technology sector - including the Commercial Information To this end, it seeks formal approval to invest $Commercial Information to establish and operate the Centre of Digital Excellence (CODE) in Dunedin.

CODE's success will be measured in many ways. While some outcomes can be quantified (skills, job, business creation and scale and diversity) to some extent, the development of the rapidly-evolving video games sector is more complex to measure. The New Zealand Game Developers Association (NZGDA) have provided a series of examples which we have used as a basis to measure CODE's success.

In summary, over a ten-year period we anticipate that CODE will result in:

- The creation of 30-50 sustainable indie video game studios, each employing on average Commerc people and generating on average $Commercial Informatio revenue per annum;

- The creation of 3-5 large video game studios, each employing on average Comme employees and generating on average $Commercial Inform revenue per annum;

- Approximately 450 graduates with industry relevant qualifications and skills in making video game products from the University of Otago and Otago Polytechnic;

- Access to national, global and industry experts to support the creation of scalable video game studios and research innovation outputs, such as publications;

- Approximately 1,000 people (including school students and those not in education, employment or training, new-comers and career changers) attracted to video game development education pathways and skills opportunities;

- Nearly $Commer worth of grants to support Dunedin video game Commercial Information

Commercial Informa start-ups and scale up companies in Dunedin.

For each of these outcomes, the CODE governance board will aim to achieve at least 15% participation by Māori over the 10 years.

Dunedin's twenty-first century gold rush

Digging a little deeper reveals CODE as a mine of opportunities.

The digital economy is the fastest growing segment of the global economy.

Interactive media in particular – including video games, educational games, mobile apps, augmented reality and interactive storytelling – is at the forefront of transforming New Zealand's digital economy. For the six years to 2018, the sector grew on average by 39 per cent annually (43 per cent in 2018).

The NZGDA reports that, although relatively new, the total video games industry is now worth over $500 million to New Zealand each year and their members export $140 million annually.

Notably, 93 per cent of revenue from New Zealand-made games comes from export markets.

Games are a 'weightless' export, making them less affected by New Zealand's geographical isolation and more readily scalable to global markets – and while the game development industry is positioned to be a new goldrush for Dunedin and New Zealand, it has minimal environmental impact.

The NZGDA notes that the emerging games industry is a new business model for local investors and government programmes, and that if supported at an early stage, has the potential to provide immense digital and social returns.

When successful, the games development industry is high reward and provides multiple opportunities for highly-skilled technical and creative employment. Game development is one of New Zealand's fastest growing creative careers - the number of artists and developers employed in the industry rose by 10 per cent in 2018 alone.

An evolving and transferable industry

A core challenge for gaming, however, is the relatively common perception that it's for entertainment only and primarily the domain of young males. But the appeal, influence and impact of gaming is far broader and constantly evolving – in New Zealand, 67 per cent of Kiwis play video games, 47 per cent of these players are women, and 44 per cent of seniors aged 65 years and over play video games.

In New Zealand, Te Reo Māori, has been integrated into one of the biggest digital cultural phenomena of recent years – the online video fame Fortnite. For Māori Language Week 2018, Te Wananga o Aoteoroa partnered with eSports company Let's Play Live to hold a Te Reo livestream of the game from their studio inside Auckland's SkyTower – an initiative which won the Education category at the Nga Tohu Reo Māori 2018 National Māori Language Awards.

The Ka Hao Fund (Māori Digital Development Fund) has provided support to several interactive media and gaming initiatives, including those developed by Rotorua-based Digital Natives Academy (DNA) and Metia Interactive Ltd, which are creating innovative and culturally unique experiences for both local and international customers.

Metia Interactive's portfolio of games includes Tākaro - an online game which teaches young people to strengthen spatial awareness skills and strategies that will build confidence in STEM subjects through a hands-on, reactive environment. The player uses coding concepts and puzzle solving skills to navigate through each of the levels while learning problem solving skills along the way.

In March 2019, the Ministry of Māori Development, in partnership with myReo Studios, launched Puni Reo Pāhekoheko - a Māori language virtual reality game aimed at encouraging the use of te reo Māori in sports.

People around the world, most notably millennials, are becoming increasingly accustomed to interacting with businesses and organisations through custom apps and game-based interfaces.

This highlights that beyond the opportunities for growth offered within the video games for entertainment market, are numerous opportunities associated with gamification (the application of game design or mechanics to non-game contexts) and 'serious games' (games that have a primary purpose beyond entertainment).

The global serious games market was worth USD$3.5 billion in 2017 and is expected to grow 18.2 per cent annually to reach USD$15.6 billion by 2026.

In practice, the discipline of interactive design and game design combines elements of behavioural psychology, data analytics, creative direction as well as technical computing and creative discipline skills – a key creator of value in a digital economy.

The technology, skills and innovation fostered though game development can be applied to almost any other sector – including health and education – not only for economic benefit, but to enhance social and cultural wellbeing, as illustrated through the following example. The real-time, interactive 3D graphics used by this project were pioneered by the entertainment games industry.

University of Otago Information Science Department researchers have been working with the Methodist Mission Southern to improve the reading and writing skills of prisoners at the Otago Corrections Facility in Milton by using virtual reality technology to emulate being inside an automotive workshop.

The resulting prototype has proved so successful, Dunedin-based company, Animation Research Limited, and the Methodist Mission Southern are developing the concept into a commercial enterprise – with support from Ngāti Kahungunu.

The prototype model has already been showcased at an education conference in Los Angeles with hopes that eventually this programme will be used in literacy and numeracy education within prisons across New Zealand.

Dunedin - the right place, the right people, the right time

Dunedin was identified as the Centre of Digital Excellence for good reason.

The city's size, affordability and accessibility - along with its educational and research networks, pool of talent and culture of collaboration - make it a hub for creativity and innovation. Dunedin also has a higher growth in workers employed in knowledge-intensive (3 per cent compared to 2.9 percent nationally) and creative occupations such as film and music (2.4 per cent compared to 1.8 per cent nationally).

This is reflected in the growing number of successful high-tech businesses and start-ups in the city, including gaming development companies – notably RocketWerkz and Runaway Play. This business ecosystem is proactively supported by the Dunedin Economic Development Strategy 2013-23, led by the Grow Dunedin Partnership, which drives the collaborative approach and global connections that underpin Dunedin's economic progress.

This culture of collaboration, trust and connectedness has been highlighted and reinforced through the development of this business case.

Many stakeholders from a diverse range of backgrounds – local, national and international – along with our Treaty partners Commercial Information, have contributed their time, energy and ideas through interviews, meetings and workshops. Their vision for Dunedin and the potential of CODE has been evident through their emotional and intellectual investment into the process.

This investment, combined with Dunedin's emergence as one of the world's great small cities - bodes extremely well for CODE's success.

Defining CODE

CODE will focus on the core factors identified by stakeholders as essential for growing Dunedin's video games development industry:

- Developing skills (revamping the tertiary education curriculum, investing to build school and non-school pathways to the industry, providing incentives that attract and retain talent, including Māori, leading an annual workshop on education options and skill needs);

- Growing digital capability through enhanced partnerships (building local partnerships - firms, education providers, Commercial Information, the start-up ecosystem, developing and extending international links, hosting international research fellows and speakers);

- Supporting innovation to create growth through contestable product development funds targeted to areas of special focus (e.g. Māori coders, women, youth), hosting annual game development challenges;

- Facilitating growth in digital employment in Dunedin (leveraging investments in

skills, capabilities, research - industry and academic, and innovation by building an environment that connects individuals with opportunities leading to earnings and jobs);

- Diversifying the industry through targeted pathways, particularly for Māori, youth and women;

- Attracting businesses and individuals to Dunedin (establishing Dunedin as a compelling location for game developers).

CODE as key contributor to the digital economy

Importantly, CODE builds upon former and current investment into strengthening Dunedin's digital economy and enabling all to access it.

The video games industry, supported and grown through CODE, will be a catalyst for a stronger digital economy because it:

- Will identify the most promising pathways to attract talent – particularly Māori, women and youth - to motivate them to tackle both "STEM" subjects, and art and design, at secondary and tertiary level;

- Sells directly into a significant global marketplace (e.g. app stores and other online platforms) that has many diverse segments and is growing strongly (once a game is successful its profits are scalable);

- Supports the development of new technology products and firms in Dunedin (Augmented Reality, for example, has great potential in sectors such as manufacturing, healthcare, education and tourism); and

- Provides a game development business ecosystem of supporting skills such as marketing and data analysis to ensure the likelihood of success.

CODE as an Innovation Hub for Commercial Information

While CODE will primarily be focused on supporting and growing the video games industry, it will develop a complementary focus on   Commercial Information

(through gamification and serious games) and to establish a key point of difference for CODE. Commercial Information

Commercial Information

- Commercial Information

Commercial Information

Commercial Information

Based on international growth in the video games and Commercial Information , and the success factors already evident in Dunedin, it is expected this complementary approach to Commercial Information will both amplify and accelerate CODE's contribution to New Zealand's digital economy, and produce sustainable economic growth and growth in highly skilled employment in Dunedin.

Commercial Information

A global perspective for a global sector

The video game sector has a global focus.

The proposed design of CODE recognises that the development of fit-for-purpose international connections is required to meet the ambition of developing a multibillion dollar sector, and industry and stakeholder aspirations.

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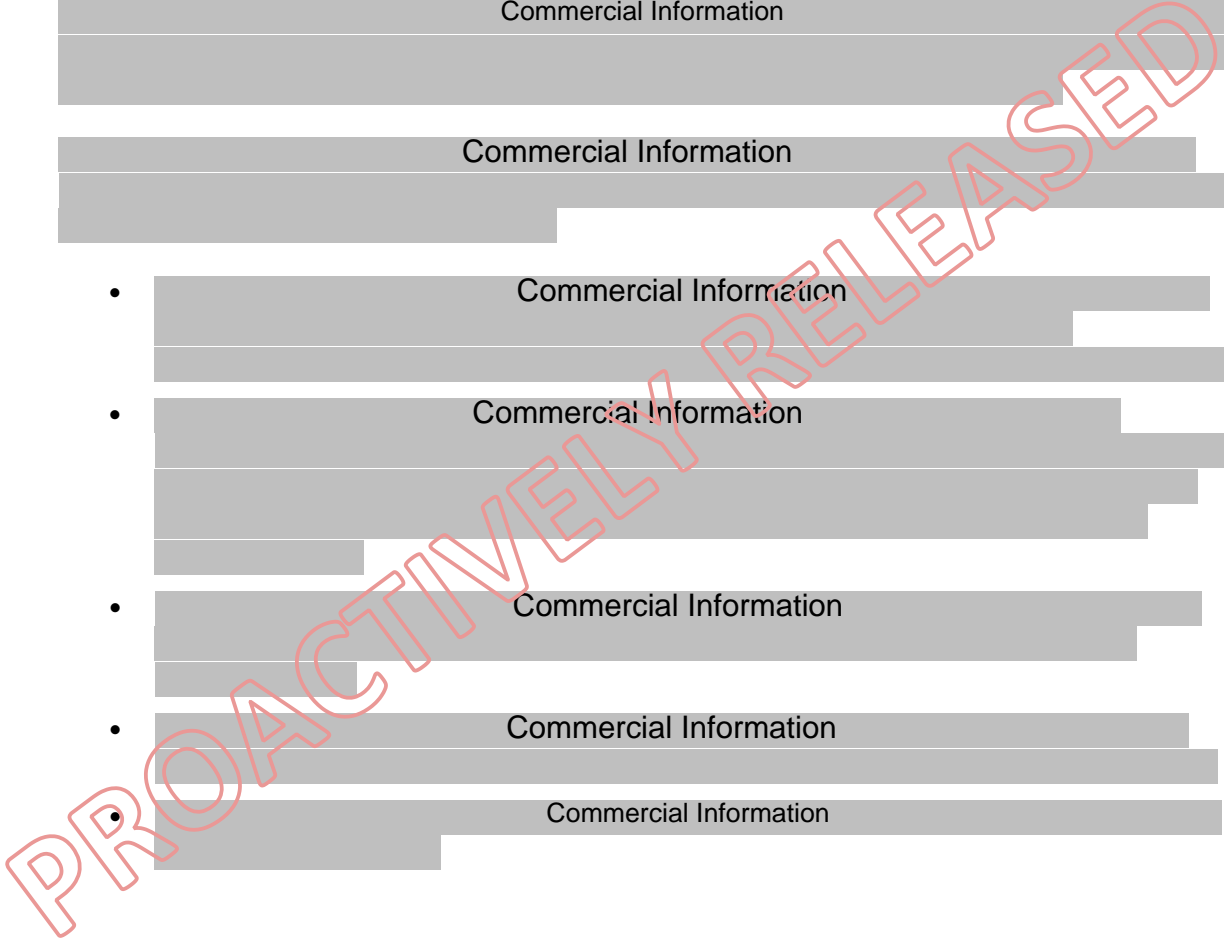
Building CODE

Establishing CODE will create an organisation mandated to connect individuals with opportunities - leading to innovations, earnings and jobs in the video game development and Commercial Information sectors.

Funding for CODE of $Commercial Information is sought from the Provincial Growth Fund (PGF). Co-funding Commercial Information will be sought from partners and subject to separate investment decisions.

CODE's establishment phase is indicatively scheduled for the Commercial Information after the PGF application is approved. A summary of the proposed implementation programme is provided in the business case. The most strategic areas are prioritised, specifically the establishment of a professional governance structure for CODE. Commercial Information

Following the establishment of the core activities for development of the video game industry, further work be undertaken on the development of the Commercial Information work stream.

The NZGDA highlights that collaboration is key to serious games (including Commercial Information having a meaningful social impact and that while several serious games have been developed by university researchers and students, few have been commercialised or effectively publicly launched.

Substantial engagement with external experts will be central to the establishment of the Commercial Information component of CODE. Commercial Information educators, marketers, and video game developers.

The CODE ecosystem

The following diagram illustrates the CODE ecosystem – that is, the relationship between the objectives identified within this business case, the initiatives that will be undertaken to help meet the objectives, and the strategic elements and range of stakeholders (local, national and global) that will both contribute to and benefit from CODE's initiatives.

This business case further explains how this ecosystem has emerged and how it will be developed and integrated over the next 10 years to achieve the vision for CODE.

The CODE Ecosystem

The following diagram illustrates the CODE ecosystem – that is, the relationship between the objectives identified within this business case, the initiatives that will be undertaken to help meet the objectives, and the strategic elements and range of stakeholders (local, national and global) that will both contribute to and benefit from CODE's initiatives.

Commercial Information

Commercial Information

Strategic Case

This section provides the strategic context and the case for investment, including the investment objectives for CODE. It provides the benefits and risks considered in this business case and the assumptions, constraints and dependencies underpinning its development.

The Global Market

CODE provides an opportunity to access and compete in a growing international market. According to the report *Mobile Gaming Apps Report: User Acquisition Trends and Benchmarks 2018*, as of July 2018, more money has been spent on computer gaming than any other kind of entertainment. It is a massive industry worth almost 3 times as much as the movie industry.[1]

As indicated on the following page, industry analysts Newzoo note the global computer games industry was worth USD$121.7 billion in 2017 and is projected to be USD$180 billion in 2021.[2]

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[1] This report is from Liftoff, a mobile app marketing and retargeting platform. Downloaded at https://info.liftoff.io/2018-app-engagement-index/

[2] Newzoo, April 2018 Quarterly Update: Global Games Market Report, newzoo.com/globalgamesreport

2012-2021 GLOBAL GAMES MARKET
REVENUES PER SEGMENT 2012-2021 WITH COMPOUND ANNUAL GROWTH RATES

newzoo

- Mobile Games
- PC Games
- Console Games

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CAGR 2012-2021

TOTAL
+11.0%

MOBILE
+25.8%

PC
+3.1%

CONSOLE
+2.3%

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	$70.6Bn	$76.5Bn	$84.8Bn	$93.1Bn	$106.5Bn	$121.7Bn	$137.9Bn	$151.9Bn	$165.9Bn	$180.1Bn
Mobile	18%	23%	29%	34%	40%	46%	51%	54%	57%	59%
PC	37%	38%	36%	34%	30%	27%	24%	22%	21%	19%
Console	45%	39%	35%	32%	30%	27%	25%	24%	23%	22%
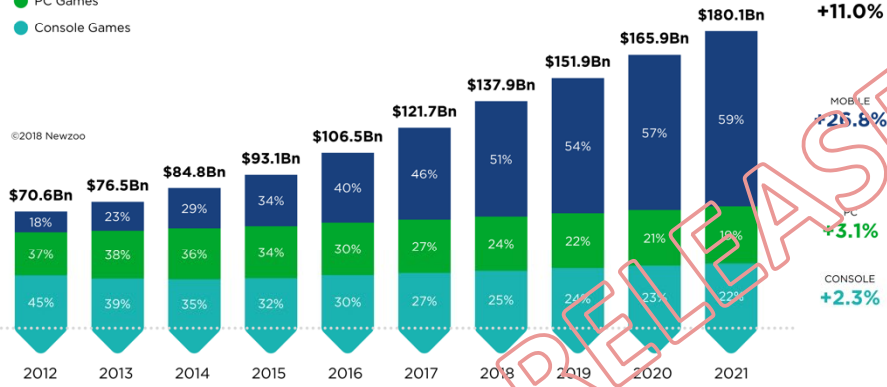
2018 GLOBAL GAMES MARKET
PER DEVICE & SEGMENT WITH YEAR-ON-YEAR GROWTH RATES

newzoo

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MOBILE
$70.3Bn
+25.5% YoY

TABLET GAMES
$13.9Bn
+13.1% YoY

(SMART)PHONE GAMES
$56.4Bn
+29.0% YoY

PC
$32.9Bn
+1.6% YoY

BROWSER PC GAMES
$4.3Bn
-13.9% YoY

BOXED/DOWNLOADED PC GAMES
$28.6Bn
+4.5% YoY

CONSOLE
$34.6Bn
+4.1% YoY

2018 TOTAL
$137.9Bn
+13.3% YoY

10% 3% 24% 21% 51% 41% 25% 25%
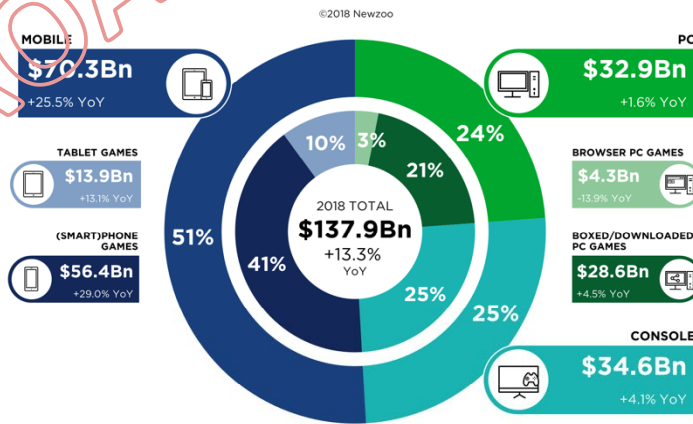
In 2018, mobile games will generate

$70.3Bn

or **51%** of the global market.

In terms of growth, FutureScope anticipates both gaming and music will achieve a compound annual growth rate (CAGR) of 7% over the next five years, whereas video is expected to achieve 2%:[3]

While there are future growth opportunities, Dunedin game development companies note two clear points:

- The majority of independent games fail to achieve any acceptable degree of commercial success; and
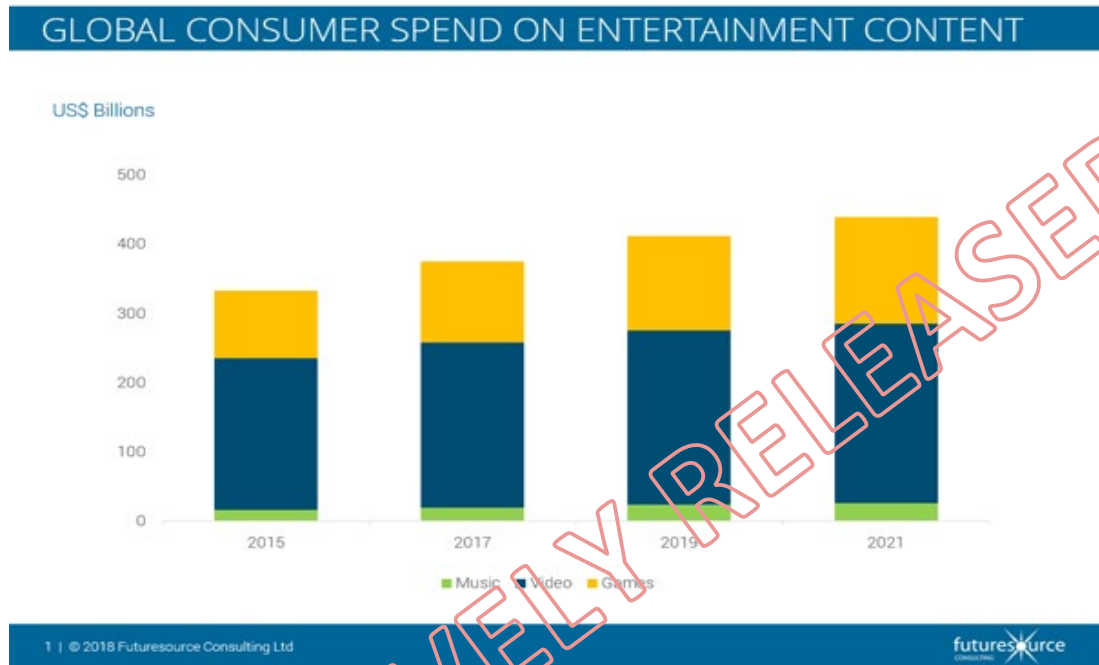- Commercial success requires marketing and strategic business planning to be a first, rather than last, step in game development.

The New Zealand Computer Game Development Industry: strong growth

In 2018, 41 New Zealand game development studios were members of the New Zealand Game Developers Association. As the following graphs show, the New Zealand computer game development industry has grown each year from small beginnings. The revenue of New Zealand game development studios grew by 43% in 2018 to total $143 million, and 93% of this was export driven, continuing the industry's multi-year growth trend.[4]

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[3] Data in this section is sourced from Tim Ponting, member of CODE Steering Group

4 Ibid

GROWTH OF NZ GAME EXPORTS 2018

$143M ANNUAL REVENUE **93%** EXPORT DRIVEN **43%** ANNUAL GROWTH

Exports / Domestic — 2012: 19.6M, 2013: 36.3M, 2014: 76.3M, 2015: 78.7M, 2016: 88.9M, 2017: 99.9M, 2018: 143M

BUSINESS MODELS — Serious Games 7%, Tools Developer 4%, Outsourcing 7%, Contract Developer 3%, Mix of Indie & Contract 20%, Independent Developer 59%
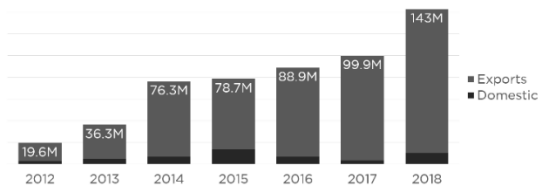
MIX OF CREATIVE & HITECH ROLES

130 NEW JOBS PREDICTED IN 2018 **21%** FEMALE EMPLOYEES

550 HI-TECH CREATIVE EXPORT JOBS — Artists 31%, Programmers 29%, Management 12%, QA 7%, Game Design 10%, Producers 7%

SKILLS SHORTAGES ARE LIMITING GROWTH OF **24%** STUDIOS

HARDEST TO RECRUIT ROLES — Programmers, Artists, Game Designers, Producers, Management, QA, Audio (Senior / Intermediate level / Recent graduates)

BARRIERS TO GROWTH — Attracting early stage investment, Attracting investment for expansion, The quality of tertiary level graduates, Attracting international projects
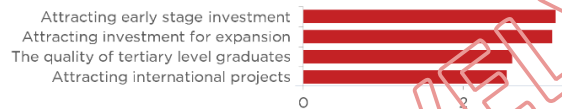
SOURCE: Survey of 41 NZ Game Developers Association studio members for the year ending 31 March 2018

NZGDA — NEW ZEALAND GAME DEVELOPERS ASSOCIATION

The industry is optimistic about further growth. This optimism is reinforced by several local game studios having announced further successes since the 2018 survey closed. *Bloons Tower Defence 6* by West Auckland-based Ninja Kiwi became the number one paid app in the world, ranking above *Minecraft*, on both the Apple and Android app stores when it launched in June 2018. Also, local studio Grinding Gear Games was acquired by the world's largest games publisher Tencent for over $100 million – one of the largest tech exits in New Zealand history. Support for start-up game businesses and 'indie games' is one of the issues being looked into by a report on Interactive Media and Video Games being undertaken by NZ Tech and the NZ Game Developers Association with support from the Ministry of Business, Innovation and Employment (MBIE).

One of the key constraints for growth identified by the NZGDA is a lack of early-stage development funding for start-ups, noting that increasing the number of competitive creative IPs in the industry is key to reaching the billion-dollar goal and that video game development firms need to be supported at all life stages.

Computer game development is one of New Zealand's fastest growing creative careers, with studios expecting to employ another ▢ people in the coming year. As of March 2018, there were 550 full-time professional game developers working in New Zealand studios (compared to 245 in 2010), in a mix of creative and technical roles. 31% of employees are artists, 29% are programmers, 12% are in marketing or management, 10% are game designers, 7% work in quality assurance and 6% are producers.

However, 24% of studios reported in the 2018 survey that skills shortages, especially in experienced senior staff, were constraining the growth of their business. Many experienced developers come from offshore, with seven studios currently employing ▢ staff on work supported visas – ▢% of the entire industry.

Other barriers to growth include the quality and experience of graduates and attracting international projects. Diversity continues to be an issue, with only 21% of employees in the sector being female. Māori participation overall in ICT industries is low (2.5%), however there is a growing opportunity for Māori game developers, particularly in relation to te reo Māori.[5]

Te reo Māori, has recently been integrated into one of the biggest digital cultural phenomena of recent years – the online video fame Fortnite. For Māori Language Week 2018, Te Wananga o Aoteoroa partnered with eSports company Let's Play Live to hold a Te Reo livestream of the game from their studio inside Auckland's SkyTower – an initiative which won the Education category at the Nga Tohu Reo Māori 2018 National Māori Language Awards.[6]

The Ka Hao Fund (Māori Digital Development Fund) has provided support to several interactive media and gaming initiatives, including those developed by Rotorua-based Digital Natives Academy (DNA) and Metia Interactive Ltd, which are creating innovative and culturally unique experiences for both local and international customers.[7]

Metia Interactive's portfolio of games includes Tākaro – an online game which teaches young people to strengthen spatial awareness skills and strategies that will build confidence in STEM subjects through a hands-on, reactive environment. The player uses coding concepts and puzzle solving skills to navigate through each of the levels while learning problem solving skills along the way.[8]

In March 2019, the Ministry of Māori Development in partnership with myReo Studios, launched Puni Reo Pāhekoheko - a Māori language virtual reality game aimed at encouraging the use of te reo Māori in sports.[9]

The Dunedin Game Development Industry

In the last five years, a Dunedin game development industry has emerged. Two self-publishers - RocketWerkz and Runaway Play - have shown the potential of blending Dunedin creativity with technology to create successful entertainment and education products exported around the world. Tencent has acquired a stake in RocketWerkz and Runaway Play is owned by NHNZ (Natural History New Zealand).

There are many tertiary students in Dunedin who aspire to get jobs in the computer game development industry, but don't have the right study options open to them to help get into employment. These students attend local 'gamedev' meetups and 'game jam' events. A

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[5] https://internetnz.nz/sites/default/files/maori-ict-report-2015.pdf

[6] Interactive Aotearoa: Driving Growth and Wellbeing Through Interactive Media, Draft January 2019, The New Zealand Game Developers Association, page 3

[7] https://www.tpk.govt.nz/en/whakamahia/it-and-innovation/ka-hao-maori-digital-technology-development-fund/ka-hao-fund-recipients

[8] Ibid

[9] https://www.tpk.govt.nz/en/mo-te-puni-kokiri/our-stories-and-media/feature-stories/virtual-reality-sports-game-developed-to-activate-

subset of these students enrol into the University of Otago's Computer Game Design summer school paper, which attracted 28 enrolments in 2018 and 31 enrolments in 2019.

More recently the concept of 'gamification' (applying game techniques and technologies to non-game settings) has been progressed by Dunedin companies such as Animation Research (ARL) and Education Perfect, showcasing the wider potential of game development.

Commercial Information – A Complementary Growth Sector

There is now a strong focus on Commercial Information within New Zealand. The recently developed Commercial Information eco-system that creates the conditions that support delivery of the Commercial Information .

Within this national context, Commercial Information

Both are in preliminary discussions on the creation of a Commercial Information Commercial Information A Dunedin 'centre of Commercial Information excellence', would be well placed to leverage the city's resident expertise and global networks in research and development, medical treatments and efficiencies.

Growing areas of Commercial Information

The Digital NZ Report 2018 survey (of more than 800 households) indicates a positive correlation between playing video games and Commercial Information :

- 85% of respondents said playing video games can improve thinking skills;

- 76% said video games can improve dexterity;

- 52% said video games can help manage pain.

There was also a high level of positive responses regarding the impact of video games on positive ageing, such as fighting dementia, increasing mobility and mental stimulation.[10]

Commercial Information

as being worth USD$118 billion (2017) and predicting it will grow rapidly to reach USD$206 billion in 2020.[11] Invested funding increased rapidly from USD$1.1 billion in 2010 up to nearly USD$12 billion in 2017.[12]

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[10]   Commercial Information

The rise of interactive media and 'serious games'

Interactive media in particular – including video games, educational games, mobile apps, augmented reality and interactive storytelling – is at the forefront of transforming New Zealand's digital economy. People in New Zealand and around the world are becoming increasingly accustomed to interacting with businesses and organisations through custom apps and game-based interfaces.

According to NZGDA, 67 per cent of Kiwis play video games, 47 per cent of these players are women, and 44 per cent of seniors aged 65 years and over play video games.[13]

The global serious games market was worth USD$3.5 billion in 2017 and is expected to grow 18.2 per cent annually to reach USD$15.6 billion by 2026.[14] Most growth is being generated in the Asia-Pacific region, with China being the largest consumer of learning games and tools.[15]

This highlights that beyond the opportunities for growth offered within the video games for entertainment market, are numerous opportunities associated with gamification (the application of game design or mechanics to non-game contexts) and 'serious games' (games that have a primary purpose beyond entertainment).

In practice, the discipline of interactive design and game design combines elements of behavioural psychology, data analytics, creative direction as well as technical computing and creative discipline skills – a key creator of value in a digital economy.[16]

Commercial Information

Commercial Information

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[13] Digital NZ 2018 Report, Bond University and IGEA, page 6

[14] Interactive Aotearoa: Driving Growth and Wellbeing Through Interactive Media, Draft January 2019, The New Zealand Game Developers Association, page 58

[15] https://www.alliedmarketresearch.com/serious-games-market

[16] Interactive Aotearoa: Driving Growth and Wellbeing Through Interactive Media, Draft January 2019, The New Zealand Game Developers Association, page 58

Commercial Information

- Commercial Information

While gaming transcends all genders, ages, ethnicities and lifestyles, it is worth noting the growing population of Generation Y (millennials - aged between 18-27) who are accustomed to interacting with businesses through custom apps and game-based interfaces. To reach this audience, Commercial Information will need to meet them on their terms though interactive and engaging interfaces.

Commercial Information

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Commercial Information

No other city in New Zealand, possibly Australasia, is going to have a $ Commercial Information investment made over the next 10 years Commercial Information

With Ngāi Tahu represented in the partnership group, and the Commercial Information in place, this provides a unique opportunity to use gamification to improve and support Māori and Pacific Commercial Information

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Commercial Information

Extending CODE into digital Commercial Information , a
university and a polytechnic within a city that has an international reputation for creating
innovative software. This can combine two of the Government's biggest initiatives - Commercial Informati and the Provincial Growth Fund and create a combination that has social and
economic returns for them on both.

At their heart, success in both video games and Commercial Information is defined by creating
innovative solutions through a mobile, talented and skilled workforce.

Specifically, success in Commercial will also require a team of multidisciplinary,
multifaceted experts - including Commercial , instructional design, research,
assessment, and game design. The team must also have a proven methodology for
applying scientific concepts to a fun and engaging game style. For CODE, formalising and
extending its relationship with the Commercial Information , resources,
Commercial Information and wider cultural expertise to help it develop and test ideas, and create
successful new Commercial Information tailored. In addition to this, CODE can develop the
incubator services needed to support the development and commercialisation of its Commercial Inform
Minimal Viable Products (products with just enough features to satisfy early
customers, and to provide feedback for future product development).

Once established, CODE will develop a complementary focus on the Commercial Information (through gamification and serious games), creating a distinctive
point of difference for CODE, building on our strengths and investment opportunities. This is
illustrated in the following diagram:

Commercial Information

Dunedin – the Ideal Home of CODE

Dunedin is well-placed to deliver on the Government's vision for CODE for many reasons.

The City's vision is to be one of the world's great small cities. This vision encapsulates several ideas:

- Dunedin is a centre of learning, education and research;
- It sparks creativity and experimentation in our community;
- It has an enterprising and pioneering spirit;
- It has strong relationships with mana whenua;
- The city has an inspiring cultural heritage and natural environment;
- Dunedin is relevant and connected to international markets [18]

In 2012, the Dunedin City Council, University of Otago, Otago Polytechnic, Otago Chamber of Commerce, Otago Southland Employers Association and [Commercial Information] came together to develop and agree the 2013-23 Dunedin Economic Development Strategy.

The Economic Development Strategy sits alongside and complements seven other strategies owned by the Dunedin City Council which are also intended to deliver the vision for the city and are summarised in the following diagram:

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[18] Dunedin Economic Development Strategy 2013-23, p.8.

The Economic Development Strategy has two specific economic goals: [19]

- An average of $10,000 extra income for each person (requiring GDP per capita to rise by about 2.5% per annum);

- 10,000 extra jobs over 10 years (requiring employment growth of approximately 2% per annum).

Economic growth in Dunedin has now remained above 2% per annum for four straight years – with 2.6% growth in 2018.[20]

In the five years to 2018, the number of filled jobs in Dunedin increased by 4,721 (an average of 1.6% per annum). In 2017 and 2018, the number increased by 2,864 (an average of 2.4% per annum), indicating the rate of job growth is accelerating.[21]

Job growth in Dunedin 2014-2018:

2014	59,321	0.5%
2015	60,268	1.6%
2016	60,873	1.0%
2017	62,091	2.0%
2018	63,737	2.7%

It is expected that establishing CODE in Dunedin will further accelerate the achievement of these goals.

To focus activities towards achieving the goals, the Dunedin Economic Development Strategy comprises the following themes:

- Business vitality;

- Alliances for innovation;

- Hub of skills and talent;

- Linkages beyond our borders;

- Compelling destination.

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19 https://www.dunedin.govt.nz/__data/assets/pdf_file/0008/262997/Dunedins-Economic-Development-Strategy-2013-2023.pdf

[20] https://ecoprofile.infometrics.co.nz/Dunedin%2bCity/Gdp

[21] https://ecoprofile.infometrics.co.nz/Dunedin%2bCity/Employment

Business Vitality and City Investment in the Tech, Digital Ecosystem

There is growing interest from entrepreneurs, investors and businesses in Dunedin due to its burgeoning talent pool and inclusive and creative start-up culture. The city also provides an environment where people can set up at a fraction of the cost of larger centres and do more with their resources. This is complemented by the Dunedin City Council's 'Red carpet, not red tape' initiative - a proactive and business-friendly approach being implemented across the council.

Where in the past successful start-ups might only be found in the metropolitan areas of North America, today a start-up may emerge from any location where there is the right support and environment for growth. CODE presents an opportunity to build on the Dunedin digital technology sector and to build scale in export-facing sectors.

CODE aligns well to work already underway to support an engaged and motivated start-up ecosystem. This work has gained momentum over the last two years based on the efforts of industry, the Start-up Dunedin Trust, investment by private sector co-working spaces and support through agencies such as the Grow Dunedin Partnership, University of Otago, and Otago Polytechnic. The Dunedin City Council invested nearly $[Commercial Information] in activities to support start-up businesses (particularly tech and digital start-ups). The intention is to ensure:

- Start-ups have access to key players and resources to grow their businesses, and to celebrate and promote start-up success to improve the perception of Dunedin as a business-friendly city;

- Key investors and mentors continue to be drawn into the ecosystem from within the city, nationally and internationally;

- Initiatives continue to be developed - such as Rising Tide, a community driven grant scheme designed to help launch early stage businesses and create better founders.

After winning Chorus' Gigatown competition in 2014, Dunedin gained access to a one gigabit per second fibre connection. It also became the country's first GigCity, providing free public access to this network. As a result of the competition, over $700,000 has been distributed to 11 start-ups and 21 not-for-profit groups for community-based projects.

All 11 start-ups funded through GigCity have continued to operate successfully in the city. One example is [Commercial Information], who were granted $[Commercial Information] in 2017.

[Commercial Information]

- Commercial Information

- .

Hub for Skills and Talent

Dunedin is a hub of high value skills and knowledge, reflected in its growing economy, a drive to attract and retain talent, and the increase in jobs available in the professional, scientific and tech services sectors.

Dunedin's skilled and talented people don't just serve the city - their businesses and services make significant contributions to organisations and businesses within New Zealand and oversees.

The timing for establishing CODE in Dunedin could not be better, with confidence in the city's technology sector evident through recent and accelerating growth in new business establishment and jobs.

Overall, the current environment in Dunedin provides a solid, reliable platform that can support and absorb further acceleration.

Sector, job and population growth

Improving economic conditions in Dunedin are flowing through into labour market outcomes.

The average number of people receiving Jobseeker Support declined 4.8% over the year to September 2018. This outcome is consistent with data from Statistics New Zealand that showed employment within Dunedin businesses (i.e. excluding self-employment) climbed 3.9% over the year to February 2018 – its fastest rate of growth since 2002.

The University of Otago, Otago Polytechnic and the health sector underpin Dunedin's knowledge and skills base with a high proportion of workers employed in knowledge-intensive occupations.

Over the past 9 years (2009-2018), the professional, scientific and tech services sector was in the top 5 sectors creating the highest number of new jobs in Dunedin:[22]

Construction	1,331
Health Care and Social Assistance	1,217
Public Administration and Safety	612
Accommodation and Food Services	605
Professional, Scientific and Technical Services	*505*

A high proportion of this growth occurred in 2018, when the sector created the highest number of new filled jobs in Dunedin (230). Of the new filled jobs in the sector in 2018,

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[22] https://ecoprofile.infometrics.co.nz/Dunedin%2bCity/Employment

122 were in computer systems design and related services (making up a total of 582 jobs in this area within the city).[23]

Over the past 9 years, the professional, scientific and tech services sector also made the third-highest contribution to the city's growth in business units. Given recent trends, this ranking is expected to climb, particularly with the establishment of CODE:

Rental, Hiring and Real Estate Services	312
Financial and Insurance Services	249
Professional, Scientific and Technical Services	*174*
Health Care and Social Assistance	84
Accommodation and Food Services	81
All other industries	-141

Health technologies, niche manufacturing and engineering, ICT/Tech and creative-related industries have all grown over the past decade. As of March 2018, their value to the Dunedin economy was:

- Health Tech $7.41m
- Engineering, Health & Science Professionals $27.7m
- Creative $109m
- ICT $72.4m
- *Manufacturing & Technology $570m

Total value: **$786.51**

*The split in value between manufacturing and technology is estimated to be 50/50.

In general, Dunedin continues to attract and retain people. The latest estimated resident population figures, released by Statistics NZ in October 2018, showed Dunedin's population had jumped by 1900 people, or 1.5%, to 130,700 in the year to June 2018, and many of these are in the 15-39-year age bracket. This follows growth of 1,800 people the previous year.

Education

Through connecting to the University of Otago, game developers in Dunedin have access to leading research capability in game-related technologies, such as virtual and augmented reality and artificial intelligence. These technologies support games for entertainment as well as healthcare applications. Otago Polytechnic's Communication Design programme has

strong links to local, national and international designers, allowing developers to build both academic and applied knowledge for the benefit of industry.
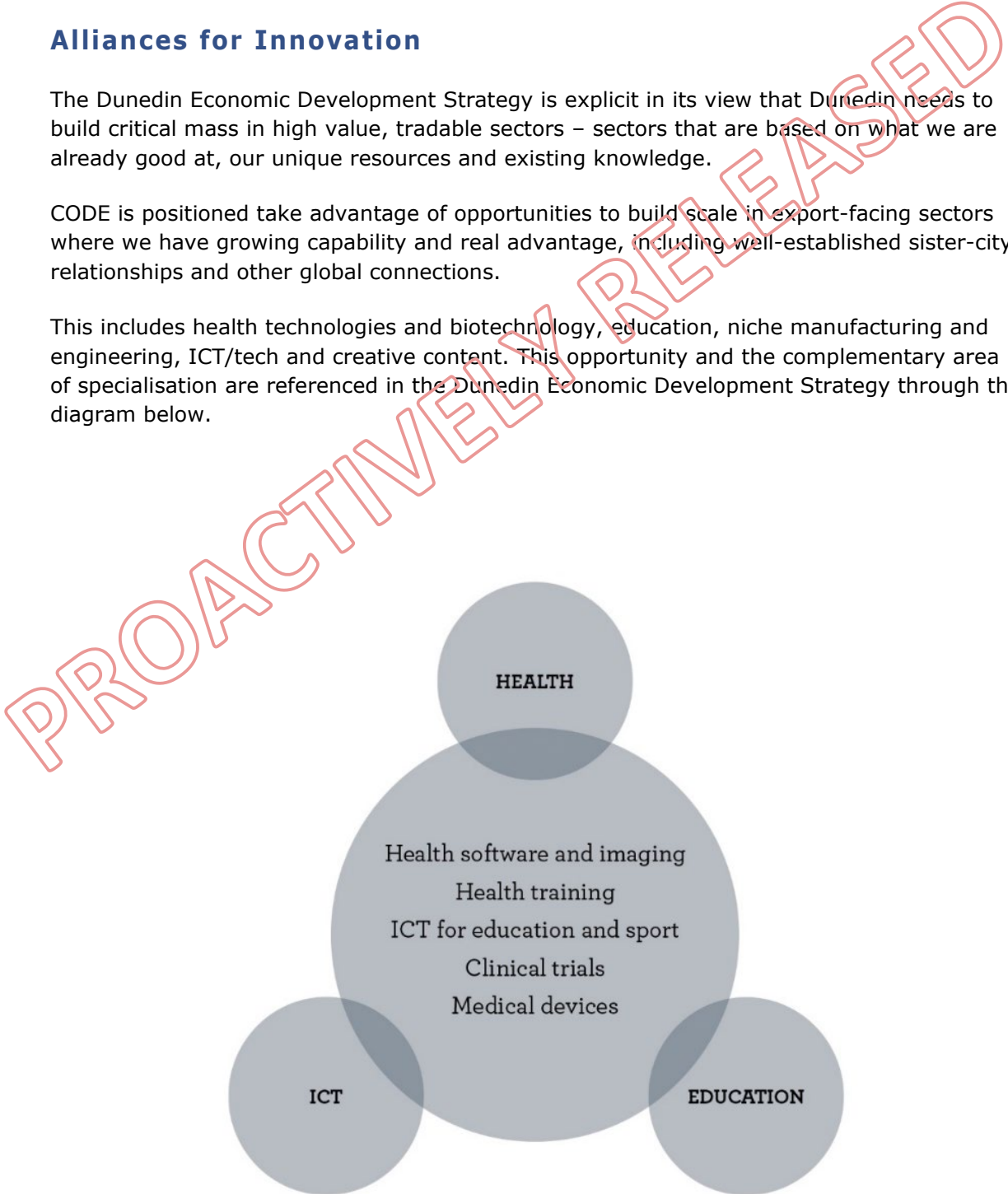
Pathways play an increasingly important role in upskilling and retaining talent in Dunedin. The South Island ICT Graduate School (SIGNAL) brings together the internationally recognised research and teaching strengths of the University of Otago and the market validation and product development capability of Otago Polytechnic to facilitate a mix of technical expertise and creativity across industry and education.

Alliances for Innovation

The Dunedin Economic Development Strategy is explicit in its view that Dunedin needs to build critical mass in high value, tradable sectors – sectors that are based on what we are already good at, our unique resources and existing knowledge.

CODE is positioned take advantage of opportunities to build scale in export-facing sectors where we have growing capability and real advantage, including well-established sister-city relationships and other global connections.

This includes health technologies and biotechnology, education, niche manufacturing and engineering, ICT/tech and creative content. This opportunity and the complementary area of specialisation are referenced in the Dunedin Economic Development Strategy through the diagram below.

HEALTH

Health software and imaging
Health training
ICT for education and sport
Clinical trials
Medical devices

ICT

EDUCATION

Linkages beyond our borders

Dunedin has strong political, cultural and economic connections with Shanghai and Edinburgh. These connections have been established over many years, and the result is a high level of trust and goodwill.

This is also supported by New Zealand's ongoing reputation as a trouble-free and trustworthy nation to do business with, reflected in its 2018 number one ranking in the World Bank's *Ease of Doing Business* index.

In the digital world, trustworthiness and ease of doing business are particularly important, and Dunedin is well-placed to build on its established connections.

Given the international export focus of the gaming industry there is an opportunity for CODE to further develop relationships with gaming and digital centres of excellence and access talent in   Commercial Information

-                   Commercial Information

- Geography is no barrier to market success and computer game development is an industry that has transferable skills and so supports more innovation;

-                   Commercial Information

- Dunedin has an opportunity to become a compelling computer game development destination and the ability to create and leverage strong international linkages.

City and Regional Initiatives

CODE closely aligns to a range of related city and regional initiatives currently in development. It is complementary to both the Dunedin City Council Waterfront and Farra Engineering Centre of Engineering Excellence (COEE) initiative supported through the Provincial Growth Fund. Like CODE, both the Waterfront and COEE initiatives are focused on the retention and attraction of talent for skills and jobs and supporting productive parts of the economy.

Additionally, Otago councils are currently working on the development of a framework to inform and incentivise regional collaboration on economic development projects. While the final framework is still to be agreed by the councils, CODE strongly aligns with the theme of 'innovation' - one of six draft themes currently being considered as part of the framework.

Labour Party Manifesto 2017 – A Commitment to CODE

As part of its election manifesto, the Labour Party committed to establishing a centre of digital excellence (CODE) in Dunedin to build on existing local, national and international gaming, digital business and academic strengths. Over 10 years, the Labour Party's vision was for CODE to contribute to a computer gaming sector generating $1 billion of output through the following proposed activities:

- Setting up a new Chair of Computer Gaming at Otago University;

- Accelerating existing digital start-ups with an incubator space that includes a motion-capture studio, access to publishing software and mentorship programmes;

- Establishing a funding pool administered by private industry aimed at attracting young talent to the industry with post-school digital pathways and scholarships.

Provincial Growth Fund

The Provincial Growth Fund (PGF) supports delivery of the Government's priority of accelerating regional development. The PGF is a $1 billion per annum commitment for three years with the primary objective of accelerating regional development by increasing the productivity potential of the regions and contributing to more and better-paid jobs in the regions. The PGF is the pathway provided by the Government for implementing CODE. Investing in CODE will achieve the PGF's primary objective as well as these secondary objectives:

- Sustainable economic development;

- Social inclusion and participation;

- Māori development.

The PGF is specifically focused on enhancing the uptake of digital technologies, as these offer great potential for lifting productivity and providing opportunities to develop new skills in the regions. The PGF is particularly interested in digital projects that combine elements of:

- Enhancing the skills, platforms, tools and other digital capabilities of local businesses and local people in the regions, recognising the needs of groups that might otherwise not have access to the digital world;

- Enabling more innovation and digital (knowledge-based) employment by introducing digital technology into existing businesses, or fostering new ICT businesses, with a focus on those that underpin important sectors in the regions: dairy farms, tourism and construction;

- Deploying network infrastructure beyond existing broadband investments, to expand the reach and enhance the quality of digital connectivity in the regions for lifting productivity.[24]

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24 https://www.growregions.govt.nz/get-funding/projects-we-can-fund/infrastructure-projects/

The Case for Investment

The Labour Party Manifesto included the following three proposals for inclusion in the design of CODE:

- Set up a new Chair of Computer Gaming at Otago University;

- Accelerate existing digital start-ups with an incubator space that includes a motion-capture studio, access to publishing software and mentorship programmes;

- Establish a funding pool administered by private industry aimed at attracting young talent to the industry with post-school digital pathways and scholarships.

With the support and encouragement of the Ministry for Business Innovation and Employment, these proposals for the design of CODE were further explored and tested – taking into consideration the barriers to growth identified by the NZ Game Developers Association, feedback from stakeholders and the current local and international contexts for gaming and game development.

Development Process

To further define and test the Government's proposals, and develop a business case, a robust and inclusive programme of stakeholder engagement was undertaken over several months. This included a series of workshops and interviews with local, national and global gaming companies, tertiary institutions, technology and digital entrepreneurs and other city stakeholders between July and December 2018. A Steering Group comprising industry and sector leaders and experts, Ngāi Tahu, and local and central government representatives was created to oversee and guide this process.

Appendix B outlines who engaged in the development of this business case, what they do, and when and how they engaged with the process (interview, workshop, and/or Steering Group).

The business case development process informs the Economic Case and is described in detail below. In accordance with Better Business Case principles, the development process was designed to be proportionate to the scale of the proposed Government investment (e.g. $10 million whole-of-life) and to be fit for purpose for engaging with the creative and computer gaming sectors, tertiary and education providers, and Non-Government Organisations (NGOs).

The first stage of the development process was a set of 30 interviews. The interviews were used to identify key stakeholders, engage with them early and encourage them to be active participants in the development process. The interviews were focused on understanding how stakeholders saw CODE's value proposition for the future of Dunedin's computer gaming and digital sectors.

The interview process identified key stakeholders, some of whom were engaged for two facilitated workshops. The purpose of the workshops was to:

- Enable engagement with key stakeholders;

- Enable collaborative thinking;

- Build a collective agreement and consensus.

The workshops developed an Investment Logic Map – or ILM (attached). Stakeholders validated the ILM as setting out the case for change, the investment objectives, the benefits of CODE and prioritised solutions.

Workshop 1. Key Scope Requirements

The first workshop on 27 September 2018 brought together a range of stakeholders, including educators, start-ups, entrepreneurs, game developers (local and international) and Government. The workshop included strong participation from newcomers, Māori entrepreneurs and women.

The first workshop focused on considering and testing the Government's intention and starting assumptions for CODE. This was framed around the question of "*If we have $10 million to create digital gaming/digital industry in Dunedin … how should we invest?*"

The workshop facilitated a broad-ranging debate across the key elements of the Better Business Case process, leading to initial definitions of the:

- Scope that CODE should work within;

- Problems that CODE needs to address;

- Benefits that CODE should deliver;

- Constraints and dependencies that CODE must work within.

Stakeholders identified, prioritised and defined the following as being their three key aspects of CODE's scope:

- **Computer Gaming** [interactive experiences and environments for entertainment and health, education and training];

- **Digital Business** [computer game development skills are transferable to digital enterprises];

- **Excellence** [supports competitive advantage, growth and a point of difference for Dunedin].

Stakeholders agreed their initial problem definitions (investment objectives) that CODE should address:

- **Building capacity and capability.** It was noted that current tertiary graduates do not have the skills required by industry, but it was unclear if the proposed Chair of Computer Gaming was the right solution to this problem;

- **Developing and attracting talent.** Creating a deeper, and more experienced, talent pool is a critical problem for CODE to address. A spectrum of pathways was a key objective if CODE is to support diversity, talent development and inclusivity;

- **Enabling early stage development.** Interventions, such as contestable funding, mentoring and start-up competitions to create growth, were essential to growing and diversifying Dunedin's game development and digital sectors;

- **Developing the ecosystem.** Bringing existing actors together and creating networks was key to strengthening city-wide benefits from CODE and to maximising CODE's potential. This was seen as more valuable than investment in asset solutions, such as an additional motion capture studio in the city;

- **World leading.** There was support for CODE to create something truly distinctive.

The outcomes from the first workshop informed the development of draft problem and benefit statements. Post workshop, these statements were circulated and tested with the workshop participants.

Workshop 2. Investment Objectives

A second facilitated stakeholder workshop was held on 18 October 2018. A similar set of stakeholders were present - educators, start-ups, entrepreneurs, game developers and Government. The workshop again included strong participation from newcomers, Māori entrepreneurs and women.

The purpose of the second workshop was to agree and complete the ILM by:

- Testing the problem definitions (the emerging draft investment objectives);

- Testing choices and options and agreeing the strategic responses (high level outcome focused ways to address the investment objectives);

- Identifying and prioritising a wide range of solutions required to achieve the strategic responses.

The output from workshop 2, a completed draft ILM, was circulated to participants for feedback before a steering group meeting later in the month. Feedback was received from 8 of the 16 participants and this both supported that the ILM was representative of the workshop outcomes and pushed for further clarity in some key areas. For example:

The ILM is looking pretty good; I think it's reflective of the two workshops and a faithful representation of the many and varied perspectives present. [Otago Polytechnic]

Had a read over the weekend and it all looks excellent. Captures the group thoughts and visions well I think. [Māori Entrepreneur]

The "Absence of leadership and national and international networks is a barrier to growth and opportunities" point needs to be clearer, I think it needs re-working. My other big concern is that mentorship/an incubator style approach should be the second biggest thing following 'talent' - to facilitate more game developers making more early stage projects. This could tie into a few different areas. [Dunedin Game Developer]

I am mainly concerned about two things:

- That there be a true town-gown partnership here; and

- That we allow for the real niche opportunities to develop in Dunedin (like games with a purpose, serious games, gamification of specific industrial and commercial sectors' products and services)

Overall, it is very good to see that we are moving forward with this project. Will be a real asset to Dunedin! [University of Otago]

The stakeholder feedback informed a draft ILM that stakeholders validated as setting out a compelling rationale for the proposed investment into CODE.

Steering Group

At its meeting of 26 October 2018, informed by the workshop outcomes, the Steering Group was asked to consider and agree an investment story. This included testing the potential investment objectives, scope and benefits and the broad range of dimensions of choice solutions identified in the ILM created in the facilitated workshop process. There were two key outputs from the Steering Group meeting:

- A validated case for investment;

- A short-listing of the broad dimensions of choice.

The following tables summarise, by investment objective, the case for investment validated by the Steering Group.

Investment Objective One	Align the supply of talent to industry needs
Existing Arrangements	One University of Otago summer school paper in computer game development provided and a paper as part of the Otago Polytechnic Communication Design Degree currently provided. The New Zealand Games Development Association have identified a lack of tertiary level graduates with game development experience as a barrier. Immigration is currently being used to meet industry need for talent.
Business Needs	Tertiary students are not taught industry game engines. Secondary and tertiary students need a portfolio of minimum viable products (MVPS) and industry specific business and analysis skills. Increasing cultural and gender diversity to meet industry need for talent. Support for families and partners of migrants and new comers to find employment and stay.
Potential Scope	City, national and global tertiary and secondary school institutions, agencies, industries and students.
Potential Benefits	Businesses can access the talent to grow, be innovative and create higher value products, services and business models.
Potential Risks	That educators and industry do not effectively collaborate creating barriers to growth and undermining the credibility of CODE. That programmes are not taken up by prospective students. That talent we invest in developing does not choose to stay in Dunedin.
Constraints and Dependencies	Access to professional staff and educators with academic and industry knowledge and time to develop and agree curriculum with tertiary providers and government agencies. Prioritisation of CODE by delivery and partner agencies.

Investment Objective Two	Lift the industry's scale and perception
Existing Arrangements	Two game development companies in Dunedin and a perception that computer game development is for recreation rather than a career. Gaming is a less understood investment when compared with other more conventional business opportunities. According to New Zealand Games Development Association: game developers in entry-level jobs usually earn between $[Commercial Information] and $[Commercial Information] a year (as a comparison, in

	2016, the typical starting salary for new lawyers in New Zealand ranged from $[Commercial Informa] for those in small firms to $[Commercial Informa] for those in large firms). Experienced games developers can earn between $[Commercial Informa] and $[Commercial Inform].
Business Needs	Positive, public awareness of the computer game industry to increase legitimacy, grow talent and investment.
Potential Scope	Local, regional, national and global computer gaming and business ecosystem, educators and careers advisors, investors, parents and talent (especially those considering gaming as a career).
Potential Benefits	Increased access to and retention of talent, investment in companies, and industry growth.
Potential risk	That negative perception continues. That investors take a negative perception to risk/reward of the computer gaming industry. That investors have unrealistic expectations (CODE over promises but under-delivers). Negative media publicity about gaming (e.g. addiction, violence) that undermines CODE's good news/hero stories. Consolidation of industry and monopolisation, making it harder for small companies to enter the market/compete for talent.
Constraints and Dependencies	The media, investors and thought leaders are independent of CODE and will control and convey their own messages. Growth and increased productivity and outcomes arising out of CODE that can inform credible, 'unfakable' hero stories, communications and marketing.

Investment Objective Three	Create sector leadership and networks
Existing Arrangements	The New Zealand gaming ecosystem is coordinated and supportive. The New Zealand Game Developers Association plays an important role. Research and innovation is strong in Dunedin in both tertiary and industry sectors.
Business Needs	Greater coordination between gaming companies, iwi, and international linkages, partners, educators and other agencies in Dunedin.
Potential Scope	Local, regional, national and global computer gaming and business ecosystem, educators, [Commercial Information], investors.
Potential Benefits	Enhanced perception and attractiveness of Dunedin for digital businesses, knowledge development and transfer, capacity and capability building, access to investment, greater credibility and legitimacy.
Potential risk	The risk that CODE fails to promote and support the computer gaming ecosystem nationally and globally, reducing opportunities for growth, investment and employment. That businesses do not see valid opportunities (not industry-led). Competing and vested interests.
Constraints and Dependencies	Access to, and ongoing support of quality, engaged leadership, governance, decision makers and champions (the right people, with the right ambition and vision). Having the right culture and 'fit'. Clearly defining and communicating roles and responsibilities and maintaining a collective value proposition.

Investment Objective Four	Create points of difference in Dunedin
Existing Arrangements	Opportunities exist for all aspects of gaming, including serious games and Commercial Information through collaboration but these are not being pursued in a coordinated manner.
Business Needs	Coordinated leadership, strategy and partnerships are needed to build on Dunedin's unique strengths and develop points of difference for gaming in Dunedin. Structures are needed that focus and lift academic, secondary school and industry capabilities, grow partnerships and establish clear pathways for transferring knowledge to industry.
Potential Scope	Linking games development with Commercial Information and service transformation across Otago and Southland, and the city's tertiary institutions and Commercial Information
Potential Benefits	High value, industry driven, sustainable economic growth. More efficient and effective Commercial Information and improved Commercial Infor outcomes. Diversification and new industry development, with additional direct and indirect benefits. Global opportunities for business growth.
Potential risk	The risk that emerging opportunities and points of difference in Commercial Infor are not realised in Dunedin, reducing the attractiveness of CODE to businesses, investors, entrepreneurs and talent.
Constraints and Dependencies	Separate investment decisions and timing of Commercial Information strategic direction and priorities. Involvement of University of Otago and Otago Polytechnic and their strategic direction and priorities.

Workshop Dimensions of Choice

The workshops identified the potential scope and broad range of strategic responses for CODE – ranging from 'do minimum' to 'more ambitious'. These are reflected in the table on the following page.

Choices identified by workshop participants				
Status Quo		**Do Minimum**	**>>>>>>>>>>>>>>>**	**More Ambitious**
Align the supply of talent to current & future industry needs	Provision through tertiary, secondary and primary	Commercial Information		
Lift the perception and scale of the industry	Two established gaming companies Established digital businesses and start-ups/scale ups			
Create sector leadership and networks	Leaders but not coordinated leadership			
Create points of difference in Dunedin	Opportunities, but potential for greater benefit			

26 October Steering Group

The workshop output was presented to the Steering Group on 26 October who indicated a preference for CODE's scope and then refined the strategic responses. The consensus from the Steering Group was that the more ambitious choices identified should be further developed. The changes made by the Steering Group are summarised below:

Steering Group Changes		
Do minimum	**Do more**	**Transformative**
All do minimum choices were carried forward to the short list	The creation of a national test/ think tank was redefined	The following transformative choices were supported, but redefined: • Design a globally leading Dunedin gaming for good school • Create a hub that identifies and connects national (and international) gaming assets, industry needs and academic research • National and international R&D partners working with local industry and academics • Invest into world leading capability • Attract international premium partners to Dunedin

The Steering Group had a strong appetite to develop something distinctively Dunedin, building on the city's strengths. It identified that the upcoming ▮▮▮Commercial Information▮▮▮ ▮▮▮ to create a unique point of difference for CODE.

Based on the outcomes of the meeting, a discussion document (using the Better Business Case template) was prepared for the Steering Group setting out the potential strategic case and high level economic options.

In reviewing the discussion document, the Steering Group confirmed the ambition for CODE - i.e. the transformative direction. At the request of the Steering Group, this became the basis for the development of two options for the Economic Case.

The first option - referred to as 'Core Activities' - delivers the core activities identified by the workshops and confirmed by the Steering Group to support video game industry development and growth within the Manifesto's funding commitment of $10 million. The second option - referred to as 'Core Activities plus ▮Commercial Information▮ - builds on the first option by including a specific workstream for developing ▮Commercial Information▮ in conjunction with ▮▮▮Commercial Information▮▮▮ . This option will provide additional benefits and be a catalyst for a thriving digital economy, but cannot be delivered within the current Manifesto funding commitment.

Economic Case

This section identifies a preferred option, building on the transformative direction endorsed by the Steering Group.

The following two short-listed options were developed, costed and assessed:

- **Option 1: Core Activities** - predominately focused on video game industry development and growth within a $Commercial Information envelope; and

- **Option 2: Core Activities (as above) +** Commercial Information initiatives within a $Commercial Information

Both options were further developed in conjunction with members of the Steering Group - including the University of Otago, Otago Polytechnic, the gaming sector, the Commercial Information and Dunedin City Council - at a workshop on 23 November 2018.

While the core activities in the tables differ to some extent from the activities proposed in the Manifesto, the underlying intent of each proposed activity has been retained:

Manifesto proposed activities	Business Case outcome
Set up a new Chair of Computer Gaming at Otago University.	Based on industry and university feedback, CODE will deliver academic leadership through (a) the development and delivery of industry relevant tertiary education curricula and (b) support for industry relevant and internationally leading research through a Visiting Chair in Computer Gaming Technology and Applications that is affiliated with both the University of Otago and Otago Polytechnic. Further, there is potential for the CODE Director to be an Honorary Adjunct Professor which would have up 20% of their time committed to relevant externally funded research.
Accelerate existing digital start-ups with an incubator space that includes a motion-capture studio, access to publishing software and mentorship programmes.	Based on industry feedback, a range of activities have been included to accelerate existing start-ups and encourage and support new start-ups. Game developers in Dunedin currently have access to C m motion capture studios - this has therefore not been included as a core activity for CODE.
Establish a funding pool administered by private industry aimed at attracting young talent to the industry with post-school digital pathways and scholarships.	Based on industry feedback, this has been addressed through the inclusion of activities and grants targeted at attracting and retaining both young and more experienced talent, as well as supporting games and studios to add the scale necessary to succeed in the international market.

The following table page provides a summary of indicative costings for the activities that the Steering Group indicated its support for, based on a full analysis of possible initiatives identified for delivering on the investment objectives for CODE (refer Appendix E).

At least Comme% of operating budgets for initiatives that align the supply of talent to industry needs and lift industry and scale and perception will be ringfenced for Māori. It is expected that the same commitment will be extended to Commercial Information initiatives under Option 2.

Option 1: Core Activities

Option 1 – Core Activities			
Investment Objective	**Proposal**	**Rationale**	**Per Annum Funding**
Align the supply to talent to industry needs	Develop MVP orientated tertiary education programmes	Ensure Dunedin has undergraduate and postgraduate pathways (University and Polytechnic) that meet industry skill and diversity needs	Commercial Information
	Annual Industry – Education Forum	Provide skills leadership, coordinating industry efforts to identify and plan to address future skill and diversity needs	$Commercial Inform
	Visiting Chair in Computer Gaming Technology and Applications affiliated with the University of Otago and Otago Polytechnic	Ensure research leadership in Dunedin that is dedicated to supporting Dunedin industry students and academics and building international connections	$Commercial Informatio
	Support for talent attraction and retention	Support firms to recruit and retain senior level talent (including Māori and women) in both technical and creative roles	$Commercial Inform
	Contestable Funding to support new school and NEET pathways	Develop and promote non-tertiary education skills pathways for youth (including Māori and young women) into video game development careers	$Commercial Inform
Lift Industry Scale and Perception	Commercial Information Competition	Host annual competition that supports the development of talent (including Māori, women and youth) and MVPs, as well as public engagement, in Dunedin	$Commercial Inform
	CODE Start Fund	Provide grants that support talent (Māori, women and youth) development, the creation of game MVPs, and market-ready game products	$Commercial Inform

	National and International Mentors	A programme of mentorship leveraging CODE's national and international links to provide Dunedin game studios with access to leading national and international mentors from a diverse range of backgrounds (including Māori, women and youth)	$ Commercial Inform
	CODE Scale Up Fund	Provide grants that support Dunedin studios to scale their business or game to better succeed in international markets	$ Commercial Informatio
	Communications and Branding	Grow public awareness of CODE and establish a positive career profile of video game industry (including Māori, women and youth)	$ Commercial Inform
Leadership	Governance	Establish CODE as a legal entity with professional governance	$ Commercial Inform
	Management Staff	Have skilled, experienced, dedicated management to lead and integrate diverse groups and activity across all initiatives to successfully deliver CODE (including option 2 if progressed)	$ Commercial Informatio
	Office and support costs	Location and overhead costs	$ Commercial Inform

Option 2: Core Activities + Commercial Information

Option 2, outlined in the following table, includes everything in Option 1 Commercial Information

Option 2 is supported by the CODE Steering Group, Southern District Health Board (SDHB), University of Otago, Ministry of Business Innovation and Employment (MBIE), Health Tech Centre of Research Excellence, Industry and Dunedin City Council. The initiatives are potential activities that will be subject to further development and analysis during July 2019 to June 2020.

Investment Objective	Proposal	Rationale
Create points of difference for Dunedin	Investor education Workshops	Support developers to locate the capital or pathways to stand up as successful businesses through investor education workshops, webinars and community events. Educate investors (including Māori) and connect them to Dunedin Commercial Information developers

(a Commercial Information Hub)	Ideas Creation Workshops	Develop Commercial Information ideas (including Māori, women and youth) and test through competitions, workshops, boot-camps and hackathons for game developers, Commercial Information
	Pre-seed accelerator Programme	Provide pathway for promising ideas and MVPs. A set duration programme of mentorship, provision of shared space and events to accelerate Commercial Information start up development (including Māori, women and youth)
	Commercial Information	Develop and test Commercial Information ideas through a coordinated Commercial Information that provides early-stage start-ups access to Commercial Information

Assessment of the Short-Listed Options

The relative benefits of both options were considered.

The following section provides the economic analysis of Options 1 and 2. This brings together both the relative costs and benefits of both options (against a Status Quo option) using high-level quantitative and multi-criteria analysis.

For the purposes of the analysis the following assumptions were made:

- Commercial Information operational costs have been estimated and detailed in the Financial Case;

- Operational activity (i.e. post establishment) can start from Commercial Information

- The analysis is over a 10-year period commencing 2019/20;

- Establishment cost of $Commercial Information during the Commercial Information and Commercial Information financial years for Commercial Information

- Operating costs are prepared on a real basis. No allowance for inflation has been made;

- Asset ownership is excluded in the options. No capital costs are assumed;

- The PGF is assumed to be the major funder ($Commercial Information). Co-funding will be sought from partners ($Commercial Information) and subject to separate investment decisions.

Detailed financial information supporting the financial case for the preferred option (or preferred way forward - PWF) is shown in Appendix C.

The benefits identified in the strategic case were mapped against the Provincial Growth Fund benefits, and then weighted and validated at the 23 November workshop. These are set out in the table below:

ILM Benefits	Benefit No.	PGF Benefit Description	Weight out of 100
Businesses can grow, be innovative and create higher value products, services and business models	1	Enhancing skills (tertiary and secondary education programmes)	Comme
	2	Enhancing Innovation to sustain growth	Comme
Increased economic activity, productivity, and growth	3	Enhancing Digital Employment (in Dunedin)	Comme
	4	Enable Māori Participation in the Economy	Comme
Enhanced perception and attractiveness of Dunedin for digital business	5	Attracting businesses, individuals to Dunedin	Comme
High value, industry driven, sustainable economic growth	6	Digital capability enhanced by partnerships	Comme
Total			100

These criteria and weighting were used to asses each option. The outcome of this assessment is presented in the table below.

*WS = Weighted Score

Benefit No.	Benefit Criteria	Weight out of 100	Status Quo (do nothing)		Option 1: Core Activities		Option 2: Core Activities + Commercial Information	
			Score	WS*	Score	WS*	Score	WS*
1	Developing skills (tertiary and secondary education programmes)	Comme	Com	Comme	Com	Commercia	Com	Commercia
2	Supporting innovation to sustain growth	Comme	Com	Comme	Com	Comme	Com	Commercia
3	Facilitating digital employment (in Dunedin)	Comme	Com	Comme	Com	Co mercia	Com	Co mercia
4	Enabling Māori participation in the economy	Comme	Com	Comme	Com	Comme	Com	Comme
5	Attracting businesses, individuals to Dunedin	Comme	Com	Comme	Com	Commercia	Com	Commercia
6	Digital capability enhanced by partnerships	Comme	Com	Comme	Com	Comme	Com	Commercia
Total			Commercial		Commercia		Commercial	Commercial

At its meeting of 1 February 2019, the Steering Group reviewed and confirmed the outcomes of the benefit scoring exercise.

Option 1: Core Activities

Option 1 ($Commercial Information composed of PGF and DCC funding) delivers on the 2017 Manifesto intent and addresses the core factors identified by stakeholders as essential for growing Dunedin's computer game development industry. Option 1 has a primary focus on video game industry development and growth, allowing some scope for growing serious games and gamification (including Commercial Information) through lifting game development skills and capability, and creating networks.

Option 2: Core Activities + Commercial Informa

Commercial Information

Commercial Information

Commercial Information

- Bring together participants from   Commercial Information

- Put in place the services that support incubation;
- Support the development of investor networks.

The path forward will be further developed with stakeholders. The current ideas on key service developments that CODE would support include:

- Investor education workshops, webinars and community events focused on educating investors and attracting them to Dunedin Commercial Information ;
- Educational workshops, commercialisation boot camps and hackathons for Commercial ; a pre-seed accelerator program for entrepreneurs;
- An ideas incubator that delivers minimal viable products aligned to identified global markets;
- A coordinated Commercial Information

The design of the CODE Commercial Information Innovation Hub will draw upon international knowledge and partners, including:

- Commercial Information

- Commercial Information

- Commercial Information

- Dunedin's existing sister city agreement with Shanghai.

Delivering Option 2 within a funding envelope less than $^{Commercial Information} would compromise CODE's ability to achieve the objectives and benefits identified through the case for investment. This would require a trade-off between the Government's intention regarding gaming for entertainment and opportunities associated with Commercial Information.

These options were validated at the 23 November 2018 workshop. The stakeholders noted that the two options would be subject to an economic analysis before being presented to the CODE Steering Group with a recommendation on the preferred way forward.

Benefits Projection

Benefits will be measured in many ways. While some outcomes can be quantified (skills, job, business creation and scale and diversity) to some extent, the development of the rapidly-evolving video games sector is more complex to measure. The New Zealand Game Developers Association have provided a series of examples which we have used as a basis to measure CODE's success. While the proposed benefits are further expanded in the appendices, over a ten-year period we anticipate that CODE will result in:

- The creation of 30-50 sustainable indie video game studios, each employing on average Commerc people and generating on average $Commercial Informatio revenue per annum;

- The creation of 3-5 large video game studios, each employing on average Comme employees and generating on average $Commercial Inform revenue per annum;

- Approximately 450 graduates with industry relevant qualifications and skills in making video game products from the University of Otago and Otago Polytechnic;

- Access to national, global and industry experts to support the creation of scalable video game studios and research innovation outputs, such as publications;

- Approximately 1,000 people (including school students and those not in education, employment or training, new-comers and career changers) attracted to video game development education pathways and skills opportunities;

- Nearly $Commerc worth of grants to support Dunedin video game (including Commercial Information start-ups and scale up companies in Dunedin.

For each of these outcomes, the CODE governance board will aim to achieve at least 15% participation by Māori over the 10 years.

Summary of Analysis

The following table contrasts the estimated monetary costs and benefits of the two options against the status quo:

	Status Quo	Option 1: Commercial	Option 2: Commercial Information
Appraisal Period	10 Years	10 Years	10 Years
Real Costs ($million)	$ Com	$ Commercial	$ Commercial
Present Costs	$ Com	$ Commer	$ Commercial
Benefits (non-costed) Score	Commerci	Commerci	Commerci

Commercial Information

Risk and Uncertainty

In assessing the two options, the main high-level areas of risk can be summarised as follows:

- Investor: the risk that PGF, DCC and Commercial Info are unable or unwilling to reach satisfactory terms regarding investment in CODE;

- Benefit realisation: the risk that CODE does not achieve anticipated outcomes (business growth, learning, diversity) or benefits in part or in full;

- Financial risk: Lifecycle costs are not managed within the funding allocated;

- Community perception: the community perception of gaming as a legitimate career and business opportunity is not improved, or decreases;

- Leadership and governance: the final form of CODE as an entity is not yet determined. Quality governance and leadership will be essential to the success of CODE.

Sensitivity Analysis

Commercial Information

Commercial Information

Commercial Information

Commercial Information

- Commercial Information
- Commercial Information

Commercial Information

Commercial Information

Commercial Case based on the preferred way forward

Commercial Information

Procurement Strategy

As the accountable body for CODE during the establishment period, the Dunedin City Council (DCC) will procure a range of services to create a fit-for-purpose, operationally-ready entity between   Commercial Information   . This phase will include:

- Establishing a CODE governance structure;

- Engaging resources to lead the establishment period between Commercial Information

- Selecting and employing CODE personnel and the provision of appropriate office space.

The following   Commercial Information   :

- Developing, in partnership with the University of Otago and Otago Polytechnic, a revised curriculum that can deliver skills the computer game development industry needs;

- Supporting, through a mix of third party contracted services and in-house management services, a range of initiatives, contestable funds and targeted grants;

- Delivering, in   Commercial Information   .

The table below sets out a potential commercial allocation of services between CODE (as an entity) partners (e.g. tertiary and industry) and service providers. The potential service allocation will be further developed during the establishment phase.

What gets delivered by CODE	What gets delivered by CODE partners
Annual industry/education curriculum development meeting	Curriculum design and delivery
Communications and branding	Contestable fund to support new pathways
National and international connections - speakers, mentors and investors	Grants to support talent retention
Commercial Information Dunedin competition	Visiting Chair/Future-focused visiting fellows (private/public/Māori enterprise)
Packages to support talent attraction - including local, national, international, Māori, youth and women	Dunedin game technology and scale-up grants
	Commercial Information

Dunedin stakeholders and the NZGDA have emphasised that the barriers to growing the computer game development industry are:

- Attracting early stage investment;

- Attracting investment for expansion;

- Improving the quality and diversity of tertiary level graduates;

- Attracting international projects.

Commercial Information

The University of Otago and Otago Polytechnic are committed to designing and delivering CODE's curriculum and lead innovative research activities. These providers have been involved in the design and development of CODE through the workshops and Steering Group. The physical location of the CODE management team will be considered as part of the establishment phase through a procurement process. Commercial Information

Commercial Information

Organisation/ business	Alignment with CODE objectives	Potential alignment with CODE initiatives	Comment
Commercial Information	• Leadership and networks (global) • Points of difference • Talent • Scale and perception	• Commercial Information	Opportunities for support, Commercial Information
Commercial Information	• Leadership and networks (global) • Points of difference • Talent • Scale and perception	• Commercial Information	Commercial Information

Organisation/ business	Alignment with CODE objectives	Potential alignment with CODE initiatives	Comment
Commercial Information	• Leadership and networks (global) • Points of difference • Talent • Scale and perception	• Commercial Information	Commercial Information
Commercial Information	• Leadership and networks (global) • Points of difference • Talent • Scale and perception	• Commercial Information	Commercial Information
Commercial Information	• Leadership and networks (global) • Points of difference • Talent • Scale and perception	• Commercial Information	Commercial Information
Commercial Information	• Leadership and networks (global) • Points of difference • Talent • Scale and perception	• Commercial Information	Commercial Information

Organisation/ business	Alignment with CODE objectives	Potential alignment with CODE initiatives	Comment
Commercial Information	• Leadership and networks (global) • Talent • Scale and perception	• Commercial Information	Commercial Information
Commercial Information	• Leadership and networks (global) • Talent • Scale and perception	• Commercial Information	Commercial Information

Procurement Timeline – Commercial Information : building the organisation

A Commercial Information is proposed. Assuming investor approval in Commercial Information the establishment period will continue until Commercial Information . The proposed implementation programme is set out in the following table. The most strategic areas are prioritised.

Milestone Activity	Milestone Date	Approving Authority
Business Case/PFG application submitted	Commercial Information	Dunedin City Council
Develop service specifications for CODE project resources	Commercial Information	Dunedin City Council
Agree in principle CODE Governance Body	Commercial Information	Dunedin City Council, following consultation with and endorsement by the CODE Steering Group and Grow Dunedin Partners (GDP)
Business Case/PFG application approval	Commercial Information	Government

Milestone Activity	Milestone Date	Approving Authority
Appoint CODE project resources and CODE Governance Body	Commercial Information	Dunedin City Council
Commission work on CODE brand and website	Commercial Information	Dunedin City Council
PGF Contract documentation	Commercial Information	Dunedin City Council
Confirm Legal structure for CODE	Commercial Information	Dunedin City Council in consultation with GDP
Agree service specifications with University of Otago and Otago Polytechnic on new curriculum	Commercial Information	Dunedin City Council with CODE Governance Body
Confirm CODE office arrangements	Commercial Information	Dunedin City Council
Go live with CODE brand and website	Commercial Information	Dunedin City Council
Develop and issue RFP for procurement of third-party suppliers	Commercial Information	Dunedin City Council
Recruit CODE personnel Commercial Informat	Commercial Information	Dunedin City Council in consultation with CODE Governance Body
Evaluate and shortlist 3rd party RFP respondents, includes clarifications, specification and due diligence	Commercial Information	CODE Governance Body
Completion of preferred partners and contract award process	Commercial Information	Dunedin City Council in consultation with CODE Governance Body

Financial Case

This section sets out the affordability and costs of implementing the preferred option and how it will be funded.

Revenue

The preferred option assumes Government PGF funding of $Commercial Inform and $Commercial In of additional 3rd party revenue. The assumed funding profile for PGF funding is set out in the table below:

#	Description	Payment criteria:	Value	Milestone
1	Initiation payment	On signature of the funding agreement	$Commercial Information	Commercial Information
2	Establishment of CODE legal entity	Completion of the legal entity phase demonstrated by: o Establishment of a legal structure o Appointment of directors o Transfer of responsibility from DCC to legal entity	$Commercial Information	Commercial Information
3	Completion of third-party procurement	Completion of the delivery party network for CODE	$Commercial Information	Commercial Information
4	Commercial Information	Commercial Information	$Commercial Information	Commercial Information
5	Completion of first year of operation	On provision of first annual report and annual plan	$Commercial Information	Commercial Information

Costs

CODE's estimated cost is $Commercial Information over the years Commercial Information . This cost is comprised of $Commercial n in one off establishment and curriculum design costs and $Commercial Information of ongoing operational costs. These estimates are in real dollars.

Cost estimates were developed by the CODE working group in consultation with key stakeholders - Commercial Information workshop further tested and refined the estimates.

One off costs

The estimated one-off operational expenditure is $^{Commercial In} as set out in the following table.

Item	2018/19	2019/2020	2020/21	2021/2022	Total
Curriculum design cost (to develop tertiary education programmes that provide skills needed by industry)	$ Com	$ Commercial Informatio	$ Commercial Informatio	$ Commercial Inform	$ Commercial Informati
CODE establishment costs	$ Commercial Informatio	$ Commercial Informatio	$ Com	$ Com	$ Commercial Informati
Commercial Information	$ Com	$ Commercial Informatio	$ Com	$ Com	$ Commercial Informati
Preferred option: total estimated one-off operational costs	$ Commercial Information	$ Commercial Information	$ Commercial Information	$ Commercial Informa	$ Commercial Information

Ongoing operational costs

The following table provides a breakdown of CODE's proposed annual operating expenditure against each investment objective in a full year of operation (once CODE has been fully established, and assuming it is fully funded).

CODE provides an opportunity to develop an enduring partnership with Ngāi Tahu which will further strengthen the role of Māori in the digital economy. This relationship will be embedded in governance and leadership structures which will be developed during the establishment period. At least ^{Comme}% of operating budgets for initiatives that align the supply of talent to industry needs and lift industry and scale and perception will be ringfenced for Māori. It is expected that the same commitment will be extended to Commercial Information

Investment Objective	Item	Per annum expenditure
Align talent to industry needs	Annual industry/education curriculum development meetings	$ Commercial Inform
	Future-focused national and international fellows (including public/private/Māori enterprise) and mentors	$ Commercial Informati

Investment Objective	Item	Per annum expenditure
	Contestable funding to support new pathways (focused on Māori, women, youth)	$ Commercial Inform
	Incentives to attract talent	$ Commercial Inform
	Incentives to retain talent	$ Commercial Inform
Lift industry scale and perception	Inbound national and international mentors, speakers and investors from a diverse range of backgrounds (including Māori, women, youth)	$ Commercial Inform
	Commercial Information	$ Commercial Inform
	Dunedin Commercial Information	$ Commercial Informati
	CODE Start Fund (including Māori, women, youth)	$ Commercial Inform
	Communications and brand	$ Commercial Inform
Leadership	CODE Governance	$ Commercial Inform
	CODE Personnel – Commercial Informat	$ Commercial Informati
	CODE Personnel – Commercial Informatio	$ Commercial Informati
	Office costs	$ Commercial Inform
Point of difference Commercial Information	Commercial Information	$ Commercial Informati
Preferred Option: per annum operational cost		$ Commercial Information

A summary level phasing of CODE's one-off and ongoing annual operating expenditures is:

$m	Commercial Information										Total
Operating expenditure	Commercial Information										

Based on the stated revenue and cost assumptions, a more detailed phasing of CODE's proposed expenditure is presented in Appendix C.

Management Case

The Management Case presents the high-level plan to ensure successful delivery of CODE's establishment phase and to manage project risks. As it is too early to proceed to market engagement, this case includes only a high-level analysis of the identified procurement approach. As with the Commercial Case, the Management Case is not as detailed as the Strategic or Economic Cases.

Role of Dunedin City Council (DCC)

The DCC will continue to act as the accountable body for CODE during the establishment phase. Subject to project approval by the PFG, the Council will appoint resources funded through costs included in the business case to manage the establishment process. This process will be supported by the DCC project, legal and other resources.

Regular report backs and updates will be provided to the Councils' Economic Development (EDC) Committee and wider Economic Development Strategy. Stakeholders will be engaged through the Grow Dunedin Partnership. Reporting will be based on accepted project management methodology (for example, PRINCE2) and is likely to include:

- Overall project status – timeline, budget, and scope;
- Progress update;
- Cost overview;
- Project look ahead – general two-month view;
- Key project risks – risk, mitigation and status;
- Cost control – against budget.

Regular reporting to PGF

Establishment milestone reports

Subject to agreement with the PGF on the timing and content of reporting, it is proposed that CODE establishment milestone reports be provided to the PGF on as follows:

- Commercial Information
- Commercial Information
- Commercial Information

Each establishment milestone report will include the following information:

- Progress against, and the competition of, establishment activities;
- Breakdown of expenditure funded by the PGF, in whole or in part;
- Revenue and expenditure against budget, actual and forecast;
- Project look ahead – general two-month view;
- Key project risks – risk, mitigation and status.

The DCC will initially be responsible for the milestone reports, but this responsibility will transfer to the CODE governance structure once it is established and operational.

Six Monthly and Annual Reporting

After the 30 June 2020 milestone report, CODE's reporting will evolve to annual (July to June) performance reports. In these reports the CODE governance body will describe and demonstrate how it is ensuring that CODE is being delivered in-line with its strategic intent and how CODE is achieving expected outcomes against its investment objectives.

Establishment Phase

The Commercial Case sets out the high-level timeline for the establishment phase. This includes proposed activity, milestone dates and approving authority.

During the establishment phase options for the legal and governance structure will be assessed and agreed. It is expected that accountabilities, legal and contractual requirements will be transferred to the new structure.

The purpose of the Steering Group to date has been to:

- Provide advice, feedback and guidance which supports the development of a robust PGF application;
- Review and endorse the final draft application in advance of a submission to the PGF.

CODE's present Steering Group has an independent chair (Murray Strong) and comprises:

- Katharina Ruckstuhl, Ngāi Tahu
- Tim Ponting, Director, Renegade PR Ltd
- Ian Taylor, Owner, ARL
- Ryan Baker, Chief Executive, Timely
- Jo Brady, Deputy Chief Executive Otago Polytechnic
- Mike Collins, Executive Director, People, Culture and Technology, SDHB
- Michael Macknight, Co-founder and Director, ADInstruments
- Professor Richard Blaikie, Deputy Vice-Chancellor, University of Otago
- Richard Walley, Policy Director, Science, Innovation and International, MBIE
- John Christie, Director, Enterprise Dunedin

A review of the current Steering Group will be undertaken once the PGF application has been submitted. The review will inform the creation of an establishment board and the terms of reference for any new structure, along with the appetite of current Steering Group members to continue their involvement with CODE.

Commercial *Establishment*
I f   ti

Post the establishment of Option 1: Core Activities, further work will be led by the governance group and Director on the development of the Commercial Information

Stakeholder feedback suggests that the core skills required for gaming for entertainment will also underpin the development of Commercial . Therefore, CODE will adopt a

sequential approach to the development of its initiatives so that the development of [Commercial Inform] will leverage off the initiatives in Option 1: Core Activities.

Commercial Information

Stakeholder engagement and communication

During the establishment phase, the DCC will have a responsibility for planning, overseeing and implementing communications and engagement with key stakeholders.

The current stakeholder engagement plan developed for the CODE business case will be revised and updated at the beginning of CODE's establishment phase. All communication and engagement will be guided by the plan.

As indicated in the Economic and Financial Cases, dedicated resources will be appointed during the establishment phase to develop and implement a range of engagement and communication activities – including branding and website development.

Risks and Benefit Realisation

An initial assessment of the main risks for the establishment and implementation of CODE is included in Appendix D. The risk register will be updated during the establishment phase. Escalation and reporting thresholds for risks will be included in the project's risk register. Risks will be reported and escalated through to the CODE Establishment Steering Group

A Benefits Realisation Plan will be created during the establishment phase. This will include the development of SMART (specific, measurable, achievable, realistic and timebound) key performance measures and targets.

It is anticipated that the CODE governance body will review the Benefits Realisation Plan at least half-yearly. This review is likely to include:

- Performance against year-to-date targets and any variations;
- Proposed mitigations to address any variations;
- Uncertainties, and actual or anticipated project risks;
- Opportunities arising from development and implementation of CODE;
- Ongoing ex-ante and ex-post evaluation of activities.

Next Steps

The CODE Steering Group has endorsed this business case and recommends it to the DCC.

To create a fit-for-purpose, operationally-ready CODE entity by Commercial Information , the CODE Steering Group recommends the following next steps to the DCC:

    i.   Submission of this business case and a funding application to the PGF for CODE in May 2019;

    ii.   Establishing a CODE governance structure by Commercial Information

Further, subject to CODE receiving PGF funding support, as the accountable body the DCC will need to:

- Engage project resources to lead the establishment period between Commercial Informatio ;

- Select and employ CODE personnel and provide them with appropriate office space and operational support.

Appendix A: CODE Investment Logic Map

Enterprise Dunedin

Centre of Digital Excellence
Investing to develop the computer game and digital industry in Dunedin

INVESTMENT LOGIC MAP

PROBLEM	BENEFIT	STRATEGIC RESPONSES	SOLUTIONS
Talent is not aligned to, or sufficient to meet, industry needs	Businesses can grow, be innovative and create higher value products, services and business models	1. Strengthen education provider capability to develop industry talent 2. Make Dunedin a magnet for talent (local, national, international) 3. Grow pathways and networks – industry, education providers, educators, students	1. Define industry's education specifications 2. Invest into teacher and industry professional development 3. Establish a system that supports talent and creates MVPs 4. Design and invest into new education pathways 5. Sponsor/fund talent in, and to, Dunedin 6. Design a leading Dunedin "gaming for good" school
Industry scale, capacity, capability and perception is a constraint on opportunities	Increased economic activity, productivity, and growth in Dunedin	1. Establish incentives that encourage game developers to locate in Dunedin 2. Provide opportunities to experiment, take risks, and innovate 3. Build legitimacy around gaming as an industry	1. Align with game/digital community ecosystem/network 2. Profile Dunedin expertise and attributes 3. Sponsor projects/competitions to create MVPs, attract talent 4. Build our international presence and connections 5. Encourage small studios from international firms to Dunedin 6. Create a hub that connects gaming assets, industry needs and academic research
Absence of leadership and national and international networks is a barrier to growth and opportunities	Enhanced perception and attractiveness of Dunedin for digital business	1. Develop a network of leaders 2. Lead a culture of learning from experimentation and risk taking 3. Inspire and facilitate effective working partnerships	1. Establish CODE governance 2. Appoint CODE leaders/positions 3. Membership of NZGDA 4. Create visiting fellow scheme 5. Develop diversity and inclusive culture 6. Create National test/think tank 7. National and international partners working in/with Dunedin industry and academics
Unlocking opportunities for digital enterprises can create points of difference in Dunedin	High value, industry driven, sustainable economic growth	1. Build Dunedin specialisations, where we can lead globally 2. Foster a convergence of game developers and digital businesses 3. Improve the visibility and connectedness of key players and resources	1. Map resources, projects, opportunities, to support strategic decision making 2. Support opportunities for mutual benefits with Dunedin's key economic projects 3. Develop a communication strategy 4. Encourage game development skills into digital enterprises 5. Create a digital health incubator 6. Invest into world leading capability 7. Attract international partners

Appendix B: Entities Engaged with during the development of the CODE Business Case

Person/Entity	Engagement with CODE		
	Interview	Workshop	Steering Group
Hon David Clarke, MP Dunedin North	√		
Hon Claire Curran, MP Dunedin South	√		
Privacy of natural persons Natural History NZ	√		
Privacy of natural persons Abacus Bio	√		
Privacy of natural persons , Tussock Innovation	√		
Privacy of natural persons , CoDriver	√		
Privacy of natural persons , Datacom	√		
Privacy of natural persons , Happy Moose	√		
Privacy of natural persons , Scott Tech	√		
Privacy of natural persons , Mix Bit	√		
Privacy of natural persons Farra Engineering	√		
Privacy of natural persons , Dunedin Digital Trust	√		
Privacy of natural persons Escea Gas Fireplaces Privacy of natural persons Start Up Dunedin	√		
Privacy of natural persons of Southern Partnership Group	√		
Weta Digital Privacy of natural persons	√		
Graphic Monk Limited Privacy of natu	√		

Person/Entity	Engagement with CODE		
	Interview	Workshop	Steering Group
Computational Media Innovation Centre, CMIC, Privacy of natural persons	√		
Privacy of natural persons of Planning, University of Otago	√		
Privacy of natural persons Igtimi Limited	√		
Privacy of natural persons , Victoria University of Wellington	√		
Privacy of natural persons , Tarn Group	√		
Privacy of natural persons , Kamahi	√		
Privacy of natural persons , Language Perfect	√		
Privacy of natural persons ADInstruments	√		
Privacy of natural persons , ADInstruments	√		√
Privacy of natural persons Timely	√		√
Privacy of natural persons Southern District Health Board	√		√
Privacy of natural Renegade PR Ltd	√	√	√
Privacy of natural persons Otago Polytechnic	√		√
Privacy of natural persons University of Otago	√		√
Privacy of natural persons Runaway Play	√	√	
Privacy of natural persons RocketWerkz	√	√	
Privacy of natural Petridish	√	√	
Privacy of natural persons Entrepreneur	√	√	

Person/Entity	Engagement with CODE		
	Interview	Workshop	Steering Group
Privacy of natural persons Innov8HQ	√	√	
Privacy of natural persons University of Otago	√	√	
Privacy of natural persons , Start Up Dunedin, Privacy of natu	√	√	
Privacy of natural persons Signal ICT Graduate School	√	√	
Privacy of natural persons University of Otago	√	√	
Privacy of natural persons Study Dunedin and Privacy of natural perso Otago Girls High School		√	
Privacy of natural persons Otago Girls High School		√	
Privacy of natural persons MBIE		√	
Privacy of natural persons Luminous Productions		√	
Privacy of natural persons Entrepreneur		√	
Privacy of natural persons Entrepreneur		√	
Privacy of natural persons Entrepreneur		√	
Privacy of natural persons Waitaki District Council		√	
Privacy of natural persons Zino Associates	√		
Privacy of natural persons Abertay University Dundee	√		
Privacy of natural persons University of Dundee	√		

Person/Entity	Engagement with CODE		
	Interview	Workshop	Steering Group
Privacy of natural persons Capital Enterprise Dunedin	√		
Privacy of natural persons Capital Enterprises	√		
Privacy of natural persons City of Edinburgh	√		
Privacy of natural persons City of Edinburgh	√		
Privacy of natural persons Codeclan, Edinburgh	√		
Privacy of natural persons Electronic Arts (EA) Games	√		
Privacy of natural persons Electronic Arts (EA) Games	√		
Privacy of natural persons St Hildas Collegiate	√		
Privacy of natural persons Med-Tech CORE	√		

Appendix C: CODE: Detailed Financial Table: PWF (Core Activities Commercial Information

	Description	Commercial Information											Total
Align Talent	Development Cost (MVP orientated tertiary programmes x3)	$Co	$Commercial Info	$Commercial Info	$Commercial I	$Co	$Co	$Co	$Co	$Co	$Co	$Co	$Commercial Inform
	Visiting Chair	$Co	$Commercial In	$Commercial I	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Informati
	Contestable funding to support new pathways	$Co	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial I	$Commercial Inform
	Packages to support attraction of overseas candidates	$Co	$Commercial In	$Commercial I	$Commercial I	$Commercial I	$Commercial I	$2Commercia	$Commercial In	$Commercial In	$Commercial I	$Commercial I	$Commercial Inform
	Grants to support employment search for partners	$Co	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial I	$Commercial Inform
	Annual industry /education curr culum development meeting	$Co	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Co	$Commercial Inform
Industry Scale	Commercial Information	$Co	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial Info
	Commercial Information	$Co	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial Info
	Commercial Information	$Co	$Commercial In	$Commercial I	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info
	Commercial Information	$Co	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial Info
	Communications and Brand - Profile expertise and attributes	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial Info
Leadership	Establishment Costs	$Commercial Info	$Commercial Info	$Co	$Co	$Co	$Co	$Co	$Co	$Co	$Co	$Co	$Commercial Info
	CODE governance	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial Info
	CoDE Personnel - Commercial Inf	$Commercia	$Commercial In	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Informa
	CoDE Personnel - Commercial Info	$Commercia	$Commercial In	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info

Office Costs	$Commercial I	$Commercial In	$Commercial I	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial In	$Commercial I	$Commercial In	$Commercial Info
Commercial Information	$Co	$Commercial Info	$Co	$Co	$Co	$Co	$Co	$Co	$Co	$Co	$Co	$Commercial Info
Commercial Information	$Co	$Commercial In	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial info	$Commercial Info	$Commercial Info	$Commercial Info	$Commercial Informa
Totals	$Commercial Info	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informa	$Commercial Informatio

Appendix D: Draft Risk Register

Risk No.	Risk Description	Likelihood [almost certain, likely, possible, unlikely rare]	Consequence [minor, moderate, significant, major severe]	Score
Strategic				
1	Funding partners do not support the project	Commercial Inform	Commercial Information	Commercia
2	Project not supported by major delivery partners	Commercial Inform	Commercial Information	Commercia
3	Learning outcomes are not improved	Commercial Inform	Commercial Informat	Commercial Inform
4	Anticipated increase in independent gaming studios not realised	Commercial Inform	Commercial Information	Commercia
5	Community perception is not improved, or decreases	Commercial Inform	Commercial Informati	Commercial Inform
Project				
7	Establishment period takes longer than anticipated	Commercial Inform	Commercial Informati	Commercial Inform
8	Establishment costs are higher than expected	Commercial Inform	Commercial Informati	Commercial Inform
9	Global experts and talent not attracted to CODE	Commercial Inform	Commercial Information	Commercial Inform
Operational				
10	Diversity is not improved or decreases	Commercial Inform	Commercial Informati	Commercial Inform
11	Service demand is higher than expected	Commercial Inform	Commercial Informati	Commercial Inform
12	Staff talent and retention costs are higher than expected	Commercial Inform	Commercial Informati	Commercial Inform
13	Under performance by service delivery partners	Commercial Inform	Commercial Information	Commercial Inform
14	Agreements with service delivery partners do not sufficiently manage risks to CODE objectives	Commercial Inform	Commercial Information	Commercial Inform

Appendix E: Long list of options considered for CODE design

Commercial Information

Commercial Information