Ireland’s Digital Future
Foresight Report on the Digital Content Sector in Ireland

INTERREG IVA REGION
Northern Ireland (excluding greater Belfast), western Scotland and the six Republic of Ireland border counties
© 2015 Honeycomb – Creative Works Partnership comprising Ulster University, Creative Skillset, Dundalk Institute of Technology and University of the West of Scotland.

Report written on behalf of Honeycomb – Creative Works by PMCA Economic Consulting and Ruby Consulting.

All rights reserved
No part of this book may be reproduced or transmitted in any form or by any means, including photocopying and recording, without written permission of the copyright holder, the Honeycomb – Creative Works Partnership. Such written permission must also be obtained before any part of this book is stored in a retrieval system of any nature.
Requests for permission should be directed to: Regional Development Centre, Dundalk Institute of Technology, Dublin Road, Dundalk, Co. Louth, Ireland.

Acknowledgements
PMCA Economic Consulting and Ruby Consulting would like to thank Honeycomb – Creative Works for their help and support in preparing this report. Particular thanks are due to Kevin Fearon, Douglas Nanka-Bruce, Agnieszka Walsh from Honeycomb at Dundalk Institute of Technology; to Irene McCausland from the Regional Development Centre at DkIT; and to Aisling Murtagh and Dr Colm Murphy from Ulster University in respect of providing the Honeycomb survey results of providers in the digital content sector in the six border counties of Ireland, in NI and western Scotland, which has been an important source of information in helping us to understand the current impact the sector has in the region.
We would also like to acknowledge the cooperation of all those with whom we consulted during the study.

Disclaimer
This report is the responsibility of PMCA Economic Consulting (lead contractor). By virtue of preparing the report or otherwise in connection with this study, PMCA Economic Consulting will not assume any responsibility or have any liability to any third party.
The views and opinions expressed in this report do not necessarily reflect those of the European Commission or the Special EU Programmes Body.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>2</td>
</tr>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>5</td>
</tr>
<tr>
<td>GLOSSARY OF TERMS</td>
<td>12</td>
</tr>
<tr>
<td>01 INTRODUCTION</td>
<td>14</td>
</tr>
<tr>
<td>1.1 Purpose of the Report</td>
<td>14</td>
</tr>
<tr>
<td>1.2 About Honeycomb</td>
<td>14</td>
</tr>
<tr>
<td>1.3 Overview of the Study</td>
<td>14</td>
</tr>
<tr>
<td>1.4 Terms of Reference for the Study</td>
<td>15</td>
</tr>
<tr>
<td>1.5 Methodology</td>
<td>16</td>
</tr>
<tr>
<td>1.6 Structure of the Report</td>
<td>18</td>
</tr>
<tr>
<td>02 REVIEW OF CONTEXT AND RESEARCH ON THE DIGITAL CONTENT SECTOR IN IRELAND</td>
<td>19</td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>19</td>
</tr>
<tr>
<td>2.2 Key Policy Context – New Regional and Local Authority Arrangements</td>
<td>20</td>
</tr>
<tr>
<td>2.3 Review of Research Studies on the Digital Content Sector in Ireland</td>
<td>22</td>
</tr>
<tr>
<td>03 ANALYSIS OF THE BASELINE DIGITAL CONTENT SECTOR IN IRELAND AND THE IRISH BORDER COUNTIES</td>
<td>53</td>
</tr>
<tr>
<td>3.1 Introduction</td>
<td>53</td>
</tr>
<tr>
<td>3.2 Employment</td>
<td>53</td>
</tr>
<tr>
<td>3.3 Value Added</td>
<td>72</td>
</tr>
<tr>
<td>3.4 Exports</td>
<td>74</td>
</tr>
<tr>
<td>3.5 Issues and Challenges</td>
<td>80</td>
</tr>
<tr>
<td>3.6 Summary Assessment of the Baseline Digital Content Sector</td>
<td>86</td>
</tr>
<tr>
<td>04 FORESIGHT ANALYSIS OF THE DIGITAL CONTENT SECTOR IN THE IRISH BORDER COUNTIES</td>
<td>91</td>
</tr>
<tr>
<td>4.1 Introduction</td>
<td>91</td>
</tr>
<tr>
<td>4.2 Qualitative Assessment of the Foresight Vision</td>
<td>91</td>
</tr>
<tr>
<td>4.3 Quantitative Assessment of the Sector</td>
<td>115</td>
</tr>
<tr>
<td>05 TOWARDS THE FORESIGHT VISION FOR THE DIGITAL CONTENT SECTOR IN THE BORDER COUNTIES</td>
<td>117</td>
</tr>
<tr>
<td>5.1 Summary of ‘Foresight Vision’ for the Sector in the Border Counties</td>
<td>117</td>
</tr>
<tr>
<td>5.2 Illustration of Proposed Support Framework for Foresight Vision</td>
<td>118</td>
</tr>
<tr>
<td>5.3 Specific Actions towards the Foresight Vision</td>
<td>119</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>120</td>
</tr>
<tr>
<td>ANNEX OF SUPPLEMENTARY INFORMATION</td>
<td>121</td>
</tr>
</tbody>
</table>
Figure 3.2: Illustration of the Share of All Employment Accounted for by the Digital Content Sector in Ireland (2000-2014) 56

Figure 3.3: Total Exports as a Percentage of Total Sales in Irish-Owned Agency-Assisted Enterprises in the Digital Content Sector as a Proportion of Total Exports as a Percentage of Total Sales in All Irish-Owned Agency-Assisted Enterprises in All Sectors in Ireland (2000-2012) 76

Figure 3.4: Total Exports as a Percentage of Total Sales in Foreign-Owned Agency-Assisted Enterprises in the Digital Content Sector as a Proportion of Total Exports as a Percentage of Total Sales in All Foreign-Owned Agency-Assisted Enterprises in All Sectors in Ireland (2000-2012) 77

Figure 3.5: Conceptual Model for Appraising the Digital Content Sector in the Irish Border Counties 87

Figure 3.6: Overall Assessment of the Relative Position of the Digital Content Sector in the Irish Border Counties Compared with Ireland as a Whole and Challenges/Opportunities for the Future 90

Figure 4.1: Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Television, Film and Broadcasting 101

Figure 4.2: Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Games 105

Figure 4.3: Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Animation 107

Figure 4.4: Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Online Content 111

Figure 4.5: Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Music Technology 114

Figure 5.1: Illustration of the Architecture Enabling the Foresight Vision for the Digital Content Sector in the Irish Border Counties 118

Box 2.1: EU REDICT Project on ICT/New Media Clusters (2008-2009) 26

Box 2.2: Summary of the National Broadband Plan (NBP) 49

Box 2.3: European Creative Industries Alliance Action Plan (2014) 50

Box 2.4: European Creative Industries Alliance Action Plan (2014) – Sligo Identified for Good Practice in Creative Industry Support 51

Table A1: Employment Change in the Digital Content Sector in Ireland (2000-2014) – Absolute Numbers and Percentage Shares of all Employment in Ireland 126

Table A2: Total Exports as a Proportion of Total Sales among Agency-Assisted Irish-Owned and Foreign-Owned Enterprises in the Digital Content Sector and All Sectors in Ireland (2000-2012) 127

Table A3: Composition of the Digital Content Sector in the Honeycomb Region by Turnover – NI and Scotland 128

Figure A1: Map of Honeycomb Region 121

Figure A2: Categories of Sectors making up Enterprise Policy in Ireland - Digital Content Pervades the Categories 122

Figure A3: Map of the Proposed New Regional Assembly Areas and Existing Regional Areas – Top Panel Proposed and Existing Regional Assemblies; Bottom Panel Existing Regional Authorities 123

Figure A4: Map of the Existing Regional Assembly Authority Areas – Louth will be in the New Eastern-Midland Region but will also continue its links with the Border Region 124

Figure A5: Map of Sectoral Clusters in Ireland (2008) 125
Executive Summary

PURPOSE OF THE REPORT AND OVERVIEW

This report has been prepared by PMCA Economic Consulting, in association with Ruby Consulting, for the Regional Development Centre at Dundalk Institute of Technology. It provides an independent foresight report on the digital content sector in Ireland for the Honeycomb Project.

The objectives of the assignment have been: (1) to study and analyse the current or ‘baseline’ situation in respect of the digital content sector in Ireland and in the six border counties of Cavan, Donegal, Leitrim, Louth, Monaghan and Sligo, comparing and contrasting the structure and performance of the sector in the two geographical areas; and (2) to set out a foresight analysis or ‘vision’ for the digital content sector by the end of the decade.

For the purposes of the study, the digital content sector is defined to include the following subsectors (in no particular order of importance): (1) film and broadcast, (2) animation, (3) games development, (4) music technology and (5) interactive media (online interactive content).

Some of these subsectors will be familiar or self-explanatory, where, for example, the reader will be aware of animation straddling television and broadcasting as well as games. Online content includes online media (e.g. ‘apps’ having a practical, everyday usage), while music technology includes the production, recording and publishing of music and related services, sound engineering and internet streaming. Cross-fertilisation is inherent in the digital content sector – for example, audio effects for games and animated productions as well as those previously referred to.

In fulfilling the terms of reference of the study, we have employed a combination of quantitative analysis of relevant data sources and qualitative analysis based on engagement with over twenty-five stakeholders and thought-leaders in the sector, within the border counties as well as nationally and internationally.

In order to ensure an informed and insightful foresight vision for the sector, due care and attention has been paid to the baseline situation, where we have considered a substantial amount of existing information, including the 2014 Honeycomb survey of providers in the digital content sector in the Irish border counties and in the two other parts of the EU INTERREG IV-funded Honeycomb Region, namely Northern Ireland (excluding Greater Belfast) and the western seaboard of Scotland.

As well as presenting a reasoned foresight analysis of where we consider the sector can get to in the border counties by the end of the decade, we have also provided a framework that we believe will assist the sector to reach its potential by this time – with the proposal that DkIT would play a coordinating role in gathering and disseminating information about the sector, the ultimate objective being to support the growth of enterprises and jobs in the sector across the Irish border counties.

An advantage of the approach proposed at the end of the report is that it would build on the economic development machinery currently being implemented across the Irish border counties and the goal of DkIT, as coordinator, would be ensure the promotion of the sector as part of the process underway.

Irish local authorities and local enterprise offices (LEOs), in conjunction with the State enterprise...
agencies, namely Enterprise Ireland and the IDA, are today seeking to develop a variety of economic activities in the border counties. The digital content sector has been identified as an important sector in its own right and owing to the fact that it pervades all other economic sectors. In order to support the sector coherently, local authorities and LEOs need to understand how it works and be cognisant of its opportunities and challenges, so that they can plan accordingly.

Under the national public sector reform process – in the form of Putting People First (2012), the Local Government Reform Act of 2014 and the local economic and community plan (LECP) process currently in train – there is now an opportunity for DkIT and the other Institutes of Technologies in the Irish border counties, namely Letterkenny Institute of Technology (LyIT) and Institute of Technology Sligo (Sligo IT), to plug into the policy process to support the local and regional development of the digital content sector across the Irish border counties.

The proposed approach advanced at the end of the main body of this report, and summarised below, seeks a means for DkIT, in partnership with LyIT and Sligo IT, to meaningfully plug into the reformed economic development process underway.

The goals of the process are to contribute towards building skills, networks, market broadening and innovation in the digital content sector in the Irish border counties, thereby facilitating the development of sustainable clusters in the region. The foresight vision includes increasing the share of all employment in the Irish border counties attributed to the digital content sector, where presently the share (estimated at approximately 0.5%) is appreciably lower than that for the country as a whole (estimated as lying between 0.7% and 3.4% depending on narrow and broad delineations of the sector, with the ‘true’ but unobserved figure estimated at about 1.2%).

In the final analysis, the vision set out in this report envisages a less fragmented and more coherent, and competitive, digital content sector in the Irish border counties, with greater employment impact.
The details of the extensive quantitative data analysis of the baseline situation pertaining to the digital content sector are presented in Section 3 of the main body of the report and include the following salient findings.

- Countrywide, employment in the digital content sector – whether the sector is broadly or narrowly defined – has grown more rapidly compared with total employment in the State and the digital content sector experienced jobs growth even during the crisis years (2007-2012) when overall employment trended downwards significantly.

- These facts chime with the learning gained from our stakeholder consultations, namely that digital content activities have been, and are, growing rapidly in Ireland.

- According to further data analysis, the digital content sector accounts for between 0.7% and 3.4% of all employment nationally, and gross value added or GVA in the sector is greater compared with other parts of the economy (by over 10% when set against other services sectors and this is true of the BMW Region as well as elsewhere in the country).

- Mindful of the distinction drawn between the broad and narrow delineations of the digital content sector, it is estimated (perhaps conservatively) that the sector accounts for about 22,000 jobs in the country, or in the region of 1.2% of all employment nationally (within the range of 0.7% and 3.4% for the narrow and broad definitions respectively).

- Compared with the situation countrywide in Ireland, the penetration of the digital content sector in the six border counties is low. This is illustrated by the estimate that approximately 0.5% of all employment in the border counties is accounted for by the sector, which is lower than the aforementioned range of 0.7-3.4% for the State as a whole or the ‘point’ estimate referred to of c. 1.2% (the upper limit of 3.4% employment density for the digital content sector countrywide is in line with a recent estimate by the OECD (2014), which reports that “information industries” accounted for about 3.8% of all employment in the OECD, which includes Ireland, in 2012, and, as found here, these industries were significantly more productive compared with other sectors of the economy).

- How does the estimated 0.5% employment density in the Irish border counties compare with the other two parts of the Honeycomb Region? On the basis of estimates of employment for digital content sector activities provided to us through the Honeycomb partners, it appears that the corresponding proportion in NI (excluding Greater Belfast) is about half that in the Irish border counties (c. 0.2%) and double the Irish border counties’ proportion in the Scottish part of the Honeycomb Region (c. 1%). This suggests that the share of all employment attributed to the digital content sector is highest in the Scottish part of the eligible area, followed by the Irish border counties and then the NI part of the Honeycomb Region, remembering that the latter area does not include Greater Belfast.

- When we break the digital content sector in Ireland down into its foreign direct investment (FDI) and indigenous parts, an interesting pattern is revealed. As may be expected, foreign-owned firms tend to be larger than their Irish-owned counterparts and they operate in different segments within the digital content sector: for example, within the games industry, on which
there have been more studies, FDI firms tend to focus on international servicing activities (including customer support), while Irish-owned firms concentrate on core activities, such as game development and adapting games for different markets (localisation). The focus of the FDI firms within the sector is reflective of the tendencies of FDI services firms more generally in Ireland, where the country has carved out niche advantages in international services (rather than in core activities, which tend to be carried out in the home countries of the multinationals, notably in parts of the US such as Silicon Valley).

• Whether the apparent dichotomy between the activities of the FDI firms and the indigenous firms will open up opportunities for linkages for Irish businesses in the coming years remains to be seen but certainly growing both the FDI and the Irish-owned enterprise bases in the digital content sector should be a key part of action planning countrywide and in the border counties in the period ahead (this is the case with the Action Plan for Jobs 2015, for example).

• It is undoubtedly the case that Dublin is the central location for digital content activities in Ireland and this will remain so in the foreseeable future. The success of Dublin reflects the general requirement of an “eco-system” to support the growth of the digital content sector in larger urban centres, which tend to be more attractive to talented workers, more conducive to networking and collaboration, and which also benefit from a large and diverse network of third-level institutions. In short, sustainable clusters are more likely to take root in such locations.

Looking more specifically at the digital content sector within the Irish border counties, the following patterns emerge from our quantitative data analysis.

Business organisation;
Especially fragmented sector compared with the other parts of the Honeycomb Region, taking the form of
• Comparably high proportion of freelancers and low proportion of limited companies
• Relatively low direct employment and low turnover

• High reliance on government support to grow (mainly loans, but also mentoring and marketing) (apparent culture of “grant-searching”, which was highlighted by some of those with whom we consulted)

Technology;
Predominantly low technical/capital requirements accompanying the fragmented nature and small scale of operators active in the sector, which is both a positive and a negative
• A positive because it implies low barriers to entry to the sector
• A negative because there are clearly identifiable scaling and efficiency issues due to skills gaps (which are both general and sector-specific as identified in the Honeycomb survey of digital content providers conducted in 2014)

Market need;
• Heavy reliance on the local/domestic market, which is also a feature of the other parts of the Honeycomb Region and
• Low incidence of exporting and there is the challenge of innovating to meet customer/market needs, which also tends to be observed in the other parts of the project area too.
The chart below schematically summarises the digital content sector in the border counties compared with that in Ireland as a whole and highlights the challenges or opportunities for the future development of the sector in the border counties on the right hand side.

**FORESIGHT VISION FOR THE DIGITAL CONTENT SECTOR IN THE BORDER COUNTIES**

It is universally agreed with those with whom we engaged during the study that the digital content sector will continue to grow (more than average in employment terms) between now and the end of the decade, although we would qualify this by urging caution in respect of publishing, where it is envisaged that the number of jobs will decline (and we are already witnessing this trend currently). Nationally, the games and online content subsectors are likely to grow most rapidly, with a possible average annual employment growth of 5% between now and the end of the decade.

In this context, it would be sensible to plan for a more connected, dynamic and sustainable digital content sector in the Irish border counties, with up to 1,000 people at work full-time in the sector by the end of the decade or a sectoral share of all employment in the region of 1%, bringing it more into line with that in the country as a whole currently, but accepting the prospect that the proportion of people working in the sector is likely to continue to be lower than in the State owing to the influence of Dublin and the other main urban areas of the country, where the prospects for growth of digital content activities are expected to be greatest.

To enable this vision, the border counties can learn from the experience and success of Dublin and there is now a unique opportunity to implant the lessons from the capital to the border counties, albeit on a smaller scale in terms of employment and given the fact that we are dealing with a larger geographical area with variable population density and the challenges these present in regard to infrastructure etc. (where broadband availability continues to be a major challenge).

Nevertheless, to facilitate the achievement of the foresight vision in practice, DkIT and its sister institutes (LyIT and Sligo IT), local authorities and the business support community, including the LEOs, Enterprise Ireland and the IDA, need to adopt a coordinated approach to ensuring a regional eco-system in support of the sector, just as there is a well-established and expanding eco-system in the capital.
The cost of ensuring the envisaged eco-system in the border counties are expected to be low because the local authorities and business support agencies are already working on enhancing economic development in the region at this time, through their respective economic development plans under the new local authority arrangements, which are requiring local authorities to play a more proactive role than hitherto in facilitating local economic and employment development.

In this context, we foresee the development of a ‘regional eco-system’ of infrastructure and other supports to aid the development of the digital content sector in the border counties. The hubs for this eco-system would be Dundalk, Letterkenny and Sligo, which are currently the NSS Gateways in the region and, more importantly perhaps for the growth of the digital content sector, these urban centres have emerging clusters in the sector along with well-established and growing higher education and specialist research capabilities. These hubs are also seeking to connect with their cross-border counterparts, and one may envisage a system of three principal cross-border hubs in the form of Letterkenny-Derry/Londonderry, Dundalk-Newry and Sligo-Enniskillen-Omagh.

In each of the six border counties of Ireland, the foresight vision includes county-level or local eco-systems in which the existing enterprise centres and incubation units would be connected to support digital content and other economic activities through attractive workspaces, high-speed broadband and networks of mentors. These county-level networks would be supported through their respective local authorities and LEOs, via the implementation of the statutory 6-year LECPs. Fortuitously for the development of the digital content sector in the Irish border counties, the planning and/or policy architecture for these local/county support networks is already underway or in train.

The regional network or eco-system sitting above the county networks would then aim to provide further, complementary supports to entrepreneurs and businesses in the local eco-systems, such as training, skills development and networking designed to facilitate broadening market access, exporting and innovation.

The whole idea of the foresight vision is that there would be a regional dimension to the innovation eco-system supporting those at local level within the counties in the border region.

The drivers of the eco-system at local level within each of the counties would be the local authorities and LEOs, who would act to ensure high-speed broadband, workspaces, mentoring and information regarding funding and other supports.

The hubs at regional level would be driven by the Institutes of Technology at Dundalk, Sligo and Letterkenny, and would facilitate training and professional development, further networking and innovation, as well as ensuring that their graduates provide a quality workforce for employers.

DkIT would have an overall coordinating role in the process, through maintaining and disseminating intelligence on the sector within the border region through surveys and other relevant data, events coordination and helping to identify and coordinate EU funding opportunities for enterprises.
The chart above suggests how the regional hubs and DkIT as regional coordinator would integrate into the LECP and new regional assembly process currently underway.

The particular roles that DkIT would fulfil include the following:

• Acting as an intelligence centre for the further development of the digital content sector in the Irish border counties;
• Providing research information in support of the sector to bridge any information gaps at county or regional level, thereby helping with funding and growth (addressing information gaps is key to support economic development and jobs);
• Compiling and disseminating information on skills availability within the region to support the entry and development of digital content sector activities, including FDI;
• Putting together information on “reference sellers” to help demonstrate the region’s capacity to accommodate successful digital content sector activities;
• Working with the other IoTs and cross-border HEIs in helping to coordinate training provision to businesses in the digital content sector in the region;
• Coordinating road-shows and networking events (e.g. meet-the-buyer shows, conferences etc.) to support scaling, market strengthening and innovation; and
• In regard to the latter, DkIT should continue to build links between providers in the Irish border counties part of the Honeycomb Region and those in the NI and Scottish parts of the Honeycomb Region (even after the EU-funded Honeycomb programme concludes at the end of June 2015).
## Glossary of Terms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSEI</td>
<td>Annual Business Survey of Economic Impact.</td>
</tr>
<tr>
<td>AF</td>
<td>Audiovisual Federation (part of IBEC, see below).</td>
</tr>
<tr>
<td>ASI</td>
<td>Annual Services Inquiry.</td>
</tr>
<tr>
<td>BAI</td>
<td>Broadcasting Authority of Ireland.</td>
</tr>
<tr>
<td>BCC</td>
<td>Broadcasting Complaints Commission (BCC).</td>
</tr>
<tr>
<td>BCI</td>
<td>Broadcasting Commission of Ireland (BCI).</td>
</tr>
<tr>
<td>BEPS</td>
<td>Base Erosion of Profit Sharing.</td>
</tr>
<tr>
<td>BMW Region</td>
<td>Border Midland and Western Region (EU NUTS II region of Ireland).</td>
</tr>
<tr>
<td>CAGR</td>
<td>Compound annual growth rate.</td>
</tr>
<tr>
<td>CDT</td>
<td>Cluster Development Team.</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing professional development.</td>
</tr>
<tr>
<td>CRO</td>
<td>Credit Review Office.</td>
</tr>
<tr>
<td>CSO</td>
<td>Central Statistics Office.</td>
</tr>
<tr>
<td>DCENR</td>
<td>Department of Communications, Energy and Natural Resources.</td>
</tr>
<tr>
<td>DCU</td>
<td>Dublin City University.</td>
</tr>
<tr>
<td>DECLG</td>
<td>Department of Environment, Community and Local Government.</td>
</tr>
<tr>
<td>DES</td>
<td>Department of Education and Skills.</td>
</tr>
<tr>
<td>DETE</td>
<td>Department of Enterprise, Trade and Employment (currently the Department of Jobs, Enterprise and Innovation, DJEI).</td>
</tr>
<tr>
<td>DIT</td>
<td>Dublin Institute of Technology.</td>
</tr>
<tr>
<td>DJEI</td>
<td>Department of Jobs, Enterprise and Innovation.</td>
</tr>
<tr>
<td>DkIT</td>
<td>Dundalk Institute of Technology.</td>
</tr>
<tr>
<td>D-STEM</td>
<td>Design added to science, technology, engineering and mathematics.</td>
</tr>
<tr>
<td>E&amp;M</td>
<td>Entertainment and media.</td>
</tr>
<tr>
<td>ECBN</td>
<td>European Creative Business Network.</td>
</tr>
<tr>
<td>ECIA</td>
<td>European Creative Industries Alliance.</td>
</tr>
<tr>
<td>EI</td>
<td>Enterprise Ireland.</td>
</tr>
<tr>
<td>EMEA</td>
<td>Europe, Middle East and Africa.</td>
</tr>
<tr>
<td>EU</td>
<td>European Union.</td>
</tr>
<tr>
<td>FCA</td>
<td>Financial Conduct Authority (UK).</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign direct investment.</td>
</tr>
<tr>
<td>FTE</td>
<td>Full-time equivalent.</td>
</tr>
<tr>
<td>GDA</td>
<td>Greater Dublin Area.</td>
</tr>
<tr>
<td>GVA</td>
<td>Gross value added.</td>
</tr>
<tr>
<td>HEA</td>
<td>Higher Education Authority.</td>
</tr>
<tr>
<td>HEI</td>
<td>Higher education institution.</td>
</tr>
<tr>
<td>HHI</td>
<td>Herfindahl-Hirschman Index of concentration.</td>
</tr>
<tr>
<td>Honeycomb Partnership</td>
<td>Collaboration between Dundalk Institute of Technology (DkIT), Ulster University (UU) and Creative Skillset.</td>
</tr>
<tr>
<td><strong>Honeycomb Region</strong></td>
<td>The INTERREG IVA region covered by Honeycomb, comprising the six border counties of Ireland (Cavan, Donegal, Leitrim, Louth, Monaghan and Sligo), Northern Ireland (excluding the local authority areas making up Belfast) and western Scotland.</td>
</tr>
<tr>
<td><strong>HPSU</strong></td>
<td>High Potential start-Up (Enterprise Ireland).</td>
</tr>
<tr>
<td><strong>IBEC</strong></td>
<td>Irish Business and Employers Confederation.</td>
</tr>
<tr>
<td><strong>ICT</strong></td>
<td>Information and communications technology.</td>
</tr>
<tr>
<td><strong>IDA Ireland</strong></td>
<td>Industrial Development Authority Ireland.</td>
</tr>
<tr>
<td><strong>IFB</strong></td>
<td>Irish Film Board.</td>
</tr>
<tr>
<td><strong>IoT</strong></td>
<td>Institute of Technology.</td>
</tr>
<tr>
<td><strong>IP</strong></td>
<td>Intellectual property.</td>
</tr>
<tr>
<td><strong>IT</strong></td>
<td>Information technology.</td>
</tr>
<tr>
<td><strong>ITS</strong></td>
<td>Institute of Technology Sligo.</td>
</tr>
<tr>
<td><strong>Km</strong></td>
<td>Kilometre.</td>
</tr>
<tr>
<td><strong>KPI</strong></td>
<td>Key performance indicator.</td>
</tr>
<tr>
<td><strong>LECP</strong></td>
<td>Local Economic and Community Plan.</td>
</tr>
<tr>
<td><strong>LEO</strong></td>
<td>Local Enterprise Office.</td>
</tr>
<tr>
<td><strong>LyIT</strong></td>
<td>Letterkenny Institute of Technology.</td>
</tr>
<tr>
<td><strong>NBP</strong></td>
<td>National Broadband Plan.</td>
</tr>
<tr>
<td><strong>NCAD</strong></td>
<td>National College of Art and Design.</td>
</tr>
<tr>
<td><strong>NGN</strong></td>
<td>Next generation networks.</td>
</tr>
<tr>
<td><strong>NI</strong></td>
<td>Northern Ireland.</td>
</tr>
<tr>
<td><strong>NIRSA</strong></td>
<td>National Institute for Regional and Spatial Analysis.</td>
</tr>
<tr>
<td><strong>NISRA</strong></td>
<td>Northern Ireland Statistics Research Agency.</td>
</tr>
<tr>
<td><strong>NSS</strong></td>
<td>National Spatial Strategy (2002-2020)</td>
</tr>
<tr>
<td><strong>NUIM</strong></td>
<td>National University of Ireland Maynooth.</td>
</tr>
<tr>
<td><strong>OECD</strong></td>
<td>Organisation for Economic Co-operation and Development.</td>
</tr>
<tr>
<td><strong>ONS</strong></td>
<td>Office for National Statistics.</td>
</tr>
<tr>
<td><strong>PISA</strong></td>
<td>Programme for International Student Assessment.</td>
</tr>
<tr>
<td><strong>PLCs</strong></td>
<td>Post Leaving Certificate (PLC) courses.</td>
</tr>
<tr>
<td><strong>PMCA</strong></td>
<td>PMCA Economic Consulting.</td>
</tr>
</tbody>
</table>

| **Putting People First** | Putting People First – Action Plan for Effective Local Government (October 2012). |
| **PwC** | PricewaterhouseCoopers. |
| **QNHS** | Quarterly National Household Survey. |
| **RD&I** | Research, development and innovation. |
| **RDC** | Regional Development Centre, Dundalk Institute of Technology (DkIT). |
| **RTÉ** | Raidió Teilifís Éireann. |
| **Ruby** | Ruby Consulting. |
| **SaaS** | Software as a service (related to cloud computing). |
| **SARP** | Special Assignment Relief Program. |
| **SCBI** | Strategic Banking Corporation of Ireland. |
| **SFI** | Science Foundation Ireland. |
| **Sligo IT** | Sligo Institute of Technology. |
| **SME** | Small and medium enterprise. |
| **STEAM** | Art added to STEM (i.e. science, technology, engineering, art and mathematics. |
| **STEM** | Science, technology, engineering and mathematics. |
| **Supra** | Latin citation term referring to ‘above’. |
| **TG4** | Teilifís na Gaeilge. |
| **UNESCO** | United Nations Educational, Scientific and Cultural Organization. |
| **UU** | Ulster University. |
| **UWS** | University of the West of Scotland. |
| **VAT** | Value added tax. |
| **VC** | Venture capital. |
| **WDC** | Western Development Commission. |
Introduction

1.1 PURPOSE OF THE REPORT

This report is prepared by PMCA Economic Consulting (henceforth PMCA), in association with Ruby Consulting (Ruby), for the Regional Development Centre (RDC) at Dundalk Institute of Technology (DkIT).

It provides an independent foresight report on the digital content sector in Ireland for the European Union (EU) INTERREG IVA funded Honeycomb – Creative Works (Honeycomb) programme.

1.2 ABOUT HONEYCOMB

The cross-border Honeycomb project brings together DkIT, Ulster University (UU), the University of the West of Scotland (UWS) and Creative Skillset – together known as the Honeycomb Partnership. It is supported by the Nerve Centre at Derry/Londonderry and Letterkenny Institute of Technology (LyIT).

Honeycomb aims to build new skills, knowledge and clusters through facilitating linkages between personnel and businesses active in the digital content sector in the Honeycomb Region, which is made up of the cross-border area including (1) the six border counties of Ireland (namely Cavan, Donegal, Leitrim, Louth, Monaghan and Sligo), (2) Northern Ireland (namely the local government districts except for Greater Belfast) and (3) the western seaboard of Scotland.¹

The tripartite Honeycomb initiative seeks to provide access to an innovative programme with the goal of building new skills and knowledge, and sparking new connections and business opportunities, among providers in the digital content sector within and between the three parts of the Honeycomb Region. Fundamentally, the building blocks of Honeycomb’s approach to supporting the development of the digital content sector in the Honeycomb Region are research and intelligence gathering, facilitating networking among practitioners in the sector, skills development and access to project finance.

The overall goals of Honeycomb are to enhance the competitiveness of the digital content sector in the Honeycomb Region through the promotion of collaboration and clustering, and thereby to ensure the sustainability of the sector in the coming years.

1.3 OVERVIEW OF THE STUDY

This study relates specifically to the provision of a foresight report for the digital content sector in the Irish part of the Honeycomb Region (by the end of this decade). While the immediate area of concern is the six Irish border ¹ We will refer to the Republic of Ireland as ‘Ireland’ and Northern Ireland as ‘NI’ henceforth. The Scottish part of the Honeycomb Region includes the local areas of Lochaber, Skye and Lochalsh, Arran and Cumbrae, Argyll and Bute, Dumfries and Galloway, East Ayrshire, North Ayrshire mainland and South Ayrshire. A map illustrating the Honeycomb Region is presented in Figure A1 (Annex of Supplementary Information).
counties of Donegal, Sligo, Leitrim, Cavan, Monaghan and Louth, our work has also had regard to the sector in the rest of Ireland and reference is made to new primary research evidence from an independent survey of digital content providers in the Honeycomb Region conducted as part of Honeycomb’s intelligence gathering activities in early 2014.

Our review of this important new piece of information, together with our analysis of a variety of official data sources relating to the sector in Ireland, have enabled the consultancy team to construct an empirically-based baseline picture of the sector in the immediate area of interest, in Ireland and in the Honeycomb Region.

Building a solid base for the foresight study in the form of a detailed analysis of the baseline situation is important because little is known about the nature and scale of the digital content sector and its contribution to overall employment in the Irish border counties, and how this compares with the corresponding situation in Ireland as a whole, where there is greater knowledge through existing research (although there remains, in our view, an information deficit in regard to the country as a whole as well).

Furthermore, it would be misleading and dangerous to carry out a study like this with the so-called ‘blank-piece-of-paper’ approach, without due consideration of the relevant facts regarding the current situation: it is generally not possible to make informed predictions about, and/or suggest constructive proposals for the development of, any sector without first having a meaningful understanding of the baseline situation.

In the process, we have buttressed our quantitative analysis of the facts with accompanying qualitative evidence, in the form of interviews with over 25 stakeholders and ‘thought-leaders’ within and outside of Ireland. This part of the work has been important in further informing the baseline and in gaining insights into the future direction of the sector by the end of the decade.

1.4 TERMS OF REFERENCE FOR THE STUDY

1.4.1 SECTORAL AND GEOGRAPHICAL COVERAGE

The digital content sector is defined in this study as covering small and medium enterprises (SMEs) and freelancers working in the subsectors of (1) film and broadcast, (2) animation, (3) games development, (4) music technology and (5) interactive media (online interactive content).

The geographical delineation is Ireland, focusing on the aforementioned six border counties and comparing the position in respect of the subsectors (1)-(5) with the country as a whole.

1.4.2 OVERALL OBJECTIVE AND KEY REQUIREMENTS

The overall objective of the foresight report has been to inform the development of strategies and solutions to address the future needs of the digital content sector in Ireland and specifically the Irish part of the Honeycomb Region (namely the six border counties). The report has had the following requirements:

- To identify future drivers of change within Ireland’s digital content sector and to identify the associated skills implications;
- To identify future specific needs and changes that may occur (including skills – either cross-sectoral or specific to the aforementioned subsectors) due to political, socio-economic and technological developments, inter alia;
• To explore the likely impact of these trends on businesses and to identify what actions need to be taken currently in order to meet demand for these specific needs in the future;
• To analyse, compare and contrast the recent, current and future situations in the aforementioned subsectors within the six border counties of Ireland (Cavan, Donegal, Leitrim, Louth, Monaghan and Cavan) with that of the rest of Ireland.

The report was required to make use of both quantitative and qualitative resources to understand and provide insights into the potential future outcomes for digital content in Ireland; to consider the key drivers of change and impacts; together with an assessment of the current and future size of the sector to include as a minimum – employment, freelancers, gross value added (GVA) and regional breakdowns.

The report was required to cover the period from 2012 to 2019 (i.e. recent, current and future periods) (we do not consider that a precise end-date is important in a study like this one but rather the key thing is to come up with an informed foresight vision of the sector by the end of the decade).

1.5 METHODOLOGY

A high-level summary of our methodological approach to the study is illustrated in Figure 1.1 overleaf. The methodology entailed a combination of research review, data analysis and stakeholder consultations. The research review and data analysis were carried out during Phase 1, which culminated with an initial framing of the baseline situation of the sector in the six border counties, in comparison with that in the rest of the country. A large amount of previous studies were reviewed and a substantial body of quantitative data from different sources – including the Central Statistics Office (CSO) and Forfás (now subsumed within the Department of Jobs, Enterprise and Innovation, DJEI) – were assembled and analysed during Phase 1.

In Phase 2, we consulted with stakeholders – practitioners operating within the sector, thought-leaders and business support groups and agencies – to refine and sharpen the baseline and to come to an informed view of what can be achieved in the sector by the end of the decade. In the end, we engaged with over 25 people and organisations in the consultative part of the work programme.²

² In conveying the results of our consultations, we are mindful of the agreement with those spoken to and with DkIT/Honeycomb that nothing would be attributed to any individual and/or organisation engaged with. Some of the consultees asked us not to take any notes or records – to enable a more candid conversation.
FIGURE 1.1
High-Level Illustration of the Methodological Approach to the Study

Phase 1
Project Initiation, Research Review, Data Assembly and Initial Estimation of the ‘Baseline’
- Project Inception Meeting
- Review of Research on the Digital Content Sector and Subsectors
- Data/Information Assembly on the Sector and Subsectors
- Initial Estimation of the Structure and Performance of the Sector by Employment, Projects (Number and Value), IP, Exports etc. (Nationally and in the Border Counties)
- Assessment of Sectoral Supports - Funding, Financing (Traditional and Non-Traditional), Training, Networking and Clustering Events etc. (Nationally and in the Irish Border Counties)
- Identification and Framing of the Sectoral Baseline Position
- Progress Meeting with DkIT

Phase 2
Stakeholder Consultations and ‘Vision’ Analysis
- Stakeholder Consultations - to Sharpen and Refine the Phase 1 Baseline and Further Inform the Analysis of the Vision
- Completion of the Baseline
- Framing of the Vision for the Sector - Scenarios
- Estimation of the Economic Impacts of the Vision Scenarios - Employment, Exchequer Contribution, Value Added, Income etc.
- Progress Meeting with DkIT

Phase 3
Reporting
- Draft Foresight Report
- Incorporation of Feedback on the Draft Report
- Final Report
- Report Launch

Source: PMCA Economic/Ruby Consulting.
During the process, we maintained contact with DkIT and our work also benefitted from liaison with its project partners in NI and Scotland (this was kindly facilitated by Ulster University and related in particular to the Honeycomb survey results of 2014, which are an important source of new information on the digital content sector in the border counties).

1.6 STRUCTURE OF THE REPORT

The rest of the report is structured as follows:

- Section 2 reviews relevant research in the form of previous studies on the digital content sector in Ireland, which almost exclusively pertain to the country as a whole (apart from the 2014 Honeycomb survey, we are unaware of any other detailed studies dedicated to the sector in the border counties, although at the same time we do know that current economic development plans in the counties concerned duly recognise the importance and potential of the sector, as part of the wider arts/creative sector);
- Section 3 then provides the baseline analysis of the sector; before
- The foresight vision for the sector is given in Section 4 and the broad action plan is proposed in Section 5.
2.1 INTRODUCTION

A number of studies on the digital content sector or subsectors therein in Ireland have been carried out down the years, reflecting the importance and/or potential of the sector. Ireland is not alone in this regard and most, if not all, advanced economies have been, and continue to be, alert to the opportunities associated with the sector, given the pervasive influence of the internet, mobile communications technology and the social media phenomenon in our everyday lives.\(^3\)

On reviewing the various studies, which are considered in more detail in this section of the report, one is struck by the pace of change in the digital content sector and the fact that the sector has developed in different ways to those envisaged in earlier studies – reflecting the inherent uncertainty associated with the sector. It is also apparent from the studies that there is generally a paucity of quantitative data specifically relating to the sector, which means that there are few in the way of accurate estimates of the size of the sector in Ireland, in terms of, for example, the number of enterprises and the level of employment. The Honeycomb survey of digital content providers in the Honeycomb Region, which was completed in 2014, offers new primary research data on the state of the sector in the Irish border counties, and is also considered in this section but a more detailed examination of that evidence is deferred until our baseline analysis in Section 3.

The Honeycomb survey results of 2014 suggest that the digital content sector in the border counties is highly fragmented, even in comparison with the NI and Scottish parts of the Honeycomb Region. The new evidence is also helpful in showing a sector in that part of the country as one with clear enough development needs – such as the need to develop both specialist skills (e.g. software and other technical skills) and professional skills (business development, financial and other operational skills necessary to run and grow a business). The evidence pointing to the highly fragmented nature of the digital content sector in the Irish border counties (relative to the other parts of the Honeycomb Region) includes

---

3 Figure A2 in the Annex of Supplementary Information provides a summary of sectors making up enterprise policy in Ireland. Digital content pervades the sectors and policy is mindful of this increasing trend.

---

Elsewhere in the country, the picture from the Honeycomb survey results does not necessarily hold true – especially in Dublin, where the digital content sector in Ireland is mostly concentrated. When we break the sector down into its foreign direct investment (FDI) and indigenous parts, a more complex pattern is revealed. As might be expected, foreign-owned firms tend to be larger than their Irish-owned counterparts and it is also found that they operate in different segments within the sector: for example, within the games industry, on which there have been relatively many studies, FDI firms tend to focus on international servicing activities (including customer support), while Irish-owned firms concentrate on game development and adapting games for different markets (‘localisation’). In other words, the Irish-owned companies tend to

---
be more concentrated on core activities within the games industry, while FDI firms are more focused on international support services.

The activities of the foreign-owned firms in the Irish games industry reflect the nature of FDI more generally in Ireland, where the country has developed niche advantages in support services (rather than in core activities, which tend to be carried out in the home countries of the multinationals, notably in parts of the US like ‘Silicon Valley’). It might be tempting to criticise this form of FDI strategy and to associate it with Ireland’s designation as an “innovation follower” rather than an “innovation leader” (for example, as in the EU Innovation Scoreboard). However, an alternative view, which we think has more merit, is that Ireland’s strategy in regard to promoting itself as an international services centre in different sectors, like financial services as well as IT (information technology), is justified on account of it being a very small economy with limited research and development resources, and given the intensive nature of the competition for FDI from other, much larger economies.

Infrastructure-wise, the two types of firms have, and will likely continue to have, different skills requirements – servicing in respect of the FDI firms (finance, legal, management, customer support and languages) and core skills (software development, programming and engineering) among the Irish firms. Another salient theme from the research review is the importance of Dublin, which reflects the general requirement of an ‘eco-system’ to support the growth of the digital content sector in larger urban centres, which tend to be more attractive to talented workers, more conducive to networking and collaboration, and which also benefit from a large and diverse network of third-level colleges. In short, sustainable clusters are much more likely to take root in such locations. Dublin and the larger urban centres have become particularly attractive to FDI firms, which, for example, today account for the vast majority (c. 90%) of all employment in the Irish games industry.

**2.2 KEY POLICY CONTEXT – NEW REGIONAL AND LOCAL AUTHORITY ARRANGEMENTS**

As this foresight report is primarily concerned with opportunities for the development of the digital content sector in the Irish border counties, it is relevant that account is taken of the new arrangements for the roles of local and regional authorities in local and regional economic development, which are now provided for under new legislation in Ireland.

The new arrangements, which are a central part of the public sector reform process, in the wake of the economic crisis to have befallen the country in 2008, take the form of the Local Government Reform Act 2004, which gives legal effect to the earlier policy initiative launched in 2012 known as ‘Putting People First – Action Plan for Effective Local Government or ‘Putting People First’ for short.4

Both initiatives provide for significant change in local governance in Ireland, including re-structured local authorities that are now expected to perform their existing functions more efficiently and in a more transparent and accountable manner. Local authorities are also required to take a more

proactive approach to facilitating enterprise and economic development, thereby contributing to the principal national policy objective of creating and sustaining jobs. In the past, with some exceptions, economic development tended to be viewed by local authorities as a secondary function, after planning, infrastructure and housing. Today, local authorities are required to think of the economic consequences of their traditional functions and to be more proactive in facilitating enterprise development at all levels (from micro businesses to medium enterprises up to FDI).

By the end of this year (2015), the Department of the Environment, Community and Local Government (DECLG) requires that all local authorities will have completed their local economic and community plans (LECPs), which will be new statutory six-year planning studies comprising both economic and community development elements, and integration between the economic and community elements. These LECPs will be evidence-based plans and will include action plans for developing enterprises in certain sectors for which Ireland is seen to have a comparative advantage. The wider IT sector is included among the targeted sectors, within which the digital content sector is being identified as a growth potential sector by many local authorities.

The significance of these developments for this report is that there is now a well-defined policy context into which DkIT can plug for the purposes of supporting the development of the digital content sector in the border counties – the same applies to LyIT and Sligo Institute of Technology or Sligo IT (and indeed to the further education colleges in the region, many of whose students proceed to further study at DkIT, LyIT and Sligo IT). In fact, under the new provisions, institutes of technologies and universities are expected to work in close partnership with local authorities and local enterprise offices (LEOs) in support of economic and employment development across the country.

Thus, in supporting the digital content sector in the border counties, DkIT, and its partner institutions, can now tap into a more coherent and structured framework to help providers of all types in the sector and this should make for a more cohesive support environment, other things being equal.

In addition, the new policy environment also caters for new arrangements at the regional level. The DJEI recently published a document entitled ‘A Framework for the Development of Regional Enterprise Strategies’ (in 2015), the aim of which “is to establish a template for coordinated action that can be applied in each region on the part of the enterprise development agencies (e.g. Enterprise Ireland, IDA Ireland, Local Enterprise Offices), Local Authorities and other local stakeholders (e.g. Third Level institutions, business leaders, community representatives, and other State Bodies) to improve enterprise development and job creation" (p. 2-3). Under the new initiative, there will be regional enterprise strategies, whose purpose will be to (inter alia) coordinate the local authorities' LECPs on a regional basis.5

5 The DJEI’s new regional framework document is available at http://www.djei.ie/trade/competitiveness/regionalenterprisestrategies.htm.
The existing eight regional authorities (based on the NUTS III regions of Ireland) and the two regional assemblies (based on the broader NUTS II regions) will be replaced by three new regional assemblies to perform an updated range of strategic functions, including coordinated regional economic strategy formulation and implementation. The three new regions will be as follows:

- **Connacht-Ulster Region** – which will include the existing border counties, except for County Louth;
- **Southern Region** (the province of Munster and the Leinster counties of Carlow, Kilkenny and Wexford); and
- **Eastern-Midland Region** (the counties of Leinster other than those in the Southern Region) – Louth will be contained in this region.

2.3 REVIEW OF RESEARCH STUDIES ON THE DIGITAL CONTENT SECTOR IN IRELAND

2.3.1 INTRODUCTION
As a prelude to the detailed research review of relevant studies presented below, we begin by considering three studies relating to the digital content sector in Ireland and internationally – two of which were published in 2014 (the third was published in 2008 and is relevant for its examination of knowledge clusters in Ireland).

2.3.1.1 OECD Report (2014)
The Organisation for Economic Cooperation and Development (OECD) published a report in December 2014 entitled ‘Measuring the Digital Economy: A New Perspective’ which maps existing indicators of digital activity against digital policy issues and suggests a forward-looking international measurement agenda. The background to the study is the growth and pervasive usage of the internet throughout the OECD countries, which include Ireland, and accompanying growth in activities like cloud computing, big data and consumer devices. ICT and digitalisation are now driving innovation in advanced and emerging economies.

According to the report, in 2012, information industries accounted for about 3.8% of all employment in the OECD area. In addition, the same industries contributed 6% to total value added, and labour productivity in the information economy sector was found to be 60% higher than the overall economy.

Revealingly, the digital economy has been resilient during the crisis; however, while employment has grown, it has not reached the peak rate of 4.1% of all employment witnessed in 2001, just before the IT/dot.com bubble crash at that time. Within the sector, employment growth is occurring in IT and other information services and generally away from products and traditional activities,

---

6 According to the DJEI’s new regional framework document (p. 18) *(supra* footnote 5), “Louth is located in the Border NUTS III area but is now moving to the Eastern and Midland Assembly region from the BMW region. Recognising the strong links with the adjacent border region counties and cross-border aspects, it is proposed that Assembly members from Louth will also participate in the Border Strategic Planning area committee as well as the Mid-East committee”. Maps illustrating the proposed new regional assembly areas are presented in the Annex (Figure A3 and Figure A4).

7 The OECD is made up of 34 advanced and emerging economies and has the goal of promoting international economic prosperity and development.
such as publishing, audiovisual and broadcasting and telecommunications. The report notes that the gap in productivity in favour of information services relative to the total economy is especially high in Ireland (it is found to be highest in the US).

According to the report, the information society economy, which includes the digital content sector, is opening up new employment and skills opportunities as the sector continues to grow and this will present challenges for educational institutions as well as people seeking to work in the sector.

The OECD report concludes by saying that new statistical tools are needed to measure the digital economy and it proposes a forward-looking international agenda built around six areas as follows:

- Improve the measurement of ICT investment and its link to macroeconomic performance;
- Define and measure skills needs for the digital economy;
- Develop metrics to monitor issues of security, privacy and consumer protection;
- Promote the measurement of ICT for social goals and the impact of the digital economy on society;
- Invest in a comprehensive, high quality data infrastructure for measuring impacts; and
- Build a statistical quality framework suited to exploiting the internet as a data source.

### 2.3.1.2 PwC Report (2014)

According to PricewaterhouseCoopers’ (PwC’s) ‘Entertainment and Media Outlook 2014-2018’, the Irish entertainment and media (E&M) market is forecast to grow at a compound annual growth rate (CAGR) of 2.3% during 2014-2018, reaching €4.25 billion in E&M spend by 2018. In contrast, the global E&M market is estimated to grow by more than double the rate of growth of the Irish market (5%) over the five-year period to 2018, reflecting growth in spend in emerging market economies. Globally, traditional segments, such as publishing and TV, will continue to retain the highest share of absolute E&M spend, but digital segments are expected to dominate growth patterns. The PwC report also envisages that internet access will drive and enable the Irish growth in E&M, with 27% of all E&M spend attributable to digital content by 2018.

While some of the well-established E&M segments like newspaper publishing and pay-TV subscriptions are set to maintain the largest shares of absolute spend, accounting for 11% and 12% respectively, the highest rate of decline in spending across all segments in the Irish market is forecast for newspaper publishing, with a 7.1% cumulative contraction expected over the period to 2018.

The most rapid growth in spend in the E&M market will occur in digital content, which PwC expects will grow by 8.1% during the period in absolute terms and this will see a substantial market share increase from 33% to 45% by 2018 (e.g. online television advertising). Gaming will be one of the major growth areas of the E&M market, according to PwC, with the most rapid growth anticipated to occur in digital console and mobile gaming spends (13% and 9.5% respectively), in contrast to PC (personal computer) games, which are expected to contract cumulatively by 18% by 2018. According to the report, mobile technologies are delivering a new generation of gamers, and social and causal gaming is expected to continue to grow rapidly in popularity.

8 Figure 13 of the OECD report (p. 38).
In addition, according to the PwC report, spend on digital recorded music will account for almost three-quarters of all recorded music spend by 2018, with expenditure on physical recorded music expected to contrast at a cumulative rate of almost 18% during 2014-2018. Digital music streaming will account for the highest rate of growth of 12.6%. Digital music streaming will account for the highest rate of growth of 12.6%. PwC estimate that streaming revenues from TV subscriptions channels (such as Netflix) will remain as having the largest share of ‘through-TV’ subscriptions, other forms of digital streaming services are set to grow very rapidly and streaming services as a whole are set for growth of almost 50% and will become one of the largest segments of E&M spend by the end of the period.

2.3.1.3 DJEI Report (2008 and 2015)
The third report in this part of the research review was published by the then Department of Enterprise, Trade and Employment in 2008 (today known as the DJEI). While this report – entitled ‘Knowledge and Enterprise Clusters in Ireland: An Overview’ – is to an extent out-of-date today or has been overtaken by events, reflecting the growth of the knowledge economy in recent years (particularly information and communications technology [ICT]), but it is nonetheless worth considering presently.

The report summarises the relevance to economic development and job creation of clusters and networks, where it observes that the building of clusters and linkages between companies, third level institutions and international partners is vital if companies are to access local, national and international knowledge and expertise” (p. 7).

The report presents a mapping of clusters in Ireland (at the time), divided into clusters in three activities, namely (a) ICT, (b) bio/pharma and (c) internationally-traded services. The map illustrates Dublin, Cork, Galway and Limerick as having clusters in all three areas, with Cork and Galway having particular strengths in bio/pharma and Limerick with specific strengths in ICT, and Dublin possessing comparative advantages in all three.

In the border counties, the map shows Dundalk as having an ICT cluster (albeit smaller than those in the cities), Sligo having clusters in bio/pharma and internationally-traded services and Letterkenny with an internationally-traded services cluster (specific company names are mentioned in the map).

The map also shows ‘knowledge flows’ between the clusters, with a flow linking Letterkenny, Sligo and Dundalk.10

In early 2015, the DJEI published ‘A Framework for the development of Regional Enterprise Strategies’11.

10 Drogheda is also part of County Louth and the map in the 2008 study also shows Drogheda as having a bio/pharma cluster, where there is mention of the IDA Ireland client company Becton Dickinson, active in medical devices. The report also mentions examples of clusters that have developed independently of government-sponsored initiatives/programme, where it refers to the Midas MultiMedia (M3) creative/digital media cluster on the M1/A1 corridor between Dublin and Belfast and acknowledges the role of local development groups in facilitating the development of this cluster. However, since the report, the M3 cluster has dissipated. During our engagement with stakeholders, various reasons were advanced for the demise of the Midas initiative, including lack of leadership and loss of momentum.

11 Supra footnote 5.
which aims at supporting a more coordinated approach towards economic and employment development in the regions of Ireland — under the new arrangements for local government and regional bodies, there will be three new regional assemblies in Ireland (Northern and Western, Southern, and Eastern and Midland). The report mentions existing clusters in Ireland (p. 5):

"Medical Devices companies have tended to cluster around the West, and Midlands. Pharma companies are prevalent in the South West and South East, and a strong cohort of leading ICT companies are based in the Dublin region ... Equally, regions such as the South West and South East have capitalised on the assets of their natural environment to develop strong Tourism offerings, while there are numerous clusters in the Agri-food sector throughout the country".

12 According to the government’s ‘Putting People First’ policy in 2012, County Louth will be in the Eastern and Midland region and not in the Northern and Western region, where the other five counties under consideration in this report will be. The new DJEI report is available at http://www.djei.ie/publications/enterprise/2015/FRAMEWORK_FOR_REGIONAL_ENTERPRISE_STRATEGIES.pdf.
The EU REDICT Project (Regional Economic Development by ICT/New Media Clusters) ran during 1 January 2008-21 December 2009 and brought together 16 partners with the overall objective of exchanging experiences and best practices to better understand the factors influencing the transfer of knowledge to SMEs in the sector and to make use of them to boost clusters and economic performance. Two institutions from Ireland participated in the project, namely Dublin City University and National Digital Research Limited. The EU contribution towards the project was €800,000 and was facilitated under the FP7 Programme (the predecessor of the current EU Horizon 2020 Programme).

The conclusions of the project are summarised below (remembering that the project was conducted during the economic crisis):

• Clusters within countries can be instrumental in setting up joint projects, commercial or subsidised, in which a number of SMEs team up to develop services or solutions for customers that would not be feasible for any of the SMEs alone;
• Clusters can also be the interface between SMEs and large, international companies or for cross-border contacts;
• Networks have an important role to play in facilitating the emergence of clusters, whether among SMEs or among SMEs and larger enterprises;
• The availability or presence of an institutional networking arrangement can be important in promoting the emergence of sustainable and competitive clusters – the consultancy team would point to the presence of Honeycomb in the cross-border region of the island of Ireland in this regard;
• A general feature of the six countries that were part of the REDICT Project was the finding of a “discrepancy between the long term scientific goals of academic institutions and the shorter term R&D needs of industry. SMEs in the digital media sector are often very small and lack the capacity to fruitfully enter into open ended collaboration with knowledge institutions” (whereas the project found that larger enterprises are better equipped and resourced to benefit from academic research activities);
• The project observed that “Even in so-called ‘science parks’ where SMEs and knowledge institutions are located in close proximity of each other joint projects are rare. The strongest obstacle from the point of view of SMEs for a collaboration with higher education institutions, however, seems not even to be a lack of communication. It is rather a question of different views on project setup (financially) and expected outcome, where mention is made of the different incentives between academics (publications) and SMEs (protection of IP in a rapidly moving market) and resource constraints on SMEs;
• The REDICT Project recommended that regional clusters should help their members to be better aware of and know to access the broad range of knowledge and competences available to them and those responsible for facilitating clusters should also be active in disseminating the outputs, and thus the benefits, from cluster participation – so that more entrepreneurs and enterprise can join and sustain the clusters.

2.3.2 FORFÁS REPORTS (2002 AND 2011)

2.3.2.1 EU REDICT Project on ICT/New Media Clusters (2008-2009)

Forfás has operated as the State enterprise development advisory agency for many years and its functions have included advising the government on industry and innovation, including the interface between science, technology and the commercialisation of research. From August of last year, Forfás has been dissolved and today it operates as part of the Strategic Policy Division of the DJEI. In 2002, the organisation considered the importance of the digital content sector (one of the first such studies in Ireland) and more recently launched a report on the games industry in Ireland (published in 2011).

2.3.2.2 A Strategy for the Digital Content Industry in Ireland (2002)

Overview

This Forfás report was launched at the beginning of November 2002 and concluded that, at the time, there was a real opportunity for Ireland to develop a significant strength in the digital content industries of the future and to develop strong digital content clusters of high-growth, high-value digital businesses. The report identified five key target areas: e-Learning; games; business and consumer wireless services; digital libraries; and non-media digital applications.¹³

The report highlighted that, despite growing strongly, the digital content industry, at the time, was still some distance from maturity. It identified that many developments driving digital content were at the time only beginning, such as the mass market roll-out of broadband networks and take-up of interactive on-line services, and the report anticipated that the industry would not reach a high-growth phase globally until 2005/2006.


This, according to the report, would give Ireland a critical ‘window of opportunity’ during which it could carve out a place for itself in new digital content areas. The report advocated that, by building on existing strengths and expertise, Ireland would be in a position to establish a significant presence in a number of high-growth digital content subsectors.¹⁴

The report identified five subsectors where Ireland was seen as having the potential to develop internationally-recognised competitive advantages and which would be jointly targeted by EI and IDA Ireland for promotion, namely:

- **e-Learning** – opportunity for Ireland to position itself as a leader in enabling technologies, content creation and web content management for e-Learning through further developing indigenous companies and improving Ireland’s attractiveness for international e-Learning companies;

¹⁴ The anticipated high-growth phase highlighted in the Forfás report was prescient enough: for example, according to other research, globally the digital content sector grew in monetary terms by more than 260% between 2002 and 2007. While growth has eased since (52% growth during 2007-2010), it remains a high-growth sector when set against other sectors (source of data http://www.oecd.org/sti/ieconomy/32158598.pdf).
Games – potential for Ireland to build on its small but growing indigenous games enterprise and research base to exploit opportunities in technology development, games design and marketing/distribution;

Wireless services – the development of content, applications and associated enabling technologies for mobile devices for consumer and business markets is a very significant new and fast-growing market where Ireland can build on its existing strengths in technology and applications development and research;

Digital libraries – the conversion of public and private libraries, archives and files nationally and at EU level presents new market opportunities for indigenous companies in the development of research, skills and expertise in digital content;

Non-media applications – the growing use of digital technologies and applications in the research, design and development of new products and services in sectors such as medical training, industrial design and construction presents opportunities for Ireland to build its existing strengths in these areas.

The report identified a number of issues believed then to be fundamental to Ireland achieving success in the digital content industry and accordingly it set out recommended actions, including:

- Sustaining a proactive and targeted approach to the development of the digital content sector by EI, IDA Ireland and the government;
- Ensuring that businesses have the required access to finance and funding for digital content enterprise development;
- Strengthening the protection provided for intellectual property (IP) in Ireland;
- Promoting a critical mass of activity in the Dublin Digital Hub as a showcase for the digital content industry in Ireland.

Specific Issues and Proposed Actions

The Forfás report of 2002 raised a number of particular issues adjudged to be holding back growth in the digital content industry (some of which continue to apply today, based on our stakeholder consultations) and recommended a series of actions to address the identified issues.

In regard to access to finance (which is a major issue today in the wake of the banking crisis), the report observed (our italics):

In Ireland there is a critical lack of funding to support the development of digital content enterprises. A key reason for this is a dearth of knowledge of the digital content industry and the risks and rewards associated with it. In particular, Ireland lacks digital content-friendly venture capital companies.”

In response to this, the report recommended two actions: firstly, “[i]nvestigate further if a significant international venture capital company with specialist knowledge and experience in supporting digital content enterprises can be attracted to Ireland” (responsibility with EI and IDA Ireland); and secondly,

15 Supra footnote 13, p. iv.
[e]stablish a specialist venture capital fund for the digital content industry similar to the fund established for the biotechnology sector in 2002” (Enterprise Ireland, IDA Ireland and the then Department of Enterprise, Trade and Employment (DETE), currently the DJEI).16

On RD&I, the report noted that, at the time, there were two key supports available for enterprises – the Research, Technology & Innovation (RTI) Competitive Grants Initiative and R&D Capability Grants. However, the report observed that these initiatives were not specific to digital content activities, resulting in relatively few content-specific projects receiving R&D funding, in turn impacting on the level of digital content RD&I conducted in Ireland.

Accordingly the report recommended the following two actions:

[i]ntroduce a programme to support art and creative colleges to develop [RD&I] specialists in digital content creation and design (EI, DETE and the Irish Council for Science, Technology and Innovation)”; and two “[r]eview the criteria for access to Research, Technology and Innovation (RTI) funding to support content development projects (EI, IDA Ireland)”.17

On the legal and regulatory environment, the Forfás report identified that there was no specific legislation in Ireland for digital content, with most of the major pieces of legislation applying to e-Business and ICT. Ireland was seen as a forerunner in putting in place a supportive legal and regulatory environment and, as such, had some competitive advantage. However, the report identified that a key area that Ireland needed to strengthen and keep under review was in relation to IP protection.

In reply to this, the report recommended that:

marketing/education programme should be developed to encourage the registration of IP by digital content SMEs (Enterprise Ireland)”; and the Department of Justice should “[i]ncrease the statutory protection provided to the Digital Content IP, through the introduction of a law on theft of confidential information”.18

In comparison to leading digital content economies, the Forfás report found that Ireland compared reasonably well with regard to fiscal incentives. This was primarily due to the general pro-business tax environment in Ireland rather than to specific fiscal incentives for digital content. It identified a number of areas that need to be kept under review, including Ireland’s value-added tax (VAT) position vis-à-vis the global marketplace as new European Union (EU) rules may mean that Ireland is not as attractive for non-EU firms supplying digitally to consumers.

In light of this, the report recommended that “[progressive reduction in the] VAT rate in line with that of other European countries” (Department of Finance, the Revenue Commissioners).19

---

16 Supra footnote 13, p. iv.
17 Supra footnote 13, p. iv.
18 Supra footnote 13, p. v.
19 Supra footnote 13, p. v.
Review of Context and Research on the Digital Content Sector in Ireland

On broadband, the report observed that:

Broadband telecommunications infrastructure is critical for the production and distribution of digital content. Currently, Ireland lags behind its international counterparts in terms of broadband services and infrastructure rollout (according to other research carried out by Forfás in 2002). This needs to be addressed to ensure Ireland maintains its image as a leading ‘wired’ ICT economy and to act as a catalyst for the development of the digital content industry. Critically, Ireland needs to develop its international Internet traffic exchange facilities, which are essential for the distribution of digital content from Ireland to the global market”.

Since the 2002 report, there has been a marked change, and improvement, in broadband availability in the country. However, the rollout of high-speed broadband has been uneven and a major issue concerns the availability of this critical infrastructure in rural parts of the country, including many parts within the six border counties of interest in this study.

The Forfás report referred to gaps at the time in Ireland’s education and training for digital content activities and recommended (1) a detailed audit of the supply and demand for skills in the key areas being targeted for development (with responsibility for this action with the Expert Group on Future Skills Needs, EGFSN) and (2) promotion of the introduction of bursaries for students to study in leading international digital content colleges and international competitive placement programmes (IDA Ireland, EI and third-level colleges).

In addition to the above, the Forfás report also recommended, by way of generally supporting the development of the digital content sector in Ireland:

- Greater cohesion among government departments and agencies to raise the profile of the sector and to address barriers and facilitate enterprise development;
- Demonstrator projects aimed at showcasing the sector – e.g. the Dublin Digital Hub; and
- Greater public sector activity in facilitating a market for digital content, including digital libraries and greater use of digital content among broadcasting, media and publishing companies.


Overall, the 2002 report took a qualitative, descriptive approach, but nevertheless made a number of sensible and implementable actions for the growth and development of the digital content sector in Ireland. Some of these have been acted upon by policy and the agencies concerned, whilst others have been overtaken by events and technology (e.g. today there is greater awareness of the opportunities in the sector at school and third-level plus we are currently seeing

20 Supra footnote 13, p. v.
21 See Box 2.2 below for recent developments.
greater take-up of Higher Level Mathematics at Leaving Certificate due to the bonus points initiative and the rise of industry-specific developments, like ‘Codordojo’ among young people, all of which is to be welcomed.23

Venture capital funding relating to the digital content sector has grown since the 2002 report.24 However, in the eyes of many entrepreneurs and small businesses in the sector, approaching a VC fund can be daunting (as also suggested in our consultations) and there is an impression among those with whom we engaged that the retail or high-street banks tend as yet not to fully or properly understand or appreciate the digital content sector, where growth tends to be project-driven in discrete steps rather than occurring organically across the firm, and this may be an impediment to accessing finance (as well as the ramifications from the crisis) (project-based funding is one of the themes apparent in the 2011 Forfás report reviewed below). The small-scale and fragmented nature of the sector in the Irish border counties would tend to compound this particular issue.

Access to reliable broadband raised in the report remains a major issue in rural parts of the Irish border counties (this is commented upon below in regard to the National Broadband Plan – Box 2.2.).

On the issue of supporting the growth of digital content enterprises, including RD&I, EI’s High Potential Start Up (HPSU) initiative, which has been in operation for a number of years, is currently being supplemented by EI’s Competitive Start Fund and New Horizons initiatives, all of which are aimed at enterprises in the software and services industry as well as other activities.25 At college level, there has been appreciable growth in the extent of offering of undergraduate and postgraduate courses in the digital content sector, including at the three higher education institutions in the region of interest here, namely DkIT, Letterkenny Institute of Technology and Sligo Institute of Technology, which also are active in academic research and commercialisation in respect of supporting digital content and other enterprises in their catchment areas.26

2.3.2.2 The Games Industry in Ireland: An Action Plan for Growth (2011)

Overview

The second Forfás report highlights the potential for Ireland in the video and electronic games industry and identifies issues fundamental to its future success and competitiveness.27 The report

23 However, independent evidence (e.g. the Organisation for Economic Cooperation and Development (OECD) Programme for International Student Assessment (PISA) results, world competitiveness rankings 2014 and international university rankings 2015-2015) show that Ireland’s education system is far from world class (contrary to what is sometimes claimed) and that other, comparable small countries have better-performing education systems enabling innovation than Ireland’s. See, for example, the listing of VC funds provided on the website of InterTradeIreland (http://www.intertradeireland.com/online-guide-to-venture-capital/venture-capital-funding/).

24 See, for example, the listing of VC funds provided on the website of InterTradeIreland (http://www.intertradeireland.com/online-guide-to-venture-capital/venture-capital-funding/).

25 The other activities are industrial and life sciences, and food and consumer products – EI terminology.

26 Following the 2002 Forfás report, a study conducted by the national training agency (then FÁS, today SOLUS), in conjunction with the SteM Research Centre at Dublin City University (DCU), for the EGFSN, highlighted the importance of enhancing educational attainment in subjects designed to support games, e-learning and wireless technologies in Ireland (the link to this study is, however, no longer available).

is relevant to the wider digital content sector under consideration here where Forfás identifies the games industry as an ‘exemplar’ of the overall sector. The report estimates that employment nationally in the games industry was almost 2,300 directly in 2011, having grown five-fold since 2004. The report envisaged further growth in employment in the games industry of 4,500 by 2014 (average annual growth rate of 25% during 2011-2014, which is very rapid by any standard).

Structure and Composition of the Games Industry in Ireland
In sizing the games industry in Ireland, the Forfás report helpfully outlines the ‘value chain’ of the industry, namely:

- **Game development** – the core of the industry in terms of including creative content and which accounts for the majority of games companies in Ireland (56% in 2011, according to Forfás estimates);\(^2\)
- **Customer support** – including customer and technical support and which was found to account for 14% of games companies in Ireland;
- **Middleware** – which refers to software integrated into games to handle specialised aspect of games (e.g. graphics, networking) and was estimated to account for 7% of all companies in the games industry in Ireland;
- **Localisation** – which relates to adapting games to local markets and which was found to account for 5% of all games companies in Ireland (although this area was also seen to have strong growth prospects based on experience at the time of the *Forfás report in 2011*); and
- **Other activities** – including retail, publishing, aggregation etc. and estimated to account for the remaining 18% of games companies in Ireland.

The ‘core’ of the games industry in Ireland (by company numbers) is game development, which tends to be project-based (e.g. companies will work on a project or projects at any given point in time) and this way of working has tended to set the industry (or digital content sector more generally) apart from other, more conventional activities, which in turn may affect funding opportunities (i.e. funding in the games industry tends to be required at the level of the project rather than the company).

However, of greater interest than just company numbers is employment, and the data contained in the 2011 Forfás report are particularly interesting in pointing towards the following facts – which are revealed by our analysis of the data and reported on in more detail subsequently in Section 3:

- There is a fairly clear ‘dichotomy’ in employment between the Irish-owned and foreign-owned or FDI companies in the Irish games industry, in which the latter are focused to a large extent on servicing operations, while the former are concentrated more on core activities, namely game development and localisation;
- While there is a clear distinction between the FDI and the indigenous firms in respect of the extent to which they are active in the different parts of the games industry value chain proportionately speaking, the foreign-owned firms dwarf the Irish-owned firms by absolute employment numbers, specifically by a factor of almost 9-to-1;

\(^{2}\) The report notes that companies may be involved in more than one component of the games industry value chain.
The dominant share of games industry employment by foreign-owned firms (about 90% of all jobs in 2011) means that the overall industry (i.e. when both the indigenous and the foreign-owned employers are considered together) is heavily focused on customer support and less so in respect of core functions like game development (c. 6% of all employment);

The significant presence of FDI companies in the Irish games industry means that employment therein exceeds to an appreciably extent the corresponding numbers of employees in the games industry in NI and Scotland (i.e. the comparably large presence of multinationals in Ireland means that the games industry is much larger in Ireland compared with Scotland and NI).

Key Drivers of Change of the Games Industry Generally

The report identified three drivers of change in games – consumer behaviour, technology and business models. Consumer behaviour is underpinned by continuous improvement based on feedback data from users and the demand for personalised and enhanced user experience. Technology tends to be disruptive in nature and designed to meet consumer demands for better interaction, sophistication and availability on mobile devices, which means new opportunities for new games and innovation. Business models include different monetisation strategies (e.g. ‘try-and-buy’) and licensing of brands and IP.

Opportunities for Growth of the Games Sector in Ireland

The Forfás report identified the main opportunities for the games industry in Ireland to be in digitally distributed and online games as follows:

- Creative game development – where most value is added but achieving scale is important and the opportunities identified were to support growing indigenous companies and attract overseas companies to locate in Ireland;
- Advanced game servicing – where users value strong customer support and where the providers of support need to be basically users themselves and the opportunity presented in this segment of the industry was for Ireland to promote itself as a location of choice for international customer support and servicing, offering a range of technical, linguistic and administrative functions for overseas companies;
- Enabling software and technology solutions – this segment refers to the provision of multi-faceted packages of skills and infrastructure that are attractive to games companies to facilitate their development (including cloud-based business models, platform innovation and data mining in respect of user preferences and usage patterns etc.); and
- IP exploitation and online publishing – exploiting Ireland as a now attractive location for holding and exploiting IP (although this could be threatened by recent developments in regards to international taxation of company profits and IP).

Further details of the consultancy team’s analysis of the data contained in the 2011 Forfás report on the games industry in Ireland is presented in the quantitative part of our analysis of the baseline digital content sector in Section 3. Subsequently in Table 3.6 and Table 4.1, it is seen that the games industry in Ireland has twice the level of employment as its counterpart in Scotland and even more again when set against NI (2012 data for these countries and using the 2011 Forfás estimates).
Key Actions to Realise Opportunities and Growth
The actions identified in the Forfás report (2011) are focused on six areas as follows:
1. Developing an international cluster.
2. Enhancing skills and experience.
3. Accelerating growth in creative content development.
4. Building international visibility.
5. Driving RD&I.
6. Delivering next generation broadband.

Table 2.1 below summarises the actions, responsibilities and timings in respect of the first area—developing an international cluster. The actions are twofold—establishment of a dedicated games cluster development team (CDT) and a talent exchange programme among companies. Responsibility for the CDT action was assigned to the DJEI, the enterprise agencies (including IDA Ireland and EI) and industry, with the proposal that the CDT would comprise between 8 and 10 participants. In turn, the CDT would have responsibility for the proposed talent exchange.

In our consultation with the DJEI/Forfás, we learned that a CDT has been established and has met, and, at the timing of preparing this report in early 2015, is in the process of finalising a report looking at educational and training provision in the sector. It is also understood that talent exchange between companies is underway (but the process is still in its early days, according to the DJEI/Forfás).30

<table>
<thead>
<tr>
<th>AREA</th>
<th>ACTION</th>
<th>RESPONSIBILITY</th>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing an international cluster</td>
<td>Dedicated Games Cluster Development Team (CDT)</td>
<td>DJEI, enterprise agencies, industry (8-10 participants)</td>
<td>Immediate</td>
</tr>
<tr>
<td></td>
<td>Talent Exchange (between companies of different sizes, Irish- and foreign-owned)</td>
<td>CDT</td>
<td>Immediate</td>
</tr>
</tbody>
</table>


Table 2.2 presents a corresponding summary in regard to the second area—enhancing skills and experience. The actions here include (1) addressing short-term needs (obtain skills from overseas), (2) developing games industry awareness among graduates as the industry grows, and (3) facilitating long-term growth in the content of raising awareness of, and stimulating interest in, science, technology, engineering and mathematics.
(STEM) subjects. The specific measures in the final column of the table are designed to ensure that the industry has access to enhanced skills and experience to enable it to grow and ultimately reach its potential.

One of the specific measures relating to the first action – obtaining skills from overseas – concerns maintaining/enhancing Ireland’s competitive tax position for attracting international talent. The Forfás report recommended that the Department of Finance should explore the reasons for the then low take-up of the Special Assignment Relief Program (SARP) and determine how it could be better promoted, or whether there are alternative tax policy options which would be better placed to ensure that Ireland can compete internationally to attract mobile highly skilled workers. The SARP provides a means of attracting foreign workers to come and work in Ireland, where they can benefit from low income tax.

### TABLE 2.2

**Six Key Areas and Action Planning for the Irish Games Industry – Enhancing Skills and Experience**

<table>
<thead>
<tr>
<th>AREA</th>
<th>ACTIONS</th>
<th>SPECIFIC MEASURES (RESPONSIBILITY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhancing skills and experience</td>
<td>Address short-term needs (obtain skills from overseas)</td>
<td>Maintain/enhance competitive tax position to attract international talent (Department of Finance)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cultivate high-level ICT skills (Department of Education and Skills, DES and Skillnets)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skills conversion programmes (DES, Higher Education Authority (HEA), third-level colleges and industry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Continuing professional development (CPD) (CDT)</td>
</tr>
<tr>
<td></td>
<td>Develop industry awareness among graduates as the industry grows</td>
<td>Increased industry/academic collaboration (industry and third-level colleges)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>‘Hot house’ initiative on a pilot basis as part of undergraduate and Post Leaving Certificate (PLC) courses (industry and third-level colleges)</td>
</tr>
<tr>
<td></td>
<td>Facilitate long-term growth – in the content of raising awareness of, and stimulating interest in, STEM subjects</td>
<td>Promote games as a career option (CDT and third-level colleges)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Promote awareness at primary and secondary schools (Discover Science and Engineering initiative, with industry)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Games-based learning in the primary and secondary curricula</td>
</tr>
</tbody>
</table>

*Source: See Table 2.1*
Table 2.3 summarises the corresponding proposals in the Forfás report in regard to the area of *accelerating growth in creative content development*, which includes incentivising creative content development in Ireland, mindful of the international position in which companies based outside of the EU are not subject to State aid constraints as exist within the EU. Since 2011 (we are informed by the DJEI/Forfás), the EI Competitive Start Fund has become important in facilitating growth in creative content in the Irish games industry.

### TABLE 2.3

**Six Key Areas and Action Planning for the Irish Games Industry – Accelerating Growth in Creative Content Development**

<table>
<thead>
<tr>
<th>AREA</th>
<th>ACTIONS</th>
<th>SPECIFIC MEASURES (RESPONSIBILITY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerating Growth in Creative Content Development</td>
<td>Incentivising creative content development</td>
<td>Mindful of EU State aid rules and the fact that countries outside of the EU (e.g. the US, Canada, Japan and Australia) have attractive incentives (DJEI, Department of Finance)</td>
</tr>
<tr>
<td></td>
<td>Financial supports for games companies</td>
<td>Review the EI Competitive Start Fund to identify what adjustments need to be made to enhance effectiveness and facilitate expansion of the market (EI, Forfás/DJEI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enhance mutual understanding of games industry and venture capital perspectives (EI and industry)</td>
</tr>
<tr>
<td></td>
<td>Bridging the experience gaps</td>
<td>International Advisory Panel for the games industry (EI and industry)</td>
</tr>
</tbody>
</table>

Source: See Table 2.1.
Table 2.4 below shows the corresponding information set out in the Forfás report regarding building international visibility for the Irish games industry. Forfás recommended taking a more coordinated approach to promotion of the industry and the hosting of international events in Dublin. Since the publication of the Forfás report in 2011, some private showcasing events have taken root in Ireland, perhaps most notably the Dublin Web Summit, which relates to the wider digital content sector.31

Table 2.4

Six Key Areas and Action Planning for the Irish Games Industry – Building INternational Visibility

<table>
<thead>
<tr>
<th>KEY AREA</th>
<th>ACTIONS</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building international visibility</td>
<td>Coordination promotion</td>
<td>Cluster Development Team (CDT), Irish Film Board, Culture Ireland</td>
</tr>
<tr>
<td></td>
<td>Host international games events in Ireland</td>
<td>CDT</td>
</tr>
</tbody>
</table>

Source: See Table 2.1.

31 It is understood from media reports (October 2014) that the Dublin web summit is to open up the conference to secondary schools as a means of inspiring the next generation (see, for example, ‘Web Summit for Schools launched’, Irish Independent, 9 October 2014).

Table 2.5 summarises the Forfás report actions and specific measures in regard to supporting RD&I in the games industry in Ireland. Limited progress has been made in the specific measures, according to our consultations with the DJEI.
### TABLE 2.5
Six Key Areas and Action Planning for the Irish Games Industry – RD&I Supports

<table>
<thead>
<tr>
<th>KEY AREA</th>
<th>ACTIONS</th>
<th>SPECIFIC MEASURES (RESPONSIBILITY)</th>
</tr>
</thead>
</table>
| RD&I     | RD&I supports | • Develop an enterprise guide to accessing RD&I supports to include examples specific to the games industry (enterprise agencies, Revenue Commissioners and industry)  
• Convene an RD&I workshop to promote awareness about available RD&I supports and to share knowledge about the games sectors (enterprise agencies, Revenue Commissioners and industry)  
• Role of the social sciences in games industry RD&I (CDT, Revenue Commissiones and DJEI)  
• Case studies of games RD&I as 'demonstrators' (enterprise agencies, industry)  
• Promotion of academia-games industry collaboration (Science Foundation Ireland (SFI), enterprise agencies, third-level colleges and industry) |
| Copyright | Copyright | • Address inefficiencies and cost of litigation (Department of Justics, DJEI)  
• Consider establishing an IP specialist court with Circuit Court jurisdiction to hear small/medium IP claims (Department of Justics, DJEI)  
• Promote reform of copyright law at EU level (DJEI) |

Source: See Table 2.1.

Finally, Table 2.6 summarises the Forfás report’s proposals in regard to delivering next generation broadband to enable growth in the Irish games industry. The National Digital Strategy was launched in 2013 and aims to enhance digital inclusion among members of the public and businesses in order to better place Ireland to take advantage of the potential of the internet and growth in digital content.32

---

32 The National Digital Strategy is the responsibility of the Department of Communications, Energy and National Resources (DCENR).
The DCENR is also sponsoring the National Broadband Plan (NBP), which was updated in 2014. Under the update, a mapping exercise has been carried out to identify those parts of the country where State intervention will be required to ensure broadband availability. An indicative list of locations has been drawn up and they include parts of all of the border counties in Ireland.33

**TABLE 2.6**

Six Key Areas and Action Planning for the Irish Games Industry – Delivering Next Generation Broadband

<table>
<thead>
<tr>
<th>KEY AREA</th>
<th>ACTIONS</th>
<th>SPECIFIC MEASURES (RESPONSIBILITY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next generation broadband</td>
<td>Next Generation Networks (NGNs)</td>
<td>• Pro-investment regulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Infrastructure planning and investment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Demand stimulation</td>
</tr>
</tbody>
</table>

Source: See Table 2.1.

In fairness to the report and subsequent events, the study has succeeded in helping to build a profile for the games industry and the skills needed to help it achieve its potential. The initiative has also been successful in bringing together national stakeholders and the proposed Cluster Development Team (CDT) has been established and has met (although a number of people spoken to during the course of this study were critical of it, where it was held that the CDT is ‘just a talking shop’).

Overall, the momentum originally envisaged in the 2011 report has not been maintained, and the industry has developed largely independently, with the help of some interventions from State enterprise agencies. Today, the same issues that featured in the earlier 2002 Forfás report continue to be present, including the significant issue of access to reliable broadband in rural areas, a pertinent issue for the border counties.

33 See http://www.dcenr.gov.ie/NR/rdonlyres/4DE5D693-92D1-4FE1-915E-26057C72305B/0/NBPdestinations.pdf. See also Box 2.2.
2.3.3 GAMES INDUSTRY IN IRELAND REPORT (2012)
In 2012, GamesDevelopers.ie commissioned an independent study by Jamie McCormick, then Marketing Systems Manager with Dublin-based GALA Networks Europe, to “establish a conservative estimate of the size, scale, distribution and make-up of those indigenous and international companies, who primarily derive their revenues from the computer and video games industry in Ireland in 2012.”

The report is based around the results of a survey of games companies in Ireland carried out in 2012 (March of that year and a follow-up survey was conducted in October of the same year), and followed from a previous survey conducted in 2009.

The report found, in the main October 2012 survey, that there were 3,344 people working in the industry that year, which they broke down by component and by region of the island of Ireland. The composition of the sample (indigenous and foreign-owned firms) is not clear from the study; nor is the study clear on whether the job estimates pertain to full-time or part-time employees.

The estimated 3,344 jobs in the main October 2012 survey were distributed across 75 companies throughout the island of Ireland (the vast majority in Ireland). Of these, 280 individuals worked in core development, representing a small proportion (c. 8%) and in turn echoing the small proportion found in the 2011 Forfás report. A further 445 people were employed in various industry services, providing services or skills to developers, such as middleware and localisation. An additional 736 jobs were estimated across retailers and services focused on the consumer games market. A total of 1,883 were found to work in publishing functions, which include business functions, customer support and various game operation roles and the large share of this particular activity supports the data contained in the Forfás report of 2011, which indicates that customer support is the largest part of the games industry in Ireland (and this segment of the value chain is dominated by FDI firms). The GamesDevelopers.ie report of 2012 found that employment in the largest function of publishing functions was dominated by FDI firms, echoing the Forfás study of 2011. Dublin was the single largest employment centre, although Munster (Cork and Limerick) are also found to be important employment locations.

2.3.4 CREATIVE CAPITAL REPORT (2011) – AUDIOVISUAL INDUSTRY IN IRELAND

2.3.4.1 Introduction
This report was prepared for the Minister for Arts, Heritage and the Gaeltacht by the Audiovisual Strategic Review Steering Group and published in April 2011. The task of the Steering Group was to consult with stakeholders in the audiovisual industry to identify what opportunities exist to generate further sustainable growth – nationally and internationally – and also what policies and initiatives are needed to facilitate and support future growth and increased employment in the industry.

34 Inputting into the study were supports from Dr. Aphra Kerr of Maynooth University (recently re-branded in 2014 from its former title of National University of Ireland Maynooth, NUIM) and Dr. Phil Bourke of Limerick Institute of Technology (Thurles campus).
35 By Dr. Aphra Kerr and Dr. Anthony Cawley.
36 The Creative Capital Report followed an earlier study on the audiovisual content industry by PwC in 2008.
2.3.4.2 Key Baseline Economic Statistics of the Irish Audiovisual Industry

According to the Creative Capital Report, the number of people working full-time in the audiovisual industry grew rapidly from 694 in 1991 (based on an early estimate by Coopers and Lybrand, which subsequently became part of PwC) to 5,400 in 2007 to almost 7,000 in 2010. In the latter year, the report estimated that there were in the region of 500 Irish-owned production firms active in film, television, animation etc. in Ireland, suggesting an average of 14 FTEs (full-time equivalents) per company at that time.

2.3.4.3 Vision for the Irish Audiovisual Industry and its Achievement

Given rapid growth in the audiovisual industry internationally, the Creative Capital Report projected that the industry in Ireland had the potential to grow from almost 7,000 in 2010 to almost 11,000 in 2016, implying a cumulative growth rate of almost 57% during the period or growth of nearly 8% per year on a CAGR basis.

As well as seeking to facilitate the growth of employment in the Irish audiovisual sector to more than 10,000, the Creative Capital Report also sought to double the value of the industry and to increase exports from the Irish industry. The targets were to be achieved by building strong companies within the industry and this was to be met in a variety of ways, including through various incentives, central to which was the maintenance of Section 481 to 2020. In regard to building “business acumen” in the industry, the report proposed that the industry, in consultation with Enterprise Ireland, should establish a business mentoring and export-market focused programme for entrants and emerging companies so as to improve business skills and develop a stronger understanding of international markets.

Another central part of helping to support the industry in the Creative Capital Report was the development of skills and talent, including through apprenticeships and graduate placements, on-the-job training and business mentoring etc. The report also proposed raising the profile of the industry at schools in Ireland, along with ensuring skills at an early age in digital and media literacy as a means of supporting the future growth of the industry.

Role of the Third-Level Sector in the Vision for the Irish Audiovisual Industry

In regard to the contribution of the third-level sector, the Creative Capital Report made a number of points, as follows.

First, there are a broad variety of third-level courses available, many of which offer practical and theoretical modules with a strong emphasis on the practical. However, the report expressed concerns about the proliferation of similar courses in different institutions, which was felt may diminish critical mass and spread resources thinly, instead of a more concerted effort to build specialisation and centres of excellence in different disciplines capable of achieving international recognition.
Second, access routes from study to working in the industry were not clear and this was also evidenced in the 2008 PwC study. The Creative Capital Report recommended programmes to facilitate access to industry and employment. Related to this “was universal acceptance of the critical importance in students having direct contact with the industry” (p. 12).

Overall, the report observed that (at the time) there were no formalised accredited programmes connecting the third-level sector with the audiovisual industry. Graduate placement programmes including cross-industry placements have yet to be established on a formal basis. The report recommended action to address these weaknesses while also examining the match/mismatch of the third-level curriculum and the needs of the audiovisual industry.

In helping to better link industry with the third-level sector, the Creative Capital Report recommended that industry and the third-level sector establish a forum to share the needs of the industry with third-level institutions and to establish cross-research and innovation links. A priority for this forum should be to establish much stronger alignment between the existing third-level curriculum and current industry skills requirements.

Importance of Broadband

On the role of broadband in the development of the audiovisual industry in Ireland, the Creative Capital Report (2011, p. 6) remarks as follows:

"The continued development of the broadband network including nationwide high-speed coverage and digitisation of sites and screens are key priorities for the audiovisual industry. These policies are essential for stimulating local demand, increasing global access and ensuring that audiovisual content companies throughout Ireland function effectively."

The availability of a sophisticated broadband infrastructure in urban and rural areas also presents opportunities for content creators to stimulate local demand and find global audiences … Wider availability of faster broadband will make an enormous contribution to the development of the audiovisual industry on a regional basis."

It is recommended that there be continued investment in broadband and the expansion of investment in digital sites."

2.3.4.4 Role of the Irish Film Board

The Irish Film Board (IFB) was to have a central role in the implementation of the plan set out in the 2011 Creative Capital Report. The overall objective would be to build on the success of past years, including the island of Ireland being host to a number of high-profile international TV series, such as The Tudors and Game of Thrones (and in the past year Penny Dreadful), and the development of film production in the country in recent years.38

38 IFB or Bord Scannán na hÉireann is the national development agency for the Irish film industry. Operating under the aegis of the Department of Arts, Heritage and Gaeltacht, the IFB aims to support and promote the Irish film industry and the use of Ireland as a location for international production. Subsequently in Section 3 of this report, we will review and consider previous data produced by the Audiovisual Federation regarding employment in the feature film, television and animation industry in Ireland. These data go up to 2010 and their publication has been discontinued – they are nevertheless of interest in the context of this report.
2.3.4.5 Public Funding of Public Service Broadcasters (RTÉ and TG4)

Under section 124(8) of the Broadcasting Act, 2009, the Broadcasting Authority of Ireland (BAI) is required, on a five-yearly basis, to conduct a review of the adequacy, or otherwise, of public funding to enable public service broadcasters (PSBs) to meet their public service objects. The review is in addition to the annual reviews of public funding undertaken by the BAI and it incorporates the consideration of a broad range of matters, including a detailed analysis of costed strategic plans submitted by both PSBs; the multi-annual funding requirements of the PSBs; the level of commercial funding available; and developments in public service broadcasting internationally.  

The BAI commissioned an independent consultancy firm to undertake the five-year funding review, and the report produced was used to inform the BAI’s considerations and recommendations on future funding for RTÉ and TG4. The consultancy report is available on the BAI’s website, which also contains the BAI’s recommendations regarding public funding of both PSBs for the 5-year period.  

The BAI’s role in the public funding of the Irish PSBs is relevant in the context of this report, owing to the important position of RTÉ in the Irish audiovisual industry (television/TV, radio and increasingly online/digital content) – the organisation is by some margin the largest purchaser of services from the independent audiovisual (TV and film) industry in the country.

As part of the BAI’s funding review work, both RTÉ and TG4 submitted costed strategic plans to the BAI and the consultancy team, and these documents outline their plans to support the independent production sector.

In its document of recommendations, published in June 2013, the BAI accepted that there should be further investment in RTÉ’s programme output. But it identified a number of key conditions that should apply to any increase in funding, namely that:

- The potential for cost reductions and revenue increases should be fully realised by RTÉ;
- To the greatest extent possible, increased funding should be deployed through the independent production sector; and
- There should be clear indication in advance of what the added funding will realise in terms of additional programming.

The second condition is obviously of most interest here.

The BAI also identified a condition for increased funding with the potential to make a fundamental change in the approach to funding of broadcasting in Ireland. It recommended that the Minister for Communications, Energy and Natural Resources identify a point, above current levels of funding, at which any increases in public funding for RTÉ are matched by reductions in commercial revenue achieved by restriction of commercial activities. It is envisaged that this re-balancing initiative will have far-reaching implications, including facilitating commercial broadcasters to enhance their schedules through access to greater commercial revenue.

---

39 The PSBs in Ireland are Raidió Teilifís Éireann (RTÉ) and Teilifís na Gaeilge (TG4).

40 Dr. Pat McCloughan, lead author of this report, was involved in the Crowe Horwath consultancy study for the BAI public funding review as expert economist.  

41 The BAI’s recommendations are available at http://www.bai.ie/index.php/five-year-review-of-public-funding/.
The rationale for deployment of additional funding to the independent sector is outlined by the BAI as follows:

- A strong independent production sector is essential for creativity and innovation in content for audiences and makes a significant contribution to the creative and cultural economy of Europe generally and Member States more specifically;
- This in turn serves to promote plurality and diversity in Member States;
- In many other European countries, besides Ireland, there is strong evidence of a requirement that PSBs broadcast a more even mix of content produced in-house than that made by independent producers (in this regard, the BAI mentions the BBC);
- Due to the economic circumstances, there has been a significant reduction in the level of RTÉ’s transactions with the independent production sector over the past five years (although RTÉ has complied with its statutory obligations in this regard).

The BAI’s proposals seek to avoid a further deterioration in the position in this regard in order to sustain the independent production sector and the diversity and plurality outcomes that ensue for audiences.

In its 5-year strategic plan (‘Today Tomorrow Together, 2013-2017’), RTÉ gives a central role to digital content, including in regard to news and current affairs. However, in the context of the competitive environment in which RTÉ operates, where it competes with other media as well as commercial broadcasters not in receipt of large amounts of public funding, the organisation is very mindful of possible practices that might give it an unfair advantage vis-à-vis its competitors, for which there are EU guidelines to protect the market environment. Thus, the development of digital content at RTÉ needs to be cognisant of these parameters/constraints and cannot proceed unregulated or without intervention. Thus, there will be opportunities for independent producers in respect of RTÉ’s competitors as well as with RTÉ itself.

2.3.5 REGIONAL REPORTS IN IRELAND

2.3.5.1 Creative West – The Creative Sector in the Western Region (2009)

There is a strong creative sector in the west of Ireland – exemplified by Galway’s recent accolade in being named as a UNESCO City of Film. This report by the Western Development Commission (WDC) set out to estimate the economic size and impact of the creative sector in the western region, comprising Donegal, Sligo, Leitrim, Roscommon, Mayo, Galway and Clare (not to be confused with the NUTS III West Region, which consists of Mayo, Roscommon and Galway). The study grouped creative subsectors into twelve activities as follows (which implies a much broader sector compared with that under consideration here):

- Music, visual and performing arts;
- Crafts;
- Audiovisual – radio, television and film (broadcasting);
- Video, film and broadcasting;
- Design;
- Internet and software;
- Digital media;
- Arts and antiques trade;
- Architecture;
• Fashion;
• Publishing; and
• Advertising.

Indicative estimates of the economic contribution of the creative sector to the western region’s economy were generated by survey research, based on a sample of 293 businesses in the region. In total, it was estimated that there were 4,779 creative businesses in the region, directly employing 11,000 people or 3% of total employment in the region. The creative sector was estimated to generate annual turnover of €534m and contribute €270m in GVA to the region.

Creative businesses in the region were found to be small in size, with 39% of the sample being self-employed and with just 12% employing more than 10 people. These businesses mostly serve local markets – 66% of those surveyed received less than 5% of their total turnover from exports.

Across the region, the importance of the creative sector for total employment was found to be highest in Leitrim, Sligo, Galway and Donegal.

Particular issues identified in the survey included:

Creative People
• Retaining creative people in the region – creative people tend to be highly mobile
• Inadequate linkages between the creative sector and third-level institutions and business skills can represent a challenge for creative people

Creative place:
• Quality of life found to be high in the region but, as the report notes, “Quality of life however is not sufficient if adequate employment and business options within the sector are not available” (p. 12)
• Key infrastructural issues are broadband and availability of suitable workspaces

Creative supports:
• Low networking but formal networks may not be appropriate for creative people
• The survey reported that the creative sector in the west was not promoted or marketed in a coherent manner (although the consultancy team would point to Galway’s promotion over many years and also to the fact that the western region is very large and that promotion generally operates locally)
• Access to funding – funding pots tend to be general and may not lend themselves to the creative sector, where, for example, “funding of an individual’s time in order to develop an idea was seen as critical for the sector” (p. 13).

The WDC report contains a number of recommendations for developing the creative sector in the west, split between ‘first tier’ and ‘second tier’ proposals as follows:

First tier proposals:
• Enable more effective production and development of creative goods and services through establishing networks of practice
• Facilitate export growth and domestic sales by effectively promoting the ‘Creative West’
• Facilitate the transfer of creative capabilities into the wider business environment
• Nurture and develop future creative talent in the region through education
• Develop creative connectors and hubs in the region to facilitate businesses and operators to work in suitable cost effective environments
• Accelerate growth of creative businesses through enhanced broadband capacity (particularly the high productivity creative technology sector)
• Establish a national policy for the creative sector as a whole to provide a coherent structure for developing the sector

---

Review of Context and Research on the Digital Content Sector in Ireland

---
Second tier proposals:
- Enhance the quality of the built environment
- Create an information website for the creative sector in the Western Region
- Try to ensure that funding schemes available to creative businesses meet the needs of the sector
- Provide training in business skills of relevance to the creative sector
- Enhance the role of research and development in the creative sector
- Conduct a skills matching study for the sector
- Prepare a tourist guide for the ‘Creative West’
- Improve the transport network.

2.3.5.2 Economic Impact Assessment – The Creative Sector in the Western Region (2011)
Following the 2009 WDC report, a second report published by the WDC in 2011 looked at future growth trajectories for the sector in the western region (based on the recommendations contained in the 2009 report). The study was based on another survey of people/firms working in the sector (232 sample size with a response rate of 41%), together with analysis of CSO data.

In formulating the possible growth trajectories, the WDC report considered a very ambitious scenario, where both the networking and export proposals of the 2009 report were realised. According to the 2011 study, this would lead to very significant growth in direct employment (from around 9,000 in 2009 to almost 30,000 in 2011) and an almost quadrupling of exports (from €57m in 2010 to €211m in 2002).

We consider that the economic vision or potential presented in the 2011 is overly optimistic and unlikely to eventuate – even the estimated approximately 9,000 people directly working in the sector in 2010 represents a smaller estimate than the previous 2009 WDC.

2.3.5.3 Creative Industries in Dublin (2010)
Maynooth University (formerly the National University of Ireland Maynooth, NUIM) carried out a study in 2010 into defining and valuing the creative industries in Dublin. The purpose of this study was to establish the scale of the creative sector in the Greater Dublin Area (GDA).

Like the aforementioned WDC studies, the overall sector considered in this study was much wider than the more focused definition under consideration here. For example, the Dublin study includes advertising, architecture, textiles and recreational activities as well as digital content activities. The study estimated that, based on 2006 data, the creative sector in the GDA accounted for 77,026 persons in employment or about 4% of all employment in the State in that year. From the figures presented in the Dublin study, it is possible to estimate the numbers in respect of the

42 In fairness, the 2011 report also presents more moderate growth scenarios for the creative sector in the western region, which would seem as more likely to occur.

44 The GDA comprises the Dublin Region and the Mid-East Region. The Dublin Region consists of the four local authority areas of Dublin City, Fingal, South Dublin and Dún Laoghaire-Rathdown; while the Mid-East Region consists of Counties Meath, Kildare and Wicklow. In Census 2011, the population of the GDA was 1,796,000. The Dublin and Mid-East Regions are EU NUTS III regions within the NUTS II region known as the Southern and Eastern Region (the Border, Midlands and Western or BMW Region is the other NUTS II region in Ireland). Currently, there are eight regional authorities (NUTS III regions) and two regional assemblies (NUTS II regions) in Ireland. It is proposed/planned, under the government’s Putting People First (2012) plan, that these will be replaced by three new regional assemblies (Connaught-Ulster, Southern (Munster and Counties Carlow, Kilkenny and Wexford, and Eastern-Midland (Leinster counties other than those in the Southern Region)).
more focused digital content sector in that year. The numbers suggest that there were 39,232 people at work in the digital content sector in the GDA in 2006, corresponding to about 2% of all employment in the country in that year. This estimate – based on the data presented in the Maynooth University study – chimes with our own analysis of CSO data presented subsequently in the report, which suggests that in 2006 there were about 48,000 people at work in the digital content sector in the State, representing 2.3% of all employment. According to the Maynooth University study, the creative sector in the GDA accounted for more than half (59%) of all GVA in the creative sector nationally; focusing on the digital content sector within the creative sector, as defined in that study, the contribution of the GDA to national GVA was even higher (66%).

Thus, according to the baseline (2006) estimates presented in the Maynooth University study of 2010, while economic value added in the wider creative sector is driven by the GDA, within that sector, it is especially driven by the GDA in regard to the digital content/creative sector.

Further analysis contained in the Maynooth study led to the observation (pp. 20-21):

Dublin possesses a relatively larger share of employment in the creative industries relative to the nation as a whole, as well as relative to other main cities such as Cork, Galway, or Waterford … the larger the size of an urban centre, the greater the importance of this urban centre to the creative industries, not only in absolute terms, but also in relative terms. In other words, more than industry on average, the creative industries appear to be disproportionately attracted to the largest urban centres in the urban hierarchy.”

2.3.6 HONEYCOMB BASELINE SURVEY (2014)

In March of 2014, Honeycomb completed a report based on a survey of enterprises and individuals active in the digital content sector in the six border counties of Ireland, in NI (excluding Greater Belfast) and the western seaboard of Scotland.

To the best of our knowledge, the Honeycomb survey of participants in the digital content sector provides the most detailed data yet available for the six border counties in Ireland.

Subsequently in Section 3 of this report, we will consider in more detail the Honeycomb survey results, on which the consultancy team has conducted quantitative analysis.

By way of an introductory overview here, the results suggest or indicate the following (inter alia):

- The digital content sector is especially fragmented in the Irish part of the Honeycomb Region, with a higher proportion of freelancers and a lower proportion of limited companies in the six border counties of Ireland compared with the NI and Scottish parts of the Honeycomb Region;
Review of Context and Research on the Digital Content Sector in Ireland

- The home or local market is the predominant market in each part of the Honeycomb Region – thus, for example, Irish-based providers sell largely in Ireland etc., suggesting low exports and reinforcing the general absence of scale in the sector;
- The average number of FTEs per provider (any form of business organisation) is the same in Ireland and NI (3.8), but this is appreciably lower than the corresponding estimate for Scotland (9.1);
- Indicative estimates based on the survey results suggest total employment (FTEs) in the digital content sector in the six border counties of Ireland of around 700 at the present time, compared with almost 800 in NI (excluding Greater Belfast) and approximately 1,500 in the western seaboard of Scotland;
- A very large majority of providers in the digital content sector in Ireland (over 80%) operate with €50,000 or less turnover, whereas the proportion of providers with up to £50,000 in NI and Scotland is appreciably lower, 67% and 42% respectively – reinforcing the particularly fragmented nature of the sector in the Irish border counties compared with the other parts of the Honeycomb Region (although this could also reflect in part the severity of the economic crisis in Ireland);
- That said, the overall impression that one is left with from the new evidence afforded by the Honeycomb survey results of 2014 is that the digital content sector in the border area of Ireland is largely highly fragmented, with comparably many freelancers and few limited companies, selling largely in the domestic market and with limited direct employment and low annual turnover.

In addition to yielding new information about the structure and performance of the digital content sector in the Honeycomb Region, the Honeycomb survey results of 2014 also provide fresh data on certain key issues facing the sector in the project area, including:

- Skills gaps, where there is evidence of a latest demand for specialist skills training and more general training to support practitioners in the sector to becoming more professional and/or business-like in their day-to-day operations;
- Willingness to travel to training/events, where there is a clear enough pattern among providers in the Irish border counties that they are willing to travel to the urban centres in either part of the cross-border region (Ireland and NI) for training (provided it meets the identified skills gaps);
- Business growth – reliance on government support (predominantly loans), which is found to be highest in the Irish border counties.

In addition to the above, the Honeycomb survey also indicates that the biggest challenges facing providers in the Irish border counties are:

- Access to funding (where the problem appears to be most acute among the three parts of the Honeycomb Region);
- Ability to innovate and respond to customer and market needs (the proportion indicating this as a challenge was also highest in the Irish border counties parts of the Honeycomb Region);
- Access to markets (again this issue is proportionately the greatest in the Irish border counties part of the Honeycomb project area).

The biggest infrastructural impediment to business growth in the Honeycomb Region is broadband capacity. The legal environment is also an issue in Ireland (24% of respondents identified it as an impediment with 19% in NI and just 6% in Scotland).

47 The details are also reported and discussed in Section 3.
The overall objective of the National Broadband Plan (NBP) is to ensure a sustainable, reliable and future-proofed network for all areas built to definitely address the broadband challenge in Ireland.

In April of 2014, the government gave a commitment for a more ambitious programme than originally anticipated in 2012. The announcement in 2014 included re-affirmation of the commitment to make high-speed broadband available to all citizens regardless of location and identification of an initial number of 1,100 villages for fibre-based built out.

An outline map was published in November 2014 showing all the ‘intervention areas’ in the county where no high-speed broadband is currently available or will be available from commercial operators, and thus these areas will require State support under the NBP.

According to the mapping exercise, the proportion of premises within the intervention area requiring support in the six border counties of Ireland are:

<table>
<thead>
<tr>
<th>County</th>
<th>Cavan</th>
<th>Donegal</th>
<th>Leitrim</th>
<th>Louth</th>
<th>Monaghan</th>
<th>Sligo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion</td>
<td>57%</td>
<td>52%</td>
<td>60%</td>
<td>25%</td>
<td>58%</td>
<td>47%</td>
</tr>
</tbody>
</table>

The corresponding proportion for the country as a whole is 32% and thus it follows that all of the border counties, with the exception of Louth, have an appreciably higher percentage of intervention areas compared with the State. Apart from Louth, there is clearly a broadband deficit in the border counties and in the more isolated parts of the region the deficit is even greater than implied by the above proportions.

In addition to the intervention areas, the NBP will also see other parts of the country receiving commercial high-speed broadband.

The intervention areas include very small villages (less than 900 premises), rural ribbon developments and rural one-off houses. The intervention area in total includes almost 100,000 kilometres (km) of road network with houses along most roads.

Timing-wise, the NBP consists of three phases. At the time of preparing this report, in early 2015, the NBP is in Phase 1, with public consultation on the DCENR’s mapping exercise underway and due to conclude by the end of February 2015. Following that, Phase 1 will then see detailed design work over the following six months and will conclude in the latter part of the year with the government’s full intervention strategy, including costs and funding arrangements.

Phase 2, due in the second of 2015, plans to see State aid approval of the NBP, from the European Commission.

Following Phase 2, Phase 3 will then see the launch of a major procurement process later in 2015, culminating with contract awards to publicly funded providers of broadband in the intervention areas in 2016.

Clearly, then, the timing of the NBP is open-ended, with possibly the major delays, if any, likely to arise in regard to receiving EU State aid approval for the initiative (partly to ensure that the intervention does not impede or threaten to impede competition in the provision of broadband) and the procurement process itself, which may be the biggest risk to completion on time.

In light of these considerations, completion of the NBP by the end of 2016 may be optimistic, in the consultancy team’s view.

Source: DCENR, consultancy team review.

---

**BOX 2.2**

Summary of the National Broadband Plan (NBP)
Following three years of activity as a learning platform bringing together policymakers and business support practitioners to shape the development and testing of better approaches and tools for the creative sector, the European Creative Industries Alliance (ECIA) concluded with a conference in Amsterdam on 27-28 November 2014. This event saw the launch of an action plan ("policy agenda") centred on a set of 10 recommendations to maximise the innovative contribution of creative industries to the EU economy as a driver for competitiveness, job creation and structural change.

The suggestions have been derived from European Commission (DG Enterprise and Industry) pilot projects on the themes of voucher schemes for innovation support, access to finance, and cluster excellence for cooperation, and are grouped into 3 main categories:

1. **Stimulate innovation and growth by enabling cross-sectoral collaboration:**
   - Introduce creative innovation voucher schemes
   - Stimulate cross-sectoral innovation through public-private innovation challenges

2. **Build better business support and access to finance in effective regional eco-systems:**
   - Test new and review existing business support services and financing schemes
   - Develop and support capacity building in regional clusters
   - Enable and support SME internationalisation efforts
   - Launch new and innovative financing schemes to support creative SMEs
   - Stimulate investments in creative industries through effective regional ecosystems
   - Support new initiatives to achieve better Intellectual Property Valuation for creative SMEs

3. **Measure and raise awareness of the value of the cultural and creative industries as a key driver of innovation and growth:**
   - Map and measure the effects and value of the creative industries in the wider economy
   - Incentivise and support stronger advocacy for cultural and creative industries.

A response at the event from a DG Education and Culture official confirmed that the EU will be actively focussing its attention on recommending 3 via funding sources such as the Creative Europe programme, and stressing the importance of investing in innovation and entrepreneurship within a sector, which has begun to assert its contribution to employment and economic development in recent years.

See Box 2.4 overleaf, where Sligo has been identified as providing good practice in creative industry support.

Among the selected models of good practice featured as case studies in the ECAI final report is the Sligo County Council-led ‘Creative Challenge Celtic Crescent North West’ (4CNW) support programme, which according to the report demonstrates how public authorities can stimulate business innovation take-up and increase enterprise, by partnering creative professionals with businesses in the wider economy during 2012 and 2013.

According to the report, the operation of 4CNW demonstrated a huge latent capacity for the application of creative services and input across business sectors. It showed a lack of capacity for businesses to define their creative needs and a lack of awareness of the depth of creative talent available in their local region. This provides evidence of the need for capacity building mechanisms to grow knowledge and awareness within industry as to the value of creative services.

The application of the scheme’s talent voucher fund allowed the value of creative services to be showcased and demonstrated. It created new avenues to markets and clients for creative industries while developing new solutions for participating business.

The holistic, bespoke business supports offered by 4CNW provided a coordinated and targeted response, towards stimulating new markets, enhancing competitiveness and innovation among many small firms across a range of enterprise sectors.


46 Separately, the European Creative Business Network (ECBN) of creative centres and development agencies recently launched a publication entitled ‘ACCESS: A Manifesto for Growth in Europe’s Cultural and Creative Industries’ (https://app.box.com/s/3d883jn7fi33a43q6tn2). This document sets out the acquired knowledge of the ECBN and its membership regarding how best to support creative businesses to grow based on five principles for effective support for the purpose of internationalisation – both within and beyond Europe. These are the need for tailored support recognising each individual business’ unique requirements; for face-to-face interaction; for small firms, start-ups and young entrepreneurs not to be overlooked; for adequate EU support packages to allow SMEs to reach their potential; and for better data and evidence through improved evaluation of the impact of programmes on businesses.
3.1 INTRODUCTION

This section presents the findings of two forms of analysis conducted by the consultancy team with the view to building up an informed and evidence-based view of the current or baseline structure and performance of the digital content sector in Ireland and the Irish border counties. The results of both the quantitative and qualitative analyses carried out are reported in this section. Taken together, they provide the platform for the foresight analysis outlined in the next section of the report.

3.2 EMPLOYMENT

3.2.1 IRELAND AS A WHOLE

3.2.1.1 Results of Quantitative Analysis

Introductory Remarks

The data underpinning the quantitative analysis of the baseline situation of the digital content sector countrywide come from official and/or independent sources, namely the CSO and Forfás, the former national enterprise advisory agency which today operates as part of the DJEI. The other data considered are from some of the reports reviewed in Section 2: in particular, relevant available quantitative data in the then Forfás report on the games industry in Ireland (2011), the GamesDevelopers.ie report (2012) and from the Audiovisual Federation on film television and animation.

Owing to the different sources of data utilised, an element of judgement has necessarily had to be exercised in regard to defining what is meant by the digital content sector and the subsectors therein. This is because there is no exact correlation between the five subsectors making up the digital content sector, as specified in the terms of reference, on the one hand, and the data sources considered, on the other hand. Accordingly, we have delineated ‘broad’ and ‘narrow’ definitions of the digital content sector using the available official/independent evidence. This helps in understanding the relative scale of the sector in relation to all sectors of the Irish economy and allows one to make statements of the kind “the digital content sector accounts for between x% and y% of overall employment in Ireland” with a reasonable degree of confidence, against which we can then seek to find the corresponding situation in the Irish border counties, and thereby compare the two employment densities.

Given the prominent position of Dublin nationally, and the fact that overall economic performance and infrastructure in the border counties has for many years lagged behind that of elsewhere in the country, it is anticipated that the density of digital content sector employment in the border counties will be lower than that overall across the country.

Results of Quantitative Analysis of the CSO’s Quarterly National Household Survey (QNHS)

The CSO’s Quarterly National Household Survey (QNHS) data generally provide the basis of Ireland’s employment/unemployment performance and is therefore an important information source. The QNHS data are publicly available on the website of the CSO but are pitched at a high level. In seeking to delineate the subsectors making up the digital content sector, we obtained from the CSO more disaggregated data at the NACE 2-digit level, where our interest lies with the subsectors in Table 3.1.

48 The main source of quantitative data on the digital content sector for the Irish border counties is the Honeycomb survey results of 2014 and the analysis of these is presented below.
On the basis of the subsectors shown in the first table below, we considered two definitions of the digital content sector, namely 'broad', which includes all five (CSO-defined) subsectors (NACE 58-60 and 62-63) and 'narrow', which is limited to the first three (i.e. NACE 58-60). Owing to the way in which the data have been grouped by the CSO, which is beyond our influence, there is no 'correct' grouping in regard to the five subsectors specified in the terms of reference for this study.

From our calculations, on the broad definition, the digital content accounts for about 65,000 people at work or 3.4% of all employment in Ireland and the proportion has grown strongly since 2000 (when it was 2.5%). On the other hand, taking the narrow definition, about 14,000 are working in the digital content sector and its share of all employment has remained at about 0.7%.

<table>
<thead>
<tr>
<th>Digital Content Sub-Sector (NACE Rev 2, 2 Digit)</th>
<th>Employment (000) 2000</th>
<th>Employment (000) 2007</th>
<th>Employment (000) 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Publishing Activities (58)</td>
<td>5.8</td>
<td>4.6</td>
<td>5.5</td>
</tr>
<tr>
<td>2 Motion Picture, Video and Television Programme Production, Sound Recording and Music Publishing Activities (59)</td>
<td>2.3</td>
<td>3.3</td>
<td>4.7</td>
</tr>
<tr>
<td>3 Programming and Broadcasting Activities (60)</td>
<td>3.3</td>
<td>4.1</td>
<td>4.0</td>
</tr>
<tr>
<td>4 Computer Programming, Consultancy and Related Activities (62)</td>
<td>28.5</td>
<td>31.9</td>
<td>44.4</td>
</tr>
<tr>
<td>5 Information Service Activities (63)</td>
<td>3.0</td>
<td>4.2</td>
<td>6.3</td>
</tr>
<tr>
<td>Digital Content Sector Employment in Ireland - Broad</td>
<td>42.7</td>
<td>48.0</td>
<td>64.8</td>
</tr>
<tr>
<td>Digital Content Sector Employment in Ireland - Narrow</td>
<td>11.3</td>
<td>12.0</td>
<td>14.1</td>
</tr>
<tr>
<td>Total Employment in Ireland</td>
<td>1,697.7</td>
<td>2,143.1</td>
<td>1,894.9</td>
</tr>
<tr>
<td>Digital Content Sector Employment % of Total Employment - Broad</td>
<td>2.5%</td>
<td>2.2%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Digital Content Sector Employment % of Total Employment - Narrow</td>
<td>0.7%</td>
<td>0.6%</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

Source: CSO Quarterly National Household Survey (QNHS), consultancy team analysis.

Note: Annual employment figure for each CSO subsector for each year is given as the average of the quarterly data per year. The figures for 2014 are based on the available data for the first two quarters of that year. According to the CSO, the underlying data in respect of the following subsectors, codes in (parentheses), in the following years, indicated in [brackets], should be treated with caution: motion picture, video and television programme production, sound recording and music publishing activities (59) [2010]; and programming and broadcasting activities (60) [2014]. The broadly defined digital content sector comprises the five CSO subsectors and the narrowly defined digital content sector consists of the first three CSO subsectors (i.e. publishing activities (58), motion picture, video and television programme production, sound recording and music publishing activities (59) and programming and broadcasting activities (60)). The full version of this table for all years 2007-2014 is given in Table A1 in the Annex of Supplementary Information.
Graphical illustration of the employment trends associated with the narrow and broad definitions of the digital content sector in Ireland, together with total employment, is provided in Figure 3.1 below. Due to scaling (e.g. there were almost 1.9m people at work in the Irish economy in 2004, compared with about 14,000 and 65,000 in the narrowly and widely defined digital content sector in that year respectively), it is necessary to portray the trends on a common basis – and so the trends are expressed in index number format with the base year chosen to be the first year, 2000 (=100). In each series, the trend in every subsequent year is interpreted relative to the value of 100 in the opening/base year.

Looking firstly at overall employment in the Irish economy, there was strong growth between 2000 and 2007, when the number of people at work in the country peaked at more than 2,140,000. With the onset of the international financial crisis, there was a small fall in overall employment in 2008, which then accelerated with the worsening recession in Ireland from 2008. Since 2012, jobs have been recovering. Noteworthy about the digital content sector is that, regardless of the narrow or broad definitions, it has outpaced overall employment since 2000 and has generally grown during the recessionary years.
The next graph below plots the trends in the employment shares attributed to the broad and narrow definitions of the digital content sector in Ireland during the period.

Looking firstly at the broad definition, the analysis reveals a non-monotonic trend, in which the share of all employment due to the digital content sector declined during 2000-2007 but then grew rapidly after 2007, even during the most severe years of the recession (2008-2010). The trend during 2012-2014 appears to exhibit more modest growth compared with that during 2007-2012.

By contrast, the trend in the narrowly defined digital content sector displays a much less dramatic pattern; but nevertheless a broadly similar one to the broadly defined sector, in which the employment share of the sector grew during the recession and has continued to grow since 2012.

Taken together, the trends in the employment shares associated with both the broadly and narrowly defined digital content sector reveal that jobs in the sector have grown more rapidly compared with other sectors of the economy since 2000 and that the sector has performed well during the downturn.

**FIGURE 3.2**

Illustration of the Share of All Employment Accounted for by the Digital Content Sector in Ireland (2000-2014)

Source: CSO Quarterly National Household Survey (QNHS), consultancy team analysis.

Note: Graph is based on the series presented in Table A1 in the Annex of Supplementary Information.

Analysis of the Baseline Digital Content Sector in Ireland and the Irish Border Counties
The results of the analysis presented in Table 3.2 below show the annual rates of growth in employment in the NACE 2-digit sectors making up the digital content sector in Ireland for the sub-periods 2000-2007 (pre-crisis), 2007-2010 (crisis years) and 2010-2014 ('recovery') as well as the period as a whole (2000-2014) (bearing in mind that employment is generally considered to be a ‘lagging’ indicator of economic activity, meaning that it tends to react after economic events, reflecting rigidities in the labour market).49

Apart from subsector NACE 59, the table shows that all subsectors experienced employment growth during the crisis years (2007-2010), and that during this time the contraction in employment in the aforementioned subsector was nowhere near that in the economy as a whole (0.6% versus 4.2% contraction).

Scrutiny of the growth rates reveals that during the recession and since 2010, employment in the digital content sector has surpassed that in the economy as a whole; whereas pre-crisis, it was the reverse (in aggregate, between 2000 and 2007, total employment in Ireland grew by 3.4% per year, whereas the corresponding rates of growth of the broad and narrow definitions of the digital content sector were much lower at 1.7% and 0.8% respectively).

Within the digital content sector in Ireland, the most rapidly growing subsectors by employment since 2010 have been NACE 59 (which captures television, film and animation production), NACE 62 (computer programming, consultancy and related activities), NACE 58 (publishing, comprising a rapidly growing digital content component) and NACE 63 (information service activities, which would include online/interactive content); whereas NACE 60 (broadcasting) has experienced employment contraction (largely due to broadcasters’ cutting costs in response to the significant falls in advertising revenues during the crisis years).

49 In contrast, managers’ purchasing decisions (equipment etc.) are generally views as a ‘leading’ indicator of economic activity.
### TABLE 3.2


<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Publishing Activities (58)</td>
<td></td>
<td>-3.3%</td>
<td>1.1%</td>
<td>3.8%</td>
<td>-0.4%</td>
</tr>
<tr>
<td>2 Motion Picture, Video and Television Programme Production, Sound Recording and Music Publishing Activities (59)</td>
<td></td>
<td>5.8%</td>
<td>-0.6%</td>
<td>9.5%</td>
<td>5.4%</td>
</tr>
<tr>
<td>3 Programming and Broadcasting Activities (60)</td>
<td></td>
<td>3.2%</td>
<td>4.1%</td>
<td>-3.7%</td>
<td>1.3%</td>
</tr>
<tr>
<td>4 Computer Programming, Consultancy and Related Activities (62)</td>
<td></td>
<td>1.6%</td>
<td>5.9%</td>
<td>4.1%</td>
<td>3.2%</td>
</tr>
<tr>
<td>5 Information Service Activities (63)</td>
<td></td>
<td>5.0%</td>
<td>10.5%</td>
<td>2.7%</td>
<td>5.5%</td>
</tr>
<tr>
<td><strong>Digital Content Sector Employment in Ireland - Broad</strong></td>
<td></td>
<td>1.7%</td>
<td>5.3%</td>
<td>3.7%</td>
<td>3.0%</td>
</tr>
<tr>
<td><strong>Digital Content Sector Employment in Ireland - Narrow</strong></td>
<td></td>
<td>0.8%</td>
<td>1.7%</td>
<td>2.9%</td>
<td>1.6%</td>
</tr>
<tr>
<td><strong>Total Employment in Ireland</strong></td>
<td></td>
<td>3.4%</td>
<td>-4.2%</td>
<td>0.2%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

**Source:** CSO Quarterly National Household Survey (QNHS), consultancy team analysis.

**Note:** Analysis is based on the numbers presented in Table 3.1. See also Table A1 in the Annex of Supplementary Information for the full series.

---

**Results of Quantitative Analysis of Data in the Forfás Games Industry Report of 2011 – Evidence of a ‘Dual’ between Foreign-Owned and Indigenous Games Enterprises in Ireland**

The Forfás report published in 2011 – The Games Industry in Ireland: An Action Plan for Growth – highlighted the potential for Ireland in the video and electronic games industry and identified issues fundamental to its future success and competitiveness.\(^{50}\)

In our review of the report in Section 2, we observed how, in carrying out the work for the report, Forfás identified the games industry as an ‘exemplar’ of the wider digital content sector. The report estimated that employment nationally in the games industry was almost 2,300 directly in 2011, having grown five-fold since 2004. Nationally there were in the region of 1,850,000 at work in 2011, implying that about 0.12% of the workforce was engaged in the games industry in that year. The Forfás report envisaged further growth in employment in the games industry of 4,500 by 2014, which would mean that the share of all employment in the games industry would double.

\(^{50}\) Supra footnote 27.
As outlined in our review of the Forfás report in Section 2, the ‘value chain’ of the games industry comprises the following five activities:

- **Game development** – the core of the industry in terms of including creative content and which in the Forfás report was found to have accounted for the majority of games companies (but not games employment) in Ireland (56% in 2011, according to Forfás estimates); and
- **Customer support** – including customer and technical support and which was found to account for 14% of the number of games companies in Ireland;
- **Middleware** – which refers to software integrated into games to handle specialised aspects of games (e.g. graphics, networking) and which was estimated to account for 7% of all games companies in Ireland;
- **Localisation** – which relates to adapting games to local markets and which was found to account for 5% of all games companies in Ireland (although this area was also seen to have strong growth prospects based on experience at the time of the Forfás report in 2011); and
- **Other activities** – including retail, publishing, aggregation etc. and estimated to account for the remaining 18% of games companies in Ireland.

However, when viewed by the number of people employed, a very different picture emerges. Analysis by the consultancy team of the data contained in the 2011 Forfás report on the number of persons employed in the games industry in Ireland is presented in Table 3.3 below.

Our analysis of the data compiled by Forfás is interesting in revealing a pretty clear ‘dichotomy’ or ‘dual’ in employment between Irish-owned and foreign-owned firms active in the games industry in Ireland.

In particular, over 30% of the employees among the Irish-owned companies were active in game development, in contrast to just 3% of the employees of the foreign-owned companies. Furthermore, almost 40% of those at work in the indigenous companies were involved in localisation, whereas the corresponding proportion among the foreign-owned companies was only 5%; and 65% of the workers in foreign-owned firms were active in customer support, while the same proportion for the Irish-owned companies was merely 2%.

A fairly clear pattern is therefore evident in which foreign-owned or FDI companies are geared mainly towards servicing activities (internationally-oriented), whereas Irish-owned companies are more concentrated in core/software activities, namely game development and localisation.

A striking fact of the games industry in Ireland, according to our analysis of the data contained in the Forfás report of 2011, is that over 90% of all jobs in the industry were accounted for by foreign-owned firms in that year (2,283 versus 234 in indigenous enterprises).

Thus, while Irish companies are focused more on core activities, proportionately speaking, their absolute employment contribution is dwarfed when set against that of their foreign-owned counterparts.
### TABLE 3.3

**Employment in the Games Industry in Ireland by Segment and Ownership (2011)**

<table>
<thead>
<tr>
<th>Games Industry</th>
<th>Irish-Owned</th>
<th></th>
<th>Foreign-Owned</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Employed</td>
<td>%</td>
<td>Employed</td>
<td>%</td>
<td>Employed</td>
</tr>
<tr>
<td>Game Development</td>
<td>73</td>
<td>31.0%</td>
<td>61</td>
<td>3.0%</td>
<td>134</td>
</tr>
<tr>
<td>Customer Support</td>
<td>5</td>
<td>2.0%</td>
<td>1,332</td>
<td>65.0%</td>
<td>1,337</td>
</tr>
<tr>
<td>Middleware</td>
<td>2</td>
<td>1.0%</td>
<td>41</td>
<td>2.0%</td>
<td>43</td>
</tr>
<tr>
<td>Localisation</td>
<td>91</td>
<td>39.0%</td>
<td>102</td>
<td>5.0%</td>
<td>194</td>
</tr>
<tr>
<td>Other Activities</td>
<td>63</td>
<td>27.0%</td>
<td>512</td>
<td>25.0%</td>
<td>575</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>234</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>2,049</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>2,283</strong></td>
</tr>
</tbody>
</table>

**HHI**

- **Irish-Owned**: 0.32
- **Foreign-Owned**: 0.49
- **Total**: 0.42

**Source:** The Games Sector in Ireland: An Action Plan for Growth (2011) (Forfás) (supra footnote 27), consultancy team review and analysis.

**Note:** HHI (Herfindahl-Hirschman Index) values above 0.20 generally indicate high concentration.

The statistic labelled ‘HHI’ at the bottom of the table above is a statistical measure known as the Herfindahl Hirschman Index. This generally estimates the degree of concentration of a given variable by summing the squares of the percentage shares over all categories (in this case, the categories are the components making up the value chain of the games industry). The HHI generally varies from 0 to 1, and in practice the closer the HHI value is to unity, the higher the level of concentration (an estimated HHI of 0.20 or more is generally considered to indicate high concentration). The HHI values of 0.32 and 0.49 for Irish-owned and foreign-owned employment in the Irish games industry shown in the table above are indicative of very high concentration:

- Irish-owned companies are concentrated in game development, localisation and other activities;
- Whereas foreign-owned firms, which are larger and employ significantly more, are focused on customer support and other activities – they are primarily geared towards serving their customers and other parts of their business models in overseas markets (in line with FDI more generally in Ireland, which tends to be focused on support services rather than core activities);
The dominance of the foreign-owned firms in turn means that the games industry in Ireland is focused primarily on customer support (59% of all employees among both foreign-owned and indigenous companies).

(As we shall see subsequently in our analysis of the baseline, the comparatively large FDI component of the Irish games industry means that it is much larger than its counterparts in NI and Scotland.)

Results of Quantitative Analysis of Data in the GamesDevelopers.ie Report of 2012

In our research review in Section 2, we also considered the GamesDevelopers.ie report of 2012, which sought to "establish a conservative estimate of the size, scale, distribution and make-up of those indigenous and international companies, who primarily derive their revenues from the computer and video games industry in Ireland in 2012."

Table 3.4 below – prepared by the consultancy team based on the survey data contained in the 2012 report – provides analysis of the 3,344 people estimated in the report to have been working in the industry in that year, broken down by segment within the games industry (top panel) and by region of the island of Ireland (bottom panel). Over half of those employed were found to have been active in publishing functions (which includes customer support) and a small proportion in core development, echoing the 2011 Forfás report. FDI firms were the largest employers in publishing functions. Dublin was the largest employment centre, although Munster (Cork and Limerick) was also significant.

<table>
<thead>
<tr>
<th>Region</th>
<th>Employed</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leinster</td>
<td>1,380</td>
<td>41.3%</td>
</tr>
<tr>
<td>Munster</td>
<td>1,044</td>
<td>31.2%</td>
</tr>
<tr>
<td>Connacht</td>
<td>211</td>
<td>6.3%</td>
</tr>
<tr>
<td>Ulster</td>
<td>8</td>
<td>0.2%</td>
</tr>
<tr>
<td>Retailer</td>
<td>701</td>
<td>21.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,344</strong></td>
<td><strong>99.8%</strong></td>
</tr>
<tr>
<td>HHI</td>
<td>0.32</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Games Industry Segment</th>
<th>Employed</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Development</td>
<td>280</td>
<td>8.4%</td>
</tr>
<tr>
<td>Publishing Functions</td>
<td>1,883</td>
<td>56.3%</td>
</tr>
<tr>
<td>Industry Services</td>
<td>445</td>
<td>13.3%</td>
</tr>
<tr>
<td>Retail, Sales, Publicity and Misc.</td>
<td>736</td>
<td>22.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,344</strong></td>
<td><strong>100.0%</strong></td>
</tr>
<tr>
<td>HHI</td>
<td>0.39</td>
<td></td>
</tr>
</tbody>
</table>

Source: "The Games Industry in Ireland" (Jamie McCormick), consultancy team review and analysis.

Note: HHI (Herfindahl-Hirschman Index) values above 0.20 generally indicate high concentration. A very small number of companies based in NI were also surveyed but their impact on jobs is very small (e.g. the Ulster figures in the bottom panel would include these firms).
Results of Quantitative Analysis of Data in the Audiovisual Federation Reports

The Audiovisual Federation (AF) is an IBEC (Irish Business and Employers Confederation) group that represents the feature film, television and animation industry in Ireland. The AF used to publish annual reviews of film and television production in Ireland. However, these reports have been discontinued, as the consultancy team learned in our consultation with the AF for this report. Nevertheless, the consultancy team managed to obtain the AF reports covering the period 2005-2010 (the AF reports were made available retrospectively by one year, so that, for example, the report for 2011 covers 2010 – this was the last of the AF reports to be published).

The AF/IBEC data also include information on employment within the television, feature film and animation sector and the data suggest that, while the number of full-time equivalent (FTE) jobs in the sector is small (less than 2,000 in 2010), the total number of jobs sustained by the sector is much larger.

In examining the AF data on the level of employment within the television, feature film and animation industry in Ireland, our interest lies with the number of FTEs. On a simple headcount basis, the number of people active in the industry looks impressively large (e.g. the last AF report published (2011) mentions that there were more than 15,000 employees in 2010). However, most of these people were engaged casually or informally (e.g. including extras on film/TV sets, catering and support etc.) and closer consideration of the data on FTEs presents a different and more accurate picture, in our view.

Table 3.5: Estimated Direct and Knock-On Employment in the Audiovisual Industry in Ireland (2005-2011)

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FTEs - Numbers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Productions and Major TV Drama</td>
<td>751</td>
<td>1,332</td>
<td>1,290</td>
<td>1,145</td>
<td>975</td>
<td>1,174</td>
</tr>
<tr>
<td>Feature Films</td>
<td>178</td>
<td>345</td>
<td>324</td>
<td>292</td>
<td>166</td>
<td>308</td>
</tr>
<tr>
<td>Animation</td>
<td>129</td>
<td>138</td>
<td>121</td>
<td>194</td>
<td>227</td>
<td>213</td>
</tr>
<tr>
<td><strong>Total Audiovisual Sector</strong></td>
<td>1,058</td>
<td>1,815</td>
<td>1,735</td>
<td>1,631</td>
<td>1,368</td>
<td>1,695</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FTEs - %</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independent Productions and Major TV Drama</td>
<td>71%</td>
<td>73%</td>
<td>74%</td>
<td>70%</td>
<td>71%</td>
<td>69%</td>
</tr>
<tr>
<td>Feature Films</td>
<td>17%</td>
<td>19%</td>
<td>19%</td>
<td>18%</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>Animation</td>
<td>12%</td>
<td>8%</td>
<td>7%</td>
<td>12%</td>
<td>17%</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Total Audiovisual Sector</strong></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Estimated Total Employment (Sector and Irish Economy)**

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBEC Multiplier to estimate Total Employment</td>
<td>3,616</td>
<td>6,087</td>
<td>5,167</td>
<td>6,217</td>
<td>6,117</td>
<td>9,457</td>
</tr>
<tr>
<td>PMCA-Estimated Type II Multiplier Total Employment</td>
<td>37.32</td>
<td>37.76</td>
<td>36.08</td>
<td>37.05</td>
<td>39.16</td>
<td>46.20</td>
</tr>
<tr>
<td><strong>Difference between IBEC and PMCA Estimated Total Employment</strong></td>
<td>1,418</td>
<td>2,432</td>
<td>2,325</td>
<td>2,185</td>
<td>1,833</td>
<td>2,271</td>
</tr>
<tr>
<td><strong>Difference between IBEC and PMCA Estimated Total Employment</strong></td>
<td>2,199</td>
<td>3,655</td>
<td>2,842</td>
<td>4,032</td>
<td>4,284</td>
<td>7,186</td>
</tr>
</tbody>
</table>

Source: IBEC/AF annual reviews, consultancy team review and analysis.
Note: The IBEC/AF annual reviews ceased to be produced after 2011 (thus 2010 is the latest data available).
The top part of Table 3.5 above shows that there were almost 1,700 FTEs in the audiovisual industry in 2010 (the latest year covered in the AF/IBEC data source, which has been discontinued) and that the number of FTEs has varied pretty markedly since 2005 (the variation in the number of people employed in the industry reflects variation in funding to the industry from year-to-year, most of which originates from outside Ireland and comes into the country via the Section 481 scheme).

By far the largest component of the audiovisual sector in terms of FTEs is television, which in 2010 accounted for almost 70% of the FTEs. The bottom of the table reproduces IBEC’s estimates of the total employment impact of the industry on the Irish economy (namely the sum of the direct FTEs plus other jobs sustained elsewhere in the economy through the spending of the sector). On the basis of its employment multipliers, the AF/IBEC estimated that there were almost 9,500 workers directly and indirectly sustained by the sector in 2010 (in particular, the overall FTE estimate of 9,457 is given as the product of the estimated IBEC multiplier of 46.20 and the total spend of the sector in Ireland, namely €204.7m in that year, which is not shown in the table above).

Shown at the bottom of Table 3.5 is an alternative method of estimating the knock-on employment impact of the direct FTEs associated with the audiovisual industry, using the Type II employment multiplier for the (CSO-defined) publishing, film and broadcasting sector in 2010, which PMCA has estimated (Type II multipliers include the effects of household spending as well as intermediate supply chain impacts of economic stimuli and are broader than Type I multipliers, which do not admit the effect of the household sector). Based on the consultancy team’s estimated Type II employment multiplier, the knock-on employment contribution of the direct FTEs working in the industry is appreciably lower compared with the impact associated with the AF/IBEC-estimated multiplier.

It is also noteworthy that the AF/IBEC estimates of employment in the audiovisual industry are at variance with the earlier figures quoted in respect of our review of the Creative Capital Report (2011), which mentions 7,000 in 2010.

Assessment of Employment in the Digital Context Sector in Ireland based on the Quantitative Data Analysis

Table 3.6 below pulls together the preceding results on the level of employment in the digital content sector in Ireland in the years 2009 and 2012, which are compared with corresponding data for NI and Scotland that the consultancy team received from Honeycomb/DkIT (the choice of the years 2009 and 2012 is determined by the NI and Scottish figure, as are the subsectors making up the digital content sector, which are seen to include fashion and textiles – which is

53 The estimated Type II multiplier used here is derived using the CSO’s input-output and supply and use tables for the same year as the AF/IBEC estimates of direct employment were given, namely 2010.
54 On 1 December 2014, it was announced that Galway has been designated as a UNESCO (United Nations Educational, Scientific and Cultural Organization) ‘City of Film’. As a result of this accolade, Galway is one of only a handful of cities to have achieved this award. According to media reports accompanying the story, it is estimated that the film and television industry in Galway (City and County) employs in the region of 700 people and generates approximately €70m for the local economy annually (see, for example, http://www.rte.ie/news/2014/1201/663765-film-designation/).
increasingly making use of digital technologies in respect of design). Indeed the relative scale of the fashion and textiles subsector in NI and Scotland is noteworthy in relation to that in Ireland, which has been in decline during the period and over a longer number of years; however, computer-aided design and niche manufacturing of high quality products are becoming more common in Ireland, and there were 5,400 people working in the industry in 2012.

**TABLE 3.6**

Employment in the Digital Content Sector in Ireland, NI and Scotland (2009 and 2012)

<table>
<thead>
<tr>
<th>County/UK Region</th>
<th>Employment - FTEs</th>
<th>CAGR (2009-2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Ireland</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>1,645</td>
<td>1,645</td>
</tr>
<tr>
<td>Film</td>
<td>180</td>
<td>440</td>
</tr>
<tr>
<td>Games</td>
<td>N/a</td>
<td>250</td>
</tr>
<tr>
<td>Advertising</td>
<td>1,390</td>
<td>2,230</td>
</tr>
<tr>
<td>Fashion &amp; Textiles</td>
<td>9,760</td>
<td>8,740</td>
</tr>
<tr>
<td>Publishing</td>
<td>1,085</td>
<td>435</td>
</tr>
<tr>
<td>Total</td>
<td>14,060</td>
<td>13,740</td>
</tr>
<tr>
<td>Total (less Fashion &amp; Textiles)</td>
<td>4,300</td>
<td>5,000</td>
</tr>
<tr>
<td><strong>Scotland</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>1,955</td>
<td>2,885</td>
</tr>
<tr>
<td>Film</td>
<td>2,760</td>
<td>3,965</td>
</tr>
<tr>
<td>Games</td>
<td>500</td>
<td>1,050</td>
</tr>
<tr>
<td>Advertising</td>
<td>4,770</td>
<td>6,490</td>
</tr>
<tr>
<td>Fashion &amp; Textiles</td>
<td>23,575</td>
<td>24,570</td>
</tr>
<tr>
<td>Publishing</td>
<td>10,340</td>
<td>7,935</td>
</tr>
<tr>
<td>Total</td>
<td>43,000</td>
<td>46,895</td>
</tr>
<tr>
<td>Total (less Fashion &amp; Textiles)</td>
<td>20,325</td>
<td>22,325</td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>1,788</td>
<td>2,291</td>
</tr>
<tr>
<td>Film</td>
<td>413</td>
<td>529</td>
</tr>
<tr>
<td>Animation</td>
<td>248</td>
<td>317</td>
</tr>
<tr>
<td>Music Technology</td>
<td>303</td>
<td>398</td>
</tr>
<tr>
<td>Games</td>
<td>1,141</td>
<td>2,283</td>
</tr>
<tr>
<td>Online Content</td>
<td>5,125</td>
<td>5,900</td>
</tr>
<tr>
<td>Advertising</td>
<td>6,525</td>
<td>6,800</td>
</tr>
</tbody>
</table>
| Fashion & Textiles| 7,100             | 5,400            | -29.9%
| Publishing       | 5,275             | 3,475            | -34.3%|
| Total            | 27,916            | 27,383           | -1.9% |
| Total (less Fashion & Textiles) | 20,816 | 21,983 | 5.6%  |
| **Total Employment in Ireland (000)** | 1,961.4 | 1,837.9 | -6.8% |
| % Total Employment | 1.1% | 1.2% |       |
The numbers of people working in the TV, film, animation and music technology industries in Ireland are based on the CSO QNHS data (Table 3.1 and Table A1) adjusted in view of their shares given by reference to the IBEC/AF data analysed (Table 3.5 and our stakeholder consultations (to gain a sense of the share attributed to the music technology industry as well as the television, film and animation subsectors). The games industry figures are based on the 2011 Forfás report on that subsector (Table 3.3), while the figures for the online content industry are based on the QNHS data for the information service activities (NACE 63) (Table 3.1 and Table A1). The latter source also informs the figures for the publishing industry in Table 3.6, while the QNHS data also underpin the employment figures for the advertising and fashion and textiles industries shown in Table 3.6.

According to the figures, the games industry was the fastest growing by employment during 2009-2012 (26% average annual growth), followed by the TV, film, animation and broadcasting industries (8.6% average annual growth), then the online content industry (4.8%) and advertising (1.4% average annual growth). On the other hand, there was appreciable employment contraction in the fashion and textiles industry in Ireland (8.7% average annual shrinkage) and the publishing industry (13% average annual shrinkage). However, it must be remembered that the period under consideration here (2009-2012) is chosen to facilitate comparison with the corresponding data compiled by Honeycomb for NI and Scotland, and this was a period of relatively deep contraction in the Irish economy. Referring to the detailed QNHS data in the Annex (Table A1), it is seen that the publishing industry has experienced growth in employment between 2012 and 2014, from 5,900 to 6,300.

Excluding fashion and textiles, there were in the region of 22,000 people at work in the Irish digital content sector in 2012, up from just below 21,000 in 2009, representing average annual growth of 1.8% during the period. In contrast, overall employment in Ireland fell by 2.1% during the same period, from 1.96 million in 2009 to 1.84 million in 2012.

This means that the share of all employment due to the digital content sector in Ireland has grown in recent years, where we estimate the sector’s share to have increased from 1.1% in 2009 to 1.2% in 2012. In the broad definition, the sector’s share of total employment was 3.3% in 2012, reaching 3.4% in 2014 (Table 3.1 and Table A1); in the narrow delineation, it is estimated that the share was 0.7% in these years (Table A1).

Noteworthy among the other figures in Table 3.6 above is the level of employment in the games industry in Scotland and NI (namely 1,050 and 250 in 2012 respectively), which are much lower than the corresponding figure for Ireland in that year (namely 2,283). As remarked earlier, this difference reflects the FDI games companies in Ireland – excluding the foreign-owned enterprises we find that the level of employment in the Irish games industry is about the same as that in NI. Also notable is the rapid growth of the film industry in NI (from 180 to 440 between 2009 and 2012, putting the industry there on an almost equal footing with its counterpart in Ireland) and the particularly large employment attributable to the Scottish film industry (3,965 in 2012). In respect of the NI data, it is interesting to observe the initiative put in place to grow the film industry there in recent years and its studio space is envisaged to overtake that in Ireland in the next few years.
3.2.1.2 Results of Qualitative Analysis – Stakeholder Engagements
In our consultations with more than 25 individuals across the 5 subsectors within the digital content sector, based in both the Border Counties and nationally, and including multinational/FDI enterprises as well as Irish-owned firms, the following findings emerged regarding the baseline employment position of the digital content sector nationally.

First, the rapid employment growth of the sector, in comparison with the whole economy, is recognised and there was broad consensus that the digital content sector is going through a rapid growth phase at the present time.

Second, the employment growth trend is apparent among Irish-owned enterprises as well as FDI firms and the sector’s growth has been especially impressive during the recessionary years.

Third, the profile of the sector has been raised considerably across the country in the past few years and there is increasing recognition of the employment opportunities available, which are helping to attract talent into the sector and sustain onward development accordingly (a good many of the new jobs in the sector in Dublin have been filled by other EU nationals and overseas workers, reflecting the operational requirements of the FDI companies and their preference to have 100% foreign language fluency in their customer support functions as opposed to hiring local graduates with third-level language qualifications).

Fourthly, the rapid growth of employment in the sector, and the many household digital company names/brands now present in Ireland (chiefly in Dublin) mean that the digital content sector is increasingly being seen as a viable and sustainable education and career option for school-leavers and graduates (and the brightest school-leavers and/or those with the high points in their Leaving Certificate or equivalent are beginning to take notice of the sector in regard to further study and/or career options and are not necessarily fixated with traditional high points courses with perceived earnings growth like law, medicine and finance, for example).

3.2.2 DIGITAL CONTENT SECTOR EMPLOYMENT IN THE IRISH BORDER COUNTIES
Results of Quantitative Analysis of the Honeycomb Survey Data of 2014
The Honeycomb survey results (2014) are the only information of any detail on the digital content sector in the border counties of Ireland. Because the survey was carried out in the whole of the Honeycomb Region, comparisons can be drawn in the baseline employment situation between the Irish border counties and the other two parts of the Honeycomb Region. We can then use the survey evidence to estimate the proportion of all employment in the border counties accounted for by the digital content sector, with which we compare against the situation nationally.

The following tables of results are based on the consultancy team’s quantitative analysis of the survey data made available to us by Honeycomb during the course of the study. We are grateful to Honeycomb and Glasgow-based market research organisation Ashbrook for providing the information and for answering some queries that we had of the information.

The telephone survey was carried out by Ashbrook during February 2014. Honeycomb provided Ashbrook
with a database of 560 companies/freelancers that it had put together. A total of 219 interviews were undertaken, representing an overall response rate of 39%. In the Irish border counties, 93 interviews were undertaken, representing a larger response rate of almost 50% (i.e. 188 companies/freelancers based in the Irish border counties were on the database provided to Ashbrook).

The response rates for the other parts of the Honeycomb Region were: NI (30%, based on 63 interviews completed out of 208 records in the Honeycomb database); and western seaboard of Scotland (38%, based on 63 interviews completed from 164 records).

A summary of the composition of the survey sample by Honeycomb project area is shown in Table 3.7. By subsector within the digital content sector, the survey results pertain to (a) film and broadcast, (b) interactive media and (c) other.55

---

### TABLE 3.7

<table>
<thead>
<tr>
<th>Honeycomb Project Area</th>
<th>Total Number of Records</th>
<th>Interviews Completed</th>
<th>Survey Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI</td>
<td>208</td>
<td>63</td>
<td>30.3%</td>
</tr>
<tr>
<td>Ireland</td>
<td>188</td>
<td>93</td>
<td>49.5%</td>
</tr>
<tr>
<td>Scotland</td>
<td>164</td>
<td>63</td>
<td>38.4%</td>
</tr>
<tr>
<td>Total</td>
<td>560</td>
<td>219</td>
<td>39.1%</td>
</tr>
</tbody>
</table>

Source: Baseline survey of the digital content sector in Ireland (2014) (6 border counties), NI (excluding Greater Belfast) and the western seaboard of Scotland, consultancy team analysis.

Table 3.8 shows the composition of the digital content sector in the Honeycomb Region by the number of people employed or used on average by provider, namely ‘full-time’, ‘part-time’, ‘freelance’ and ‘volunteer’ (these are the terms employed or used in the Honeycomb survey by Ashbrook).

---

55 The number of responses for the subsectors animation, games and music technology were insufficient to treat these subsectors individually (like film and broadcast, and interactive media). Accordingly, and with agreement with Honeycomb, the responses in respect of animation, games and music technology were assigned into an ‘other’ category, which also included the ‘other’ category in the master database that Ashbrook received from Honeycomb.
TABLE 3.8
Composition of the Digital Content Sector in the Honeycomb Region by the number of People Employed or Used by Provider

<table>
<thead>
<tr>
<th>Employment or People Used</th>
<th>Sub-Sector</th>
<th>Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Film &amp; Broadcast</td>
<td>Interactive Media</td>
</tr>
<tr>
<td>Full-Time</td>
<td>2.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Part-Time</td>
<td>1.1</td>
<td>0.4</td>
</tr>
<tr>
<td>Freelance</td>
<td>2.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Volunteer</td>
<td>2.5</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>FTEs</strong></td>
<td><strong>4.5</strong></td>
<td><strong>6.0</strong></td>
</tr>
</tbody>
</table>

Source: Baseline survey of the digital content sector in Ireland (2014) (6 border counties), NI (excluding Greater Belfast) and the western seaboard of Scotland; consultancy team analysis.

Note: The subsectors animation, games and music technology are included in the ‘other’ category. FTEs calculated here by the consultancy team as full-time + (part-time/2) + (freelance/2) (i.e. we add to the full-time data half of each of the part-time and freelance people working) (or alternatively FTE = full-time + (part-time + freelance)/2).

At the bottom of the table, we have independently estimated FTEs, using the formula full-time + (part-time/2) + (freelance/2) (i.e. we add to the full-time data half of each of the part-time and freelance people working), in order to get a meaningful sense of paid employment in the sector.

According to our analysis, FTEs are highest in interactive media (estimated 6 FTEs on average per firm compared with 4.5 in film and broadcast and 5.5 in the other category respectively).

By project area, the number of FTEs on average per firm is the same in Ireland and NI (estimated at 3.8) but highest in Scotland (estimate of 9.1)\(^{56}\).

Estimate of the Number of FTEs in the Digital Content Sector in the Honeycomb Region
We may employ the average FTE estimates per firm presented in Table 3.8 above to estimate total FTEs in each of the three project areas making up the Honeycomb Region – remembering that the figures in the table above pertain to average employment per respondent.

\(^{56}\) The formula for estimating FTEs may be re-stated slightly as full-time + (part-time + freelance)/2.
If providers based in the six border counties of Ireland account for on average 3.8 FTEs, then the 93 respondents to the survey from that part of the Honeycomb Region account for 353.4 FTEs. The respondents from the six Irish border counties represented 49.5% of the number of companies in the Honeycomb database provided to Ashbrook,\(^57\) which in turn would suggest a total of 714 FTEs working in the digital content sector in the six border counties of Ireland. The corresponding estimates for NI and Scotland are shown in Table 3.9 below.

The estimates should be treated with caution (they implicitly assume that the non-respondents to the Ashbrook survey have the same employment structure on average as the respondents, which may not necessarily be the case).

What the estimates nevertheless suggest is total employment (FTEs) in the digital content sector in the six border counties of Ireland of approximately 700, compared with almost 800 in NI (excluding Greater Belfast) and in the region of 1,500 in the western seaboard of Scotland.

**TABLE 3.9**

<table>
<thead>
<tr>
<th>Estimated Total FTEs</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI</td>
</tr>
<tr>
<td>790</td>
</tr>
</tbody>
</table>

What Proportion of All Employment in the Six Border Counties of Ireland is Due to the Digital Content Sector and How Does the Position Compare with that in Ireland as a Whole?

We can give further context to the estimate of 714 FTEs working in the digital content sector in the six border counties of Ireland by estimating the proportion of all people at work in this region that the 714 FTEs constitute. To do this, we need an estimate of the total number of jobs in the border counties. The most reliable information in this regard is provided by the CSO’s POWSCAR data (Place of Work, School or College – Census of Anonymised Records), which the consultancy team obtained specially for this purpose.\(^58\)

As shown in Table 3.10 below, a total of 134,793 people were at work in all sectors in the six border counties in the last census year of 2011.\(^59\) This suggests that about 0.5% of all jobs in the border counties are due to the digital content sector.

This proportion is less than half that estimated for Ireland as a whole, namely the proportion of 1.1-1.2% in respect of the share of all employment in Ireland accounted for by the digital content sector in 2009/2012 (Table 3.6). The estimated 0.5% share for the Irish border counties is a little lower than the share associated with the narrow definition of the digital content sector countrywide in Ireland.

---

\(^{57}\) Table 3.7

\(^{58}\) The POWSCAR data are not publicly available. They were assembled as part of Census 2011.

\(^{59}\) Most of these people would also have been living in the border counties but a number would also have been living in other parts of Ireland and some (but relatively few) would have been resident in NI.
2014, namely the 0.7% share shown in Table 3.1 (see also Table A1), and a good lot lower than the broad definition of the digital content sector nationwide in that year (viz. the 3.4% share of all employment in Table 3.1 and Table A1).

Thus, the density of digital content employment in the six border counties of Ireland is lower compared with that across the country as a whole, which is not unexpected given that the main urban areas where digital content activities tend to be most concentrated are located outside the border counties.

If the national density in Ireland also applied in the border counties, then the number of people working in the digital content sector in the border counties would vary from around 940 (narrow delineation) to over 4,000 (broad delineation), with about 1,600 in the in-between situation on the basis of 1.2% share of all employment estimated in Table 3.6.

### TABLE 3.10

The Proportion of All Employment in the Six Border Counties of Ireland Due to the Digital Content Sector

<table>
<thead>
<tr>
<th>Border County</th>
<th>Employment within County (2011)</th>
<th>% Digital Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cavan</td>
<td>19,251</td>
<td>0.5%</td>
</tr>
<tr>
<td>Donegal</td>
<td>37,358</td>
<td></td>
</tr>
<tr>
<td>Leitrim</td>
<td>8,042</td>
<td></td>
</tr>
<tr>
<td>Louth</td>
<td>32,809</td>
<td></td>
</tr>
<tr>
<td>Monaghan</td>
<td>16,520</td>
<td></td>
</tr>
<tr>
<td>Sligo</td>
<td>20,813</td>
<td></td>
</tr>
<tr>
<td><strong>Total Employment</strong></td>
<td><strong>134,793</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Baseline survey of the digital content sector in Ireland (2014) (6 border counties), NI (excluding Greater Belfast) and the western seaboard of Scotland, CSO POWSCAR data (2011) and consultancy team analysis.
The 0.5% figure in respect of the proportion of all employment in the Irish border counties accounted for by the digital content sector can also be compared with the corresponding figures in the two other parts of the Honeycomb Region, namely NI (excluding Belfast) and the western seaboard of Scotland. The estimated proportions can be derived using total employment data obtained from NISRA (Northern Ireland Statistics Research Agency) and the Office for National Statistics (Scottish data), and the estimates of the numbers working in the digital content sector in these parts of the UK, namely 790 in NI and 1,492 in the western part of Scotland (Table 3.9).

In the NI part of the Honeycomb Region, it is estimated that 0.2% of all those at work are employed in the digital content sector, based on 386,503 people at work in 2011 (census data).60

In the Scottish part of the Honeycomb Region, it is estimated that 1.1% of all people at work do so in the digital content sector, based on 130,355 people at work in that part of Scotland during October 2013-September 2014.61

The data analysis suggests that the density of digital content sector employment is highest in the Scottish part of the Honeycomb Region (1.1% of all employment) and lowest in the NI part (0.2%), with the density in the Irish border counties in-between (0.5%). The analysis also suggests that the Scottish density is about the same as that in Ireland as a whole (i.e. the intermediate estimate between the broad and narrow delineations of the digital content sector in Ireland).

3.2.2.2 Results of Qualitative Analysis – Stakeholder Engagements

Those consulted consider that, in a peripheral and economically disadvantaged region like the border counties, which have experienced high emigration, there will continue to be a preference for “safe” professions and occupations with well-defined career structures and comparative stability. Accordingly, it is felt, digital content sector activities tend to be still seen by schools, pupils and parents as potentially "risky" third-level study options and art/design, for example, remains a low take-up option at Leaving Certificate for the reasons that (a) it entails a lot of work (e.g. project work) and (b) to make a professional career out of it one needs to be exceptionally talented or else "very lucky", and other optional subjects at Leaving Certificate – like technology and design/communications graphics – tend be rarely available at schools due to equipment and resource issues.

60 The latter figure excludes the local authority areas around Belfast, namely Ards, Belfast, Carrickfergus, Castlereagh, Newtownabbey and North Down.
61 The local areas within Scotland for which employment data were available from the ONS are Argyll and Bute, Skye, Lochaber and Badenoch, Ayr, and Galloway and West Dumfries.
Those with whom we consulted believe that parents, pupils and schools make a connection between IT and digital content sector activities, on the one hand, and high profile US/FDI companies on the other hand (like Google, Facebook, Twitter, Dropbox etc.), which they think may mean that Ireland is vulnerable in the future in view of packages designed to attract FDI and/or greater competition from other host locations to attract FDI.  

Broadband and wider utilities are cited as issues impeding the development of the sector in the border counties, albeit improving in their urban centres but nevertheless the major challenge remains securing high-speed and reliable broadband in rural/remote areas and there is scepticism regarding the delivery of the NBP on time (by next year).  The various issues mean that the sector is likely to develop in the border counties in a manner not unlike that in the country as a whole (in miniature) with the main urban areas (like Dundalk, Sligo and Letterkenny) acting as “mini Dublins” for business development, although there is also recognition that delivery is happening at remote/rural level to a greater degree than previously (albeit from a low base) (e.g. small innovation centres like ‘The Hive’ in more rural counties like Leitrim).  

3.3 VALUE ADDED

3.3.1 RESULTS OF QUANTITATIVE ANALYSIS  
The CSO’s Annual Services Inquiry (ASI) enables examination of the digital content sector in the two NUTS II regions of Ireland, namely the BMW and S&E Regions. The six Irish border counties are part of the BMW Region but there are no detailed data available at NUTS III level in the ASI. At the time of writing this report, the latest year for which the ASI pertains is 2011 and even so there are some gaps in the data, as shown in the table below (signified by ‘N/a’). Care should therefore be exercised in interpreting the results of the analysis of the available ASI data. Nevertheless the information is of relevance and interest in the context of this report, as it allows us to draw inferences in respect of GVA per FTE as well as employment and employment shares in respect of the digital content sector.  

According to the results presented in Table 3.11, in the BMW Region, the broadly defined digital content sector accounted for 2.4% of all services employment in that region in 2011, whereas the corresponding proportion was 0.7% in regard to the narrowly defined digital content sector.  

Of particular note are the results relating to GVA per FTE. These show that value added per employee was appreciably higher in the digital content sector compared with all services sectors in the BMW Region in 2011 – by between 14% and 22% higher, the latter margin associated with the narrow definition of the digital content sector.  

These results point to the productive nature of the digital content sector in the BMW Region and suggest that the sector is especially productive when defined narrowly (i.e. excluding NACE sectors 62 and 63).
## TABLE 3.11

### Employment and Gross Value Added in the Digital Content Sector (2011) – BMW Region

<table>
<thead>
<tr>
<th>NUTS 2 Region and Digital Content Sub-Sector (NACE Rev 2, 2 Digit)</th>
<th>Selected Variables - Latest Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Employees (FTE)</td>
</tr>
<tr>
<td>Border Midland and Western (BMW) Region</td>
<td></td>
</tr>
<tr>
<td>1 Publishing Activities (58)</td>
<td>N/a</td>
</tr>
<tr>
<td>2 Motion Picture, Video and Television Programme Production, Sound Recording and Music Publishing Activities (59)</td>
<td>484</td>
</tr>
<tr>
<td>3 Programming and Broadcasting Activities (60)</td>
<td>611</td>
</tr>
<tr>
<td>4 Computer Programming, Consultancy and Related Activities (62)</td>
<td>2,434</td>
</tr>
<tr>
<td>5 Information Service Activities (63)</td>
<td>99</td>
</tr>
<tr>
<td>Digital Content Sector - Broad</td>
<td>3,628</td>
</tr>
<tr>
<td>Digital Content Sector - Narrow</td>
<td>1,095</td>
</tr>
<tr>
<td>All Sectors in the Annual Services Inquiry</td>
<td>150,397</td>
</tr>
<tr>
<td>Digital Content Sector % All Sectors in the ASI - Broad</td>
<td>2.4%</td>
</tr>
<tr>
<td>Digital Content Sector % All Sectors in the ASI - Narrow</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

**Source:** CSO Annual Services Inquiry (ASI), consultancy team analysis.

**Note:** N/a data not available. Latest years for which data are available by digital content subsector in the BMW Region are as follows: motion picture, video and television programme production, sound recording and music publishing activities (59) – 2011; programming and broadcasting activities (60) – 2011; computer programming, consultancy and related activities (62) – 2008; and Information service activities (63) – 2011.
A similar pattern in which the ratio of GVA to FTE in the digital content sector exceeds that for all services sectors is also apparent in the S&E Region; as evidenced by the results given in Table 3.12 below.

However, in this region, we find that the margin in value added per worker in favour of the digital content sector compared with all services sectors is higher in the broadly defined digital content sector (29% margin) than in the narrowly defined digital content sector (1% margin) (whereas in the BMW Region, the margin in favour of the digital content sector over all services sectors was higher in the narrowly defined digital content sector than in the broadly defined digital content sector, viz. 22% versus 14%, as shown above in Table 3.11).

Also noteworthy in the results in the table below is the comparably high density of all services sector employment in the S&E Region due to the digital content sector in 2011 (4.5% and 1% respectively in terms of the broadly and narrowly defined digital content sectors; whereas the corresponding proportions in the BMW Region were 2.4% and 0.7% in that year).

### TABLE 3.12

Employment and Gross Value Added in the Digital Content Sector (2011) – S&E Region

<table>
<thead>
<tr>
<th>NUTS 2 Region and Digital Content Sub-Sector (NACE Rev 2, 2 Digit)</th>
<th>All Employees</th>
<th>Full-Time Employees (FTE)</th>
<th>Gross Value Added (€000)</th>
<th>Gross Value Added per FTE (€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern and Eastern (S&amp;E) Region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Publishing Activities (58)</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
</tr>
<tr>
<td>2. Motion Picture, Video and Television Programme Production, Sound Recording and Music Publishing Activities (59)</td>
<td>2,642</td>
<td>1,306</td>
<td>195,815</td>
<td>149,935</td>
</tr>
<tr>
<td>3. Programming and Broadcasting Activities (60)</td>
<td>3,413</td>
<td>2,736</td>
<td>207,626</td>
<td>75,887</td>
</tr>
<tr>
<td>5. Information Service Activities (63)</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
<td>N/a</td>
</tr>
<tr>
<td>Digital Content Sector - Broad</td>
<td>28,248</td>
<td>25,315</td>
<td>3,218,726</td>
<td>127,147</td>
</tr>
<tr>
<td>Digital Content Sector - Narrow</td>
<td>6,055</td>
<td>4,042</td>
<td>403,441</td>
<td>99,812</td>
</tr>
<tr>
<td>All Sectors in the Annual Services Inquiry</td>
<td>623,179</td>
<td>426,732</td>
<td>42,155,118</td>
<td>98,786</td>
</tr>
<tr>
<td>Digital Content Sector % All Sectors in the ASI - Broad</td>
<td>4.5%</td>
<td>5.9%</td>
<td>7.6%</td>
<td>128.7%</td>
</tr>
<tr>
<td>Digital Content Sector % All Sectors in the ASI - Narrow</td>
<td>1.0%</td>
<td>0.9%</td>
<td>1.0%</td>
<td>101.0%</td>
</tr>
</tbody>
</table>

Source: CSO Annual Services Inquiry (ASI), consultancy team analysis.

Note: N/a data not available. Latest years for which data are available by digital content subsector in the S&E Region are as follows: motion picture, video and television programme production, sound recording and music publishing activities (59) – 2011; programming and broadcasting activities (60) – 2011; computer programming, consultancy and related activities (62) - 2008; and Information service activities (63) – 2011.
Mindful as we are of the caveats and gaps in the CSO ASI data, we may infer from the last two tables that: (1) the digital content sector is more productive than other services sectors in each of the BMW and S&E Regions (regardless of whether we take a wide or narrow delineation of the digital content sector); and (2) the employment penetration of the digital content sector is greater in the S&E Region, which is not surprising given that this region includes Dublin and that the BMW Region comprises the border counties and other counties with a comparably low population density.

3.3.2 RESULTS OF QUALITATIVE ANALYSIS
In our engagement with stakeholders, many did not know or have any evidence regarding GVA and/or productivity in the digital content sector in Ireland. However, others spoke about their experience that operators in the sector – not least freelancers and part-time workers – tend to be very productive, and it was surmised that this may be by necessity (e.g. to attain scale and revenue/margins and/or to fit their participation in the sector with other employment in which they may be engaged). It was generally felt that people working in the digital content sector tend to be well-networked as well as productive and creative, and this too is felt to be a requirement to operate successfully in the sector.

3.4 EXPORTS
3.4.1 IRELAND
3.4.1.1 Results of Quantitative Analysis
Results of Quantitative Analysis based on the Annual Business Survey of Economic Impact (ABSEI)
A key performance indicator (KPI) provided for in the ABSEI data concerns the ratio of total exports to total sales of agency-assisted enterprises. For each of the Irish-owned (i.e. under the remit of EI) and foreign-owned (IDA) enterprises covered in the data, we have calculated the average ratio across the five subsectors assumed to make up the digital content sector in the ABSEI and expressed the average ratio relative to the exports/sales ratio of all agency-assisted firms (accepting that our definition of the digital content sector may be overly broad because it includes, for example, telecommunications, which cannot be separated out of the data because it has been pre-grouped in the ABSEI).
Figure 3.3 above suggests that the extent of exporting activity among Irish-owned agency-assisted firms in the digital content sector is greater compared with that among all Irish-owned agency-assisted enterprises in all sectors (because the ratio graphed exceeds 100%, apart from 2000 and 2001, which were the years in which the so-called ‘dot.com’ bubble occurred internationally). However the ratio in favour of the digital content firms has fallen over time. In summary, EI client firms active in the digital content sector are more export-oriented than EI client firms generally but the export differential in favour of the digital content firms has declined (fairly sharply) over time (which may reflect that EI client firms in other sectors have grown their exports more rapidly).

The corresponding results for foreign-owned agency-assisted firms are presented in Figure 3.4, where the trend is more volatile. It appears from the graph that IDA client firms active in the digital content sector are less export-oriented than IDA client firms generally (now the ratio is less than 100%). This could reflect the size of the denominator in the calculations (i.e. total sales of the foreign-owned agency-assisted firms) and/or the degree of export intensity of other IDA client firms, for instance those operating in the pharmaceuticals sector, which is highly export-oriented.
Total Exports as a Percentage of Total Sales in Foreign-Owned Agency-Assisted Enterprises in the Digital Content Sector as a Proportion of Total Exports as a Percentage of Total Sales in All Foreign-Owned Agency-Assisted Enterprises in All Sectors in Ireland (2000-2012)

Source: Forfás/DJEI, consultancy team analysis.

Note: Graph is based on the detailed data presented in the Annex (Table A2).
3.4.1.2 Results of Qualitative Analysis on the Extent of Exporting

It is generally felt by those we consulted that the digital content sector and the wider creative sector in Ireland is still characterised by a preponderance of very small companies. Most or all businesses are reliant on certain incentives (Section 481 remains critical for businesses in TV, film, animation and broadcasting) and on a small number of large buyers (for example, in TV and broadcasting). As a result, exporting tends to be a challenge for most businesses, which are inclined to rely on local markets.

On the issue of large buyers and external opportunities, the BBC would be among the very largest buyers on the island of Ireland but there is a requirement for suppliers to be registered in the UK (e.g. NI) in order to supply the BBC and this may cut-off businesses registered in Ireland.

We were also told of an apparent shift occurring in which Irish games companies are relocating to Newry and NI more generally to avail of tax supports and some UK-based investors are encouraging this by developing angel investment networks. This would imply not only a re-location of Irish businesses but also the loss of any exports to the UK in which these businesses are involved.

3.4.2 IRISH BORDER COUNTIES

3.4.2.1 Results of Quantitative Analysis on the Extent of Exporting

Results of Quantitative Analysis of the Honeycomb Survey Data of 2014

It is evident from the results given in Table 3.13 overleaf that the principal markets for digital content sector businesses based in the Irish border counties are home-based. According to the analysis of the Honeycomb survey results, 78% of the enterprises based in the border counties sell into Ireland and similar patterns are also apparent in the other two parts of the Honeycomb Region, where the corresponding proportions are 74% for NI and 77% for Scotland.

Sales from Irish border county-based providers to England or Wales are relatively low (less than 3%). The relatively low proportion of sales from Ireland to England/Wales (compared with sales from each of NI and Scotland to England/Wales) reflects the UK jurisdiction effect and probably also currency fluctuations (the currently low rate of the euro against sterling may present an opportunity for increased exports from Irish-based businesses to Britain).

The extent of sales from Irish border-based businesses to other EU countries and to the US is also low (approximately 4%) but they are nevertheless slightly higher than the corresponding figures for NI and Scotland (less than or equal to 3%). This may also reflect currency and, in particular, Ireland’s membership of the euro, which makes exporting to continental Europe less risky, other things being equal.

It is also seen from the table that Ireland is proportionately a more important market to NI-based providers than NI is to Irish border county-based providers (with shares of sales of 10% and 5% respectively, also highlighted in the table). The asymmetric pattern of cross-border sales between Ireland and NI may reflect the fact that the Irish market is larger than the NI market and/or that the levels of prices and costs tend to be lower in NI than Ireland, giving NI-based providers a competitive advantage, ceteris paribus.
### TABLE 3.13

Composition of the Digital Content Sector in the Honeycomb Region by Geographic Market

<table>
<thead>
<tr>
<th>Geographic Market</th>
<th>Film &amp; Broadcast</th>
<th>Interactive Media</th>
<th>Other</th>
<th>NI</th>
<th>Ireland</th>
<th>Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI</td>
<td>19.1%</td>
<td>27.6%</td>
<td>22.9%</td>
<td>73.6%</td>
<td>5.1%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Ireland</td>
<td>36.3%</td>
<td>38.0%</td>
<td>29.5%</td>
<td>9.6%</td>
<td>77.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Scotland</td>
<td>30.1%</td>
<td>16.0%</td>
<td>25.3%</td>
<td>0.4%</td>
<td>1.9%</td>
<td>77.0%</td>
</tr>
<tr>
<td>England/Wales</td>
<td>7.4%</td>
<td>9.0%</td>
<td>9.4%</td>
<td>10.4%</td>
<td>2.6%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Other EU</td>
<td>5.6%</td>
<td>1.6%</td>
<td>2.4%</td>
<td>2.6%</td>
<td>3.9%</td>
<td>3.0%</td>
</tr>
<tr>
<td>US</td>
<td>1.4%</td>
<td>4.3%</td>
<td>0.4%</td>
<td>2.7%</td>
<td>3.6%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Asia</td>
<td>0.2%</td>
<td>1.3%</td>
<td>0.3%</td>
<td>0.6%</td>
<td>0.2%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Other</td>
<td>0.5%</td>
<td>1.3%</td>
<td>2.4%</td>
<td>0.0%</td>
<td>1.4%</td>
<td>2.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>101%</strong></td>
<td><strong>99%</strong></td>
<td><strong>93%</strong></td>
<td><strong>100%</strong></td>
<td><strong>96%</strong></td>
<td><strong>100%</strong></td>
</tr>
<tr>
<td><strong>HHI</strong></td>
<td><strong>0.27</strong></td>
<td><strong>0.26</strong></td>
<td><strong>0.21</strong></td>
<td><strong>0.56</strong></td>
<td><strong>0.61</strong></td>
<td><strong>0.62</strong></td>
</tr>
</tbody>
</table>

**Source:** Baseline survey of the digital content sector in Ireland (2014) (6 border counties), NI (excluding Greater Belfast) and the western seaboard of Scotland, consultancy team analysis.

**Note:** The subsectors animation, games and music technology are included in the ‘other’ category. HHI (Herfindahl-Hirschman Index) values above 0.20 generally indicate high concentration. Shaded cells by consultancy team to help show key results. The totals of the percentages are as in the survey report prepared by Ashbrook (2014).
3.5 ISSUES AND CHALLENGES

3.5.1 IRELAND

3.5.1.1 Results of Qualitative Analysis

Access to Funding

Access to funding - in particular, short or medium-term lending to enable purchase of capital equipment or scaling for example - has undoubtedly been one of the main impacts of the banking crisis in Ireland. In response, the government established the Credit Review Office (CRO) and has sought to ensure that entrepreneurs and businesses throughout the country are informed of all business supports and funding opportunities (e.g. the Action Plan for Jobs 2015 contains a link to such information).

According to those with whom we spoke during the study, the general feeling is that access to finance remains an issue for some providers in the digital content sector but in general access to “seed funding” has been recognised and the need for “growth capital” has been tempered by payment styles of the industry/subsector – in other words, there is recognition that funding is being tailored towards the needs of the sector in the border counties (but at the same time there remains a tendency for traditional high-street/retail banks to be risk-averse in regard to the digital content sector).

Without conducting an in-depth quantitative empirical study, it is not possible to ascertain the extent to which funding issues have affected small businesses in the digital content sector recently or currently.

Some stakeholders consulted mentioned non-traditional funding sources, such as “crowd-funding” and “peer-to-peer funding” as possible growth areas in Ireland. The consultancy team is aware that these new sources are gaining popularity in the UK but the Central Bank of Ireland has expressed concern regarding the regulation of these sources, in the interests of the efficacy of business lending markets. In the UK, the Financial Conduct Authority (FCA) found that crowd-funders were giving a “misleading or unrealistically optimistic impression of the investment” while attracting retail customers with little experience of investing. The FCA previously warned investors “it is very likely you will lose all your money” in equity crowd-funding, which involves taking stakes in unlisted companies that are often in their early stages.64

Stakeholders were generally praiseworthy of government attempts to enhance information on funding opportunities to non-traditional borrowers such as those within the digital content sector; but they also believe that a key challenge remains one of “mainstreaming” the digital content sector in the eyes of the traditional (but still the predominant) funders in the border counties (namely the high-street retail banks).

Stakeholders were of the opinion that access to venture capital tends to be “remote” in the border counties, in contrast to the situation in Dublin, where VC tends to be more prevalent but nevertheless remains an elite form of funding.

Business Supports, Higher Education Institutions and Skills Availability

One of the other issues flagged up in our consultations with stakeholders regarding the baseline situation in the digital content sector nationally and in the border counties concerns higher education institutions (HEIs) and business support generally.

It is fair to report that the role of HEIs is viewed in a mixed manner by those with whom we consulted:

---

Tendency for supports to be supply rather than demand-led – and the moratorium on staff recruitment at HEIs is viewed as unhelpful (an ultimately “counter-productive” cost-saving measure);

Some consultees believe that HEIs should act as a “hub/catalyst” for development of the sector, but sometimes follow-through on initiatives is lacking;

Some felt that there may be an opportunity for HEIs to act as “a funding conduit for larger projects which SMEs in the sector cannot access by themselves”;

Some HEIs are improving from a low base in terms of SMEs accessing research with commercialisation potential;

One thought-leader consulted with emphasised the importance of “continuous engagement” between HEIs and businesses active in the digital content sector, in recognition of the rapid pace of change in the industry (building the relationship may be more important than establishing the relationship in the first place);

However, many felt that there is generally poor engagement between industry and academia for various reasons – including “the incentives” faced by academics (where promotion tends to be awarded based on publication records rather than industry engagement);

The quality of graduates is cited by many as generally “not aligned to industry needs” – for example, “insufficient specialist skills for the sector”, “poor coding skills”, “no portfolios (which tends to hurt graduates when it comes to job applications and interviews)” and the tendency for courses to be “too much focused on group work” rather than “developing individual talents and skills”.

Other Issues Nationally

Other issues facing the digital content sector highlighted in our consultations were as follows:

Awareness of specific developments can be poor – for example, the opportunities for small film and television producers provided for in the BAI public funding review of PSBs (2013) and support of the independent production sector through the Sound and Vision Scheme;

Gaming is “hit-dynamic” and highly unpredictable (the consultancy team would add here that it can be conceptualised as a ‘Poisson process’ in which a large number of trials are needed to generate a small number of successes/hits, each with a low probability of occurrence);

However, many felt that there is generally poor engagement between industry and academia for various reasons – including “the incentives” faced by academics (where promotion tends to be awarded based on publication records rather than industry engagement);
areas (like customer support).65

- Accordingly, the challenge facing supporting the growth of indigenous enterprises in the digital content sector is greater than that associated with attracting and maintaining multinationals, where Ireland’s corporation tax rate (12.5%) is a major international advantage;
- As a result, a greater vision needs to be developed as regards supporting the growth of small, Irish-owned enterprises in the sector;
- Geographically, there is a fairly widespread view that Dublin is the only centre within the country with “critical mass” in the digital content sector, taking in the so-called ‘Silicon Docks’ area of the city and its range of support functions, including specialist education providers like Ballyfermot College and at Dún Laoghaire Institute of Art and Design, for example;
- Nevertheless, many practitioners in the sector are by nature “networkers” and see the potential of development elsewhere in the country, although Dublin will always be the dominant centre.

65 As shown earlier in Table 3.3 and the commentary around it, the evidence of a ‘dual’ between the activities of FDI companies, on the one hand, and indigenous companies, on the other, is quite striking.

3.5.2 ISSUES AND CHALLENGES IN THE IRISH BORDER COUNTIES

3.5.2.1 Results of Quantitative Analysis

Results of Quantitative Analysis of the Honeycomb Survey Data of 2014

Evidence of a Relatively High Proportion of Freelancers and a Comparably Low Percentage of Limited Companies in the Irish Border Counties Part of the Honeycomb Region.

Table 3.14 below shows the composition of the digital content sector in the Honeycomb Region by business organisation broken down into (1) subsector (all three project areas together) and (2) project area, differentiating between Ireland (six border counties), NI (excluding Greater Belfast) and western Scotland. All of the estimated HHIs reported at the bottom of the table indicate high concentration by business organisation – of interest are the particularly noteworthy patterns, which we have shaded in the table for illustration purposes.

The interactive media subsector (which relates to the whole Honeycomb Region) is especially concentrated by business organisation, with a HHI value of 0.38, reflecting the relatively high shares attributable to limited companies (44%) and sole traders (42%).

By project area within the Honeycomb Region, the relatively high share of freelancers in Ireland (31%) and the comparably high share of limited companies in Scotland (54%) are noteworthy. Also notable is that the degree of concentration by business organisation is the same in NI and Ireland, although the proportion of limited companies in NI is greater than that in Ireland.

The Irish part of the Honeycomb Region is therefore striking in having the highest proportion of freelancers (31% versus 16% in NI and just 5% in Scotland) and the lowest percentage of limited companies (31% as opposed to 38% in NI and 54% in Scotland).
TABLE 3.14
Composition of the Digital Content Sector in the Honeycomb Region by Business Organisation

<table>
<thead>
<tr>
<th>Business Organisation</th>
<th>Film &amp; Broadcast</th>
<th>Interactive Media</th>
<th>Other</th>
<th>Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freelancer</td>
<td>Limited Company</td>
<td>Partnership</td>
<td>Sole Trader</td>
</tr>
<tr>
<td></td>
<td>23%</td>
<td>44%</td>
<td>4%</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>11%</td>
<td>40%</td>
<td>2%</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>33%</td>
<td>40%</td>
<td>8%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>11%</td>
<td>44%</td>
<td>2%</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>23%</td>
<td>44%</td>
<td>4%</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td>11%</td>
<td>40%</td>
<td>2%</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>33%</td>
<td>40%</td>
<td>8%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>11%</td>
<td>44%</td>
<td>2%</td>
<td>42%</td>
</tr>
<tr>
<td></td>
<td>31%</td>
<td>42%</td>
<td>8%</td>
<td>31%</td>
</tr>
<tr>
<td>HHI</td>
<td>0.28</td>
<td>0.38</td>
<td>0.31</td>
<td>0.30</td>
</tr>
</tbody>
</table>

Source: Baseline survey of the digital content sector in Ireland (2014) (6 border counties), NI (excluding Greater Belfast) and the western seaboard of Scotland, consultancy team analysis.

Note: The subsectors animation, games and music technology are included in the ‘other’ category. HHI (Herfindahl-Hirschman Index) values above 0.20 generally indicate high concentration. Shaded cells by consultancy team to help show key results. The rounding errors in the percentage totals are as in the survey report by Ashbrook (2014).
Evidence of Relatively Low Turnover in the Irish Border Counties Part of the Honeycomb Region

Table 3.15 below shows the composition of the digital content sector in the Ireland part of the Honeycomb Region (i.e. the border counties of Ireland) by turnover (measured in euro, €).

It is seen that the film and broadcast subsector is particularly concentrated, with a significant majority of providers having turnover of up to just €25,000 – the HHI is 0.29.

Across the whole sector in the Irish part of the Honeycomb Region, more than 80% of all providers had turnover up to €50,000, illustrating the largely small-scale and fragmented nature of sector, with a few relatively large providers with high turnover.66

66 The corresponding table of analysis for NI and Scotland is given in the Annex (Table A3.). This indicates a less concentrated distribution by turnover in those parts of the Honeycomb Region – for example, the proportions of providers in NI and Scotland operating with turnover of €50,000 or less are 67% and 42% respectively. The HHIs for the NI and Scotland parts of the Honeycomb Region are 0.22 and 0.21 respectively, which are smaller than the 0.25 for the Irish part, as shown in Table 3.15. Comparing this table with Table A3 (In the Annex), it is also seen that the film and broadcast subsector in the Irish part is more concentrated (with a HHI of 0.29) than the corresponding subsector in the NI and Scottish parts (0.25).

### TABLE 3.15
Composition of the Digital Content Sector in the Honeycomb Region by Turnover – Ireland

<table>
<thead>
<tr>
<th>Turnover (€)</th>
<th>Film &amp; Broadcast</th>
<th>Interactive Media</th>
<th>Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>&lt; 10,000</td>
<td>36%</td>
<td>34%</td>
<td>34%</td>
</tr>
<tr>
<td>10,000-25,000</td>
<td>36%</td>
<td>17%</td>
<td>30%</td>
</tr>
<tr>
<td>25,000-50,000</td>
<td>15%</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>51,000-150,000</td>
<td>3%</td>
<td>11%</td>
<td>6%</td>
</tr>
<tr>
<td>151,000-250,000</td>
<td>3%</td>
<td>9%</td>
<td>5%</td>
</tr>
<tr>
<td>401,000-600,000</td>
<td>0%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>801,000-1,000,000</td>
<td>3%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>2,100,000-4,000,000</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
<tr>
<td><strong>HHI</strong></td>
<td><strong>0.29</strong></td>
<td><strong>0.21</strong></td>
<td><strong>0.25</strong></td>
</tr>
</tbody>
</table>

Source: Baseline survey of the digital content sector in Ireland (2014) (6 border counties), NI (excluding Greater Belfast) and the western seaboard of Scotland, consultancy team analysis.

Note: The subsectors animation, games and music technology are included in the ‘other’ category. HHI (Herfindahl-Hirschman Index) values above 0.20 generally indicate high concentration. The size bands are as stated in the survey report by Ashbrook (where we note ambiguity between the second and third size bands, and discontinuities among the fifth-eighth size bands). In regard to the ‘other’ category for Ireland, the Ashbrook report states that there was “[i]nsufficient [s]ubsample [t]o [p]rovide [m]eaningful [o]utcomes”. The corresponding table of analysis for NI and Scotland is given in the Annex (Table A3).
Evidence of the Relative Skills Gaps in the Irish Border Counties Part of the Honeycomb Region

The Honeycomb baseline survey also found that the digital content sector in the Irish border counties has a number of skills gaps, as follows (proportion of respondents in the Irish border counties indicating skills gaps in business and/or workforce) [respondents’ views on the level of training to address skills gaps]:

- Business skills (63%) [roughly equal mix of intermediate, advanced and all-levels training needs];
- Sales and marketing skills (58%) [roughly equal mix of intermediate, advanced and all-levels training needs];
- Technical skills (46%) [55% identified advanced training needs];
- Finance skills (40%) [41% identified advanced training needs and 31-33% intermediate and all-levels training needs];
- Understanding IP requirements (40%) [57% advanced training needs];
- Skills in using software packages (33%) [54% advanced training needs];
- Creative talent (28%) [52% advanced training needs];
- Leadership and management skills (15%) [48% and 42% identified intermediate and advanced training needs respectively].

With the exception of leadership and management skills, the proportions indicating skills gaps for Ireland were higher than in the NI and Scottish parts of the Honeycomb project area.

Evidence of Willingness to Travel to Training/Events in the Irish Border Counties Part of the Honeycomb Region

Respondents to the Honeycomb baseline survey were asked to rate a range of locations within the Honeycomb Region (on a scale of 1-to-10) in terms of the extent to which they – or their employees – would be willing to travel for training and/or events. A clear enough pattern among providers in the Irish border counties is that they would be most willing to travel to the following urban centres, all of which have higher education institutions (HEIs) (average scores in parentheses):

- Belfast (6.9);
- Dundalk (6.7);
- Derry/Londonderry (6.5);
- Letterkenny (6.5);
- Coleraine (5.4).

Business Growth – Reliance on Government Support

The baseline survey reveals that 37% of all respondents in the whole Honeycomb Region received assistance from a government department/agency to help business growth – the corresponding proportion in the Irish border counties part of the Honeycomb Region is 40% (NI 37% and Scotland 35%).

Such assistance predominantly takes the form of a loan and the proportion of respondents indicating loan assistance was highest in the Irish border counties (70% versus 52% in NI and 64% in Scotland) (this reflects the broken banking sector in Ireland and, in particular, the issues around access to finance).

Analysis of the Baseline Digital Content Sector in Ireland and the Irish Border Counties
The biggest challenges identified in the baseline survey among respondents in the Irish border counties are (proportions in parentheses):
- **Access to funding** (75% - highest of the three parts of the Honeycomb Region);
- **Ability to innovate and respond to customer and market needs** (66% - highest of the three parts of the Honeycomb Region);
- **Access to markets** (53% - highest of the three parts of the Honeycomb Region).

The biggest infrastructural impediment to business growth in the Honeycomb Region is broadband capacity (51%) – this was most problematic in the Scottish part of the region (68%), followed by the Irish and NI parts (49% and 37% respectively). The legal environment is also an issue in Ireland (24% of respondents identified it as an impediment compared with 19% in NI and just 6% in Scotland).

### Networking

While networking is clearly an important facet of the digital content sector, the Honeycomb baseline survey found that less than half of all respondents (39%) were a member or affiliated to an existing network or trade association related to the sector. This was also the proportion in Ireland, while that in NI was 35% and that in Scotland 44%.

In the Irish border counties part of the Honeycomb Region, the extent of networking is as follows (proportion of respondents indicating collaborating working):
- Interactive media 43% (highest in the Honeycomb Region);
- Music technology 37% (highest);
- TV 33% (lowest);
- Film 31% (lowest);
- Animation 17% (joint lowest, with Scotland);
- Games 4% (second lowest – NI 8%).

Areas identified for future collaborative working in the Irish Border Counties include (where the area was found to be highest in the Irish part of the Honeycomb Region):
- Interactive media 80%;
- Product development 66%;
- Joint marketing 65%;
- Content creation;
- IP 61%;
- Music technology 54%;
- Animation 53%;
- Distribution channels 49%.

### 3.6 SUMMARY ASSESSMENT OF THE BASELINE DIGITAL CONTEXT SECTOR

We now round off this section of the report by pulling together both strands from the quantitative and qualitative analysis.

A useful conceptual way of thinking about the digital content sector is illustrated in Figure 3.5. This model was, to the best of our knowledge, first advanced in the Forfás (now part of the DJEI) games industry report of 2011, in which the games industry was proposed as an “exemplar” of the wider digital content sector. The three-pronged model – comprising business organisation, technology and market need, which interact with each other – provides a relevant means of summarising the current state of the digital content sector in the border counties and more widely nationally. While there is no correct approach to each of the three components of the conceptual model, it is generally felt that effective provision in the digital
content sector includes sound technologies that also
a market needs – a well-designed technology without
a demand will fail, while a half-baked product or
service that goes some way to meeting a need will
also meet the same fate. In regard to business
organisation, there is no “magic formula”; however,
many successful enterprises are limited companies,
which tend to stand a better chance of gaining equity
or debt capital, enabling expansion, and which have
the advantage of minimising risk to the founders. A
preponderance of freelancers and/or part-timers
may act against achieving sustainable growth in the
digital content sector; although there are exceptions
to this view (just as there are exceptions to the
general belief that the limited company structure
offers the most effective organisational form for
providers in the sector).

In the final analysis, as some stakeholders
emphasised, much depends on the founder/owner-
manager, his/her motivations, networks and
ambitions to build business using available resources
and supports.

**FIGURE 3.5**

Conceptual Model for Appraising the Digital Content Sector in the
Irish Border Counties

Source: Forfás/DJEI games industry report of 2011.
Countrywide, the digital content sector – whether broadly or narrowly defined – has grown more rapidly by employment compared with all sectors of the Irish economy. Against the general trend of employment contraction during the crisis years, the digital content sector experienced jobs growth during 2007-2012. That it remains a growing sector today came out loud and clear in our consultations with stakeholders/thought-leaders in the sector.

Today, it is estimated from the quantitative analysis presented in this section that the digital content sector accounts for between 0.7% and 3.4% of all employment nationally, depending upon whether a narrow or broad delineation of the subsectors making up the digital content sector is taken (there is no neat mapping between the subsectors identified in the terms of reference for this study and those for which data are available from official sources like the CSO and Forfás, and so an element of judgement needs to be exercised in evaluating the level of employment in the sector relative to the economy as a whole). In between the broad and narrow delineations, we consider that the digital content sector in Ireland accounts for about 0.5% of all employment in Ireland.

Because employment in the digital content sector has grown more rapidly compared with the overall economy, the share of all employment accounted for by the digital content sector in Ireland has increased over time, especially since 2007, after which the effects of the banking crisis took hold across the country.

Within the digital content sector in Ireland, the most rapidly growing subsectors by employment since 2010 have been NACE 59 (which captures television, film and animation production), NACE 62 (computer programming, consultancy and related activities), NACE 58 (publishing, which today comprises a rapidly growing digital content component) and NACE 63 (information service activities, which would include online/interactive content); whereas NACE 60 (broadcasting) has experienced employment contraction (largely due to broadcasters’ cutting costs in response to the significant falls in advertising revenues during the crisis years).

Another important performance metric for which information is available from official sources is GVA and the analysis presented in this section has shown that GVA per employee in the digital content sector is appreciably higher than that in other sectors in the economy, and this is true in the BMW Region as well as in the S&E Region. For instance, in the narrow definition of the digital content sector, GVA-per-FTE is more than 22% higher in the digital content sector compared with all services sectors in the BMW Region; the corresponding differential in the S&E Region is much lower (which is not surprising because services generally are strong in the S&E Region, which includes Dublin). In any event, the analysis reveals that earnings and productivity are higher in the digital content sector compared with other services sectors, and that the premium is relatively more pronounced in the BMW Region.

This brings us to the situation in the Irish border counties. Compared with the situation countrywide in Ireland, the penetration of the digital content sector in the six border counties is low. This is illustrated by the estimate that approximately 0.5% of all employment in the border counties is accounted for by the sector, which is lower than the aforementioned range of 0.7-3.4% for the State as a whole (depending on whether we take a narrow or broad view of the subsectors making up the sector nationally).
In the NI part of the Honeycomb Region, the analysis suggests that the proportion of all employment accounted for by the digital content sector is even lower than that in the Irish border counties (namely 0.2% compared with 0.5%); where in the Scottish part of the Honeycomb Region, the analysis suggests that the proportion (1.1%) is not far behind that in Ireland as a whole. This in turn suggests that the density of employment in the digital content sector is greatest in the Scottish part of the Honeycomb Region.

In the context of the Honeycomb Region (consisting of NI, excluding Greater Belfast, and the western seaboard of Scotland as well as the border counties of Ireland), the following features stemming from the baseline analysis are noteworthy in regard to the digital content sector in the Irish part of the project area (i.e. the border counties):

Business organisation:
- Especially fragmented sector compared with the other parts of the Honeycomb Region, taking the form of
  - Comparably high proportion of freelancers and low proportion of limited companies
  - Relatively low direct employment and low turnover
  - High reliance on government support to grow (mainly loans, but also mentoring and marketing) (apparent culture of “grant-searching”)

Technology:
- Predominantly low technical/capital requirements accompanying the fragmented nature and small scale of operators active in the sector, which is both a positive and a negative
  - A positive because it implies low barriers to entry to the industry
  - A negative because there are clearly identifiable but scaling and efficiency issues due to skills gaps (which are both general and sector-specific as helpfully identified in the Honeycomb survey conducted in 2014)
- Variety of skills gaps and needs – in both technical areas and in business and professional requirements to aid enterprise growth

Market need:
- Heavy reliance on local/domestic market, which is also a feature of the other parts of the Honeycomb Region and
- Low incidence of exporting and challenge of innovating to meet customer/market needs, which also tend to be observed in the other parts of the project area.

The exhibit below seeks to compare the digital content sector in the Irish border counties with that in Ireland as a whole and highlights the challenges/opportunities for the sector in the border counties on the right hand side.
FIGURE 3.6

Overall Assessment of the Relative Position of the Digital Content Sector in the Irish Border Counties Compared with Ireland as a Whole and Challenges/Opportunities for the Future

Compared with the Border Counties, the situation elsewhere in Ireland (particularly in Dublin and main urban centres) is more cohesive: they benefit from greater densities, more talent, more funding sources, better infrastructure and greater profile (e.g. Digital Hub). Larger urban centres also have more FDI in digital content and proximity to buyers (e.g. broadcasting). Density of employment much larger and employment growth more rapid.

More developed eco-system of infrastructure, entrepreneurs, HEIs (universities and IoTs), funding options, large companies and established clusters

**Big challenge/opportunity**

TO MAKE THE DIGITAL CONTENT SECTOR MORE COMPETITIVE IN THE IRISH BORDER COUNTIES

- Cost-competitive
- Product-competitive
- Hubs/clusters
- Opportunities through networking
- More professional approach
- HEI - meeting training needs

4.1 INTRODUCTION

This section of the report draws upon both qualitative and quantitative analyses (mainly the former) to set out an informed 'vision' of where we believe the digital content sector can get to by the end of the decade. The actions presented in Section 5 are designed to achieve the vision (in the Irish border counties) given in the present section of the report.

4.2 QUALITATIVE ASSESSMENT OF THE FORESIGHT VISION

4.2.1 OVERALL THEMES HIGHLIGHTED IN THE CONSULTATIONS WITH THOUGHT-LEADERS

4.2.1.1 Optimistic Prospects for the Digital Content Sector Nationally

There is generally a lot of optimism for the future of the digital content sector in Ireland, building on the growth achieved to date. Through FDI and the growth of indigenous businesses, it is generally accepted that Ireland is well-placed to take advantage of the increasing worldwide demand for digital content and links between the digital content sector and other activities, for example in the connected health and independent living fields. The wider IT sector has become very big in Ireland – with the largest global players now having a presence in Ireland – and the country possesses other natural advantages working to attract IT investment (e.g. its geographical location mid-way between the eastern and western hemispheres and its temperate climate, which means that it is becoming increasingly seen as an ideal location for data centres). In addition, initiatives like the Dublin Web Summit are viewed very positively and this event has grown to become a major part of the calendar. The IT sector is now Ireland’s largest exporter of any sector and pervades other sectors of the economy, and this is recognised in Irish enterprise policy (e.g. the MTES 2014-2020 and the Action Plan for Jobs 2015).

At the same time, however, there is due recognition among thought-leaders that nothing can be taken for granted in regard to inward investment and given the inherent uncertainty associated with the digital content sector. Industry leaders are cognisant of the OECD’s current review (BEPS – or base erosion of profit sharing) into international tax arrangements, which is due to conclude at the end of this year, and the State aid investigation by the European Commission into Irish government support for Apple in Ireland a number of years ago, inter alia. There is also the threat of increasing competition for FDI from neighbouring countries with similar features as Ireland – for example, the NI Assembly has recently announced that it will be reducing its corporation tax rate to 12.5%, with the objective of ramping up FDI, and the UK is becoming increasingly competitive in regards to attracting IT and digital content sector activities. These issues notwithstanding, there is general consensus that, as long as Ireland remains competitive on a number of fronts, it will continue to be seen as a very attractive host location for FDI in the digital sphere and will grow accordingly.

4.2.1.2 Importance of Attracting ‘Talent’ to the Sector

In anticipation of continued growth in the digital content sector over the medium-term (i.e. the next five years or so), companies are now seeking or planning to recruit, mainly in Dublin and its environs. Much talent is being brought in from overseas (e.g. to meet multinationals’ needs for foreign languages).

70 Ireland’s 12.5% corporation tax rate is not under any threat by the European Commission, the OECD or any other international organisation or other body. The Irish government has full powers for setting the rate.
Regional recruitment is more difficult and some creative disciplines are struggling to keep pace with demand (games, apps, music technology etc. – more technical areas).

4.2.1.3 Digital Content will Pervade Other Sectors and Enable their Growth

It is widely expected that digital content will be the principal driver for all other creative activities, by virtue of the ‘cloud’, personalised devices etc, and, over the medium-term between now and the end of the decade, it is anticipated that digital content will come to dominate the creative sector.

Related to the last point from the engagements is that the personalisation of the internet experience and the communities needing or using digital content will become much more important to the formulation of Irish enterprise policy, in which all sectors will find themselves connected to digital content and successful enterprises will be those capable of exploiting digital content productively and effectively (e.g. information, open data etc.) for their own operations. Mention was made earlier of the links under consideration between the digital content and connected health sectors. Other possibilities include tourism, food and drink, renewable energy technologies and international financial services – all sectors have the capacity to build on the digital content sector, which over time will become a form of infrastructure helping to support the growth of enterprises in other sectors of the economy.

4.2.1.4 Clustering in the Border Counties

The principle of clustering regionally commands support – while Dublin can be a leading international hub and leader in a number of subsectors of the digital content sector simultaneously, as evidenced by investments in recent years – regional locations outside of the capital are expected to be more specialised in a smaller number of years, reflecting existing strengths and the capacity for HEIs to support certain subsectors taking root.

Within the border counties, the urban centres of Dundalk, Sligo and Letterkenny, where there are Institutes of Technology, are seen as offering the best opportunities for sustainable clusters and employment growth in regards to the digital content sector.

As well as having HEIs (namely DkIT, Sligo IT and LyIT respectively), the aforementioned three centres within the border counties are also the NSS (National Spatial Strategy) Gateways in the NUTS III Border Region. Some of those with whom we spoke are aware of the cross-border links between Letterkenny and Derry/Londonderry and between Dundalk and Newry, and the potential for further development in each case. For example, the Letterkenny-Derry/Londonerry corridor is the only cross-border linked Gateway under the Irish NSS and the NI Regional Development Strategy, and supporting the growth of this particular corridor is the tradition of cooperation between their respective HEIs (namely between LyIT and Magee College, one of the constituent colleges of the UU). The Letterkenny-Derry/Londonerry corridor also boasts large-scale innovation centre space, in the form of the extended CoLab building on the LyIT campus in Letterkenny and the NI Science Park at Fort George in Derry/Londonerry.

The potential of the Dundalk-Newry link is seen within the context of the wider M1/A1 corridor between Belfast and Dublin, which includes the urban centres of Drogheda and Banbridge, for example, as well as Dundalk and Newry. However, the whole
While FDI will continue to be important to the development of the digital content sector in Dublin, it will be a challenge for the authorities to attract digital content sector FDI in the border counties. The talent associated with growing digital content clusters is multi-factorial – including technical, creative and foreign language capabilities – and the majority of the talent in the coming years will be required, and attracted to, the capital.

Accordingly, it is felt, Irish enterprise policy should continue to grow digital content sector activities at national level, where Dublin will continue to be the main attractor, and support the growth of smaller hubs to attain sustainable clusters outside the capital (Dundalk, Sligo and Letterkenny), each acting as local centres within the region, providing conference/networking and specialist training for the sector as well as workspaces for entrepreneurs and growing businesses.

4.2.1.5 Building a Digital Content Ecosystem in the Border Counties
The ‘big picture’ objective should be to support sustainable clusters at these local centres, with graduates having requisite skills across disciplines – creativity, design and STEM (‘D-STEM’) – and business supports working towards the higher-order enterprise functions of exporting and innovation. Like Dublin, albeit on a smaller scale, each centre should be seen as a local ‘eco-system’ facilitating the growth and development of the digital content sector and in turn the local centres should be linked to form a regional eco-system. DkIT could act as facilitator of the envisaged linked digital content sector eco-system, in tandem with Sligo IT and LyIT.

4.2.2 SUBSECTORAL OPPORTUNITIES
There are many grounds for optimism in the primary research undertaken as part of this foresight study.

4.2.2.1 Music Technology
This subsector of the digital content sector has had significant positives with research coming from Dublin Institute of Technology, start-ups such as ‘SoundCloud’ and others, and the capability to have a cluster based around content producers and technologists for international scaling. The music technology subsector is building across engineering, music, IT and web-tech, all complementary skills areas in the Ireland of today. Within the border counties, there is recognition of a potential clustering of firms and practitioners based around the PJ Carroll Building at DkIT and its academic researchers and producers in this sector. The links with Dublin and Belfast, via the A1/M1, is also recognised.

4.2.2.2 Animation
Training and skills development in this subsector are well-developed, but tend to be localised geographically in Ireland, primarily in certain colleges like Ballyfermot College of Further Education and the National College of Art and Design (both in Dublin). While the subsector has grown jobs in recent years, it remains a relatively small employer concentrated largely in Dublin, but nevertheless with tremendous development potential with other subsectors, including TV and film.

Given the likelihood of continued growth in automation of animation and the trend towards off-shoring to lower cost economies, it is difficult
to see significant jobs growth in the subsector over the medium-term. Nevertheless, the international reputation of the Irish animation industry is growing as evidenced by recent years’ Oscars nominations (further details given below in the assessment of drivers of change) and this very positive development bodes well for the industry in Ireland.

Particular employment opportunities in the subsector relate to engineers with technical skills, including 3D-modellers (more so than animators/creatives) and this also represents an opportunity for HEIs.

4.2.2.3 TV and Film Production

TV and film production, it is felt, must adapt better to operate and compete in an international buyers’ market. Brown Bag, Shinawhil and internationally successful productions like Mrs Brown’s Boys have shown the benefits of international-scaling products once created. It is possible to see a need for business skills and collaborative networks in this subsector to support the industry to grow from a largely freelancer model, focussed around RTÉ (as the largest buyer) to one that is production company-led in an international marketplace.

However, it is also realised that in many or most international markets, the presence of large public service broadcasters – the counterparts of RTÉ in other jurisdiction, which tend to be publicly-funded – means that there may be a preference for local production companies. The challenge, therefore, is for Irish-based production companies to have the scale and resources to compete for projects internationally – the incentives for PSBs is to keep their costs down and high quality production at competitive prices will be seen positively by purchasers.

4.2.2.4 Games

Games has a strong indigenous and FDI based lobby in Ireland, with some specific, complementary activities in each case. Indigenous companies have made a strong play in the physics of gameplay – for example, Havok and Demonware. FDI companies are primarily customer service centres and transactional-based, although they do provide access to international buyers for content. The industry has been seeking tax breaks for itself to aid development and sees itself as accounting for well over 2,000 people at work, based mainly in Dublin, Galway and Cork. However, the hit rate or success factor in games is generally very low and it is thus difficult to make a strategic bet for employment growth or significant value-added in the border counties, according to our stakeholder consultations. Nevertheless, there is an increasing demand for games content, stimulated by the prospects of success and competition, and developments often involved sub-contracting to smaller local players.

4.2.2.5 Interactive Online Content

This part of the digital content sector comprises a large number of activities and, according to our earlier quantitative analysis, is the largest employer of the subsectors making up the overall sector. Online marketing and the content therein is experiencing significant growth and many of the world leaders are already present in Dublin as Europe, Middle East and Africa (EMEA) HQs – e.g. Hubspot, Salesforce etc. There is an opportunity for content creators to get behind this development. The technical engineering skills for this subsector are still going to be drawn to the major urban areas and we are informed that several studio-type agencies in the border counties struggle with staffing requirements.

---

71 See Table 3.6.
4.2.3 KEY DRIVERS OF SKILLS AND EMPLOYMENT DEMAND BY SUBSECTOR

The next five charts below – Figure 4.1 to Figure 4.5 – provide graphical summaries of the key drivers of skills and employment demand for the respective subsectors within the digital content sector over the next five-ten years, based on our research review and consultations with thought-leaders (nationally) and key stakeholders (in the border counties region). In each case, and in line with comparable work carried out for the other parts of the Honeycomb Region, the drivers are grouped into the following headings:

- Regulation and governance;
- Demographic change;
- Environmental change;
- Economics and globalisation;
- Technological change;
- Values and identities; and
- Consumer demand.

Under each of the drivers are shown specific drivers, which arise mostly at national level, but they also reflect wider EU and international developments too. All will impact on the potential for the sector to develop in the Irish border counties.

It is relevant at this juncture to refer back to the 2014 OECD report entitled ‘Measuring the Digital Economy: A New Perspective’ which maps existing indicators of digital activity against digital policy issues and suggests a forward-looking international measurement agenda. The report was reviewed in Section 2.

According to the OECD report, the information society economy, including the digital content sector, is opening up new employment and skills opportunities as the sector continues to grow and this will present challenges for educational institutions as well as people seeking to work in the sector. The report concludes by saying that new statistical tools are needed to measure the digital economy and it proposes a forward-looking international agenda built around six areas as follows:

- Improve the measurement of ICT investment and its link to macroeconomic performance;
- Define and measure skills needs for the digital economy;
- Develop metrics to monitor issues of security, privacy and consumer protection;
- Promote the measurement of ICT for social goals and the impact of the digital economy on society;
- Invest in a comprehensive, high quality data infrastructure for measuring impacts; and
- Build a statistical quality framework suited to exploiting the internet as a data source.

4.2.3.1 Television, Film and Broadcasting

Regulation and Governance

Television and film are undergoing enormous change currently, driven by internet models of delivery such as Netflix and the increasing use of YouTube channels. This is placing strain on public service broadcasters (PSBs) and traditional commercial channels in a similar way to the pressure felt by flag airlines when de-regulation happened in that industry. Thus, it is felt by those spoken with that the model needs to drive down the price of content generation, while also allowing for increasing interaction with online media and competing advertising revenues. The opportunity is paradoxically presented in the same way – existing companies who have the depth of production experience also have the opportunity to scale their operations.

---

72 Netflix and other variants have given rise to the phenomenon of ‘binge TV’. For example, the release of the third series of House of Cards on 27 February 2015, through Netflix, was a major media event.
outputs internationally in ways they never had the capability to do before, perhaps by alignment with smaller, more flexible/entrepreneurial SMEs.

The television, film and broadcasting industry in Ireland is diverse and complex, as it is in other European countries, and comprises the production of audiovisual programmes for TV and radio, film production and the generation of news and current affairs, *inter alia*. The core activity is content production and this increasingly entails online and non-traditional media.

Television and radio in Ireland comprise a mix of public funding and commercial funding. The PSBs – RTÉ and TG4 – absorb the lion’s share of public funding but also are involved in commercial activities (they are ‘dual-funded’ broadcasters), while various commercial television and radio broadcasting organisations (e.g. Newstalk, TV3, Today FM etc.) are largely commercially funded. International organisations also compete in the Irish television market (e.g. Sky), through the advent of satellite and digital TV, and there are local radio broadcasters up and down the country (there are also local/community television broadcasters, available on digital and satellite TV, but their viewing figures are very small at the present time).

Key issues in television and radio production currently include ‘convergence’ of technology (where patterns of viewing and listenership are changing and the use of devices is changing – with the advent of mobile devices) and competition (where TV, radio and press compete for advertising revenue). Another issue (perceived or real) concerns ownership of media titles in Ireland and the link between ownership concentration and plurality of views.

At the risk of simplification, film production includes commissioned productions for television (where, for example, RTÉ will commission films or dramas for broadcast on its channels in line with its PSB remit), acquired films (where RTÉ or TV3 will buy the rights to broadcast films on their channels) and ‘big screen’ productions (intended for cinema broadcast).

Accordingly, the players in the industry are numerous and include the Broadcasting Authority of Ireland or BAI, the Irish Film Board (IFB) and Screen Producers Ireland (SPI). The latter organisation represents the independent production sector in Ireland and the IFB is the national development agency responsible for the development of the Irish film, television and animation activities and is responsible for supporting producers, writers and directors (people and organisations contributing to the supply-side of the industry). The BAI is responsible for regulating content across all broadcasting media in Ireland, assuming the roles previously held by the Broadcasting Commission of Ireland (BCI) and the Broadcasting Complaints Commission (BCC).

It is estimated that there are in the region of 3,000 people employed full-time in the Irish TV and film industry, with a further 300 or so working in the animation industry in Ireland. The industry has an appreciably strong voice in Ireland (e.g. through Section 481 tax relief – which will remain for companies but not for individuals, following Budget 2015) and through commissions from the PSBs, notably RTÉ but also TG4, which is active in commissioning niche dramas and documentaries.

As outlined earlier in Section 2, under section 124(8) of the Broadcasting Act, 2009, the BAI is now required, on a five-yearly basis, to conduct a review of the adequacy, or otherwise, of public funding to enable the PSBs (RTÉ and TG4) to meet their public service objects. The review is in addition to the annual reviews of public funding undertaken by the BAI and
it incorporates the consideration of a broad range of matters, including a detailed analysis of costed strategic plans submitted by both PSBs; the multi-annual funding requirements of the PSBs; the level of commercial funding available; and developments in public service broadcasting internationally.

In the first five-yearly review by the BAI, completed in 2013, the BAI accepted that there should be further investment in RTÉ’s programme output. But it identified a number of key conditions that should apply to any increase in public funding to that broadcaster, namely that:

- The potential for cost reductions and revenue increases should be fully realised by RTÉ;
- To the greatest extent possible, increased funding should be deployed through the independent production sector; and
- There should be a clear indication in advance of what the added funding will realise in terms of additional programming.

The rationale for deployment of additional funding to the independent sector is outlined by the BAI as follows:

- A strong independent production sector is essential for creativity and innovation in content for audiences and makes a significant contribution to the creative and cultural economy of Europe generally and Member States more specifically;
- This in turn serves to promote plurality and diversity in Member States;
- In many other European countries, besides Ireland, there is strong evidence of a requirement that PSBs broadcast a more even mix of content produced in-house and that made by independent producers (in this regard, the BAI mentions the BBC);
- Due to the economic circumstances, there has been a significant reduction in the level of RTÉ’s transactions with the independent production sector over the past five years (although RTÉ has complied with its statutory obligations in this regard).

The BAI’s proposals seek to avoid a further deterioration in the position in this regard in order to sustain the independent production sector and the diversity and plurality outcomes that ensue for audiences.

In film, the IFB and SPI are seeking to grow employment in the industry and Section 481 is of critical importance in this regard.

Other regulatory developments in Ireland include:

- Emergence of sustainable local/web TV channels – although it is believed that it will take some time before these new channels will build up audiences, according to our consultations;
- Intensifying competition in TV (e.g. UTV Ireland) and film (e.g. NI and Scotland) – consultees were unsure about what the effects of UTV’s recent entry to the Irish TV market would mean in the short-term (would it be able to generate brand loyalty?) but there is a fairly clear view of the extent of greater competition in film production from the likes of NI and Scotland (e.g. where NI’s studio capacity is now on a par with that in Ireland and which is expected to surpass that of Ireland’s in the coming years); and
- Limits on advertising to children and products (like sugary/fatty products), which may cut off a source of revenue for broadcasters.

73 Dr. Pat McCloughan, lead author of this report, was involved as Economic Advisor in the Crowe Horwath consultancy team’s study for the BAI’s 2013 5-yearly public funding review as expert economist.
Demographic Change
The Irish film and television industry is comparatively small: national and local television and radio within the country has tended to appeal to indigenous audiences and, to a lesser extent, the Irish diaspora overseas. During the pre-crisis years, when there was net immigration into the country, immigrants tended to be viewers of satellite TV and today they would continue with this and use online media to connect with their home countries. Irish TV and radio, and Irish film, tend to be specialist products with a distinctly Irish flavour (history, culture, accents, The Troubles, politics etc.) and some commentators observed that they are an “acquired taste”. As in other jurisdictions, there is an increasing trend towards older audiences (over-55 year olds) – cookery, lifestyle, travel, history programmes etc.).

In our consultations, the view was expressed that content providers are generally flexible in responding to demographic needs, as commissioned by the main broadcasters. In some cases, small producers will come together to meet market needs and this trend is expected to grow.

Environmental Change
Following the BS 8909 initiative in the UK (2011), the IFB has prepared a Green Production Toolkit for film and TV productions. The toolkit, which is downloadable from the website of the IFB, contains practical measures that can be implemented by any screen production company regardless of size. An issue here is that the toolkit or any other environmental requirement does not (inadvertently) disadvantage small producers vis-à-vis their larger counterparts in production competitions.

Economics and Globalisation
The chart in Figure 4.1 below highlights the following trends in economics and globalisation shaping the future of TV and film in Ireland in the coming years:

- **Internationalisation of markets** – however, some stakeholders with whom we spoke recognised that the key markets for film and broadcasting production (radio and television) remain largely national and it is easy sometimes to overplay the internationalisation dimension, apart from the major movies for the big screen;
- **New TV groups entering** – the most recent example is UTV entering the Irish market and the past few years have seen satellite broadcasters taking an increasing share of the market, where it is expected that exclusive rights (most notably in sports broadcasting) will become more important in the years ahead (perhaps with major debates – e.g. the GAA rights);
- **Access to finance** – this is more significant for smaller producers; although they also tend to be very flexible organisations who have been able to find ways around this and other barriers (e.g. through team-building to supply to larger broadcasters – networking is very important);
- **Broadband in rural areas** – this is seen as a major barrier to the development of latest TV technology in rural areas, with the NBP aiming to address the approximately one-third of the country in which broadband provision is not available or inadequate;
- **Difficulties in developing economies of scale** – this may be a barrier to entry or expansion in principle but in practice the independent production sector has shown itself to be capable of surmounting this perceived barrier through networking and working as part of team on productions for television and film;
- **Online advertising debate** – this is an issue between broadcasters and publishers (print media) and it concerns the exploitation of content for commercial purposes (competition-related complaints in recent
years have seen RTÉ having to overhaul its advertising share deal model, which was found by the then Irish Competition Authority to be anti-competitive and, without the Competition Authority having to take any enforcement action, RTÉ withdrew its scheme and introduced an alternative scheme);74

• Section 481 critical in Ireland – this will continue to be of critical importance to attracting film production to Ireland.75

Technological Change

The TV, film and broadcasting industry is one experiencing considerable technological change. On the demand-side, viewers and listeners now have much greater choice of broadcasters and are no longer bound by schedules (with podcasts and the advent of YouTube, for example).

The rapid technological change is in turn impacting on the supply-side of the industry, with broadcasters being especially sensitive to advertising trends and skills development to compete being important among producers.

However, according to those spoken with, there will continue to be a demand for key live events – for instance, the All-Ireland Football and Hurling Finals in September continue to attract the largest audiences in Ireland and TV dramas, documentaries and current affairs are expected to be premium in the Irish market. While news content has become more competitive – headlines, news stories – broadcasters are focusing on value added (analysis, features etc.).

In regard to production, Ireland is regarded as an “innovation follower” rather than an “innovation leader” (the UK is widely cited as an example of the latter, where innovative programmes like Who Wants to be a Millionaire?, The Cube, Dragons Den, The Apprentice etc. now have major international franchises).76

Values and Identities

The Irish production market in respect of film, television and broadcasting remains largely small and fragmented – most production companies employ less than 10 people and tend to be geared for the main buyers (RTÉ). This may explain why the industry is perceived as an “innovation follower” (although The Netherlands is regarded as a small country “innovation leader”).

There are certain values and identities associated with Irish production and broadcasting, including the emphasis on discussion and chat (in radio, current affairs and sport), personalities and current affairs/history. There is also a strong ‘Irish identity’ in TV and film production, stemming from our own perceptions and international stereotypes (which

74 The Competition Authority’s enforcement decision followed a complaint by TV3 (see http://www.tca.ie/images/uploaded/documents/E-12-001%20RTE%20Enforcement%20Decision.pdf). In 2014, the Competition Authority and the National Consumer Agency merged to form the Competition and Consumer Protection Commission.
75 Supra footnote 37.

76 Although Ireland is recognised as having advantages in certain genres, namely short films and animation. In the former, at the 2005 Academy Awards, Irish producers got ‘Oscars’ for the Best Short Film (Live Action) for Six Shooter and for the Best Documentary Short; in 2011, an Irish production company gained an Oscar for the Best Short Film (Live Action) for The Shore. Animation awards are considered below.
tend to be a feature of the production industries in other countries – all part of the creative process). Until recent years, Ireland was seen as less strong in children’s television (and radio) and sport; but it has responded strongly in the latter and is developing in the former.

Consumer Demand

It is undoubtedly the case that there will continue to be demand for Irish-produced content (this is the case in all countries where there is a need and wish for home-grown content – locality pervades the media).
Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Television, Film and Broadcasting

**Regulation and Governance**
- Emergence of sustainable local/web TV channels
- Intensifying competition in TV (e.g. UTV) and film (e.g. NI and Scotland)
- Limits on advertising to children and products

**Demographic Change**
- Immigrant and language pattern changing some production for exports
- Rising importance of the over-55 audience
- Irish diaspora

**Environmental Change**
Following the BS 8909 initiative in the UK (2011), IFB has prepared a Green Production Toolkit for film and TV productions

**Economic and globalisation**
- Internationalisation of markets
- New TV groups entering
- Access to finance
- Broadband in rural areas
- Difficulties in developing economies of scale
- Online advertising debate
- Section 481 critical in Ireland

**Technological Change**
- Blurring of distinctions between traditional and online TV content
- Growth of VoD services
- Use of smart TV
- Irish market largely follower rather than innovation leader

**Values and identities**
- Irish producers licensing in formats and seeking to develop own formats for international buyers
- Pay for premium becoming established from sporting origins
- Still strong 'Irish identity' in TV and film

**Consumer Demand**
- Increased audience interaction with programmes through social media
- Multiple screens simultaneously
- Children’s programming aligned with animations

**Key Drivers of Skills and Employment Demand in Television, Film & Broadcasting**

**FIGURE 4.1**
Regulation and Governance

Within the Honeycomb Region, the games industry in Ireland is comparatively large in employment terms. In particular, there are well over 2,000 people employed in the industry, compared with about half that in Scotland and approximately 250 in NI. The principal reason for the relatively large employment in the Irish games industry is the presence of multinational enterprises. As shown earlier in Section 3 (Table 3.3), the vast majority of the employment in the Irish games industry is due to FDI firms (91% of the total) and most of the employment in the multinational segment of the industry is dedicated towards customer support (65%). Focusing on the indigenous component, employment in the Irish games industry would be roughly on a par with that in NI (with about 250 people employed).

From our documentary review, data analysis and stakeholder consultations, it is expected that employment growth in the Irish games industry between now and the end of the decade will continue to grow rapidly, with 5% growth per annum anticipated. This is appreciably larger than the outlook for overall employment growth in Ireland, which is projected to grow by an average of 1.8% per year. Such has been the extent of growth in the Irish games industry (albeit from a low base) that it has become synonymous with the wider digital content sector, and in its 2011 report on the industry (reviewed in detail in Section 2) Forfás consider the games industry as an “exemplar” of the wider digital content sector.

However, while that report served to raise the profile of the games industry in the policy sphere, a number of people with whom we engaged expressed a sense of frustration that limited progress has been made in regard to implementing the actions of the Forfás report (2011). The actions themselves are generally considered to be relevant and targeting their implementation to facilitate further clustering is felt to be a worthy goal, so that the 2011 report may yet be implemented.

In regard to the possibility of tax or fiscal incentives for the games industry, stakeholders tended to be less sanguine (or more realistic) about the prospects for special treatment in the coming years, in light of fiscal rectitude, other demands on government and the possibility of State aid complications (or government being fearful or cautious about singling out a particular industry). There is also the added complication of the European Commission’s investigation into alleged State support for Apple a number of years ago.

Notwithstanding these qualifications, those consulted are generally very buoyant about the prospects for growth in the industry over the medium-term – many small indigenous companies are continuing to grow, the range of supports is becoming broader (through Enterprise Ireland and the Action Plan for Jobs 2015) and the industry will continue to be important in respect of Ireland’s FDI strategy.

Demographic Change

The demographic user base of games is broadening and two important trends are (1) the growth in ‘older’ gamers (15+ years) and (2) the expansion in female gamers.

The widening demographic base will in turn create new opportunities for games companies – both existing companies and new entrant enterprises. However, product development in the games industry is highly uncertain and the uncertainty can be seen
to comprise three sources: technical uncertainty – uncertainty over the design and working of the product; rivalry uncertainty – whether better or more sophisticated products are available or expected to become available from competitors; and market uncertainty – is the product catering for user needs?

Environmental Change
The movement towards digital distribution (online) reduces the amount of physical products that need to be produced (that mainly use plastic and packaging). While this pervasive development may have environmental benefits, the quicker access to online games may have other effects, for example on educational attainment and physical fitness.

Economics and Globalisation
The growth of emerging market economies is seeing rising demand for games and this is determining to a large extent the expected rapid growth of the industry.

An increasingly apparent trend is international distributors buying content and this is creating opportunities for games developers, where Irish-owned companies are more focused in the industry in Ireland.

To ensure that indigenous companies are in a position to respond to the opportunities, it is important that they have access to appropriate infrastructure, meaning fast and reliable broadband, access to finance and business support (e.g. LEOs and EI’s Competitive Start Fund and New Frontiers initiatives). Also in the domain of public policy is ensuring a steady stream of graduates to ensure skills availability, which in Ireland’s case means skills in regard to the large FDI component (primarily international services and languages – where the multinationals have a strong preference for 100% fluency and thus foreign nationals) and in respect of core activities like game development and localisation, which tends to be the focus of indigenous enterprises. Thus, qualifications and skills in mathematics, software engineering, coding languages; and in sales, management, accounting, finance, legal and foreign languages will be important to supporting the development of the industry in the years ahead. Educational policy in Ireland is sensitive to these requirements – for example, Project Maths at Junior and Leaving Certificate levels.

Technological Change
Technological change in the games industry is being driven to a large extent by the increasing prevalence and power of mobile devices, which means that games are available quicker to users and can be adjusted in response to users’ experiences (customisation, user groups etc.). Technological change is also seeing new devices and consoles, with emphasis on mobile technologies and portability (“always nearby”).

The games industry is console-driven and the next major console to launch is the Oculus Rift, predicted to sell over 15 million units in 2016. A new console needs content and this single event and other virtual reality headsets will drive demand for gaming and immersive experiences. The interplay between the games industry and connected health is also noteworthy with both medical and patient education utilising gaming concepts.

Like other subsectors within the digital content sector, the games industry has features of Schumpeterian ‘creative disruption’: Josef Schumpeter was an Austrian economist writing in the first half of the last century and sought to provide an alternative view of capitalist development
(to that of Karl Marx) based on the idea that new and better technologies drive out older technologies out (e.g. TV-based games disrupting arcade games and more recently mobile consoles disrupting/replacing TV-based games). The process is inherently uncertain and Schumpeter ultimately predicted that the process would sow the seeds of its own destruction as disaffected enterprises and firms would capture policy to slow the process down – vested interests etc.).

Values and Identities
While the profile of the games industry has been raised, there is a view that insufficient numbers of students are entering the industry in Ireland and it remains a challenge from a career vantage.

Policy and media have sought to support the industry in various ways – for example, through the promotion of STEM subjects at second-level, through the lauding of games and ‘techie’ entrepreneurs as role-models and through television programmes in which the stars are scientists (“cool geeks”).

Some of the those spoken with referred to these popular culture developments, which are viewed positively; however, at the same time, the reality is that working in the games industry is hard work and requires specialist skills and a strong work ethic, which can be a culture shock for the uninitiated.

Consumer Demand
As alluded to throughout this report, successful games must be technologically sound and at the same time fulfil a consumer need – one without the other will not succeed.

Among the main consumer trends in the games industry at the current time are the following:
• Growth in demand for mobile games (among various age groups);
• Personalised and enhanced user experience;
• Interaction with TV/film/animation; and
• Games with educational content.
FIGURE 4.2
Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Games

Regulation and Governance
- Tax/ fiscal incentives sought by industry
- Technical education and skills standards not achieved yet
- Limited progress on implementing actions of the Forfas report (2011)
- Profile of industry raised

Demographic Change
- Older gamers increasing (15 + years)
- Female gamers growing rapidly

Environmental Change
Movement towards digital distribution reduces the amount of physical products that need to be produced (that mainly use plastic)

Economic and Globalisation
- International players buying content
- Hit-driven among multiple efforts (Possion processes)
- Access to finance: EI funding opportunities - Competitive Start Fund and New Frontiers
- Broadband in rural areas
- Economies of scale
- FDI and indigenous dual

Technological Change
- Increasing prevalence and power of mobile devices
- New generation of consoles
- Schumpeterrain ‘creative disruption’

Values and Identities
- While profile has been raised, students not entering the industry to any great extent – ‘hobby’ rather than career
- Importance of STEM teaching and outcomes at schools and third-level interface still problematic

Consumer Demand
- Growth in mobile games changing demand
- Personalised and enhanced user experience
- Interaction with TV/film/animation
- Family games with educational content

Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland Games

Source: Consultancy team review of research and qualitative evidence.
4.2.3.3 Animation
Regulation and Governance

The animation industry has gained profile in Ireland in recent years with the announcement of a number of awards – including at the Academy Awards – and a number of specialist third-level courses have gained national reputation. The animation industry has experienced substantial growth over the past five years emerging as a central component of Ireland’s digital and creative economy. The body estimates that there are more than 1,000 people employed (technical and creative staff) in the industry – but it is not clear that these people are full-time or part-time and the estimate of 1,000+ (FTEs) would be inconsistent with the QNHS data analysed earlier. The industry is export-oriented and benefits from government supports (including Section 481 tax relief) and other government supports.

According to the website of Animation Ireland, a representative body for the industry in Ireland, Ireland is a recognised leader with talented and technically sophisticated 2D and 3D studios creating and producing content for TV, film, games, mobile and apps (online content). It also says that the Irish animation industry has experienced substantial growth over the past five years emerging as a central component of Ireland’s digital and creative economy. The body estimates that there are more than 1,000 people employed (technical and creative staff) in the industry – but it is not clear that these people are full-time or part-time and the estimate of 1,000+ (FTEs) would be inconsistent with the QNHS data analysed earlier. The industry is export-oriented and benefits from government supports (including Section 481 tax relief) and other government supports.

4.2.3.3 Animation
Regulation and Governance

The animation industry has gained profile in Ireland in recent years with the announcement of a number of awards – including at the Academy Awards – and a number of specialist third-level courses have gained national reputation.77

According to the website of Animation Ireland, a representative body for the industry in Ireland, Ireland is a recognised leader with talented and technically sophisticated 2D and 3D studios creating and producing content for TV, film, games, mobile and apps (online content). It also says that the Irish animation industry has experienced substantial growth over the past five years emerging as a central component of Ireland’s digital and creative economy. The body estimates that there are more than 1,000 people employed (technical and creative staff) in the industry – but it is not clear that these people are full-time or part-time and the estimate of 1,000+ (FTEs) would be inconsistent with the QNHS data analysed earlier.78 The industry is export-oriented and benefits from government supports (including Section 481 tax relief) and other government supports.

Demographic Change
The children's market is important for the industry and leads to wider business model development.

Environmental Change
As in other subsectors of the digital content sector, the trend towards digital content reduces the amount of physical products that need to be produced.

Economics and Globalisation
The same factors influencing the TV, film and games industries are apparent in animation. On the supply-side, skills (including design and computer production) are important as are infrastructure requirements in the form of reliable high-speed broadband, access to finance and business support. Localisation of characters is also important and naturally enough there is a general demand for the 'local'. Threats include the development of animation in emerging economies, which are excelling in computer-aided production and benefit from low costs.

Technological Change
Automated engines for development are emerging and device inter-operability is becoming critical for convergence with other subsectors (e.g. games).

Values and Identities, and Consumer Demand
There is a wide enough view that the industry in Ireland needs to move from a 'cottage' industry to a scaled industry format to compete internationally. Demand-wise, there is now international acceptance of animation as 'art' and as a 'mainstream media form' plugged into other media.


78 Table 3.1 and Table A1. Using the QNHS data underlying these tables and the IBEC data (Table 3.5), we would estimate in the region of 300+ FTEs in the animation sector in Ireland, which may be conservative (but it reflects official and independent data).
FIGURE 4.3
Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Animation

- **Consumer Demand**: International acceptance of animation as art and mainstream media form.
- **Regulation and Governance**: Small number of specialist third-level courses offered, images rights a wider issue.
- **Demographic Change**: Children’s market critically important and leads to wider business model development.
- **Environmental Change**: Development towards digital content reduces the amount of physical products that need to be produced.
- **Economic and Globalisation**: Localisation of characters important, low-cost economies have excelled in production, access to finance, rural broadband, EI funding opportunities - Competitive Start Fund and New Frontiers.
- **Technological Change**: Automated engines for development emerging, device interoperability critical.
- **Values and Identities**: Need to move from ‘cottage’ industry to scaled industry format to complete.

**Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland - Animation**

*Source: Consultancy team review of research and qualitative evidence.*
4.2.3.4 Online Content
Regulation and Governance

It is estimated that there are in the region of 6,000 people working in this part of the digital content sector in Ireland and that the subsector has been growing strongly by over 5% per year in recent years.79

A salient issue concerning regulation and governance of the online content sector relates to the intensifying competition between online content and traditional print content, which is prevalent throughout the EU and not just confined to Ireland. Once media content is produced (e.g. news), it can be deployed online basically instantaneously at little or no extra cost. In Ireland, the largest producer of news is RTÉ and that organisation’s development of its online news provision, which, it is argued by print titles, is in turn being produced at zero cost – they would like to see more open and transparent disclosure of the costs associated with RTÉ’s online content.

As a result of these developments, the formats of online and traditional/print contents are changing, where consultees discern a trend towards news stories being the focus of online content and print complementing shorter news feeds with analysis and features (although this trend is a simplification). It is pretty clear from the data and from those spoken with that traditional print media has been struggling in recent years (in the midst of the most severe economic downturn the country has ever experienced) – circulation has been falling in a declining advertising market. However, retail sales – a key indicator of demand for media advertising – has been recovering recently.

As outlined earlier, in Section 2, PwC’s ‘Entertainment and Media Outlook 2014-2018’ projects that while some of the well-established segments like newspaper publishing and pay-TV subscriptions are set to maintain the largest shares of absolute spend, the highest rate of decline in spending across all segments in the Irish market is forecast for newspaper publishing, with a 7.1% cumulative contraction expected over the period to 2018. On the other hand, the most rapid growth in spend in the E&M market will occur in digital content, which PwC expect will grow by 8.1% during the period in absolute terms and this will see a substantial market share increase from 33% to 45% by 2018 (e.g. online television advertising).

In addition, according to the PwC report, spend on digital recorded music will account for almost three-quarters of all recorded music spend by 2018, with expenditure on physical recorded music expected to contrast at a cumulative rate of almost 18% during 2014-2018. Digital music streaming will account for the highest rate of growth of 12.6%. In addition, PwC estimate that streaming revenues from TV subscriptions channels (such as Netflix) will remain as having the largest share of ‘through-TV’ subscriptions, other forms of digital streaming services are set to grow very rapidly and streaming

79 Table 3.1 and Table 3.2.
services as a whole are set for growth of almost 50% and will become one of the largest segments of E&M spend by the end of the period.

Other key regulatory/governance issues in the Irish market include data protection and child safety in an environment of greater digital content production and usage.

**Demographic Change**

In the early years of online content, it was thought that the activity would be confined to certain users, like younger age-cohorts and people in higher socio-economic groups.

However, this is not the case today – as confirmed by our engagement with stakeholders – and the use of online content is pretty well pervasive today, for example among ‘silver surfers’ and children as well as teenagers and people aged between 20 and 44 years.

Constraints on usage include the availability of reliable broadband, which remains a significant issue in many parts of rural Ireland and this can mean that people resident in these areas face a higher cost for accessing online content (because they are reliant on mobile data downloads as opposed to online content through wifi, for instance).

**Environmental Change**

The pervasive growth towards online content has meant less reliance on paper as people have switched from traditional media like newspaper and CDs to electronic devices.

**Economics and Globalisation**

The underlying economic issues determining online content in the coming years are:

- Broadband availability – the NBP is seeking to address this through public funding to support the availability of broadband in rural/low population density areas;80
- Shifts in online versus traditional media – print bearing the brunt of the disruptive change, with lower circulation, greater competition for advertising and issues of how to monetise online newspaper content (no standard model as emerged as yet);
- Software as a service (SaaS) or new delivery models for services relating to ‘cloud computing’;
- In Ireland, EI supports like the Competitive Start Fund and New Frontiers are becoming more important.

**Technological Change – ‘Open Data’**

Technological change developments include the growth in cloud utilisation, which is acting to reduce the cost of accessing and utilising online content, and users having more capability to build-and-use online content, which relates to ‘open data’, which we now consider.

Open data relates to the idea that certain data (e.g. maps, genomes etc.) should be freely available to everyone to use and re-publish as they wish, without restrictions from copyright, patents or other mechanisms. The governments of Austria and New Zealand, as well as the UK and the US, and other large countries, have open data websites enabling people, businesses and other organisations to access statistical and other forms of data for research, information and ultimately commercial purposes.

Arguments in favour of open data systems are that they improve information and evidence, facilitate basic research and commercialisation and make networking...
and collaboration easier (e.g. between academics and enterprises).

Another argument in favour of open data relates to the use of public funding to generate the data in the first place and therefore that it should belong to all, freely.

Arguments against open data being made available by the government are that it will ‘crowd-out’ private sector investment in data and intelligence gathering, and that ultimately the market for the provision of information would fail because the private sector would not have an incentive to invest in the first place and a sub-optimal supply of data and information would be the end-product.

The concept of open data systems is therefore not without controversy but represents an option worth considering, given its prevalence in various ways (but not universally) in many countries (which tend to have open data systems for certain types of data but in other cases publicly-provided data are charged). In regard to the latter, a considerable amount of publicly-generated data and information is charged for and examples include geo-spatial data and meteorological data. An issue then becomes the cost of provision, given that it is generated and provided by what are essentially public monopolies and whether the charges are cost-reflective and whether economic regulation would be necessary to ensure competitive matching of demand and supply.

The Irish government supports the concept of open data in principle and in 2014 the Department of Public Expenditure and Reform announced an open data platform on a pilot basis (http://data.gov.ie/) and the CSO has combined data from its last Census of Population in 2011 with online mapping tools that users, like consultants and researchers, can use for their work.

Values and Identities

The growth in online content is, in economic terms, a ‘network effect’ – it benefits from more and more users, which gives rise to greater demand for online content and so the cycle continues (YouTube is a good example of this and the RTÉ news website has links to related articles from the past, which reduce search costs, for instance).

Data gathering from various sources is now ubiquitous and the ‘always-on’ feature of the internet suggests that people are demanding content to be instantly available (they can now watch what they want by reference to online channels and audiences are no longer bounded by schedules).

Consumer Demand

Such is the vastness of the internet and online content media that ‘mass customisation’ has become a key trend – people can now read or watch what they want when they want, and often while watching or listening to traditional media, like TV and/or the radio.

Technology is moving as fast as people’s demands and there is now an expectation that any service will be available. This has led to numerous benefits (e.g. online banking, which can now be performed at any time during the day) and applications (‘apps’), many of which are widely used (e.g. taxi apps).

There is also a apparent growing demand for educational online content and this now takes different forms, including online written notes and online videos designed for particular courses, examinations that are freely available – and which may be complementing or replacing classroom work (which itself is increasingly making use of online content, through smart whiteboards etc.) or private grinds.
Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Online Content

Regulation and Governance
- Competition between different media formats in online provision (e.g., broadcasting and print) big issue (EU and nationally)
- Data protection in Ireland a key driver
- Wider regulatory issues - child safety etc.

Demographic Change
- Online content ever growing - among all age cohorts
- "Silver surfers" and children

Economic and Globalisation
- Brutally competitive market
- Print bearing the brunt
- Key issue for providers is how to monetise online content (no standard model yet)
- EI funding opportunities - Competitive start Fund and New Frontiers
- Access to finance
- SaaS growing
- Rural broadband

Technological Change
- Growth in cloud utilisation
- Technical capability to build-and-use increasing
- "Open data"

Values and Identities
- Data gathering now ubiquitous and "always-on" expectations (constant updating)
- "Give-it-to-me-now" expectations
- Start-up culture

Consumer Demand
- "Mass customisation" key trend
- Expectation that any service will be available

Environmental Change
- Less reliance on paper as switch being made to electronic devices

Source: Consultancy team review of research and qualitative evidence.
4.2.3.5 Music Technology
Regulation and Governance

It is estimated that there are in the region of 400 persons working on a full-time basis in music technology industry in Ireland and that employment in the industry has been growing rapidly in recent years, even during the recessionary years – in common with the overall digital content sector. Further evidence of the growth of the industry can be seen by the fact that undergraduate and postgraduate courses in music technology are now available, and becoming increasingly available, in the country’s universities and Institutes of technology. Music creation has artist tax support but is not necessarily a technology enabler. There is a close interface between the industry and online content, where music created would be a form of publishing. Music technology combines music composition, sound engineering and production.

Demographic Change
There are different layers to the demographics underpinning the industry. On the demand side, younger listeners/users are ‘born online’ and do not recall previous media like CDs and/or vinyl (although there is a trend of a return to vinyl, which is believed to provide a better audio experience), while older listeners continue to have a steady demand in respect of their tastes. On the supply-side, people coming into the industry have a variety of skills and qualifications today, including management, engineering, marketing, finance and legal as well as music and composition. IT pervades the skills sets. Third-level courses are relatively capital-intensive, requiring the availability of music making and recording equipment.

Environmental Change
There has been a considerable reduction in plastic, metal, vinyl etc. as the industry has seen a widespread switch to electronic/online distribution.

Economics and Globalisation
Those with whom we spoke talked about an ongoing demand for music. While music downloads have reduced or eliminated physical records or CDs in an actual store, the distribution of music has remained largely the same, namely to connect the producer with their audience through a retail outlet, in which software like iTunes have replaced the record store. Over the years, there have been mergers and acquisitions in the distribution segment of the value chain, meaning that today there are a small number of major labels (Capital/EMI Distribution (Time Warner), Sony/BMG, UNI Distribution (Vivendi Universal) and WEA Distribution (Warner Music Group)) and very few independent labels. Below the major labels are sub-distributors and online/internet or digital distributors. The latter supply iTunes, YouTube.com, Rhapsody, Napster and other Web music stores with the tunes they offer. It is expected that the distribution model is likely to remain the same over the medium-term and the rest of the industry value chain will be geared towards serving it (creation, production and engineering, distribution etc.).

Public funding sources like EI’s Competitive Start Fund and New Frontiers are designed with these trends in mind (e.g. to facilitate sound engineering).
Technological Change
Technological change is ubiquitous along the music technology value chain, from instruments to engineering and recording technology and listening/playing devices. Algorithmic prediction technology becoming commonplace – this includes mathematical analysis of demand patterns or successful music, so that, somehow, companies might be able to predict what is liked and what will become popular and a major hit (e.g. the artist Adele’s international hit Someone Like You has been extensively analysed to understand its huge popularity and one can also detect certain musical patterns in hits in a given period or advertising music, so that the messages will better connect with the public/buyers).

Values and Identities
The music and music technology industry has seen huge change – including the aforementioned consolidation – in recent years and this has meant new skills requirements as well as new opportunities and challenges. However, creativity has remained a central driving force, at the engineering and post-production stages as well as in creating the content per se. Many see that the industry will continue to change and sustain itself and that there will be further opportunities, including in collaboration with the other subsectors of the digital content sector.

Consumer Demand
It is well-accepted that online music is here to stay and there will be growth in device portability, enjoyment of music and music technology.

Some believe that, over time, users will be able to co-create or ‘soft-commission’ music in tandem with artists and/or technologists.

While music technology has enabled more people to create music – and allowed people poorly skilled in music to perform – there will always be a demand for good music/artistic content that is generally felt to be timeless (musical creativity cannot be taught).
FIGURE 4.5
Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland – Music Technology

- **Regulation and Governance**
  - Music creation has artists’ tax support... not technology enablers
  - Incentivising creation important to sustaining the industry
  - Regulation to distribution may be required

- **Demographic Change**
  - Born online music trends
  - Yet nostalgia and re-discovery of classic artists (classical, jazz, blues, pop etc.)
  - Portability trends

- **Environmental Change**
  - Less reliance on plastic, metal, vinyl etc. as switch being made to electronic distribution

- **Economic and Globalisation**
  - Mobile devices have seen the emergence of big distributors (see regulation)
  - EI funding opportunities- Competitive start Fund and New Frontiers

- **Technological Change**
  - What device is critical?
  - Algorithmic prediction technology commonplace to facilitate what makes for success

- **Values and Identities**
  - Publishing music is going to consumer platform
  - Sustainability of industry

- **Consumer Demand**
  - Music is online
  - Device portability
  - Co-creation

- **Key Drivers of Skills and Employment Demand in the Digital Content Sector in Ireland**
- **Music Technology**

Source: Consultancy team review of research and qualitative evidence.
4.3 QUANTITATIVE ASSESSMENT OF THE SECTOR

4.3.1 COMPARISON OF EMPLOYMENT BY SUBSECTOR IN IRELAND, NI AND SCOTLAND

Table 4.1 below summarises our quantitative analysis of past and future employment trends in the digital content sector, and subsectors therein, where our interest lies with the future trends.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Northern Ireland</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>1,645</td>
<td>1,645</td>
<td>0.0%</td>
<td>1,850</td>
<td>1.2%</td>
</tr>
<tr>
<td>Film</td>
<td>180</td>
<td>440</td>
<td>34.7%</td>
<td>510</td>
<td>1.5%</td>
</tr>
<tr>
<td>Games</td>
<td>N/A</td>
<td>250</td>
<td>N/A</td>
<td>210</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Advertising</td>
<td>1,360</td>
<td>2,230</td>
<td>17.1%</td>
<td>2,745</td>
<td>2.1%</td>
</tr>
<tr>
<td>Fashion &amp; Textiles</td>
<td>9,760</td>
<td>8,740</td>
<td>-3.6%</td>
<td>7,370</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Publishing</td>
<td>1,085</td>
<td>435</td>
<td>-26.3%</td>
<td>355</td>
<td>-2.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14,060</strong></td>
<td><strong>13,740</strong></td>
<td><strong>-0.8%</strong></td>
<td><strong>13,040</strong></td>
<td><strong>-0.5%</strong></td>
</tr>
<tr>
<td><strong>Total (less Fashion &amp; Textiles)</strong></td>
<td><strong>4,300</strong></td>
<td><strong>5,000</strong></td>
<td><strong>5.2%</strong></td>
<td><strong>5,670</strong></td>
<td><strong>1.3%</strong></td>
</tr>
<tr>
<td><strong>Scotland</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>1,955</td>
<td>2,885</td>
<td>13.8%</td>
<td>3,430</td>
<td>1.7%</td>
</tr>
<tr>
<td>Film</td>
<td>2,760</td>
<td>3,965</td>
<td>12.8%</td>
<td>4,875</td>
<td>2.1%</td>
</tr>
<tr>
<td>Games</td>
<td>500</td>
<td>1,050</td>
<td>28.1%</td>
<td>945</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Advertising</td>
<td>4,770</td>
<td>6,490</td>
<td>10.8%</td>
<td>8,430</td>
<td>2.6%</td>
</tr>
<tr>
<td>Fashion &amp; Textiles</td>
<td>23,575</td>
<td>24,570</td>
<td>1.4%</td>
<td>21,875</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Publishing</td>
<td>10,340</td>
<td>7,935</td>
<td>-8.4%</td>
<td>6,825</td>
<td>-1.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43,900</strong></td>
<td><strong>46,895</strong></td>
<td><strong>2.2%</strong></td>
<td><strong>46,380</strong></td>
<td><strong>-0.1%</strong></td>
</tr>
<tr>
<td><strong>Total (less Fashion &amp; Textiles)</strong></td>
<td><strong>20,325</strong></td>
<td><strong>22,325</strong></td>
<td><strong>3.2%</strong></td>
<td><strong>24,505</strong></td>
<td><strong>0.9%</strong></td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV</td>
<td>1,788</td>
<td>2,291</td>
<td>8.6%</td>
<td>2,739</td>
<td>1.8%</td>
</tr>
<tr>
<td>Film</td>
<td>413</td>
<td>529</td>
<td>8.6%</td>
<td>632</td>
<td>1.8%</td>
</tr>
<tr>
<td>Animation</td>
<td>248</td>
<td>317</td>
<td>8.6%</td>
<td>379</td>
<td>1.8%</td>
</tr>
<tr>
<td>Music Technology</td>
<td>303</td>
<td>388</td>
<td>8.6%</td>
<td>463</td>
<td>1.8%</td>
</tr>
<tr>
<td>Games</td>
<td>1,141</td>
<td>2,283</td>
<td>26.0%</td>
<td>3,719</td>
<td>5.0%</td>
</tr>
<tr>
<td>Online Content</td>
<td>5,125</td>
<td>5,900</td>
<td>14.7%</td>
<td>9,610</td>
<td>5.0%</td>
</tr>
<tr>
<td>Advertising</td>
<td>6,525</td>
<td>6,900</td>
<td>6.1%</td>
<td>8,705</td>
<td>2.5%</td>
</tr>
<tr>
<td>Fashion &amp; Textiles</td>
<td>7,100</td>
<td>5,400</td>
<td>-8.7%</td>
<td>4,643</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Publishing</td>
<td>5,275</td>
<td>5,947</td>
<td>-13.0%</td>
<td>3,143</td>
<td>-1.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27,916</strong></td>
<td><strong>27,383</strong></td>
<td><strong>-0.6%</strong></td>
<td><strong>34,033</strong></td>
<td><strong>2.2%</strong></td>
</tr>
<tr>
<td><strong>Total (less Fashion &amp; Textiles)</strong></td>
<td><strong>20,816</strong></td>
<td><strong>21,983</strong></td>
<td><strong>1.8%</strong></td>
<td><strong>29,390</strong></td>
<td><strong>2.9%</strong></td>
</tr>
<tr>
<td><strong>Total Employment in Ireland (000)</strong></td>
<td><strong>1,961.4</strong></td>
<td><strong>1,837.9</strong></td>
<td><strong>-2.1%</strong></td>
<td><strong>2,180.7</strong></td>
<td><strong>1.7%</strong></td>
</tr>
<tr>
<td><strong>Total (less Fashion &amp; Textiles)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Total Employment</td>
<td>1.1%</td>
<td>1.2%</td>
<td>1.3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Creative Skillset Future Forecasting Model 2013 (NI and Scotland); CSO, DfE, IBEC data and consultancy team analysis (Ireland).

Note: N/A denotes not available. Fashion and textiles based on manufacturing of fashion and textiles from the CSO QNHS.

The analysis presented in the table above reflects existing data obtained by the consultancy team from Honeycomb regarding employment in the digital content sector in NI and Scotland in 2009 and 2012, and projections regarding employment in 2022 (to be clear, the data for NI and Scotland are for the whole of these parts of the United Kingdom and therefore do not strictly speaking pertain to the Honeycomb Region). For each of NI and Scotland, we have calculated the average annual growth rates of employment (CAGRs) during 2009-2012 and between 2012 and 2022. It will be noticed that the data received for NI and Scotland include employment levels and projections in respect of the subsector of fashion and textiles, which is included among the subsectors within the digital content sector owing to the increasing use of digital activities in design of fashion and textile products. As can be seen from the above table, fashion and textiles employment is relatively large and growing in Scotland and is also appreciably large in NI but has been shedding jobs in that part of the UK in recent years. The fashion and textiles subsector is projected to decline in employment terms to 2022. A noticeable feature of Scotland is the scale of employment in its television and film subsectors, both of which are projected to grow rapidly in the coming years.

The corresponding subsectoral employment data for Ireland (whole country) for 2009 and 2012 have been assembled by the consultancy team using the QNHS data and information from the Audiovisual Federation reports on the relative shares attributed to TV, film, animation and music technology. The projected growth rates underlying the 2022 employment estimates reflect the subsectors’ previous growth, prospects based on our qualitative evidence and national economic projections, including Ireland’s Medium-Term Economic Strategy (MTES).81

We envisage that over the coming years, the most rapidly growing subsectors within the digital content sector by employment in Ireland (as a whole) will be games (CAGR of 5%), online content (5%) and advertising (2.5%), with employment in TV, film, animation and music technology growing at the same rate as the economy as a whole (1.7% CAGR), while we expect that there will be lower employment in publishing and in fashion and textiles (-1% CAGR).

Excluding fashion and textiles, it is estimated that there were in the region of 22,000 people at work in the digital content sector in 2012, up from just below 21,000 in 2009, representing average annual growth of 1.8% during the period. In the coming years, it is estimated that the sector will grow in Ireland by almost 3% per year and by 2022 will account for 1.3% of all employment in the country, up from 1.2% in 2012 and 1.1% in 2009.

4.3.2 TARGETING EMPLOYMENT IN THE SECTOR IN THE IRISH BORDER COUNTIES

In the six border counties of Ireland, the challenge will be to grow the share of all employment attributed to digital content activities from 0.5% in 2011 towards 1% by the end of the decade (2019 or 2020).

We consider that it would be feasible to have digital content sector employment of between 850 and 1,000 in the border regions by this time and in the next section of the report we actions to facilitate such growth.

81 The quantitative analysis presented in Table 4.1 builds on the earlier baseline analysis given in Table 3.6.
Towards the Foresight Vision for the Digital Content Sector in the Border Counties

5.1 SUMMARY OF ‘FORESIGHT VISION’ FOR THE SECTOR IN THE BORDER COUNTIES

The overall foresight vision that the consultancy team considers is possible to achieve is to have a more connected, dynamic and sustainable digital content sector in the Irish border counties, with up to 1,000 people at work (FTEs) in the sector by the end of the decade or a sectoral share of all employment approaching 1%. This will bring it more into line with that in the country as a whole at the present time (but accepting the prospect that the proportion of people working in the sector will continue to be lower than in the country as a whole, owing to the influence of Dublin and the other main urban areas).

To facilitate this vision, there will need to be in place a ‘regional eco-system’ of infrastructure and other supports to aid the development of the sector. The hubs for this eco-system would be Dundalk, Letterkenny and Sligo, which are currently the NSS Gateways in the region and, more importantly for the growth of the digital content sector, they have emerging clusters in the sector along with well-established and growing higher education and specialist research capacities. These hubs are also seeking to connect with their cross-border counterparts, and so we would envisage a system of three principal cross-border hubs in the form of Letterkenny-Derry/Londonderry, Dundalk-Newry and Sligo-Enniskillen-Omagh. Currently, it is fair to say, and reflecting our stakeholder consultations, the most developed of these cross-border linkages is the first-named, reflecting the historically close ties between Donegal and Derry/Londonderry.

But the principal point being advanced here is that the envisaged hubs – Dundalk, Letterkenny and Sligo – are already acting as ‘hubs’ in the Irish border counties.

In each of the six border counties of Ireland, we envisage that there would be county-level or localised eco-systems in which the existing enterprise centres and incubation units (where they occur) would be connected to support digital content and other economic activities through attractive workspaces, high-speed broadband and networks of mentors. These county-level networks would be supported mainly through the existing and planned work of the respective local authorities and LEOs (local enterprise offices) under the implementation of the local economic and community plans (LECPs).

The planning for these local/county networks is already underway or in train.

The regional network or regional eco-system sitting on top of the county-level or local networks would aim to provide further, complementary supports to entrepreneurs and businesses in the local eco-systems, such as specialist training and skills development, and higher-order networking designed to facilitate broadening market access, exporting and innovation.

The idea of the foresight vision being advanced here is that there would be a regional dimension to the innovation eco-system supporting those at local level within the counties in the border region.

The drivers of the digital eco-system within each county would be the local authorities and LEOs, who would act to ensure high-speed broadband, workspaces, mentoring and other supports. The hubs at regional level would be driven primarily by the Institutes of Technology at Dundalk, Sligo and Letterkenny, and would facilitate specialist training and professional development, enhanced networking and innovation. The HEIs would also ensure that
their graduates provide a quality workforce for employers, taking account of needs. DkIT could act to coordinate the regional eco-system, through EU funding streams such as that which funded Honeycomb, maintaining intelligence on the digital content sector and event management.

5.2 ILLUSTRATION OF PROPOSED SUPPORT FRAMEWORK FOR FORESIGHT VISION
An illustration of what we envisage to be the model for the foresight vision is presented below.
The advantage of the model proposed here is that it would fit into the local and regional economic development model already underway and therefore would not need to institute any new or extra policy architecture, which otherwise may be burdensome or unachievable. This would give the process momentum and indeed we believe that integration of the proposed model into what is already underway in some, many or all of the border counties (or in planning) would serve to enhance the objectives, actions and outcomes of the LECP and wider regional economic development process currently underway. The trick, therefore, would be to facilitate the proposed model for aiding the sustainable development of the digital content sector in the Irish border region to become part of the wider regional enterprise eco-system under development in the context of Putting People First (2012), the Local Government Reform Act 2014 and the LECP process underway.

The chart above shows how the regional hubs and DkIT as regional coordinator for supporting the sustainable development of the digital content sector in the border counties of Ireland, would effectively ‘piggy-back’ and in turn act to support the LECP and new regional assembly process currently underway. At county-level, the local authorities and LEOs, in tandem with EI and the IDA, are presently seeking to support indigenous and FDI firms in digital content sector activities, such is the importance and pervasiveness of the sector across the local, regional and national economies.

To be clear, DkIT would act as the regional coordinator of the process in regard to compiling and disseminating intelligence on the digital content sector for the benefit of the entrepreneurs and enterprises in the counties within the region. It would also coordinate training provision and networking at regional level, thereby complementing local area initiatives. No-one Institute of Technology would be in any overall leadership capacity.

5.3 SPECIFIC ACTIONS TOWARDS THE FORESIGHT VISION

The particular roles that DkIT would fulfil include the following actions:

- Acting as an intelligence centre for the further development of the digital content sector in the Irish border counties;
- Providing research information in support of the sector to bridge any information gaps at county or regional level, thereby helping with funding and growth (addressing information gaps is key to support economic development and jobs);
- Compiling and disseminating information on skills availability within the region to support the entry and development of digital content sector activities, including FDI;
- Putting together information on ‘reference sellers’ to help demonstrate the region’s capacity to accommodate successful digital content sector activities;
- Working with the other IoTs and cross-border HEIs in helping to coordinate training provision to businesses in the digital content sector in the region;
- Coordinating road-shows and networking events (e.g. meet-the-buyer shows, conferences etc.) to support scaling, market strengthening and innovation; and
- In regard to the latter, DkIT should continue to build links between providers in the Irish border counties part of the Honeycomb Region and those in the NI and Scottish parts of the Honeycomb Region (even after the EU-funded Honeycomb programme concludes at the end of June 2015).
References – Relevant Studies Cited in the Report


Annex of Supplementary Information

FIGURE A1
Map of the Honeycomb Region

Source: European Commission (INTERREG IVA).
FIGURE A2
Categories of Sectors making up Enterprise Policy in Ireland – Digital Content Pervades the Categories

- Agri-food
- ICT
- Med-tech
- Pharma-chem
- Internationally-traded services
- Manufacturing/engineering
- Tourism and hospitality
- Retail and wholesale
- Transport, logistics and distribution
- Property and construction
- Green economy/clean-tech
- Arts, entertainment and recreation
- Education
- Professional and business services
- Medical Services
- Personal Services

Source: Department of Jobs, Enterprise and Innovation (now including Forfás); consultancy team review.
Note: The sectors shown are predominantly market activities (i.e. private sector-led).
FIGURE A3
Map of the Proposed New Regional Assembly Areas and Existing Regional Areas – Top Panel Proposed and Existing Regional Assemblies; Bottom Panel Existing Regional Authorities

Source: DECLG, Putting People First (supra footnote 4).
FIGURE A4
Map of the Existing Regional Assembly Authority Areas – Louth will be in the New Eastern-Midland Region but will also continue its links with the Border Region

FIGURE A5
Map of Sectoral Clusters in Ireland (2008)

Source: Department of Enterprise, Trade and Employment study on clusters in Ireland (2008).
### TABLE A1

**Employment Change in the Digital Content Sector in Ireland (2000-2014) – Absolute Numbers and Percentage Shares of all Employment in Ireland**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Publishing Activities (58)</td>
<td>5.8</td>
<td>5.1</td>
<td>5.5</td>
<td>6.0</td>
<td>6.1</td>
<td>5.5</td>
<td>4.8</td>
<td>4.6</td>
<td>5.3</td>
<td>5.3</td>
<td>4.7</td>
<td>4.6</td>
<td>3.5</td>
<td>5.0</td>
<td>5.5</td>
</tr>
<tr>
<td>2 Motion Picture, Video and Television Programme Production, Sound Recording and Music Publishing Activities (59)</td>
<td>2.3</td>
<td>2.5</td>
<td>2.9</td>
<td>3.2</td>
<td>3.2</td>
<td>3.7</td>
<td>3.3</td>
<td>2.8</td>
<td>2.8</td>
<td>3.3</td>
<td>4.8</td>
<td>3.5</td>
<td>3.9</td>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td>3 Programming and Broadcasting Activities (60)</td>
<td>3.3</td>
<td>3.1</td>
<td>3.0</td>
<td>3.2</td>
<td>3.2</td>
<td>3.5</td>
<td>3.3</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>4.6</td>
<td>4.4</td>
<td>5.1</td>
<td>3.8</td>
<td>4.0</td>
</tr>
<tr>
<td>4 Computer Programming, Consultancy and Related Activities (62)</td>
<td>28.5</td>
<td>30.1</td>
<td>32.6</td>
<td>29.8</td>
<td>29.3</td>
<td>31.9</td>
<td>32.7</td>
<td>31.9</td>
<td>33.7</td>
<td>35.6</td>
<td>37.9</td>
<td>37.4</td>
<td>43.6</td>
<td>44.7</td>
<td>44.4</td>
</tr>
<tr>
<td>5 Information Service Activities (63)</td>
<td>3.0</td>
<td>3.5</td>
<td>3.4</td>
<td>3.2</td>
<td>2.9</td>
<td>3.4</td>
<td>3.7</td>
<td>4.2</td>
<td>5.0</td>
<td>5.1</td>
<td>5.7</td>
<td>5.5</td>
<td>5.9</td>
<td>5.8</td>
<td>6.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment (000)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Content Sector Employment in Ireland - Broad</td>
<td>42.7</td>
<td>44.2</td>
<td>47.3</td>
<td>45.3</td>
<td>44.4</td>
<td>47.2</td>
<td>48.2</td>
<td>48.0</td>
<td>50.9</td>
<td>52.8</td>
<td>56.1</td>
<td>56.7</td>
<td>61.5</td>
<td>63.1</td>
<td>64.8</td>
</tr>
<tr>
<td>Digital Content Sector Employment in Ireland - Narrow</td>
<td>11.3</td>
<td>10.7</td>
<td>11.3</td>
<td>12.4</td>
<td>12.1</td>
<td>12.0</td>
<td>11.8</td>
<td>12.0</td>
<td>12.2</td>
<td>12.1</td>
<td>12.6</td>
<td>13.8</td>
<td>12.1</td>
<td>12.6</td>
<td>14.1</td>
</tr>
<tr>
<td>Total Employment in Ireland</td>
<td>1,697.7</td>
<td>1,749.6</td>
<td>1,776.5</td>
<td>1,810.1</td>
<td>1,871.1</td>
<td>1,962.8</td>
<td>2,053.6</td>
<td>2,143.1</td>
<td>2,128.4</td>
<td>1,961.4</td>
<td>1,882.2</td>
<td>1,849.1</td>
<td>1,837.9</td>
<td>1,881.2</td>
<td>1,894.9</td>
</tr>
</tbody>
</table>

| Digital Content Sector Employment % of Total Employment - Broad | 2.5%  | 2.5%  | 2.7%  | 2.5%  | 2.5%  | 2.5%  | 2.4%  | 2.3%  | 2.2%  | 2.4%  | 2.7%  | 3.0%  | 3.1%  | 3.3%  | 3.4%  |
| Digital Content Sector Employment % of Total Employment - Narrow | 0.7%  | 0.6%  | 0.6%  | 0.7%  | 0.6%  | 0.6%  | 0.6%  | 0.6%  | 0.6%  | 0.7%  | 0.7%  | 0.7%  | 0.7%  | 0.7%  | 0.7%  |

**Source:** CSO Quarterly National Household Survey (QNHS), consultancy team analysis.

**Note:** Annual employment figure for each CSO subsector for each year is given as the average of the quarterly data per year. The figures for 2014 are based on the available data for the first two quarters of that year. According to the CSO, the underlying data in respect of the following subsectors, codes in (parentheses), in the following years, indicated in [brackets], should be treated with caution: publishing activities (58) [2012]; motion picture, video and television programme production, sound recording and music publishing activities (59) [2008, 2009, 2010, 2012 and 2013]; and programming and broadcasting activities (60) [2013, 2014]. The broadly defined digital content sector comprises the five CSO subsectors and the narrowly defined digital content sector consists of the first three CSO subsectors (i.e. publishing activities (58), motion picture, video and television programme production, sound recording and music publishing activities (59) and programming and broadcasting activities (60)). The abridged version of this table for the years 2007, 2010 and 2014 is given in Table 3.1 in the main body of the report.
### TABLE A2

Total Exports as a Proportion of Total Sales among Agency-Assisted Irish-Owned and Foreign-Owned Enterprises in the Digital Content Sector and All Sectors in Ireland (2000-2012)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Publishing, Broadcasting &amp; Telecommunications</td>
<td>23</td>
<td>13</td>
<td>12</td>
<td>9</td>
<td>12</td>
<td>12</td>
<td>37</td>
<td>26</td>
<td>24</td>
<td>18</td>
<td>21</td>
<td>23</td>
<td>35</td>
</tr>
<tr>
<td>2 Computer Programming</td>
<td>0</td>
<td>9</td>
<td>54</td>
<td>48</td>
<td>26</td>
<td>56</td>
<td>34</td>
<td>29</td>
<td>28</td>
<td>35</td>
<td>57</td>
<td>49</td>
<td>58</td>
</tr>
<tr>
<td>3 Computer Consultancy</td>
<td>56</td>
<td>60</td>
<td>64</td>
<td>64</td>
<td>60</td>
<td>63</td>
<td>61</td>
<td>53</td>
<td>58</td>
<td>61</td>
<td>64</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>4 Computer Facilities Management</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>99</td>
<td>99</td>
<td>99</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>5 Other IT &amp; Computer Services</td>
<td>92</td>
<td>94</td>
<td>90</td>
<td>90</td>
<td>92</td>
<td>92</td>
<td>84</td>
<td>80</td>
<td>66</td>
<td>46</td>
<td>57</td>
<td>55</td>
<td>60</td>
</tr>
<tr>
<td>Average of Irish-Owned Digital Content Sector</td>
<td>34</td>
<td>35</td>
<td>64</td>
<td>62</td>
<td>58</td>
<td>65</td>
<td>63</td>
<td>59</td>
<td>54</td>
<td>59</td>
<td>59</td>
<td>58</td>
<td>63</td>
</tr>
<tr>
<td>Total Irish-Owned Agency-Assisted (All Sectors)</td>
<td>38</td>
<td>37</td>
<td>36</td>
<td>36</td>
<td>37</td>
<td>36</td>
<td>38</td>
<td>36</td>
<td>38</td>
<td>45</td>
<td>50</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Average of Digital Content Sector % Total Irish-Owned Agency-Assisted (All Sectors)</td>
<td>89.8%</td>
<td>94.6%</td>
<td>178.4%</td>
<td>168.9%</td>
<td>162.8%</td>
<td>177.0%</td>
<td>174.7%</td>
<td>156.7%</td>
<td>152.1%</td>
<td>136.2%</td>
<td>130.4%</td>
<td>116.6%</td>
<td>122.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Publishing, Broadcasting &amp; Telecommunications</td>
<td>92</td>
<td>95</td>
<td>98</td>
<td>98</td>
<td>98</td>
<td>98</td>
<td>64</td>
<td>36</td>
<td>87</td>
<td>79</td>
<td>80</td>
<td>89</td>
<td>95</td>
</tr>
<tr>
<td>2 Computer Programming</td>
<td>96</td>
<td>97</td>
<td>97</td>
<td>98</td>
<td>97</td>
<td>97</td>
<td>96</td>
<td>96</td>
<td>97</td>
<td>97</td>
<td>97</td>
<td>97</td>
<td>97</td>
</tr>
<tr>
<td>3 Computer Consultancy</td>
<td>75</td>
<td>81</td>
<td>71</td>
<td>84</td>
<td>86</td>
<td>92</td>
<td>94</td>
<td>95</td>
<td>95</td>
<td>96</td>
<td>96</td>
<td>96</td>
<td>95</td>
</tr>
<tr>
<td>4 Computer Facilities Management</td>
<td>87</td>
<td>90</td>
<td>82</td>
<td>87</td>
<td>90</td>
<td>91</td>
<td>93</td>
<td>89</td>
<td>92</td>
<td>91</td>
<td>91</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>5 Other IT &amp; Computer Services</td>
<td>61</td>
<td>91</td>
<td>85</td>
<td>89</td>
<td>78</td>
<td>85</td>
<td>88</td>
<td>90</td>
<td>92</td>
<td>93</td>
<td>88</td>
<td>95</td>
<td>96</td>
</tr>
<tr>
<td>Average Digital Content Sector</td>
<td>82</td>
<td>91</td>
<td>87</td>
<td>91</td>
<td>90</td>
<td>93</td>
<td>87</td>
<td>81</td>
<td>93</td>
<td>91</td>
<td>90</td>
<td>84</td>
<td>95</td>
</tr>
<tr>
<td>Total Foreign-Owned Agency-Assisted (All Sectors)</td>
<td>90</td>
<td>92</td>
<td>97</td>
<td>97</td>
<td>94</td>
<td>94</td>
<td>94</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>Average of Digital Content Sector % Total Foreign-Owned Agency-Assisted (All Sectors)</td>
<td>91.0%</td>
<td>98.3%</td>
<td>93.3%</td>
<td>97.7%</td>
<td>95.8%</td>
<td>98.7%</td>
<td>95.8%</td>
<td>95.8%</td>
<td>94.7%</td>
<td>97.7%</td>
<td>97.7%</td>
<td>97.7%</td>
<td>97.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Publishing, Broadcasting &amp; Telecommunications</td>
<td>44</td>
<td>34</td>
<td>38</td>
<td>44</td>
<td>49</td>
<td>43</td>
<td>36</td>
<td>29</td>
<td>32</td>
<td>27</td>
<td>27</td>
<td>30</td>
<td>41</td>
</tr>
<tr>
<td>2 Computer Programming</td>
<td>96</td>
<td>97</td>
<td>97</td>
<td>98</td>
<td>97</td>
<td>97</td>
<td>96</td>
<td>96</td>
<td>97</td>
<td>97</td>
<td>97</td>
<td>97</td>
<td>97</td>
</tr>
<tr>
<td>3 Computer Consultancy</td>
<td>70</td>
<td>75</td>
<td>69</td>
<td>80</td>
<td>80</td>
<td>86</td>
<td>90</td>
<td>91</td>
<td>91</td>
<td>93</td>
<td>93</td>
<td>93</td>
<td>93</td>
</tr>
<tr>
<td>4 Computer Facilities Management</td>
<td>87</td>
<td>90</td>
<td>82</td>
<td>87</td>
<td>90</td>
<td>91</td>
<td>93</td>
<td>89</td>
<td>92</td>
<td>91</td>
<td>91</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>5 Other IT &amp; Computer Services</td>
<td>83</td>
<td>93</td>
<td>86</td>
<td>89</td>
<td>88</td>
<td>89</td>
<td>87</td>
<td>88</td>
<td>87</td>
<td>83</td>
<td>83</td>
<td>90</td>
<td>92</td>
</tr>
<tr>
<td>Average Digital Content Sector</td>
<td>76</td>
<td>78</td>
<td>75</td>
<td>79</td>
<td>81</td>
<td>80</td>
<td>82</td>
<td>79</td>
<td>80</td>
<td>78</td>
<td>78</td>
<td>80</td>
<td>82</td>
</tr>
<tr>
<td>Total Agency-Assisted (All Sectors)</td>
<td>79</td>
<td>80</td>
<td>81</td>
<td>82</td>
<td>82</td>
<td>82</td>
<td>83</td>
<td>82</td>
<td>84</td>
<td>84</td>
<td>86</td>
<td>87</td>
<td>88</td>
</tr>
<tr>
<td>Average of Digital Content Sector % Total Agency-Assisted (All Sectors)</td>
<td>96.6%</td>
<td>96.8%</td>
<td>92.3%</td>
<td>97.0%</td>
<td>96.5%</td>
<td>97.0%</td>
<td>99.4%</td>
<td>95.4%</td>
<td>96.8%</td>
<td>92.6%</td>
<td>90.6%</td>
<td>97.6%</td>
<td>93.7%</td>
</tr>
</tbody>
</table>

Source: Forfás/DJEI, consultancy team analysis.

Note: The detailed data presented in this table underpin the following graphs in the main text of the report – Figure 3.3 and Figure 3.4.
### TABLE A3
Composition of the Digital Content Sector in the Honeycomb Region by Turnover – NI and Scotland

<table>
<thead>
<tr>
<th>Turnover (£)</th>
<th>Film &amp; Broadcast</th>
<th>Interactive Media</th>
<th>Other</th>
<th>Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NI</td>
<td>Scotland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 10,000</td>
<td>3%</td>
<td>15%</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>10,000-25,000</td>
<td>35%</td>
<td>15%</td>
<td>32%</td>
<td>31%</td>
</tr>
<tr>
<td>25,000-50,000</td>
<td>22%</td>
<td>24%</td>
<td>20%</td>
<td>29%</td>
</tr>
<tr>
<td>51,000-150,000</td>
<td>27%</td>
<td>28%</td>
<td>20%</td>
<td>17%</td>
</tr>
<tr>
<td>151,000-250,000</td>
<td>5%</td>
<td>7%</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>250,100-400,000</td>
<td>5%</td>
<td>7%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>401,000-600,000</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>801,000-1,000,000</td>
<td>3%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>1,000,000-2,000,000</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>2,100,000-4,000,000</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>&gt; 4,000,000</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>102%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**HHI**

<table>
<thead>
<tr>
<th></th>
<th>NI</th>
<th>Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.25</td>
<td>0.19</td>
</tr>
<tr>
<td></td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.22</td>
<td>0.21</td>
</tr>
</tbody>
</table>

**Source:** Baseline survey of the digital content sector in Ireland (2014) (6 border counties), NI (excluding Greater Belfast) and the western seaboard of Scotland, consultancy team analysis.

**Note:** The subsectors animation, games and music technology are included in the ‘other’ category. HHI (Herfindahl-Hirschman Index) values above 0.20 generally indicate high concentration. The size bands are as stated in the survey report by Ashbrook (where we note ambiguity between the second and third size bands, and a discontinuity between the seventh and eighth size bands). The corresponding table of analysis for Ireland is given in the main body of the report (Table 3.15).
The Honeycomb-Creative Works Team

STAFF AND MANAGEMENT COMMITTEE

David Brown
Scottish Programme Coordinator, Creative Skillset

Dr Paul Beaney
Project Director, Ulster University

Deirbhile Doherty
Finance Assistant, Ulster University

Professor Sarah Edge
Skills Director, Ulster University

Kevin Fearon
Networks of Scale Coordinator, Dundalk Institute of Technology

Professor Nick Higgins
Research Associate, University of West Scotland

Ian Kennedy
Management Committee, Creative Skillset Northern Ireland

Camilla Long
Skills Coordinator, Ulster University

Irene McCausland
Management Committee, Dundalk Institute of Technology

Fiona McElroy
Programme Manager, Ulster University

Stephen Michael
Web Developer, Ulster University

Dr Colm Murphy
Intelligence Director, Ulster University

Aisling Murtagh
Research Associate, Ulster University

Dr Douglas Nanka-Bruce
Research Associate, Dundalk Institute of Technology

Caroline O’Sullivan
Skills Coordinator, Dundalk Institute of Technology

Maria Prince
Programme Administrator, Ulster University

Alasdair Smith
Management Committee, Creative Skillset Scotland

Agnieszka Walsh,
Project Administrator, Dundalk Institute of Technology

Dan Wilks
Research Associate, Creative Skillset London

PROJECT PARTNERS

Ulster University
Dundalk Institute of Technology
Creative Skillset
University of the West of Scotland

DELIVERY PARTNERS

Creative Scotland
Letterkenny Institute of Technology
MG Alba
ScreenHI
The Nerve Centre
About Honeycomb

The Honeycomb – Creative Works programme is a collaborative project led by Ulster University, in partnership with Dundalk Institute of Technology, Creative Skillset and the University of the West of Scotland.