ECOMMERCE BLUEPRINT FOR SCOTLAND
A global survey and recommendations for an implementation plan for Scotland

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ABOUT THE INSTITUTE OF ECOMMERCE

The Institute of Ecommerce is the trading name of a group of companies, organisations and academics sharing a vision of growing Scotland’s ecommerce performance. The objective is to create new wealth, jobs and exports as a result of increased online trade. The registered name of the organisation is Ecommerce Excellence; SC632509; https://www.instituteecommerce.com/
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TABLE OF CONTENTS</td>
<td>3</td>
</tr>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>6</td>
</tr>
<tr>
<td>FOREWORD</td>
<td>7</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>8</td>
</tr>
<tr>
<td>The State of UK Ecommerce</td>
<td>8</td>
</tr>
<tr>
<td>The key drivers behind Ecommerce</td>
<td>8</td>
</tr>
<tr>
<td>Changes in retail employment resulting from the shift to ecommerce</td>
<td>9</td>
</tr>
<tr>
<td>The variety of skills needed for different ecommerce roles</td>
<td>11</td>
</tr>
<tr>
<td>Skills Suppliers</td>
<td>12</td>
</tr>
<tr>
<td>Academic Suppliers</td>
<td>12</td>
</tr>
<tr>
<td>Commercial Suppliers</td>
<td>12</td>
</tr>
<tr>
<td>Disadvantaged Groups</td>
<td>13</td>
</tr>
<tr>
<td>Candidate Selection and screening for upskilling and reskilling</td>
<td>13</td>
</tr>
<tr>
<td>Market segment examples for reskilling and upskilling</td>
<td>14</td>
</tr>
<tr>
<td>THE DEMAND FOR ECOMMERCE SKILLS</td>
<td>15</td>
</tr>
<tr>
<td>RESKILLING IN ECOMMERCE</td>
<td>21</td>
</tr>
<tr>
<td>Reskilling in the UK</td>
<td>21</td>
</tr>
<tr>
<td>Specialist training centres, colleges and universities in the UK.</td>
<td>23</td>
</tr>
<tr>
<td>Reskilling in the US</td>
<td>26</td>
</tr>
<tr>
<td>Example Study programmes in the US</td>
<td>26</td>
</tr>
<tr>
<td>Reskilling in Germany</td>
<td>28</td>
</tr>
<tr>
<td>Private sector courses</td>
<td>29</td>
</tr>
<tr>
<td>Study Programmes</td>
<td>29</td>
</tr>
<tr>
<td>Further Education:</td>
<td>31</td>
</tr>
<tr>
<td>Online Courses</td>
<td>34</td>
</tr>
<tr>
<td>Ecommerce Conferences</td>
<td>34</td>
</tr>
<tr>
<td>Reskilling in China</td>
<td>35</td>
</tr>
<tr>
<td>Government policy and reskilling</td>
<td>35</td>
</tr>
<tr>
<td>Internet Plus and Internet + Circulation Action Plan</td>
<td>35</td>
</tr>
<tr>
<td>China’s “13th Five-year Development Plan for Ecommerce”</td>
<td>37</td>
</tr>
<tr>
<td>Candidate Selection</td>
<td>37</td>
</tr>
<tr>
<td>UPSKILLING IN ECOMMERCE</td>
<td>39</td>
</tr>
<tr>
<td>Upskilling in the UK</td>
<td>39</td>
</tr>
<tr>
<td>Upskilling in the US</td>
<td>40</td>
</tr>
<tr>
<td>Upskilling in Germany</td>
<td>41</td>
</tr>
<tr>
<td>Private sector courses</td>
<td>42</td>
</tr>
<tr>
<td>Upskilling in China</td>
<td>42</td>
</tr>
<tr>
<td>Government policy and upskilling</td>
<td>42</td>
</tr>
<tr>
<td>Internet Plus and Internet + Circulation Action Plan</td>
<td>42</td>
</tr>
</tbody>
</table>
APPENDIX 1: DEFINITIONS

Ecommerce 79
Skills 82
Reskilling 82
Upskilling 83
EXECUTIVE SUMMARY

Global ecommerce is a vast business area still growing at breakneck speed. In the UK alone sales total over £560 billion and web-based ecommerce grew by 21% in 2017 from the previous year. The UK dominates European online trade and, globally, the UK is third after China and the US in ecommerce sales. Worldwide retail ecommerce is estimated to be worth over US$6 trillion by 2021.

Ecommerce synthesises the latest advances in cloud computing, AI, big-data and business process engineering to build complete automated businesses. This wide mix of component technologies and processes is brought together to transact products online. Possession of well-built systems and well-trained staff commonly result in improved productivity and often lead a business to focus on exporting.

Most of the tools, techniques, processes and mechanisms that underpin ecommerce are held in common, irrespective of what is being sold or the size of the business. This means that the unique set of skills that support successful ecommerce are mostly generic. These skills are required at all levels within businesses from those involved in niche technical activities through to managers, executives, business owners and business advisors.

There are currently no college or university courses and no apprenticeship schemes specific to ecommerce on offer in Scotland.

All of the Scottish commerce companies contacted for this study claimed to suffer from the unavailability of appropriately skilled personnel, and said that difficulties in recruiting staff were holding back growth and development. These missing skills impact every level of the business from operators in niche areas of the business through to ecommerce managers, executives and business owners. The larger and more experienced the ecommerce business was, the more likely it was to advocate better training interventions.

The situation contrasts with other nations. In China for example, around a third of all universities run courses in ecommerce while successful online companies such as Alibaba offer extensive reskilling and upskilling training programmes. In Germany, there is now a national plan to deliver one-year and three-year ecommerce apprenticeships.

This report recommends that a broad and scalable set of reskilling and upskilling activities is made available to Scottish businesses. The authors maintain that a twin-track strategy involving reskilling and upskilling is most likely to create a critical mass of ecommerce activity in Scotland.

The proposed plan recommends the following:

1. Gathering statistics to identify which companies in Scotland currently sell online, in what volumes and to which territories. Over time, these figures will provide the skills-building project with key performance indicators (KPIs).
2. Gathering case studies from successful practitioners and communicating these across a wide range of channels from social media through to print media, radio, TV and events.
3. Providing an online destination hub for Scotland’s ecommerce community covering all aspects of ecommerce including news, training, advice and training resources. A key focus will be content syndication to other websites and resources.
4. Providing various reskilling and upskilling courses at a variety of levels and seek a mechanism for providing qualifications. Over time, it is expected that these courses will increasingly be delivered online as computer-based training.
5. Creating a vocational model for ecommerce apprenticeships.
6. Developing a Scotland-wide network of local ecommerce clubs and provide them with structured resources to assist/facilitate self-help knowledge-transfer.
7. Staging a regular ecommerce annual event that will include a series of specialist workshops.
FOREWORD

During the 18th Century, Scotland was central to the Industrial Revolution, which involved a new approach to economics\(^1\) inspired by the writings of Adam Smith and by new technology largely driven by engineers such as James Watt. The world was transformed and Scotland led the way\(^2\).

As the first usable steam engines were built, those who understood the implications and potential of this technology acted to reskill themselves in order to imitate and compete with the technology leaders. Much of that reskilling took place by working alongside the original pioneers. The approach was practical, hands-on and practitioner-led. Once reskilled, the new generation of machine-builders continually refreshed their knowledge and capacity so that they and their businesses could compete and prosper.

Today, the ability to apply digital technologies effectively defines leading nations, companies and individuals. The creation of wealth through business demands an ability to trade successfully, and ecommerce is the means by which today’s trade is increasingly conducted.

The goal of the Scottish Government, stated in Scotland’s Trade and Investment Strategy (2016-2021) is to “support more businesses to sell more goods and services to a wider range of international markets”\(^3\). In today’s world, capacity in ecommerce is essential to achieving that aim.

It should be stressed that ecommerce is highly disruptive to traditional jobs and industries. This can be seen most obviously in the UK’s so-called “disappearing high-streets” as retail units in many towns and cities lie vacant as shoppers move online. As entire supply chains become digitalised, the need for retraining interventions to promote participation in this new economic landscape becomes paramount. The ubiquity of online trade means that businesses of all sizes and types can benefit from understanding the methodologies now driving global commerce. Individuals at all levels from operators to owners and from managers to workers and apprentices require training if they are to contribute effectively.

The Scottish Government’s Digital Strategy advocates excellence in all areas of the digital landscape combined with a strong emphasis on an inclusive approach for all segments of society\(^4\). Ensuring that all groups have access to the right type of reskilling and upskilling training interventions is vitally important to ensuring that no group is left economically excluded:

According to Kate Forbes MSP, the Scottish Government’s Minister responsible for the Digital Economy: “As there are nearly 13,000 digital and tech jobs that go unfilled every year in Scotland, a focus on diversity and inclusion is vital to plug that skills gap. Scotland’s Apprenticeship family of offerings ensures we nurture the right talent, both in terms of professional skills and supporting our drive to promote equality in Scotland”\(^5\).

What follows is a proposed plan for reskilling and upskilling Scotland to compete better in the ecommerce-enabled trading environment of today. It contains a strong emphasis on the inclusive growth goals championed by the Scottish Government. Taking a global perspective, it looks at how other successful nations have confronted this task of adjusting to the realities of digitally-enabled trade and considers how successful they have been. It uses evidence and international best practice to recommend an ambitious and scalable national plan to ensure that Scotland participates as it should, and must, to take part in this new commercial-industrial revolution.

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\(^1\) *The Wealth of Nations*, Adam Smith, Published by W. Strahan & T. Cadell, Edinburgh & London, 1776
\(^3\) https://www2.gov.scot/Resource/0050/00504798.pdf
INTRODUCTION

Ecommerce increasingly underpins all aspects of trade which in turn sustains Scotland’s national capacity to create wealth, jobs and exports.

The term ‘ecommerce’ covers a vast range of transactions, from ordering a pizza online through to wholesale purchasing transactions between multinational businesses. As such, the subject is vital to a high proportion of Scottish businesses, particularly SMEs.

In order to make like-for-like, and therefore useful, comparisons between different groups, regions and market sectors, clear definitions are required. Appendix 1 provides these definitions and explains how they are applied within this report.

The State of UK Ecommerce

1. According to the most recent figures from the UK Office for National Statistics (ONS), UK ecommerce is worth over £560 billion with web-based ecommerce growing at 21% year-on-year in 2017.
2. The ONS also estimates that more than half of ecommerce is business-to-business (B2B).
4. In 2014, the UK was the largest ecommerce economy in the world. Since then we have dropped to third, behind China and the US.
5. The UK consumer spends more online per head than consumers in any other major economy.
6. By sales, UK ecommerce is similar in size to German ecommerce and French ecommerce combined.

The key drivers behind Ecommerce

It is important to determine whether ecommerce is another technological ‘bubble’ or whether it is sustainable long-term. Anyone deciding to reskill and embark on a new career requires confidence that their chosen path is sustainable in the long term. The same is true for business owners and investors alike. Potential providers of upskilling and reskilling platforms need to decide if this is an area that requires long-term action plans.

The main drivers of the exponential rise of ecommerce are as follows:

1. Online customers can purchase what they want from anywhere with an internet connection and get their products delivered directly, saving both time and money.
2. Product search and product filtering makes it quicker and easier for buyers to find what they want from a much larger selection than could be stocked offline.
3. In the retail environment of 25 years ago, many traditional retailers expected to see profit margins on goods at between 40% and 100%, sometimes more. Since then, average margins have dropped by more than half.

References:
- https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/ecommerceandictactivity/2017
- https://www.websitebuilderexpert.com/blog/worlds-biggest-online-spenders
- https://www.indez.com/blog/european-v-uk-ecommerce/
4. Ecommerce suppliers have numerous cost advantages over bricks-and-mortar counterparts. While rent, rates and tax rates will have an impact, the main reason for the cost advantage is that, compared to traditional trade, ecommerce businesses have much higher productivity levels.

5. While traditional traders use manual processes throughout most of their operations, ecommerce businesses make extensive use of automation.

Ecommerce is not untested, overly-complex, cost-heavy or high-risk. While the key drivers for its successful technological implementation involve automation, artificial intelligence (AI) and use of ‘big data’, its practical expression can, with appropriate training, be implemented well by the majority of businesses. The techniques underpinning ecommerce can be applied to large companies, medium-sized companies, SMEs, micro businesses and startups. In this context ‘successful implementation’ means ‘no more than providing a positive return on investment.

Further automation and use of AI are set to transform the nature of work and the workplace itself. Machines will carry out more of the tasks currently undertaken by workers, complementing the work that only humans can do, as well as performing tasks that go beyond human capability. This shift will see some occupations decline while others will grow. What seems beyond doubt is that many traditional work patterns will be transformed, and that the pace of change will itself increase.

Ecommerce is automated or semi-automated buying and selling. Each component of an ecommerce system is either fully or partially digitalised. The manner in which every ecommerce system is built directs those who drive these systems towards ever-greater sales, volumes ever-greater automation and ever-greater globalisation of their business.

Unlike traditional commerce, every component of an ecommerce system is capable of collecting and recording all data associated with the selling process. With all data being measured and with all component parts of the process being capable of interrogation and adjustment via a PC or mobile device, the established ‘rules of business’ can be built into the process as computer code. Simple ‘rules’ ranging from setting prices to purchasing stock or optimising delivery can be determined by the business owner. More sophisticated rules might involve the use of past purchasing history or the use of demographic data to upsell or cross-sell to increase the size of the sale.

Changes in retail employment resulting from the shift to ecommerce

There can be no doubt that ecommerce is hugely disruptive of traditional business patterns. Most noticeable has been the sharp reduction in traditional retail outlets in the UK. In 2018, as many as 1,267 retail stores closed. In 2017 there were 2.9 million people employed in traditional retail across the UK. In January 2019, the British Retail Consortium announced that just in the previous three months of 2018, the seasonally-adjusted number of employees in the retail sector fell by 2.2%. That amounts to 70,000 fewer people than the previous year. The total hours worked fell by 2.8%. Most of the jobs lost were those of frontline staff involved with sales.

This shift away from sales taking place in traditional bricks-and-mortar shops is a global phenomenon. The following figure illustrates the stark economics around employment in the traditional retail sector. The US-based Institute of International Finance (IIF), a trade group representing the financial industry,
claims that businesses that sell online employ less than a quarter of the number of staff than would be
needed to run an equivalent turnover department store.\textsuperscript{15}

However, the view taken by the IIF is at odds with a broader analysis undertaken by Michael Mandel, an
economist with the Washington-based think tank the Progressive Policy Institute which concluded that:

\begin{quote}
“Since the last business cycle peak, December 2007, the number of ecommerce jobs is up by 397,000. These gains are being driven mainly by the growth of fulfillment centers in states such as Kentucky, Tennessee, Indiana, and Pennsylvania. Since December 2007, the number of brick-and-mortar retail jobs, as reported by the BLS, is up 186,000. However, that’s a deceptive gain, because hours worked has fallen. In fact, the number of full-time equivalent jobs in brick-and-mortar retail has fallen by 76,000 since December 2007. That means the gains in ecommerce jobs far exceeds the loss in full-time equivalent jobs in brick-and-mortar retail.”\textsuperscript{16}
\end{quote}

Both sides of the argument about the jobs impact of ecommerce often fail to provide a complete picture. The reason is that neither is truly comparing like with like. In reality online and offline retail are entirely
different areas. Each uses different supply chains, marketing channels, tools and approaches to
marketing and sales conversion as well as different mechanisms for fulfilment.

What both approaches have in common however is that each requires people with appropriate skills.

An important point that is sometimes overlooked when considering the number of jobs involved in
ecommerce is the size and performance of the sector as a whole. While it is true that online businesses
achieve higher productivity than traditional high-street businesses, they often operate in different
markets. With some exceptions, a traditional high street business can only sell products to people who
walk into their physical shop. Many online businesses are capable of selling products all around the
world. Cross-border ecommerce trade is now one of the fastest growing online sectors.\textsuperscript{17}

Were we to compare an offline with an online business then each might have a comparable number of
staff but the online company may well have a considerably greater reach and customer base.

Successful online business requires many inputs from skilled people. The actual premises where the
ecommerce business is based may only be staffed with a few people. However, that company is likely
to be making use of hosting companies, ecommerce marketing companies, content specialists,
conversion-rate specialists as well as all those involved in fulfilment, returns or third-party warehousing.
The workforce may be distributed and the questions asked in employment surveys could lead to
incorrect conclusions about the numbers of people needed to ensure the smooth running of the
business.

\textsuperscript{15} https://ftalphaville.ft.com/2017/06/30/2190751/retail-hype-vs-retail-facts/
\textsuperscript{16} https://www.progressivepolicy.org/blog/update-ecommerce-brick-mortar-retail-jobs/
\textsuperscript{17} http://www.dhl.com/content/dam/downloads/g0/press/publication/g0_dhl_express_cross_border_ecommerce_21st_century
Technically complex machines, whether racing cars or ecommerce systems, need extensive human support from a wide range of specialists and skilled engineers. What Formula 1 cars and ecommerce systems also have in common is that both involve digital measurement and optimisation of virtually every element of performance through marginal gains. Each is highly tuned to reach a clear goal; for the car to win the race and for the ecommerce system to sell products more efficiently and effectively than its competitors to generate profit and win market share.

The variety of skills needed for different ecommerce roles

Most ecommerce businesses require a range of individuals with a wide range of skills. One important missing skillset can cause an entire business to fail. These skills exist at a range of different levels from vision to strategy, planning, operational implementation and various essential but niche tasks. Above all else, each of these require to be joined-up if a business is to achieve its full potential.

The following table provides a rough segmentation of the different sets of skills needed for different parts of an ecommerce business:

<table>
<thead>
<tr>
<th>Responsibilities and skills table</th>
</tr>
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<tbody>
<tr>
<td>Business Advisors</td>
</tr>
<tr>
<td>Business Owners</td>
</tr>
<tr>
<td>Key Directors</td>
</tr>
<tr>
<td>Ecommerce Managers</td>
</tr>
</tbody>
</table>
A micro-ecommerce business could be a startup or a completely new business operation within an existing mature business. In these micro businesses, single individuals are likely to carry many, if not all of the responsibilities listed in the above table. These small businesses are usually heavily reliant on the skills of their partner or supplier organisations. Choosing the right supplier organisation is often a matter of selecting one with the skills that are appropriate to the client’s particular phase of growth. The supplier is only useful while their skills are greater than those of the client.

**Skills Suppliers**

In most practical situations, the best available skills lie within the ecommerce services supply community. Businesses employ these companies to design and develop an ecommerce platform or to maintain and support an existing one. These ecommerce supply companies often have staff with many years of practical experience working with real, rapidly-growing ecommerce businesses. Staff often carry numerous qualifications for niche skills such as Google accreditations or Magento certification. Because these specialists often work on a wide variety of projects, they achieve a far wider perspective than those focused on a single system. This broad knowledge allows them to provide advice based on practical and up-to-date experience.

A significant downside of using ecommerce service suppliers for skills provision is that imparting knowledge is not usually their primary role. The main purpose of engaging a service supplier is usually to undertake work on programming, design and ecommerce marketing. The associated skills transfer to upskill a business is usually made on an ad hoc basis. A good proactive supplier will say “I think you should do x”. The client business will want to know why and the ensuing dialogue may well be classed as ‘upskilling’ by the client and ‘sales’ by the supplier. This only works when a relationship of trust exists between the parties and that trust is based on improved ecommerce performance such as increased sales.

Most formal skills suppliers in technical subjects fall into two main categories:

**Academic Suppliers**

The key differentiators for this group are trust and independence. Academic researchers follow the time-honoured scientific method based on empirical observation and rigorous scepticism. Peer pressure and professionalism help preserve these. Further, academics are often well skilled in communication and teaching. In ecommerce, these positives are balanced by the problems around academic partners’ lack of up-to-date technical and market knowledge.

**Commercial Suppliers**

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19. [https://www.bigcommerce.co.uk/blog/ecommerce-marketing/](https://www.bigcommerce.co.uk/blog/ecommerce-marketing/)
The key differentiators for this group are that they are, by necessity, up-to-date with cutting-edge technology and business practice. They usually hold the data that informs them exactly what “works” and why.

The downside with commercial suppliers is that they have business interests which result in commercial bias not always declared to customers.

The strengths of these two groups are balanced out by their respective weaknesses. With academics, very few have hands-on experience as practitioners. Those that do will have experience that is likely to be outdated and therefore of limited applicability.

Another issue is that most ecommerce data is very commercially sensitive and very little is anonymised for the purposes of academic research. The final academic challenge is that the fast-changing agenda of ecommerce topics does not sit well with the course-building and other academic timescales that usually span at least one academic year.

With commercial suppliers, for example. Amazon Academy or Shopify Academy, the potential pitfalls for a business requiring either upskilling or reskilling are around issues of trust, transparency and independence. The commercial aims and priorities of the providers might not necessarily dovetail exactly with those of the customer, who might be drawn unwittingly into a providers’ commercial “ecosystem”, in a manner that might be hard to reverse subsequently.

A hybrid approach would combine different forms of learning within a vocational framework such as apprenticeship schemes. While these are often focussed around young trainees, there is no reason why the mechanism could not be extended to other groups, to combine formal skills training with vocational on-the-job work.

**Disadvantaged Groups**

An important aspect of this study is to suggest which groups have been most disadvantaged by the growth of ecommerce and to direct interventions towards their needs. There is an urgent need to understand the changes taking place in the marketplace and to establish whether or not specialised forms of training interventions are required for specific disenfranchised groups.

**Candidate Selection and screening for upskilling and reskilling**

The issue of skilling the workforce can be looked at either from the supply-side or the demand side. From the perspective of the skills supplier, the priority is to ensure that the candidates have the right baseline skills and aptitude to absorb the relevant contemporary knowledge about ecommerce. From the demand side, what is important is that candidates are able to learn whatever additional skills they require. A mismatch of priorities can have poor outcomes for both parties.

The most effective forms of skills training are those that best match the target group with the level of training. With ecommerce, matching usually involves some combination of the following components:

- Academic background by subject(s) and level.
- Work experience.
- Specialised qualifications and certifications (e.g. Magento certified developer).
- Numerical, mathematical and logical competence.
- Communication skills - both written and verbal.
- Problem-solving ability.
- Appropriately work-ready attitude and temperament.

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22 [https://www.aboutamazon.co.uk/empowering-small-businesses/amazon-academy](https://www.aboutamazon.co.uk/empowering-small-businesses/amazon-academy)
23 [https://www.shopify.com/academy](https://www.shopify.com/academy)
The possession of some of the above factors can be determined from a CV, some via aptitude tests and some via the interview process. It is necessary to examine each of these components and investigate how they may be utilised to help match individuals with upskilling/reskilling resources.

**Market segment examples for reskilling and upskilling**

This study will investigate how the challenge of meeting ecommerce skills needs is tackled globally, specifically in:

- UK
- China
- Germany
- US

The purpose of this regional research will be to clarify what skills training methods have been employed and how effective they have been in meeting the needs of each of these markets.

As an example, we will also consider specifically how ecommerce skills are being tackled within the food and drink sector. It should be noted that:

1. Food and Drink is a priority sector in Scotland and represents a disproportionately high percentage of the SME businesses base compared to other parts of the UK.
2. Food and drink products are subject to a unique set of rules, regulations, packaging requirements, taxes, duties and restrictions that apply only within the sector.

A requirement of this report is that it assesses the effectiveness of different types of skills training for both reskilling and upskilling. This analysis will allow us to suggest recommendations for a Scotland-wide plan for reskilling and upskilling in ecommerce. The primary purpose will be to ensure that it provides the most appropriate levels of skills training for people at different levels within an organisation while ensuring equality of training and opportunity for those wishing to enter and improve within the industry.
THE DEMAND FOR ECOMMERCE SKILLS

Recent years have seen considerable debate and analysis around the perceived digital skills gap in Scotland\(^2^5\).

To better understand the jobs market for digital skills, on 11th March 2019 the authors of this report conducted a desktop online exercise using a UK-wide jobs search engine called Adzuna\(^2^6\). We used it to investigate the UK jobs market for different categories of ecommerce-oriented technicians.

The first experiment looked at the numbers of jobs and associated salaries for a number of different computer programming jobs:

<table>
<thead>
<tr>
<th>Coding Language</th>
<th>No. of jobs in UK</th>
<th>No. of jobs in Scotland</th>
<th>% of all UK jobs on offer in Scotland</th>
<th>Av. UK salary offer</th>
<th>Av. Scottish salary offer</th>
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<td>2</td>
<td>0.57</td>
<td>£64,513</td>
<td>£35000</td>
</tr>
<tr>
<td>Tai</td>
<td>61</td>
<td>2</td>
<td>3.39</td>
<td>£26,411</td>
<td>£17,800</td>
</tr>
<tr>
<td>Node.js</td>
<td>3,684</td>
<td>76</td>
<td>2.11</td>
<td>£58,691</td>
<td>£56,448</td>
</tr>
<tr>
<td>Mongo</td>
<td>481</td>
<td>27</td>
<td>5.61</td>
<td>£62,214</td>
<td>£57,006</td>
</tr>
<tr>
<td>Web React</td>
<td>13,149</td>
<td>519</td>
<td>3.95</td>
<td>£45,948</td>
<td>£35,734</td>
</tr>
<tr>
<td>Java</td>
<td>16,831</td>
<td>779</td>
<td>4.63</td>
<td>£62,435</td>
<td>£55,981</td>
</tr>
<tr>
<td>PHP</td>
<td>7,286</td>
<td>191</td>
<td>2.69</td>
<td>£44,635</td>
<td>£43,061</td>
</tr>
<tr>
<td>Python</td>
<td>15,293</td>
<td>583</td>
<td>3.96</td>
<td>£61,488</td>
<td>£56,393</td>
</tr>
<tr>
<td>C++</td>
<td>7,265</td>
<td>260</td>
<td>3.71</td>
<td>£52,884</td>
<td>£49328</td>
</tr>
</tbody>
</table>

\(^2^5\) https://www.skillsdevelopmentscotland.co.uk/news-events/2018/november/shortage-of-digital-skills
\(^2^6\) https://www.adzuna.co.uk/
We then repeated the experiment but using very-ecommerce-specific programming environments:

<table>
<thead>
<tr>
<th>Programming Platform</th>
<th>No. of Jobs in UK</th>
<th>No. of Jobs in Scotland</th>
<th>% of all UK Jobs available in Scotland</th>
<th>Av. UK salary offer</th>
<th>Av. Scottish salary offer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magento</td>
<td>924</td>
<td>16</td>
<td>1.7</td>
<td>£37,319</td>
<td>£38,250</td>
</tr>
<tr>
<td>Shopify</td>
<td>332</td>
<td>4</td>
<td>1.21</td>
<td>£36,953</td>
<td>£35,000</td>
</tr>
<tr>
<td>DemandWare</td>
<td>60</td>
<td>0</td>
<td>0</td>
<td>£52,827</td>
<td>-</td>
</tr>
<tr>
<td>WooCommerce</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>£33,000</td>
<td>-</td>
</tr>
</tbody>
</table>

We can assume for the purposes of this study that Adzuna is gathering data in a way that does not prioritise one part of the UK over another. Searching various job categories across LinkedIn revealed similar ratios.

A second test was to use Adzuna to look at non-digital jobs such as nursing. Here, Scotland showed a slightly higher density of jobs per head of population. This suggested that Adzuna was likely to be providing its data without inbuilt regional bias.

According to Eurostat the population of Scotland is 5.37 million people while the UK is 66.02 million. This means that Scotland has around 8% of the UK population. If Scotland had an ecommerce labour market more in line with the rest of the UK, then it would follow that we would see around 8% of the available job posts in Scotland.

If we focus on the percentage of UK jobs in Scotland and take the median for the first table, there is an average of only 3.42%. With the second table, the median is between 1.21 and zero. This suggests that, at best, demand for programmers in Scotland is only around half that of the rest of the UK. Within the ecommerce sector, the data suggests that Scottish demand for jobs is only around a quarter compared to the rest of the UK.

Although there appears to be weaker demand in Scotland for programming jobs compared to the average for the rest of the UK, even with that reduced demand, finding suitably skilled staff remains very challenging. The authors of this study spoke to six recruitment companies as part of their research. All said that finding experienced ecommerce staff was very difficult. For example, Rachael Baxter, Managing Consultant at Nine Twenty Technology in Glasgow said:

27 We also looked at LinkedIn job posts and found they showed similar ratios of job data.
28 https://ec.europa.eu/eurostat
29 9:20, Hays, Be-IT, BrightPurple, Experis, ITrecruitment
“The ecommerce market has become very competitive with the growing demand for the skill set and the lack of candidates entering this field.”

Looking beyond jobs in ecommerce and non-ecommerce computer coding, we looked at available management jobs in ecommerce on 9 March 2019:

These results were acquired on 9 March 2019 using the Adzuna Application. This site’s algorithm aggregates a comprehensive collection of advertised jobs from all the major Job Boards and Job sites across the UK.

There are a large number of different job names, job descriptions and other terminology used to apply to people working in the ecommerce industry. The results shown here are limited to those that include the precise exact-match term “Ecommerce Manager” in the job description. Another set of completely different jobs use the exact-match term “E-commerce Manager”.

The largest concentration of jobs for this and a variety of similar terms confirms Greater London as the largest hotspot for ecommerce-related jobs. Manchester is the second largest cluster for ecommerce jobs.

It is worth noting that the ‘ecommerce manager’ is only one small, albeit key, member of a team that can often involve specialists in ecommerce analytics, ecommerce marketing, catalogue content management, logistics and service. To varying degrees, each of these other jobs requires specialist knowledge of ecommerce in order to perform their jobs to their optimal level.

To help get a clear picture of the requirements of businesses, the following Google Trends graph shows the steady increase in the number of searches for examples of different job types specific to ecommerce over a 12 year period:

![Google Trends Graph](https://www.indez.com/blog/)

In a 2017 blog post[^30], INDEZ, a Glasgow-based ecommerce services company discussed its survey of 36 people working in 27 different ecommerce businesses which discovered that not one had any form

[^30]: [https://www.indez.com/blog/](https://www.indez.com/blog/)
of ecommerce skills training. In every case, training was an ad hoc mixture of learning from peers, internet research and talking with suppliers.

The scale of the UK-wide ecommerce skills crisis can be illustrated by the experience of just one ecommerce company, The Manchester-based Hut Group, recently announced a plan to recruit 10,000 people to work in ecommerce\(^{31}\). Katie Gallagher, MD of Manchester Digital, said:

“We’re also suffering from a worsening skills shortage that is further threatening our development. We simply can’t continue to grow if we have to turn away business because we don’t have the talent or resources to actually carry it out. Our 2016 Skills Audit found that 37 percent of our members have had to do this in the past 12 months because of difficulties with recruitment. Being home to the largest student population in Europe, businesses in Manchester now need to do more to retain this talent in our region”.

To help get a better understanding of the particular problems around skills and recruitment faced by mature Scottish ecommerce businesses we contacted and spoke to eight local companies. The companies were chosen randomly from those who attend existing Scottish ecommerce clubs and have reasonably high profile within the local ecommerce community. This research was conducted between 18-28 March 2019. All those companies have a multi-million turnover. All have been trading online for at least three years. The companies are:

- Wholesale Domestic
- Shearer Candles
- Toolstop
- Direct Office Supply
- Scott Group
- Celtic Football Club
- YARD Direct
- Freeze Pro Shop

In each case, the point of contact was either the owner or the ecommerce manager (or equivalent). To each person contacted we explained that we were writing a report on skills and ecommerce in Scotland and asked if they could send us information on their view of the local skills situation. Every company sent us quotes which are copied verbatim below:

"Wholesale Domestic is a mature, Scottish-based business that is building a strong multi-million ecommerce business selling bathroom hardware. Finding people with ecommerce skills is very hard. Getting well-skilled staff is now a serious limiting factor on our ability to grow. We advertise extensively and a lot of my time is spent trying to recruit people at different levels and with different ecommerce skills into my team. Most of the people who apply have levels of skills that are way below what we need. I understand that there are plans underway in Scotland to try to address this problem. I give my strongest support to any initiative that will help correct what I view as a skills crisis in the area. For the record, I am far from alone. I know several other local businesses who are in exactly the same boat\(^{32}\)."

“It is incredibly difficult to find and recruit staff with good ecommerce skills. You either have to pay very high salaries to get those who really are experts (and usually ask them to relocate from down South) or you make do with those skilled in digital marketing and social media and hope they can pick up the ecommerce side. We choose an agency and various consultants for our ecommerce needs - this ensures we get access to a wide

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\(^{32}\) Phil McBride, Ecommerce Manager, Wholesale Domestic.
array of skills and advice on how to keep up in the ever changing world of e-com. Please put us on the list for upskilling.33

“My experience shows that it can be really difficult (or virtually impossible) finding good ecommerce specialists, especially in a business like Toolstop where we sell thousands of branded products which are technical in nature.

Ecommerce people need a range of expertise which includes:

**Retail** – an understanding of what it takes to sell products, a need to be on top of pricing and margins, analysing competitors, product knowledge and logistics knowledge.

**Technical skills** - ability to analyse and understand data and then apply any learnings to digital marketing, SEO, SEM, graphic design, traditional marketing etc.

**Other skills** – ability to work in multiple environments, platforms and control panels. Staying on top of emerging technologies. At the same time you’ll need to be happy liaising with contacts from technical agencies who know their own products much better than you do.

People with the skills above are hard to come by and normally you would find someone who has 1 or 2 of the above and hope they have an appetite to learn the rest.34

“People with ecommerce knowledge or skills are like hen’s teeth. In fact [my colleague] and I have been liaising about the lack of understanding many of our suppliers have when it comes to ecommerce marketing their products Online, the lack of knowledge their in house Web Teams have is shocking to say the least.35

“We’ve been asked about how difficult it is to find qualified ecommerce staff. As far as I can tell there are none available + there is a real lack of understanding in regards to the fundamental basic requirements of how to create quality information & content, it’s all about marketing. There is a lot more to ecommerce than that & the basics do not get taught to students or graduates.36

“People with good knowledge in ecommerce are rare, hard to find and almost impossible to recruit; especially in Scotland. Although you can get a qualification for a lot of the individual elements such as SEO, Adwords, Magento or Analytics; it’s not possible to get one for E-Commerce Management! My qualifications are all in marketing and although strides have been taken to improve digital marketing qualifications, there is still a clear gap when it comes to E-Commerce, an increasingly vital area of the economy and business.37

“There is no question in my view that there is a dearth of talent in Scotland when it comes to ecommerce. In a lot of cases we are forced to outsource south of the border. We urgently need to establish a growing pool of ecommerce talent here in Scotland as otherwise we will fall even further behind. Again. We constantly read about the huge digital economy growing in Edinburgh and Glasgow. This cannot be confused with ecommerce - which barely gets a mention. People in my experience don’t get the difference. In the years I’ve been running ecommerce businesses the skills we’ve required and will continue to require, simply don’t exist …. I can’t wait to see a formal course and qualification in this area.38

“Here in Edinburgh at Freeze Pro Shop the recruitment of ecommerce and digitally experienced staff is a fundamental and never ending challenge to the business and our ability to expand and compete in a global marketplace. Our company requires both

33 Stephanie Barnet, Marketing & PD Manager, ShearerCandles
34 Neil Bruce, Ecommerce Manager, Toolstop
35 John Masson, Owner, Direct Office Supply.
36 John Nixon, Ecommerce Manager, ScotGroup
37 John Bruce, Celtic FC, Ecommerce Manager
38 Ken McLelland, Director, YARD Direct Ltd
front-end and back-end ecommerce operatives. Those that are able to manage and thrive in the ever-evolving digital landscape ensuring that Freeze can successful compete against other retailers and successful deliver a world class digital experience. In the back-end, the engine that drives the business, Freeze needs programmers, infrastructure experts and software developers- these skill sets are unobtainable to a small growing business in Scotland- in most cases we are forced to outsource these work streams to English based agencies or even further afield. Being agile in a digital marketplace requires the talent to help a local company move forward.

The challenge to the Scottish economy is to firstly realise that ecommerce is not just retail, it is the selling of all goods and services digitally. Secondly capitalise on the entrepreneurial spirit in Scotland that is creating these career opportunities, and the opportunities to bring revenue into a local economy back from all around the world – this is the foundation of a prosperous digital future.  

Anecdotal as they are, such comments support the third conclusion of our desktop survey based on job availability.

Our research conclusions suggest that:

1. Advertised computer programmer-related job density in Scotland is half that of other parts of the UK per head of population.
2. Advertised ecommerce-related job density in Scotland appears to be around a quarter that of the rest of the UK per head of population.
3. Even with a reduced demand for both computer programmers and ecommerce jobs in Scotland, demand is still not being met through current skills provision.

39 James Berkeley, CEO, Freeze Pro Shop
RESKILLING IN ECOMMERCE

Reskilling in the UK

UK Government Department for International Trade (DIT) were approached for information about their interventions in support of ecommerce skills provision. The response of their spokesman for higher education is reproduced here in full:

In DIT Education team we promote education exports overall for UK institutions and providers. We previously discussed that very often ecommerce forms a component part of academic programmes. Universities in the UK lead the development of individual programmes and courses are based on demand and a market for certain programmes. Business schools have close links with industry in the UK, and very often industry helps inform curriculum development and programme specialisms. There are a variety of providers that offer ecommerce degree programmes in some form, whether as part of a degree or as the main focus of the programme. The titles vary from ‘Digital Business’ to ‘Digital Marketing’ to ‘Business Computing ‘ebusiness’. You may wish to discuss with the Chartered Association of Business Schools, if you have not reached out to them already.

I’ve spoken to my colleagues focusing on ecommerce, and you’ve had some suggestions and feedback from our TVET Specialist, my colleague Jonathan Ledger. We support the promotion of all UK qualifications, and typically if there is a demand for certain qualifications overseas would feed this back to sector representative groups we work with. To date in my higher education role which focuses on transnational education, I have not had specific requests for ecommerce training specifically, though I am aware you are doing very important research into this area and that it is a growing area and very important sector. There is real interest in several countries in areas such as green technology; AI; Blockchain at the moment, and these topics are frequently the focus of international education conferences.

I have spoken to some colleagues and there is a feeling that ecommerce skills and the field is moving very quickly and thus developing programmes in this area could mean content may quickly become dated. Employers may look for good analytical skills and project management experience as these are key to delivering ecommerce. Furthermore, there are also commercially available training opportunities e.g. Magento, AdWords or Google Analytics. I’ve looked up the requirements for many specialist roles in ecommerce, many stipulate certification in data analysis; Google Analytics; technical background; background in SEO etc. As yet though few ecommerce roles seem to require specific degrees in ‘ecommerce’.

Taking advice from UK DIT, we contacted TPDdegrees and received the following response:

“We are involved in two industry designed undergraduate degree programmes which do include ecommerce and you can see the universities currently involved with the programme. We also accredit Digital Degree Apprenticeships, for which again you can see more information on our website”

Within the UK, we have identified ecommerce being taught both as complete subjects as well as modules built into other courses. Examples include:

- MSc in Ecommerce at the University of Wales

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40 Aisling Conboy, Higher Education Specialis,| Education Team, UK; aisling.conboy@trade.gov.uk

41 https://www.uwtsd.ac.uk/msc-ecommerce/
The University of Wales MSc describes the course on their website as follows:

“eCommerce is now a mature industry in the UK and covers a wide range of skills. As well as technical skills, this area also covers marketing, advertising, sales order processing and customer service.

This programme is aimed at providing graduates with the knowledge and skills to enable them to satisfy the demands of employers by developing and enhancing their use of ICT, particularly in the area of eCommerce. This programme has a strong focus on data analysis and other factors that affect eCommerce such as law, marketing/social media, privacy, intellectual property, etc. Graduates will use their expertise to manage teams that design, implement, test and maintain innovative eCommerce based solutions in contemporary organisations.”

A large number of UK universities and colleges that cover ecommerce as a module in other more general courses. For each, the range of topics covered is impacted (a) by the focus of the broader topic covered and (b) by the personal interests of the lecturer. For example, the Liverpool course takes a very specific focus around auction protocols and negotiation mechanisms.

Another approach to solving the skills issue in ecommerce is through apprenticeship programmes.

In a recent press release43, Amazon announced that it is creating thirty apprenticeships in Scotland. These are part of 1,000 other full-time positions across its UK centres. This will take place over the next two years.

Amazon already has 2,500 employees in Scotland in addition to 27,500 in the UK head office and at three development centres in Edinburgh, Cambridge and London. At these locations, teams work on a wide range of innovations covering all aspects of online trade. These areas include speech-based ecommerce through their Alexa series of voice-activated devices. The company is also interested in developing advanced warehousing where the main driver is the use of advanced robotics and hard automation.

Amazon will run nine separate apprenticeship programmes. Each will last anywhere between 13 months and four years will be on offer across the UK to workers of all skill levels, ranging from IT, safety and HR through to software engineering, robotics, leadership and technology.

More than 90 new Amazon bachelors and masters degree-level apprenticeships will also be available over the next two years as part of the programme, focused on software development engineering, senior leadership and automation with both in-work and in-classroom training.

Two in every ten new apprenticeships will be offered to Amazon’s existing workforce, providing a route from working on the shopfloor through to cutting-edge software development, robotics technology and senior leadership roles within the $233bn-revenue business.

Apprenticeships exclusively for Amazon employees range from a Senior Leaders masters degree

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42 https://intranet.csc.liv.ac.uk/teaching/modules/module.php?code=COMP315
apprenticeship, through to HR Consultant; Safety, Health and Environment Technician and Team Leader/Supervisor.

“We want to give people opportunities to succeed in the digital age, regardless of their background,” Doug Gurr, UK Country Manager, Amazon is quoted as saying. “Our fully-funded apprenticeship programme, from entry level through to degree level, will provide an exciting path to becoming Amazon’s future team leaders, engineers and innovation drivers.”

The one thousand new apprentices will add to more than 300 already working at Amazon within the UK.

Within large companies such as Amazon or the Hut Group, the apprenticeship model can be self-contained. These large companies already have strong and highly-skilled people working inside their own teams. They are able to bring people from other professions or parts of the business into these teams and then use their own internal resources to undertake the necessary training.

The business sector in Scotland is mostly comprised of SME businesses. There are around a third of a million of these. SMEs accounted for 99.3% of all private sector businesses in 2018, accounting for 54.9% of private sector employment and 41.5% of private sector turnover. These SMEs provide around 1.2 million jobs. That means that the average size of an SME is just four people. If these companies want to reskill or upskill their staff then it’s almost certain that, unlike Amazon or the Hut Group, they will not have any of the internal skills required for training. They will need to find an alternative mechanism.

The section below looking into ecommerce skills provision in Germany shows that the market in that country confronts this lack by combining apprenticeship employment into companies with day-release courses where the apprentices receive group training. This is mostly carried out, in the first instance as a reskilling exercise. The longer (3-year) ecommerce apprenticeships then involve an intensive programme of upskilling to ensure that students are kept up-to-date with fast-moving developments.

This ‘day release’ training is carried out by specialist training centres and colleges.

Specialist training centres, colleges and universities in the UK.

The later section looking specifically at universities suggests that the provision of ecommerce skills in higher education is virtually non-existent. The reasons for this appear to be a combination of factors such as:

1. Perception that there is little demand for courses in ecommerce.
2. Lack of lecturing staff with the required knowledge to teach the subject.
3. Ecommerce not fitting into existing departmental structures.
4. Ecommerce not fitting with established pedagogical practice in university departments.

The prevailing view within UK higher education seems to be that ecommerce is a small and highly-specialised subset of business. This results in the subject being approached through small modules of work that sit within other subjects. For example, a marketing degree may have one section dedicated to digital marketing. Within that digital marketing course, there will then be small sections

44 [https://www2.gov.scot/Topics/Statistics/Browse/Business/Corporate/KeyFacts](https://www2.gov.scot/Topics/Statistics/Browse/Business/Corporate/KeyFacts)
that relate to how digital marketing can be applied to the selling of goods and services. This is
differentiated from subjects such as brand marketing or online promotion.

Professor Bryan Lukas, Head of The Manchester Business School at the University of Manchester
agreed to share his experience with the authors of this report.

The key points that he made were as follows:

1. There are no specific courses solely on Ecommerce.
2. There are no MSc., BSc or apprenticeships available.
3. While there is plenty of ‘talk’ in and around ecommerce, no explicit ecommerce training is
   provided.
4. All ecommerce training is split up and integrated into existing more traditional subjects such
   as SEO, Service Marketing, Analytics, social media, etc.
5. A key component of the success of the ecommerce sector in and around Manchester has
   been that business people are often aware of the subject - especially through Case Studies
   that they can relate to.
6. Prof Lukas accepted that the academic staff were more focussed on business topics and that
   they were less confident around technical matters.
7. A secondary factor is in close tie-ins with companies that actually do ecommerce. For
   example, the Hut Group has sponsored student projects at the Business School. The
   representatives of the Hut group were ‘young, cool and well-paid’ and that did much to
   encourage students to aspire to ‘be like them’.

Within Scotland, Business Gateway organised the DigitalBoost Ecommerce workshops. Workshops
each last half a day. These were held between April 2018 and February 2019.

The workshops were aimed at a mix of startups, micro businesses and SME's. The following table
shows the locations and number of delegates attending:

<table>
<thead>
<tr>
<th>Areas</th>
<th>No. workshops held</th>
<th>No. delegates attending</th>
<th>Av. delegates per workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen City</td>
<td>3</td>
<td>20</td>
<td>6.66</td>
</tr>
<tr>
<td>Clackmannanshire</td>
<td>1</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>East Lothian</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Edinburgh City</td>
<td>5</td>
<td>27</td>
<td>5.4</td>
</tr>
<tr>
<td>Eilean Siar</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Falkirk</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Glasgow City</td>
<td>2</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Highland</td>
<td>4</td>
<td>24</td>
<td>6</td>
</tr>
<tr>
<td>Inverclyde</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Moray</td>
<td>2</td>
<td>15</td>
<td>7.5</td>
</tr>
</tbody>
</table>
N. Lanarkshire | 1 | 6 | 8
W. Dunbartonshire | 1 | 2 | 2
Total | 23 | 123 | Average number attending 4.7

121 of the 123 delegates provided feedback. Around half were already trading:

<table>
<thead>
<tr>
<th>Row Labels</th>
<th>Count of Trading status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Been trading for 3 years plus</td>
<td>24</td>
</tr>
<tr>
<td>Been trading for between 1 and 3 years</td>
<td>14</td>
</tr>
<tr>
<td>Began trading less than 1 year ago</td>
<td>22</td>
</tr>
<tr>
<td>Expect to start trading within 3 months</td>
<td>20</td>
</tr>
<tr>
<td>Expect to start trading within 6 months</td>
<td>7</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>19</td>
</tr>
<tr>
<td>Thinking about starting a business</td>
<td>15</td>
</tr>
</tbody>
</table>

CodeClan is a SQA-accredited digital skills academy launched in October 2005 providing digital technical skills courses for upskilling through full-time and short term courses. CodeClan has the support of The Scottish Government, Skills Development Scotland, SQA as well as ScotlandIS.

It was created specifically to address the skills shortages in the digital sector. CodeClan provide a unique immersive software development courses that helps trainees accelerate their career into tech roles within the growing digital tech economy. The aim is to train and upskill a new generation of programmers, delivering high-quality, job-ready, entry level developers to the industry throughout Scotland.

CodeClan’s experience in developing software digital courses means that graduates gain practical skills while learning, gain confidence in their abilities, contribute within a team environment and most significantly are better prepared to be employable within the digital technical job market.

In 2018 CodeClan launched a new Industry Partner Programme, which enables businesses to have access to CodeClan students and events to allow employers a better understanding of a student’s skills set, career goals and capabilities, hence reducing the business risk of a recruit not being suitable or leaving after a short period. It acts as an additional layer of insurance to the business and also reassures the graduate that they are valued before they start working for them. By working closely with the business, CodeClan is able to customise the skills needed in the course by being flexible and adapting to the needs of both the graduate and the business to achieve a ‘win-win’ solution.

Up to 90% of CodeClan graduates looking for work go into employment within six months of graduating and to-date, CodeClan has trained and helped place 489 graduates however it has been recognised that Scottish Tech graduates demonstrate the need for practical learning to secure jobs. Securing and finding a job after University can be difficult, competitive and ultimately demoralising. Be-IT, a recruitment company did a survey and found that 32% of graduates still had not (yet) found a job in related computing/IT job, or not working in IT/computing at all.

45 https://codeclan.com
46 https://codeclan.com/for-employers/become-a-partner/
47 https://codeclan.com/blog/scottish-tech-grads-demonstrate-the-need-for-practical-learning-in-order-to-secure-jobs/
48 https://www.be-it.co.uk/
Around 70,000 people in Scotland work in the ‘IT’ sector, and there are around 12,800 jobs still to fill (statistics from ScotlandIS ‘Scottish Technology Industry Survey 2018’).

CodeClan’s mission is to bridge the digital skills gap in Scotland and help 1,000 CodeClan graduates break into the Scottish digital tech industry by the year 2020 and help over 500 employers grow and retain top quality talent.

An alternatives to CodeClan is the training provider QA Ltd. The company has offices in Glasgow and Edinburgh, a tie-in with Napier and also arrange courses at venues in Dundee and Aberdeen. While it has no specific offering in ecommerce, it does cover many of the programming components e.g. php.

Another example is FDM Group, an international professional services training company with an office in Glasgow. It offers an interesting training model where, following a candidate screening process, it pays successful candidates £21k a year to take a comprehensive set of technical training courses. It then places staff into companies. Most candidates come from the armed forces while most placements are into banks. Sheila Flavell, FDM’s chief operating officer explained that the technical training is engineered very precisely to the specific recruitment needs of their clients - the banks. She explained that banks were generally uninterested in ecommerce and expected that this would only be relevant to SME’s - with whom they do not currently work.

Reskilling in the US

In the US, the entry point into ecommerce reskilling is invariably social media. The prevalence of social media in the US - home of Facebook, Twitter, YouTube, SnapChat and Whatsapp - means that digital marketing is an important element of the B2C ecommerce experience.

As much as 64.18% of Americans are active monthly social network users and 30% of online shoppers say they would be likely to make a purchase from a social media network like Facebook, Pinterest, Instagram, Twitter or Snapchat. Amongst online shoppers, 23% are influenced by social media recommendations and 84% of online shoppers in the US review at least one social media site before making a purchase. Of social media platforms, Facebook, which owns Instagram and Whatsapp, is by far the most important. 85% of orders from social media sites come from Facebook.

As a result, a plethora of social media marketers has emerged. Many sell physical products in their ecommerce shops and recycle the knowledge gained through ecommerce by selling courses. As a result, ‘superstar’ ecommerce marketers with large social media followings, who attract visitors to large scale conferences and events such as the annual Traffic & Conversion Summit in San Diego, CA, recently purchased by the UK events company Clarion with a view to rolling it out in Europe and Asia. The cost of such courses can vary dramatically, from a few hundred to several thousand dollars for around 10 hours of content. The quality of the courses also varies and often the cheaper courses are better taught with richer content. Leading social media marketers include: Ezra Firestone of Smart Marketer, Molly Pitman of the Perpetual traffic Podcast, Ryan Deiss of DigitalMarketer, Mari Smith, Rand Fishkin of Moz, Michael A Steizner of Social Media Marketing and Denis Wu.

The US academic sector does offer numerous ecommerce-related courses. For example:

<table>
<thead>
<tr>
<th>Example Study programmes in the US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skills Provider</td>
</tr>
<tr>
<td>Name of Course</td>
</tr>
<tr>
<td>Target Group</td>
</tr>
</tbody>
</table>

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49 [https://www.scotlandis.com/resources/scottish-technology-industry-survey/](https://www.scotlandis.com/resources/scottish-technology-industry-survey/)
52 [https://www.unt.edu/pais/insert/udrtl.htm](https://www.unt.edu/pais/insert/udrtl.htm)
Certification | B.A.
---|---

**Content**
UNT’s Digital Retailing program is unique among U.S. universities. Through an interdisciplinary approach and innovative curriculum, you’ll learn about merchandising processes, marketing, consumer segments and design architecture in digital channels. You’ll also hone your analytical and computer skills.

Learning opportunities in the program extend beyond the classroom. The Dallas Study Tour provides you with access to leading omnichannel retail businesses for on-site lectures and tours. In the Merchant Development Program, students are mentored by industry executives and shadow them on the job. There are also oversee study abroad programs in Hong Kong, China and Europe and offer courses to study the Silicon Valley, San Francisco and New York markets. The Global Digital Retailing Research Centre hosts educational events and offers competitive industry-financed grants for student research.

- Consumer behaviour in digital and omnichannel environments
- Effective merchandising and marketing practices in digital and omnichannel environments
- How to build, maintain and manage an online store using industry leading ecommerce platforms
- How to evaluate product attributes, web analytics, pricing strategies, digital marketing, and web site navigation and categorization
- Processes involved in digital business

**Job Opportunities**
- Ecommerce manager
- Project manager
- Search engine optimization/search engine marketing manager
- Site merchandiser
- Social media manager
- Usability and A/B testing specialist
- Web analytics specialist

**Link**
https://www.unt.edu/pais/insert/udrtl.htm

---

**Skills Provider** | BCIT School of Business California
---|---

**Name of Course** | Ecommerce

**Target Group**
- You have some computer familiarity (web browsers, spreadsheets, word processors)
- You’re interested in building your own online business or ecommerce site for your employer
- You are interested in pursuing further training to enhance your future career
- You want to begin with a solid foundation of ecommerce principles

**Time Period**
8 online courses
Flexible training with in-person and online courses

**Certification**
BCIT certificate

**Content**
Discover the key aspects of how ecommerce affects and works within businesses. Through this program you’ll explore how technology is changing global commerce and creating new opportunities. Each course in this associate certificate program is taught by industry professionals to be sure you get the most current information and skills, including internet law, ecommerce systems, and customer relationship management.

By earning your associate certificate, you’ll be prepared for a career in ecommerce with the knowledge, context, and analytical insights for conducting business using information technology and the internet.

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53 [https://www.bcit.ca/study/programs/5975acert](https://www.bcit.ca/study/programs/5975acert)

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Reskilling in Germany

Germany is relatively new to ecommerce skills training, offering a vocational qualification “Management assistant in ecommerce” (Kauffrau/Kaufmann im E-Commerce) in 2018, with the first cohort having started in August 2018.

The qualification has been developed due to demand from ecommerce businesses and the wider retail and trade sector, including tourism and food and drink retailers. The development process first started in 2012. The lengthy process was due to extensive coordination process with trade unions, federal ministries for economy and justice, and education ministries in all of the 16 states and within the business sectors concerned.

This vocational course has been designed for school leavers as well as those looking to reskill. Entry requirements for reskilling courses vary by provider, but usually candidates must have completed a vocational qualification or need to have a certain number of years of work experience (1-3 years). Additionally, some providers require English and/or IT skills or prior experience in a related profession. Reskilling is provided by specialised private sector providers, and usually takes place over two years.

Reskilling courses (Umschulung) in general have been a part of the German skills development system for a long time. They aim to help people in long term unemployment due to illness, injury or low demand for their existing skills back into the labour market. Financial support to pay for the training and living costs is available through job centres.54

Depending on the provider, reskilling is delivered in the following ways:

- In a classroom settings (sometimes combined with online and blended learning) with work placements for practical learning55, or
- Through work-based learning in businesses, with some teaching in classroom settings56 (similar to an apprenticeship model for school leavers).

The skills addressed as part of these courses include57:

- Design and ongoing development of ranges of goods and services
- Evaluation, utilisation and ongoing development of ecommerce sales channels
- Management of online portals and online shops, and provision of support for procurement
- Use of tools for commercial management and monitoring in ecommerce
- Creation of interfaces with other sales channels
- Evaluation and selection of communication channels, organisation of internal and external communication
- Preparation and implementation of online marketing
- Initiation and processing of contracts for online goods and services
- Evaluation and use of different payment systems

54 [https://www.beruf.me/umschulung.php](https://www.beruf.me/umschulung.php)
56 [https://www.bfz.de/seminardatenbank/sammel/arbeitnehmer/weiterqualifizieren/5246/4/0/](https://www.bfz.de/seminardatenbank/sammel/arbeitnehmer/weiterqualifizieren/5246/4/0/)
Compliance with legal regulations for ecommerce
Application of project-oriented working methods in ecommerce

These courses mainly focus on the commercial, management and marketing aspects of B2C ecommerce. Ecommerce-specific digital technology skills are only covered to the extent that students are able to communicate with and manage suppliers or internal development staff effectively.

This new framework is likely to have a positive impact on the development and growth of the ecommerce sector in Germany due to it filling a skills gap identified by employers. Prior to the introduction of this qualification, many ecommerce businesses were unable to take on ecommerce apprentices, even through existing retail apprenticeship frameworks. Businesses providing apprenticeships in Germany need a certain number of staff with relevant qualifications and need to be able to provide training for all aspects of the apprenticeship framework. Since traditional retail apprenticeship frameworks are very focused on physical shops and their management, ecommerce businesses often lost out. The new qualification therefore allows ecommerce businesses develop their own staff through a supported apprenticeship framework.

According to the German ecommerce trade body, ecommerce as a career is not high profile within Germany. However, their experience from career fairs and other interactions with students and school leavers indicates that once they learn about the opportunities, there is a lot of interest. The trade body representative interviewed suggested that the ecommerce apprenticeship was popular among young people who had dropped out of university and were looking for more work-based learning.

Official statistics show that 62% of ecommerce apprentices were male and 38% female (out of 1284 who had started by the end of September 2018). This is a higher proportion of women than in more digital technology focused apprenticeships (e.g. 8% for information technology specialists) but lower than for the “Management assistant in retail” with 50% female apprentices.  

**Private sector courses**

In addition to courses provided through formal education pathways, there are a variety of courses that exist for people who already have work experience and would like to gain more ecommerce-related skills. They differ considerably in length, level and skills provided and do not usually lead to an officially recognised qualification. However, they provide workers and employers with a quick and targeted way to both reskill and upskill, compared to apprenticeships and higher education courses.

For example, the chambers of commerce, industry bodies and job centres all offer a range of courses in Germany. During the research undertaken for this report, hundreds of ecommerce focused were identified, covering all aspects of ecommerce.

These courses are aimed at people who already have some work experience but who are not necessarily in an ecommerce related environment. Many course providers indicate that their courses are suitable for those wanting to both upskill and reskill. These courses are usually eligible through job centres, with the aid of education vouchers, and are aimed at people who are unemployed or at risk of it.

The vast majority of courses are provided by private providers who specialise in upskilling and reskilling courses. Typically, they work with lecturers and trainers who have industry experience. Some courses, especially those preparing for management positions in ecommerce, are delivered with or by higher education institutions.

**Study Programmes**

[58](https://www.bibb.de/dokumente/pdf/naa309_2018_tab67_0bund.pdf)

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<table>
<thead>
<tr>
<th>Skills Provider</th>
<th>EMBA - Europäische Medien- und Business Akademie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Course</td>
<td>Digital Business Management (E-Commerce und Digital Retail Management)</td>
</tr>
<tr>
<td>Target Group</td>
<td>Students</td>
</tr>
<tr>
<td>Time Period</td>
<td>3 years</td>
</tr>
<tr>
<td>Certification</td>
<td>B.A.</td>
</tr>
</tbody>
</table>
| Content         | ● Planning and conception of online websites  
                 | ● Logistic processes of online shops  
                 | ● Challenges of Trade logistics  
                 | ● Adaptations of processes according to customer needs  
                 | ● Impact of design & functionality of online shops on customer  
                 | ● Background in digital online shop systems  
                 | ● Online Marketing  
                 | ● Online Supply Chain Management  
                 | ● Online regulations and laws  
                 | ● Data management  
                 | ● Development and implementation of concepts and business models for digital trade |
| Job Opportunities | Digital Experts and Business Managers in:  
                   | ● Online Trade  
                   | ● Logistics  
                   | ● Retail  
                   | ● Online Marketing  
                   | ● Food and Drink Companies |

<table>
<thead>
<tr>
<th>Skills Provider</th>
<th>Akademie Handel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Course</td>
<td>Dual Graduate Programme E-commerce</td>
</tr>
<tr>
<td>Target Group</td>
<td>High School Graduates</td>
</tr>
<tr>
<td>Time Period</td>
<td>3 years (34 months)</td>
</tr>
<tr>
<td>Certification</td>
<td>Business administrator in E-commerce</td>
</tr>
</tbody>
</table>
| Content         | ● Conception and development of goods and service assortments  
                 | ● Assessment, use and development of ecommerce distribution channels  
                 | ● Management of online portals and online shops as well as procurement support  
                 | ● Use of instruments of commercial control and control in ecommerce  
                 | ● Design of the interfaces with other distribution channels  
                 | ● Assessment and selection of communication channels, design of internal and external communication  
                 | ● Preparation and implementation of measures of online marketing  
                 | ● Initiation and processing of online goods and service contracts  
                 | ● Assessment and use of various payment systems  
                 | ● Compliance with legal provisions in ecommerce  
                 | ● Application of project-oriented working methods in ecommerce |
| Job Opportunities | Online-Businesses (Companies, Trade, Tourism, IT, Marketing) |
| Link            | [https://www.akademie-handel.de/weiterbildung/abiturientenprogramme-fuer-firmen/](https://www.akademie-handel.de/weiterbildung/abiturientenprogramme-fuer-firmen/)  
                 | [http://kompass-abiturienten.de/e-commerce/](http://kompass-abiturienten.de/e-commerce/) |
| Effectiveness   | Starting in September 2019 |

<table>
<thead>
<tr>
<th>Skills Provider</th>
<th>HDE (Handelsverband Deutschland)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Course</td>
<td>Apprenticeship as management assistant in E-Commerce</td>
</tr>
<tr>
<td>Target Group</td>
<td>High School Graduates (1000 places in first year)</td>
</tr>
</tbody>
</table>

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60 [https://www.akademie-handel.de/weiterbildung/abiturientenprogramme-fuer-firmen/](https://www.akademie-handel.de/weiterbildung/abiturientenprogramme-fuer-firmen/)  
61 [https://www.ihk-muenchen.de/ihk/documents/Berufliche-Bildung/Ausbildungsberatung/Pr%C3%A4sentation-Kaufleute](https://www.ihk-muenchen.de/ihk/documents/Berufliche-Bildung/Ausbildungsberatung/Pr%C3%A4sentation-Kaufleute)
<table>
<thead>
<tr>
<th>Time Period</th>
<th>3 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification</td>
<td>Business administrator in E-commerce</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Select and use online sales channel</td>
</tr>
<tr>
<td>● Designing goods and services and managing them online</td>
</tr>
<tr>
<td>● Support procurement</td>
</tr>
<tr>
<td>● Create a contract in online sales</td>
</tr>
<tr>
<td>● Handle contracts from online sales</td>
</tr>
<tr>
<td>● Design customer communication</td>
</tr>
<tr>
<td>● Develop and implement online marketing</td>
</tr>
<tr>
<td>● Use commercial control</td>
</tr>
<tr>
<td>● E-Commerce law</td>
</tr>
<tr>
<td>● Structure of E-commerce businesses</td>
</tr>
<tr>
<td>● Communication and collaboration</td>
</tr>
<tr>
<td>● Project management in E-commerce</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee in Businesses with online channels</td>
</tr>
<tr>
<td>(Interfaces: Business people in retail, wholesale, marketing communication, digital and print media, digital marketing)</td>
</tr>
<tr>
<td>Opportunity for further education: Business administrator in E-Commerce</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="https://www.ihk-muenchen.de/ihk/documents/Berufliche-Bildung/Ausbildungsberatung/Pr%C3%A4sentation-Kaufleute-im-E-Commerce.pdf">https://www.ihk-muenchen.de/ihk/documents/Berufliche-Bildung/Ausbildungsberatung/Pr%C3%A4sentation-Kaufleute-im-E-Commerce.pdf</a></td>
</tr>
<tr>
<td><a href="https://www.ihk-muenchen.de/de/Aus-und-Weiterbildung/Ausbildung/Ausbildungsberufe/Allgemeines-zu-Berufen/Neue-und-modernisierte-Berufe/Kaufmann-frau-im-E-Commerce/">https://www.ihk-muenchen.de/de/Aus-und-Weiterbildung/Ausbildung/Ausbildungsberufe/Allgemeines-zu-Berufen/Neue-und-modernisierte-Berufe/Kaufmann-frau-im-E-Commerce/</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for a qualified education in digital/online trade / E-commerce due to the massive growth of e-commerce in every channel</td>
</tr>
<tr>
<td>From planning to implementation it took 2 years to publish the new form of the apprenticeship (Started in February 2018)</td>
</tr>
</tbody>
</table>

### Further Education:

<table>
<thead>
<tr>
<th>Skills Provider</th>
<th>Rid Stiftung²²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Course</td>
<td>E-Commerce Manager</td>
</tr>
<tr>
<td>Target Group</td>
<td>Managers/ Entrepreneurs of online multichannel businesses</td>
</tr>
<tr>
<td>Time Period</td>
<td>1 year (Practical/ Training courses) - 24 days lectures</td>
</tr>
<tr>
<td>Certification</td>
<td>Bevh Certificate (Bundesverband E-Commerce und Versandhandel Deutschland e.V.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Strategies, Positioning and multichannel trade</td>
</tr>
<tr>
<td>● Shop architecture, content and services</td>
</tr>
<tr>
<td>● Online-Marketing I (Planning, SEA, Display Ads, Retargeting)</td>
</tr>
<tr>
<td>● Online-Marketing II (Affiliate Marketing, Email Marketing, Social Media, regional online-marketing)</td>
</tr>
<tr>
<td>● Conversion – Optimising and Online-Usability</td>
</tr>
<tr>
<td>● Legitimate Fundamentals</td>
</tr>
<tr>
<td>● Project management, Leadership</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Job Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Leadership/ Management in multichannel trade</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Link</th>
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</table>

<table>
<thead>
<tr>
<th>Skills Provider</th>
<th>Digital Business School²³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Course</td>
<td>E-Commerce Manager</td>
</tr>
<tr>
<td>Target Group</td>
<td>● Company executive or manager in a B2B or B2C Business</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Time Period</th>
<th>6 THEMATIC BLOCKS OF 3 TO 5 SEMINAR DAYS EACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certification</td>
<td>Bevh Certificate (Bundesverband E-Commerce und Versandhandel Deutschland e.V.)</td>
</tr>
<tr>
<td>Content</td>
<td>1. Block: Strategies and Goals</td>
</tr>
<tr>
<td></td>
<td>Day 1:</td>
</tr>
<tr>
<td></td>
<td>- Introduction to e-business</td>
</tr>
<tr>
<td></td>
<td>- Strategies and business models in e-business</td>
</tr>
<tr>
<td></td>
<td>- Preparation and basic strategies, positioning, price and service management</td>
</tr>
<tr>
<td></td>
<td>- Applications for e-commerce (online shops, online procurement, online marketplaces, online auctions)</td>
</tr>
<tr>
<td></td>
<td>Day 2:</td>
</tr>
<tr>
<td></td>
<td>- Platforms and E-Commerce systems</td>
</tr>
<tr>
<td></td>
<td>- System architecture in e-business</td>
</tr>
<tr>
<td></td>
<td>- IT Services/ Hosting</td>
</tr>
<tr>
<td></td>
<td>- Security and trust in e-commerce business (Risk)</td>
</tr>
<tr>
<td></td>
<td>Day 3:</td>
</tr>
<tr>
<td></td>
<td>- Fundamentals of the Customer Journey</td>
</tr>
<tr>
<td></td>
<td>- Aims and benefits</td>
</tr>
<tr>
<td></td>
<td>- Personas</td>
</tr>
<tr>
<td></td>
<td>- Customer Touch Points</td>
</tr>
<tr>
<td></td>
<td>2. Block: Operation &amp; Shop management</td>
</tr>
<tr>
<td></td>
<td>Day 1:</td>
</tr>
<tr>
<td></td>
<td>- Ideal buying process when shopping online and mobile commerce</td>
</tr>
<tr>
<td></td>
<td>- Essential online shop functionalities (Category management, product data management)</td>
</tr>
<tr>
<td></td>
<td>- Basic master data management</td>
</tr>
<tr>
<td></td>
<td>Day 2:</td>
</tr>
<tr>
<td></td>
<td>- Order management optimisation</td>
</tr>
<tr>
<td></td>
<td>- Payment and risk scoring</td>
</tr>
<tr>
<td></td>
<td>Day 3:</td>
</tr>
<tr>
<td></td>
<td>- Legal aspects of enterprise resource management</td>
</tr>
<tr>
<td></td>
<td>3. Block: Structure &amp; Design</td>
</tr>
<tr>
<td></td>
<td>Day 1:</td>
</tr>
<tr>
<td></td>
<td>- Navigation and Information Architecture</td>
</tr>
<tr>
<td></td>
<td>- UX/UI Design Techniques</td>
</tr>
<tr>
<td></td>
<td>- Group Work on the Creation of an Information Architecture</td>
</tr>
<tr>
<td></td>
<td>Day 2:</td>
</tr>
<tr>
<td></td>
<td>- User Interface (UI) and User Experience (UX) Principles</td>
</tr>
<tr>
<td></td>
<td>- Interface Design Fundamentals</td>
</tr>
<tr>
<td></td>
<td>- Introduction: E-Commerce Web Patterns</td>
</tr>
<tr>
<td></td>
<td>Day 3:</td>
</tr>
<tr>
<td></td>
<td>- Conversion Funnel</td>
</tr>
<tr>
<td></td>
<td>- Orientation, Motivation and Persuasion</td>
</tr>
<tr>
<td></td>
<td>- Influence of Usability and Conversion Rate on Shop's success</td>
</tr>
<tr>
<td></td>
<td>Day 4:</td>
</tr>
<tr>
<td></td>
<td>- Collaboration and E-commerce platforms</td>
</tr>
<tr>
<td>Block: Optimisation &amp; Further Development</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Day 1:</strong></td>
<td></td>
</tr>
<tr>
<td>- Technical Fundamentals</td>
<td></td>
</tr>
<tr>
<td>- Controlling and KPIs</td>
<td></td>
</tr>
<tr>
<td>- KPI management</td>
<td></td>
</tr>
<tr>
<td><strong>Day 2:</strong></td>
<td></td>
</tr>
<tr>
<td>- Web Controlling and Analytics</td>
<td></td>
</tr>
<tr>
<td>- Use of Web Beacons and Hybrid Methods</td>
<td></td>
</tr>
<tr>
<td>- Overview of Providers</td>
<td></td>
</tr>
<tr>
<td>- Analysis of view measures and reporting</td>
<td></td>
</tr>
<tr>
<td>- Success monitoring through KPIs</td>
<td></td>
</tr>
<tr>
<td><strong>Day 3:</strong></td>
<td></td>
</tr>
<tr>
<td>- Requirement Analysis, conception and project plan</td>
<td></td>
</tr>
<tr>
<td>- Tracking concept, rollout planning</td>
<td></td>
</tr>
<tr>
<td>- Site Integration, technical specification and requirements</td>
<td></td>
</tr>
<tr>
<td><strong>Day 4:</strong></td>
<td></td>
</tr>
<tr>
<td>- Optimisation measures and result interpretation</td>
<td></td>
</tr>
<tr>
<td>- Fundamentals of Website Testing</td>
<td></td>
</tr>
<tr>
<td>- Preparation, Implementation and Evaluation of Tests, Tools</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Block: Marketing &amp; Online Marketing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day 1:</strong></td>
</tr>
<tr>
<td>- Fundamentals of Online Marketing</td>
</tr>
<tr>
<td>- Technical Fundamentals</td>
</tr>
<tr>
<td>- Online Marketing Mix</td>
</tr>
<tr>
<td>- Marketing Conception and campaign planning</td>
</tr>
<tr>
<td><strong>Day 2:</strong></td>
</tr>
<tr>
<td>- Search Engine Advertising (SEA)</td>
</tr>
<tr>
<td><strong>Day 3:</strong></td>
</tr>
<tr>
<td>- Search Engine Optimisation (SEO)</td>
</tr>
<tr>
<td><strong>Day 4:</strong></td>
</tr>
<tr>
<td>- Social Media Marketing</td>
</tr>
<tr>
<td>- E-mail marketing</td>
</tr>
<tr>
<td>- affiliate marketing</td>
</tr>
<tr>
<td>- mobile marketing</td>
</tr>
<tr>
<td><strong>Day 5:</strong></td>
</tr>
<tr>
<td>- Requirement Analyses, conception, project plan</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Block: Strategy Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day 1:</strong></td>
</tr>
<tr>
<td>- Introduction</td>
</tr>
<tr>
<td>- Start of Business plan game</td>
</tr>
<tr>
<td><strong>Day 2:</strong></td>
</tr>
<tr>
<td>- Continuation of the business plan game</td>
</tr>
<tr>
<td>- Analysis of involved companies decisions</td>
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<tr>
<td><strong>Day 3:</strong></td>
</tr>
<tr>
<td>- Presentation and justification of management decisions in the framework of a AGM</td>
</tr>
</tbody>
</table>

© Institute of Ecommerce
Online Courses

<table>
<thead>
<tr>
<th>Skills Provider</th>
<th>IHK / HSB Akademie²³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Course</td>
<td>E-Commerce Manager</td>
</tr>
<tr>
<td>Target Group</td>
<td>Employees and freelancers who want to work in e-commerce in long-term</td>
</tr>
<tr>
<td>Time Period</td>
<td>6 Months (8-10 hours weekly) + 3 workshop days</td>
</tr>
<tr>
<td>Certification</td>
<td>IHK Certification</td>
</tr>
</tbody>
</table>
| Content               | 1. Fundamentals: Participants/ actors and framework conditions  
                        2. Online-Shop – Requirements and Configuration  
                        3. Online-Marketing – Search engines and social media  
                        4. Web-Controlling – Optimisation for online trade  
                        5. Logistics – efficient commodities management and returns  
                        6. Law in E-Commerce |

Job Opportunities

● Specialised employee or freelancer in e-commerce management

<table>
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<tr>
<th>Link</th>
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</thead>
</table>
|      | https://www.e-commerce-manager.info/
|      | https://hsb-akademie.de/fernlernkurs/e-commerce-manager-ihk/ |

Cost

2,505 Euro excl. VAT

<table>
<thead>
<tr>
<th>Skills Provider</th>
<th>Ecomex²⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Course</td>
<td>E-Commerce Manager</td>
</tr>
<tr>
<td>Target Group</td>
<td>Further education for web designers, project managers, executives, business managers, newcomers in Marketing, IT, Distribution, E-commerce businesses</td>
</tr>
<tr>
<td>Time Period</td>
<td>8 weeks (online or on-site)</td>
</tr>
</tbody>
</table>
| Certification         | Ecomex Certified E-Commerce Manager (DEKRA Certification GmbH)  
                        Opportunity for further certificates in Google Adwords, Google Analytics, Facebook Blue, Hootsuite, Hubspot |
| Content               | 1. Fundamentals  
                        2. E-commerce strategies and project management  
                        3. Logistics and commodity management  
                        4. Multichannel distribution  
                        5. Online Marketing (SEA, SEO, Social Media, Content, Law)  
                        6. Web-Analytics and Web controlling |

Job Opportunities

● Digital know-how necessary in a broad range of businesses

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<th>Link</th>
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<tbody>
<tr>
<td></td>
<td><a href="https://www.ecomex.de/online-marketing/e-commerce-manager-weiterbildung/">https://www.ecomex.de/online-marketing/e-commerce-manager-weiterbildung/</a></td>
</tr>
</tbody>
</table>

Costs

3,352 Euro excl. VAT

Ecommerce Conferences

Examples of ecommerce events held in Germany include:

eTail Germany – 07/03/2019 in Berlin⁶⁶
At eTail Germany, attendees heard from retailers on seamless and personalized online shopping experience, and actionable objectives for their retail strategy. Sessions from BVOH and BlackPanda, looked at transferable lessons from the Chinese market. Attendees also learned from Foodpanda how

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²⁵ [https://www.ecomex.de/online-marketing/e-commerce-manager-weiterbildung/](https://www.ecomex.de/online-marketing/e-commerce-manager-weiterbildung/)
⁶⁶ [https://ecommercenews.eu/events/etail-germany/](https://ecommercenews.eu/events/etail-germany/)
to increase retention and reduce ad spend, and Intertoys explaining how to create a next-level customer experience across all channels.

**E-PACK Europe – 26/27 March 2019 – Berlin**

E-PACK Europe focuses on technical discussions around leveraging the packaging industry to fulfill the growing ecommerce market. The event wants to support the packaging industry in transition from in-store packaging to ecommerce packaging.

"With consumer ecommerce shipments increasing globally by 33 percent between 2014 and 2016, this distribution channel is fast developing from a niche to a volume application. This is presenting technical challenges for the packaging industry in terms of functional designs and protection", the organisation explains. "But simultaneously, it’s opening up new business opportunities as the ecommerce supply chain for packaging technology differs significantly from that for traditional retail selling."

**Reskilling in China**

**Government policy and reskilling**

Because of the centrally-directed nature of the Chinese political system, government policy is the key factor when exploring both reskilling and upskilling in ecommerce. For over two decades, the Chinese Government and its agencies have encouraged ecommerce including providing various policies for upskilling and reskilling. Beijing has been providing ecommerce support for over two decades, with the China International Electronic Commerce Center (CIECC) being set up as far back as 1996. The Chinese Government has made it clear that it views ecommerce as a mechanism by which to increase imports and exports, ultimately contributing to the development of the Chinese economy.

Ecommerce has been included in a number of key strategic areas of Chinese economic policy-making. These include references in relation to broader economic development policies such as the Belt and Road initiative as well as more specific policies such as the "13th Five-year Development Plan for E-commerce".

This broad approach to ecommerce means that the distinctions between upskilling and reskilling are often more blurred than they are in the UK, and policies often allow for both to be considered at once.

For the purpose of this document, we will pay particular attention to the Internet Plus initiative, and the Ministry of Commerce’s subsequent Internet + Circulation Action Plan. These directly address how and where ecommerce skills and training should take place. In addition to this, we will briefly cover the E-commerce "13th Five-Year” development plan provides an overview of what will take place in the coming years.

**Internet Plus and Internet + Circulation Action Plan**

On February 4th 2015 China unveiled Internet Plus. At the announcement, Premier Li Keqiang set out how China would integrate technologies such as mobile internet, cloud computing and big data into modern manufacturing with the specific goal of encouraging ecommerce.
While this is a broad policy, it was later built on by the Ministry of Commerce to include specific ecommerce skills in the Internet + Circulation Action Plan.

The purpose of the action plan is to focus on encouraging ecommerce in the following:

1. rural areas
2. small and medium-sized cities
3. the wider community
4. online and offline interaction
5. cross-border ecommerce.

Training was given as one of the main areas of focus, as it is viewed as a starting point to achieve ecommerce success.

Internet + Circulation Action Plan does not break the subject down into reskilling and upskilling, largely because these policies are focused on a broader approach, rather than simply looking at training. However, it is clear how each of these areas might relate to upskilling and reskilling.

While the distinctions between upskilling and reskilling are not made in either Internet Plus document, for the purpose of this report, we can relate the above five areas of focus to either reskilling or upskilling in the following way:

1. Rural areas are focused on reskilling, as the economy moves either directly from farming to ecommerce, or via manufacturing.
2. Companies in small and medium sized cities are likely to benefit more from upskilling, as they will typically have some skills, but perhaps not to the level of counterparts in larger cities such as Shanghai.
3. The wider community relates to supporting industries, such as logistics companies or payment service providers (PSPs). For example, a logistics company may be reskilled on how to deal with ecommerce-ordered parcels.
4. Online and offline interaction is more about reskilling also, as bricks-and-mortar stores learn to offer more digitally connected ways of shopping, and online companies move into highstreet retail.
5. The promotion of cross-border ecommerce is more about upskilling, as in order to sell products overseas, most companies would aim to have existing ecommerce operations within China.

One key element of the Internet + Circulation Action Plan was to guide the localities to set up 50 ecommerce training bases. These would provide specialised courses for 500,000 people in ecommerce knowledge and skills within two years. This in turn was an extension of a previous policy by the Ministry of Commerce which set up 15 ecommerce talent training branches training 85,000 students in total. As of January 2017, 50,000 students had received training through the most recent provisions. The latest figures have not been published at the time of writing.
These training bases differ based on their location, and the needs of people and businesses in the surrounding areas. For example, in more rural areas, such as villages in Guangdong, Anhui and other similar provinces, these policies actively support online sales of "one product of one village" policies. In these programmes, corporate companies often engage with rural enterprises to make best use of village resources\(^80\). In so doing, companies and training bases are reskilling the rural workforce to engage in ecommerce. These policies have attracted people back to these rural areas as they can run businesses online as a result of being reskilled.

China’s "13th Five-year Development Plan for Ecommerce"

The "13th Five-year development plan" is relatively recent, being issued in Jan 2017. While many of the points outlined in the development plan have not had the chance to be implemented, it is worth noting the direction in which policy towards ecommerce is moving.

The most relevant section of the 13th Five-Year plan for reskilling is the provision of ecommerce training as a means to promote employment and entrepreneurship, with the ultimate goal on poverty alleviation\(^81\). Due to the high demand for ecommerce jobs, and the salaries that can be achieved in China (which are high for the ecommerce sector), reskilling the workforce provides an opportunity to move people from a position of relative poverty, to one of skilled employment.

This is particularly important for rural China, and this policy presents a significant opportunity for Scotland to learn from China. The Chinese Government has pushed hard to speed up the development of the internet infrastructure in rural areas\(^82\), as Scotland has in the Highlands and Islands. China is now shifting its focus from infrastructure to how the rural population can best take advantage of that infrastructure. Reskilling rural populations is an important part of maintaining communities and lifting the population out of poverty, as it means that the rural population no longer needs to move to cities to start ecommerce businesses.

**Candidate Selection**

Screening should play a part with all course selection processes. The same is true for recruitment. Numerous attempts have been made to optimise the recruitment of people who are suited to work in ecommerce\(^83\).\(^84\)\(^85\).\n
Depending upon the type of role as well as the level of skill and responsibility, most processes involve some combination of the following:

1. Existing knowledge of ecommerce
2. Problem-solving ability
3. General business experience
4. Competency in basic maths
5. Personality testing to identify logical systematic thinking and attention to detail.
6. Personality testing to identify personal integrity and trustworthiness.

\(^80\) [http://images.mofcom.gov.cn/pep/201505/20150515135515086.doc](http://images.mofcom.gov.cn/pep/201505/20150515135515086.doc)
\(^83\) [https://www.thejournalian.com/careers/working-in-ecommerce](https://www.thejournalian.com/careers/working-in-ecommerce)
\(^84\) [https://www.ecwid.com/blog/how-to-hire-and-manage-staff-for-your-growing-online-store.html](https://www.ecwid.com/blog/how-to-hire-and-manage-staff-for-your-growing-online-store.html)
\(^85\) [http://www.hays.co.uk/job/retail-jobs/insights/attract-ecommerce-talent-retail/](http://www.hays.co.uk/job/retail-jobs/insights/attract-ecommerce-talent-retail/)

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For recruitment, the score for each of these depends on the role and the level of responsibility for the job. If people are undertaking a course in the expectation that they will subsequently use the information taught in their job then exactly the same criteria should apply.

**Existing knowledge of ecommerce.** This usually defines the level of experience. For a reskilling course, it is reasonable to expect zero knowledge. If a candidate has a significant amount of existing knowledge in ecommerce they should consider upskilling.

**Problem-solving ability.** Tests here are not specific to ecommerce but are designed to ascertain a person's understanding of cause and effect or their ability to think laterally. Ecommerce systems may have very many components. Because each component is connected in some way to every other component, a failure or weakness in one part can easily, and sometimes surprisingly, impact another part. An individual with a narrow prescriptive may be flummoxed while someone with an ability to stand back solve is more likely to do better.

**General business experience.** People with a track record of having worked in a business environment are usually helpful. If they worked in some aspect of sales or finance that is even better.

**Competency in basic maths and numeracy.** Being quick with percentages, VAT-on and VAT-off are useful skills. This does not require any formal qualifications. Being comfortable with a spreadsheet of numbers is looked for here.

**Personality Testing.** Everyone is different and people are competent at different things. However, ecommerce does require individuals who are calm, logical, systematic and strong on attention to detail. People who have strong creative personalities are often less well-suited to ecommerce roles. A second personality characteristic that tends to be high for people in the ecommerce industry is trust. Examples of best practice testing in reskilling recruitment follow a precise process that filters people through to an Amazon Assessment Centre. Although Amazon's tests are for recruitment, similar patterns of preference would be applicable for delegates attending courses. Two of the most commonly used tools are 16personalities and Truity.

What all of these recruitment criteria attempt to gauge is whether an individual has the right balance between competence and motivation.

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86 https://content.wisestep.com/interview-questions-to-determine-problem-solving-skills/
87 https://www.practiceaptitudetests.com/top-employer-profiles/amazon-assessments/
88 https://www.16personalities.com/
89 https://www.truity.com/
UPSKILLING IN ECOMMERCE

Upskilling in the UK

Upskilling across the UK is largely covered by online training from commercial suppliers. They usually limit their training to the narrow set of functionality defined by their own commercial products. Examples include:

- Magento Upskilling
- Shopify Upskilling
- Analytics Upskilling
- Ecommerce Personalisation upskilling
- Warehousing upskilling
- Many other examples.

These courses may be suitable if the attendee is looking for a specific form of upskilling, for example, wanting to become a Magento developer. However, this focus on a single platform or service, means that those taking the course are limited.

Commercially focused training also tends to focus on much more complex forms of upskilling, because the content is geared towards becoming an expert in a particular area. While this isn’t necessarily a negative, it does mean that there is a gap in the provision for people who want to upskill in a more general sense. They often aim to sell the product as the ideal solution, rather than provide information to inform decision making.

For example, it would not be feasible to complete training for every possible ecommerce platform (Magento, Shopify, WooCommerce, Prestashop, BigCommerce, etc.) before making a decision on what platform should be chosen. If looking to select an ecommerce platform (or replatform), it is necessary to understand what would work best for the scale and type of ecommerce business in question. It is not in the interests of these commercial organisations to provide such an overview.

A few of the commercial companies offer upskilling around broader topics. Examples include:

- Econsultancy
- London Marketing Company
- LinkedIn
- ACS

Although broader in their focus, these courses also offer a “one-size-fits-all” approach. As these courses are typically short (only a few days), this does not provide enough depth to make business specific decisions.

For example, the ecommerce course run by London Marketing Company covers topics such as SEO, Apps, Brand reputation and UX. However, it completely ignores marketplaces. For many ecommerce businesses, especially in the early stages, these marketplaces provide a key source of sales.
Another one of the issues with commercially-led courses is that they invariably avoid any screening or selection processes designed to ensure that the course is suitable for the attendees. Another issue is that there is no clear framework for establishing the relationship between the provision of skills and the outcomes. In ecommerce, those outcomes should be those involving improved business performance such as increased sales or increased productivity or increased profits.

It is also interesting to note that many of the companies providing training are not based in the UK. This, therefore, has the potential to ignore country specific nuances, such as catering to particular industries.

**Upskilling in the US**

While the US offers relatively little in the ecommerce reskilling market, the opposite is true for the upskilling market. The US dominates the market for the software systems, platforms, technologies and extensions used throughout ecommerce. With each of these digital products, the developers invariably offer high quality online training packages. These are usually available directly from the developers website that links through to video channels such as YouTube. Alternatively, there are specialist training platforms such as Lynda which has recently been integrated into LinkedIn.

A recent search of the Lynda channel on LinkedIn showed 1,721 courses available on ecommerce. Many of these courses are already out of date. For WooCommerce and Shopify there are 29 courses for each and 90 for Magento. For a new business wanting to learn about an ecommerce platform, which course should they use?

The US has the largest ecommerce upskilling market in the world. By way of example, we visited the Magento Certification Directory and polled their database to find out the distribution of Magento II Solution Providers world wide. Solution Providers are upskilling from being Magento II programmers.

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*Data collected from [https://u.magento.com/certification/directory/index/](https://u.magento.com/certification/directory/index/) on 27th March 2019*
Ukraine and India are countries with good education systems that emphasise maths and IT within their education systems. They are now ecommerce outsourcing hotspots that target countries such as the UK that currently have a skills gap. A similar pattern of upskilling behaviour using computer-based training is seen across a wide range of other software systems. The example below shows another typical example:

While the US dominates with both the provision and consumption of the technical components of ecommerce, each is inevitably subject to commercial bias.

### Upskilling in Germany

While Germany does not currently have any government-supported upskilling provision for ecommerce, there is a plan to launch a vocational qualification for a “Certified expert in ecommerce” (Ecommerce Fachwirt/in) in summer 2019. Its development started together with the qualification for the assistant manager in ecommerce (as above) with the “certified expert in ecommerce” being the next level in the qualification framework for this profession.

This qualification is aimed at people with a relevant existing qualification and work experience who want to upskill and acquire the skills for the next step in their career. In order to be considered for this course candidates are required to have:

- Completed a vocational qualification at level 4 of the German Qualification Framework (such as the apprenticeship for ecommerce manager) in a retail or commercial sector + one year of ecommerce related work experience OR
- Completed a vocational qualification at level 4 of the German Qualification Framework in another sector + two years of ecommerce related work experience OR
- Gained 90 ECTS\(^1\) credit points in business management higher education courses + two years of ecommerce related work experience

As these courses are yet to start, there is limited information about how they will be provided. However, upskilling courses of this nature are usually provided by the same specialised private sector providers that deliver reskilling courses described above. They can done full-time (3-12 months) or part-time (13-18 months)\(^2\) and are delivered in a classroom setting or through online learning.\(^3\)

The general purpose of the qualification is to provide skills for ecommerce managers.\(^4\) As with the assistant ecommerce manager qualification, it will be focused on ecommerce management, commercial and marketing. They will not include complex technical skills skills related to ecommerce.

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101 https://en.wikipedia.org/wiki/European_Credit_Transfer_and_Accumulation_System
102 https://berufenet.arbeitsagentur.de/berufenet/faces/index?path=null/suchergebnisse/kurzbeschreibung/
103 https://berufenet.arbeitsagentur.de/berufenet/faces/index;BERUFENETJSESSIONID
104 https://www.bevh.org/politik/arbeitspolitik-und-fachkraefte.html
The German Retail Association is involved in the development of the qualification framework and has suggested the inclusion of the following skills:

- strategic development of ecommerce
- development and use of cross-departmental interfaces
- designing the range of goods and services as well as controlling purchasing in national and international markets
- analysing and assessing the effects of changes in customer wishes and behaviour as well as trade-relevant developments and responding with appropriate plans and actions
- implementation and evaluation of concepts for online marketing and integration of online marketing into the overall strategy of the company
- controlling ecommerce sales by means of key figures and based on the analyses of consumer behaviour
- implementation of customer and innovation orientation in all work and business processes
- design and evaluation of business processes and projects
- staff management and promotion of their professional development
- organisation and implementation of vocational training
- implementation of changes to work and organisational processes
- implementation of quality management and promotion of sustainability in online trade

**Private sector courses**

As with reskilling, there are several private sector businesses which offer upskilling in ecommerce. The courses available vary considerably in content, length (one day to several months) and level. Candidates who complete the courses usually receive a certificate.

Courses provided usually do not have formal entry requirements, apart from sufficient digital skills. Higher level upskilling courses indicate that they are aimed at people with a certain level of experience but candidates usually self select and there is no formal candidate selection process.

These upskilling courses can cost several thousand Euros and employers are often covering part or all of the costs for their employees.

**Upskilling in China**

**Government policy and upskilling**

**Internet Plus and Internet + Circulation Action Plan**

As with reskilling, Chinese Government policy also covers the upskilling of the workforce. This is most evident in the aforementioned training bases. In urban areas, these training bases provide skills training focused around the upskilling of the existing workforce as opposed to providing people with a completely new set of skills as they do in rural areas.

Examples include those in Liaoning, Shanxi and similar provinces, where ecommerce upskilling is arranged for staff within the commercial departments of SMEs and micro businesses. The goal here is to improve the survival rate and quality of these SMEs.

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105 Translated list from p. 19/20, [https://einzelhandel.de/images/publikationen/Branchenreport_Arbeitgeber_2016.pdf](https://einzelhandel.de/images/publikationen/Branchenreport_Arbeitgeber_2016.pdf)

These businesses may already possess some skills in ecommerce, and may already be trading. However, the training is specifically tailored to provide skills that enable businesses to make the most of opportunities available through ecommerce. International trade is one area that is mentioned specifically as an area of focus, and seen as an opportunity\textsuperscript{107}. Training is clearly having a positive effect, as in 2018, 39% of the top sellers on Amazon Europe (Spain, Italy, France, UK, and Germany) were based in China\textsuperscript{108}. If this percentage hold globally, then Amazon alone accounts for an added $68bn in revenue going into the Chinese economy.

13th Five-year development plan for E-commerce

Another area of note is the focus on the role companies will play in the development of ecommerce training. The government hopes to bring together multiple types of ecommerce business in areas such as talent training, business incubation, and other ecommerce services\textsuperscript{109} to do this. There are several examples of this happening already, the largest of which is Alibaba which we describe below.

\textit{Alibaba and education}

In the same way eBay and Amazon are the "go-to" destinations for ecommerce in the US and Europe, Taobao and Tmall fulfil that role in China. They are, however, both owned by a single company - Alibaba. These two companies accounted for 58.2% of all Chinese ecommerce sales in 2018\textsuperscript{110}, not to mention Alibaba’s other companies which include a host of other ecommerce-related services.

This dominance by a single company is important to note as it is heavily involved in the provision of skills. This is particularly true in relation to upskilling its own workforce or those using the Alibaba platforms.

Alibaba and education have been linked since before its inception. Jack Ma, co-founder and executive chairman of Alibaba Group, began his career as a lecturer in English and international trade\textsuperscript{111}.

As Alibaba has grown, it has become more involved with the education of the next generation of ecommerce professionals. In order to do so, Alibaba has partnered with a broad spectrum of key stakeholders, from the UN to various universities. This has given rise to a number of initiatives aimed at upskilling both Alibaba employees as well as those not employed by the group.

There is a distinction here, between its own workforce and those using the Alibaba platforms. It is in Alibaba’s commercial interest to make it as easy as possible for people and businesses using its platforms, i.e. those selling products on the likes of Tmall and Taobao. Therefore, Alibaba provides training on how sellers can use their platforms. The technical aspect of operating a platform is almost always best provided by the business itself. In the western world; Google, Amazon, Magento and Shopify all provide courses on how to operate their respective platforms. There is no lack of provision for this type of upskilling.

In training its own workforce in ecommerce methodology rather than how to operate ecommerce technology, Alibaba is doing something that SMEs are unable to do. SMEs do not have the skills or funds to be able to provide their staff with this type of upskilling. This is why, as previously mentioned,

\textsuperscript{107} http://img.apec-ecba.org/file/20170324/14051490338867885.pdf
\textsuperscript{108} https://www.marketplacepulse.com/marketplaces-year-in-review-2018#chinasellers
\textsuperscript{109} http://images.mofcom.gov.cn/pep/201505/20150515135515086.doc
\textsuperscript{110} https://www.emarketer.com/content/retail-and-ecommerce-sales-in-china-2018
\textsuperscript{111} https://en.wikipedia.org/wiki/Jack_Ma
policy-makers in China are looking to engage with companies who do have that knowledge in order that it can be used to benefit the wider economy.

Although not an exhaustive list, below is an overview of some of the key initiatives that Alibaba Group is involved with:

Alibaba Global Talent Development (AGTD)
“Alibaba Global Leadership Academy (AGLA) is the umbrella organization responsible for developing unique talent programs for various levels within Alibaba Group, dedicated to nurturing the global skills and mindset required for international growth.”

The eFounders Fellowship
“The eFounders Fellowship program provides first-hand exposure to ecommerce and digital innovations, access to business leaders across Alibaba and China, as well as an opportunity to connect with like-minded, leading entrepreneurs in your region. The fellowship is a community of passionate and successful "Champions for the New Economy" looking to inspire and create a more inclusive development model for all.

The eFounders Fellowship program is jointly organized by Alibaba Business School and the United Nations Conference on Trade and Development (UNCTAD).”

Alibaba Business School
“The signing of the Training Cooperation Agreement between Alibaba Group’s Taobao University and SIRS in Nov 2016 has brought about a suite of cutting edge programmes on digital excellence made available for the first time to Singapore retailers. The programmes are customised to Singapore’s context by SIRS’ strong practitioner team with many years of retail & service experience and strong understanding of the local & international retail scene. With this cooperation, retailers can look forward to learning from the world leader on business digitalisation and building a stronger foothold in the digital retail landscape.”

TaoBao University
“Established in 2009, Taobao University—named after Alibaba’s premier consumer-to-consumer (C2C) retail platform—is the education arm of the Hangzhou-based tech giant. Led by a team of industry’s top players and e-commerce specialists, the University aims to offer people worldwide practical insights and useful know-how to help them start up or broaden their online business.”

Free Alibaba Cloud University Cooperation Program (AUCP)
“The Alibaba Cloud University Cooperation Program (AUCP) is a global education program aiming to support schools and students around the world to gain access to Alibaba Cloud learning resources to nurture future talents in cloud computing, cloud security, and big data.

112 https://agla.alibaba.com/
113 https://agi.alibaba.com/efounders-fellowship
School will need to verify that you are an accredited academic institution to take advantage of these offers.\textsuperscript{116}"

Alibaba’s involvement in education is broad, and many of the programmes they run for their own employees or platforms are focused on upskilling. This focus is likely due to the skills gap that exists between skills being taught and those required by Alibaba. However, this knowledge, with the aid of policy, is spilling into the wider economy.

### The Academic Sector

This section aims to address the following objectives:

1. Research how colleges and Universities in the UK, US and Germany have delivered Ecommerce skills packages and courses at different proficiency levels.
2. Clarify definitions used and investigate how these map to different curriculum specifications.

#### Methodology

To meet objectives, THE [Times Higher Education] World University Ranking 2019\textsuperscript{117} was used to identify the world's leading Universities.

THE World University Ranking is the biggest international university league ranking. Therefore unlike rankings such as Complete University Guide\textsuperscript{118}, THE World University Ranking lists Universities from across the world. It is the only university league table, which evaluates research-intensive universities across teaching, research, knowledge exchange and internationalisation. Thus it identifies world leading universities, which are setting up research, teaching and knowledge exchange standards.

For the purpose of this report, top 100 institutions of THE World University Ranking 2019 have been considered. Out of top 100, institutions based in the USA, the UK and Germany were selected. Accordingly, 41 US-based universities, 10 UK-based universities (see Appendix 3), and 6 universities based in Germany were identified\textsuperscript{119}.

In order to assess provision of ecommerce programmes, the desk research was conducted and Universities’ webpages were scanned. Undergraduate as well as Postgraduate programmes were assessed.

#### Findings

Based on desktop research, there are no ecommerce programmes in the USA either at undergraduate or at postgraduate level.

However Harvard University offers ecommerce\textsuperscript{120} as an option course at the Postgraduate level. The course is aimed at students interested in either working as a manager in an ecommerce company or entrepreneurs building their own ecommerce start-ups. Students enrolled on ecommerce courses ‘study the challenges of (i) creating (ii) growing and (iii)

\textsuperscript{116} https://edu.alibabacloud.com/campus/index
\textsuperscript{117} https://www.timeshighereducation.com/world-university-rankings/2019/world-ranking#!/page/
\textsuperscript{118} https://www.thecompleteuniversityguide.co.uk/league-tables/
\textsuperscript{119} https://bit.ly/2TYWQBB
\textsuperscript{120} http://www.hbs.edu/coursecatalog/1975.html
optimizing for profitability an ecommerce business’. The course content covers: e-tailers, i.e., online retailers of goods and services, e-manufacturers, i.e., online sellers of goods and services made by the firm, and two-sided marketplaces, i.e., online matchmakers between supply and demand for goods and services.

Based on this desktop research, there are no ecommerce programmes available in the UK neither at the undergraduate nor at the postgraduate levels.

The University of Warwick offers ecommerce\textsuperscript{121} as a course on MSc in eBusiness Management. The course aims to develop an understanding of the fundamentals of ecommerce systems, and their implementations, as well as develop an understanding of ecommerce practice to build consumer experience and increase conversion. The course content covers: ecommerce concepts and design, as well as ecommerce promotion and fulfilment.

We also identified an ecommerce related course offered by the University of Bristol. The course entitled Digital Business & E-Commerce Management\textsuperscript{122}, aims to provide students with an understanding of digital business models, revenue models and processes for implementing digital applications, risks and ethics. The course content covers digital systems, online services, online content and media, mobile and social commerce, and emerging digital applications in developing countries.

Based on the desk research, there are no ecommerce specific programmes available in Germany neither at the Undergraduate nor at the Postgraduate level. There was no information available on individual courses offered.

\textit{Summary}

Based on the desk research conducted, we conclude that leading top 100 Universities in the US, the UK, and Germany, as identified by THE World University Ranking 2019, do not offer ecommerce specific programmes neither at Undergraduate nor at Postgraduate levels. Those Universities tend to provide less specialised programmes in business management, marketing, economics and accounting and finance.

Universities in the US and the UK, appear to provide individual courses on ecommerce as part of Postgraduate education.

Based on the available courses outline, there was no definition of ‘ecommerce’ provided. The curricula specifications vary for different courses as presented in the Table below.

\begin{table}[h]
\centering
\begin{tabular}{|l|l|}
\hline
\textbf{Harvard University Ecommerce\textsuperscript{123}} & \textbullet e-tailers, i.e., online retailers of goods and services NOT made by the firm (such as Amazon) \\
& \textbullet e-manufacturers, i.e., online sellers of goods and services made by the firm (such as Harrys.com) \\
\hline
\end{tabular}
\end{table}

\textsuperscript{121} https://warwick.ac.uk/fac/sci/wmg/education/wmgmasters/structure/modules/ec/  
\textsuperscript{122} https://www.bris.ac.uk/unit-programme-catalogue/UnitDetails.jsa?ayrCode=19%2F20\&amp;unitCode=EFIMM0050  
\textsuperscript{123} http://www.hbs.edu/coursecatalog/1975.html

© Institute of Ecommerce
| University of Warwick Ecommerce\textsuperscript{124} | • two-sided marketplaces, i.e., online matchmakers between supply and demand for goods and services (such as Etsy).  
• e-Marketing technologies: data mining, preference elicitation, etc  
• Design Technologies for e-Commerce: Catalogues, Configurators, PDM, etc  
• Transaction approaches: payment systems.  
• Privacy, encryption, signature and trust  
• Proprietary catalogue/transaction systems and their integration with existing and new system  
| University of Bristol Digital Business & E-Commerce Management\textsuperscript{125} | N/A |

**Candidate Selection**

Candidate selection for upskilling tends to be easier and more precise than for reskilling. With reskilling, candidate trainees may not fully appreciate the type of work they are getting involved with which can cause a higher dropout rate. With upskilling, candidate trainees have a very much clearer understanding and expectation about what they will be learning and why.

Generally speaking, the same set of candidate criteria could be applied as in reskilling. However, for many niche topics this may not be necessary. If a candidate already has some basic qualifications that need upgrading or updating then that may be sufficient to ensure that the course will be suitable for them.

\textsuperscript{124} https://warwick.ac.uk/fac/sci/wmg/tmsc/content_store/outlines/ec/
\textsuperscript{125} https://www.bris.ac.uk/unit-programme-catalogue/UnitDetails.jsa?ayrCode=19%2F20&unitCode=EFIMM0050
FOOD & DRINK ECOMMERCE SKILLS

Background

Online sales of groceries grew by 13% globally in the 12 months ending June 2018 and now account for 6.3% of all fast-moving consumer goods (FMCG) sales worldwide according to consumer insights company Kantar Worldpanel. This compares with a 1.6% increase in total FMCG (online and offline) sales though the figure represents the slowest ecommerce growth rate in five years.

Forecast

From a global perspective, ecommerce business models are in varying stages of development, with many European retailers offering a full basket model, Tesco has pioneered a home delivery model in the United Kingdom, and such on-line retailers in China as Alibaba and JD are aggressively expanding their grocery footprints.

According to General Mills, one of the world's largest packaged grocery companies, the pace of change in grocery ecommerce is accelerating:

“Because this space is evolving so rapidly, we've learned our share of lessons quickly. We’re working rapidly to develop full basket capabilities. We’re building real-time analytics using algorithms and machine learning so that we can move quickly and improve the consumer experience. Importantly, we’re working closely with our supply chain teams to increase our agility and respond to the fulfilment demands of on-line grocery. And we know that it'll be critically important to balance central global capabilities with local tools deployed to regional teams in order to drive overall success across all of our geographies.” General Mills Annual Report 2018.

This is all well and good for a multi-national who has local manufacturing across the globe and is selling online to consumers within one country.

However, smaller food and drink producers in particular face unique challenges when selling online and transporting their goods round the world. Online grocery isn’t just the most capital intensive in ecommerce, it’s also one of the most regulated.

Rules regarding food safety are myriad and can differ markedly between countries, even within the same trading block. The figure below shows a snapshot of the different approaches to regulating food and drink sold online in the APAC region.

Inventory planning, demand forecasting, and cold storage logistics are all complicated in the ecommerce industry. Cold chain logistics remains a particular problem for exporters targeting Thailand, Vietnam, the Philippines and Indonesia. Online delivery of fresh or chilled products isn’t yet practical in many markets around the world.
Europe

Phases of Food Production

With the advent of new technologies around the world, a new era in the food industry is beginning. Known as the era of intelligent production (also referred to as Industry 4.0) in which physical production merges with the possibilities of digitization to form cyber-physical systems. As one of the drivers in the food chain, digitization could lead to a new revolution in the food industry.

By connecting real devices and machines with networks, the internet and digitisation enables the development of novel intelligent products and services. In Europe, the use of big data grows by 40% annually.¹²⁷

The following Figure shows the different phases of food production

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Automation & AI

Digitalisation, automation and robotization will all have a significant impact on the food industry in the future as they promise better service, cost savings or reductions, fewer errors, higher productivity and product quality and more. The introduction of new technologies in the food industry will change the role of workers.

Employees need to learn how to work in the new environment, and the demand for well-educated and ambitious employees will increase. They need to develop their problem-solving skills, creativity, teamwork and social intelligence. Retraining and qualification programmes will be important in helping workers change to new roles and take on new jobs. The manufacturing sector will create new careers and job descriptions, and digitization will even be perceived as promoting the food industry as an attractive workplace, thereby strengthening the recruitment of young and talented people.

The new skills requirements will affect not only the five main skill groups, but also the five sectors: banking and insurance, energy and mining, healthcare, manufacturing and retail, according to a study by the McKinsey Global Institute. The manufacturing sector will be significantly impacted by the introduction of automation. The need for physical, manual and basic cognitive skills is decreasing as more and more production areas are automated. On the other hand, there is an increasing need for socio-emotional and higher cognitive skills such as communication, adaptability and leadership. The need for technological skills will also increase, both for advanced IT skills and for the basic digital skills needed by technicians. But there is more to come, as digitization and automation is required by professionals for maintenance and the development connection and installation of equipment and systems used in the food industry.

Automation will change the required skills of the workforce. According to McKinsey Global Institute, the demand for technological and digital skills will increase by 55%. Demand for social and emotional skills, such as leadership and management is predicted to grow by 24%. Higher cognitive skills will increase moderately, in particular the demand for creativity skills. However, the demand for basic cognitive skills is estimated to decrease by 15% and physical and manual skills by 14%.
The above figure shows how Automation and AI will change the demand for skills.

The "Teaching and Learning Factory" is one of the new paradigms of manufacturing education and has sparked great interest in various educational and entrepreneurial pilot projects. The main objective is to modernize teaching processes and bring them to industry to enable hands-on experience for young talents in the food industry. This paradigm focuses on developing problem-solving skills based on real industrial issues. The challenges that people face in the future are multi-dimensional, and they must be developed in a new way that combines academic practice and industrial practice. The "Teaching and Learning Factory" approach will help fill the skills gap and address the growing demand for highly skilled workers in the food industry by serving as a novel paradigm for collaboration and knowledge transfer between both sides of the innovation cycle. These learning environments are also great at testing and evaluating the potential of new technologies and promoting entrepreneurship and the introduction of new technologies.

**Skills Shortages in European Food and Drink Industry**

According to the European Commission across the EU the access to labour situation within the food manufacturing industry has not changed dramatically over recent years, with the key difficulties continuing to be that of attracting highly skilled labour and maintaining and transferring the skills of an ageing workforce. With respect to the former issue, proving especially problematic is attracting those high-level skills that are not typical of the food sector, such as digital skills, behavioural science and genetics. The latter, the need to maintain skills, is a key issue for maintaining the competitiveness of the industry. The workforce is ageing and there is a great need not only to attract new talent, but also to keep and transfer vital skills.

According to industry representatives, one important barrier to attracting labour staff with high-level skills that are not typical of the food sector (e.g. digital skills, behavioural science, genetics, etc.) is the negative perception of the food and drink industry, with people opting to work in industries with higher status attached.

Similarly, the food and drink industry is not considered especially attractive by younger generations. An industry association adds that some food processing sectors are very traditional sectors linked to the local and regional environments where companies are based, and this contributes to the lower attractiveness of these industries for workers of all ages. Companies are therefore facing a problem of accessing the right skills, especially at medium-high job levels.

**Scotland’s Food and Drink Industry**

The manufacturing sector of the food and drink industry in Scotland is characterised by a large number of small businesses and a small number of large businesses. There are 24 companies turning over £100m+ (3% of total) accounting for around 70% of total industry turnover. Conversely there are 748 companies, (85% of total) accounting for just 6% of turnover. (Source: Scotland Food & Drink Ambition 2030 Research, Jan 2017). This profile has changed little in the last 10 years. Of the top tier in turnover, 37% is generated by distillers and 30% by primary processors.

If agricultural businesses are added in to the mix, 98% of food businesses are small or micro businesses. This mixture of very large and very small enterprises has obvious implications for the capabilities and skills across a whole range of disciplines, including ecommerce.

The industry has an ageing workforce and has forecast that 27,000 new vacancies will arise between 2017 and 2030. This situation mirrors that found across the EU.

**China**

In recent years, the Chinese Government has attached great importance to the development of Ecommerce, which it regards as an important instrument for economic transition and opening to the world. With the rapidly changing trade environment, the government, ministries and regions have launched policies and regulations and a system of retail Ecommerce regulation has been gradually established.

Under the guidance of the United Nations Industrial Development Organisation Asia and the Pacific Regional Office, Beijing University conducted a questionnaire survey of SMEs in China.

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The questionnaire reflected that the development of cross-border Ecommerce promotes enterprise upgrading. But many companies also complained of a shortage of qualified staff. The industry chain in cross-border Ecommerce needs professional interdisciplinary talents. The shortage of talent in marketing restricts development. However, as a new industry, personnel training in cross-border Ecommerce is not established. SMEs find it difficult to attract talent due to their size, resources, management level and other conditions. The shortage of senior talent has become a bottleneck in the development of cross-border Ecommerce.

Alibaba

According to the World Economic Forum 130 ecommerce giant Alibaba Group Holding Ltd announced in July 2018 that it will launch a Global Ecommerce Talent Network in cooperation with renowned universities and training agencies, both domestic and overseas, to cultivate ecommerce professionals with global perspectives for China and the economies of the Association of Southeast Asian Nations. Alibaba said that it expects to train 1 million college students and 200,000 owners of small and medium-sized enterprises within five years, raising China's standards for training cross-border ecommerce talents.

The training network builds on Alibaba's Global ecommerce Talent program, which has so far trained nearly 7,000 students and about 2,000 SME owners, covering 10 countries around the globe, according to figures provided by company.

"Our goal is to enable young people and SME owners to develop the digital economy in the future. During the past two years, the global ecommerce talent platform has empowered educators to teach the latest ecommerce concepts and practical skills," according to Alibaba’s Huang Mingwei.

A wide range of domestic and overseas colleges have joined the new alliance, including the University of International Business and Economics, Northwestern Polytechnical University, the Harbin Institute of Technology, Thailand-based University of the Thai Chamber of Commerce, and MARA University of Technology in Malaysia.

The company will work with the Beijing-based University of International Business and Economics to design the curriculum and create ecommerce talent training standards.

The alliance will also expand China's training standards and curriculum to overseas colleges, to develop talents’ familiarity with Chinese ecommerce models and boost the local digital economy. According to a survey by Alibaba 131, 53 % of suppliers in Malaysia are seeking ecommerce talents to support their businesses, compared to 43% of those in Vietnam. "We believe that the popularity of ecommerce will raise the need for related professionals in the next few years," said Jaycee Lim, president of Alibaba’s business-to-business unit.

Rural Training

Meanwhile, many private ecommerce enterprises have also been eager to strategically harness the potential of rural ecommerce to sustain market growth. For example, Taobao announced in 2014 a multi-billion-RMB project to establish two-tier service centres at both the county and village levels in order to connect villages with its ecommerce platform, vowing to allow rural products to meet online consumers and online consumption goods to reach rural residents. The project led to the creation of “Rural Taobao,” the content of which has evolved multiple times. In brief, Rural Taobao of 2016 hopes to establish both physical and virtual ecommerce platforms for online transactions, and to build multifunctional service centres that offer villagers a wide range of online services, including education, medical services, and travel, that organise various ecommerce training programmes for interested rural e-tailers, and that provide cultural/social services to the socially disadvantaged in villages.

Alibaba subsequently signed strategic partnership agreements with various levels of government in different provinces to promote rural e-commerce as well as poverty alleviation programs. As of March 2017, Rural Taobao has established its presence in 29 provinces, covering more than 600 counties and 30,000 villages, according to Alibaba. The number of rural online consumers has also achieved remarkable growth since 2014.

Wang Xiangdong observes that rural e-commerce development in the past decade is characterised by the emergence of a few rural entrepreneurs who have earned a fortune through online trading, creating a primitive market for rural e-commerce and witnessing the rise of Taobao Villages.

He notes that rural e-commerce development has turned a new page since 2014 as the new rural e-commerce service system discussed above has rapidly developed in rural areas with the policy support of the party-state and considerable investment from various e-commerce giants.

Supplementing the pitfalls of the local party-state in developing rural e-commerce, Alibaba has opened a new way for bridging the urban-rural divide by rapidly developing e-commerce hardware (such as Internet facilities) and services (such as training) in the rural areas, which have undoubtedly brought economic prosperity to some Taobao Villages. However, beyond the exemplars, the unsustainability of rural e-tailers' business in other Taobao Villages could hamper efforts toward poverty reduction.

**Chinese Tech Companies Provide Market-Driven Training**

Extract from *The New Yorker, July 2018. ‘How Ecommerce is Transforming Rural China’*:

“JD.com, or Jingdong, as the company is known in Chinese, is the third-largest tech company in the world in terms of revenue, behind only Amazon and Google’s parent company, Alphabet, Inc. In the Western press, JD is often referred to as the Chinese Amazon, but unlike Amazon, which has all but saturated the American ecommerce market and therefore has to expand by moving into new sectors, such as entertainment, JD still has ample room to extend its customer base—thanks to places like Cenmang and Xinhuang. Although China has the most Internet users of any country and the largest ecommerce market in the world—more than twice the size of America’s—there are still hundreds of millions of Chinese whose lives have yet to migrate online.

Analysts predict that China’s online retail market will double in size in the next two years, and that the growth will come disproportionately from third- and fourth-tier cities and from the country’s vast rural hinterland.

At a time when the Chinese government has instituted monumental infrastructure programs to develop these regions, companies like JD are providing a market-driven counterpart, which is likely to do for China what the Sears, Roebuck catalogue did for America in the early twentieth century. Across China, JD has made a policy of recruiting local representatives who can exploit the thick social ties of traditional communities to drum up business.

Rather than competing on price, in a marketplace steeped in counterfeit goods and shoddy service, JD has focussed on developing a reputation for dependability. It maintains a much publicized “no-fakes” guarantee, and works hard, if not quite infallibly, to keep its site free of them.

Establishing this reputation has required JD to adopt a strategy radically different from that of its greatest rival, Alibaba, which is essentially the eBay of China—a platform connecting customers to a vast network of third-party sellers. Although there are an increasing number of third-party sellers on JD’s site, the core of its business, like Amazon’s, involves managing the entire supply chain. It buys from

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manufacturers, stocks inventory in warehouses, and invests billions of dollars in development, including a kind of in-house FedEx, called JD Logistics. There are now nearly eighty-five thousand delivery personnel like Xia, and several thousand depots, from large hubs to tiny outlets like the one in Xinhuang. “The couriers are the faces of JD,” Liu said. “They come to your home. You have to trust them.” The success of this network, combined with the notorious unreliability of the Chinese postal service, means that JD Logistics is now itself a product—a service that other ecommerce players pay to use.

In China, what is sometimes called “the shift to mobile” never happened — and hasn’t needed to happen — because the country’s wealth is too recent for people to have been swept up in the PC revolution, the way Americans were. Instead, they went straight to phones, an example of a phenomenon known as leapfrogging, in which non-participation in an older technology spurs early adoption of whatever innovation comes next. Jack Ma of Alibaba, has argued that the entire ecommerce sector in China exemplifies this pattern: people happily shop online because there haven’t been Walmarts everywhere. In the US “ecommerce is a dessert,” he said. “In China, it’s become the main course.”

JD uses seven types of drones, some for long-distance deliveries and others to carry heavier packages over short distances. Zhangwei is on the outskirts of Liu Qiangdong’s native city, Suqian, which is also a hub of JD activity. Zhangwei was one of the first villages to be serviced by drone, starting in early 2017, and now gets an average of four deliveries a day.

JD’s drone classes last three months, and each student pays ten thousand yuan (around two thousand dollars)—“a small price,” according to instructors considering how much students stand to earn. In China, drones are rapidly invading just about every industry where they can plausibly be deployed. They are used to spray crops, to monitor pollution levels and disaster zones, to create fireworks displays and produce photojournalism, and even to catch schoolkids cheating on the standardized tests that, in the Chinese education system, assume life-or-death significance.

Not many of the trainee drone pilots have been to college, and some don’t even graduate from high school, but instructors say you didn’t need any technical or scientific knowledge to fly a drone, just as you didn’t need to know about fabric or design to be a clerk in a clothing store. Like JD’s deliverymen, the trainees evince confidence about the opportunities that technology will confer on relatively unskilled workers like themselves.”
USA

The US Government supports its ecommerce exporters in food and drink (and other industries) through its Ecommerce Innovation Lab.\(^\text{134}\) Whilst equipping companies with some of the basics of ecommerce it also signposts them to the Service Providers Directory which represents every aspect of the ecommerce sales process.

- Digital Marketing
  - Search Engine Optimization, Website Localization Services, Social Media Services, Translation Services
- Cyber Security
  - Security Software, Data Storage
- Logistics
  - Fulfilment Centers, Last Mile Services
- Legal & Regulatory
  - Export Compliance, Data Privacy, Intellectual Property Rights
- Online Payments
  - Gateways, Shopping Cart, VAT Tax, Foreign Exchange Rate
- 3rd Party eCommerce Marketplaces
- eCommerce Sales Channel Management
  - Omni Channel Services, Customer Experience, Product Experience
- Technology
  - Website Development, Backend Software/SaaS Integrations

This illustrates again that the skills and expertise in ecommerce for exporting resides more with third-party vendors than with food and drink companies themselves.

**US Foods: B2B ecommerce in Foodservice Distribution**\(^\text{135}\)

‘US Foods looks to stay ahead of the curve by creating ecommerce platform to help its restaurant customers place and track orders digitally. US Foods is the second largest foodservice distributor in the United States, supplying approximately 250,000 customer locations and generating annual revenue of around $23 billion\(^\text{[1]}\).

Sitting in the middle of the foodservice supply chain, US Foods provides critical services in sourcing and delivering food and related products to independently owned restaurants, national restaurant chains, hospitals and hospitality customers.

Over the past several years, US Foods has led the efforts within the food distribution industry to grow their ecommerce and data analytics capabilities.

As recent as a few years ago, US Foods’ customers could only place and track orders through traditional methods, such as phone calls or faxes. Not only is the antiquated ordering system highly inefficient, it also drove higher error rates and lower customer satisfaction.

Furthermore, the data generated from the tremendous volume of transactions was not used in any systematic way to capture business insights.

In 2013, in response to customer and competitive demands, US Foods launched its ecommerce and mobile technology solutions, which allowed customers to more easily place orders, track shipments, make payments and quickly view product information\(^\text{[2]}\). As an example, instead of customers calling in...

\(^\text{134}\) [https://www.export.gov/ecommerce](https://www.export.gov/ecommerce)
\(^\text{136}\) [US Foods Holding Corp, September 13, 2017 Prospectus Supplement](https://www.export.gov/ecommerce)
to sales reps and asking when their delivery was due, nearly all of the active customers can now use the US Foods mobile app to track deliveries themselves\(^\text{137}\). The mobile app also allows sales reps to place customers’ orders online from their phones or tablets while they are on the road. Additionally, the Company transformed the corporate website (USFoods.com) to give it more business-to-consumer appeal by including more pictures and increasing white space\(^\text{138}\).

Alongside its ecommerce tools, US Foods provided its customers with business analytics solutions to analyse food costs, analyse trends based upon transaction history, manage inventory and improve menu engineering\(^\text{137}\). These solutions have resulted in less lag time, improved communication and more transparency across the entire supply chain. The efficiency gains achieved by the new platform have become a main competitive differentiator in the industry, especially as millennials become key influencers and decision-makers. By the end of fiscal 2016, $16 billion of US Foods’ net sales was generated through ecommerce, and the mobile application had been downloaded almost 300,000 times. The independent restaurant customers who use ecommerce to place orders have over 5% higher retention rates, over 5% higher purchase volumes and approximately 600 bps higher NPS scores than those who do not\(^\text{137}\).

While the digital platform has achieved significant momentum, opportunities and challenges remain. Over the next several years, US Foods management plans to continue to invest in the platform by expanding its service offerings and continue to upgrade its existing functionalities. Furthermore, the management team plans to drive increased productivity within the sales organization as they increasingly benefit from the digital platform when they communicate with customers\(^\text{137}\). In addition to what US Foods management has already laid out, there are a couple of additional actions that can help the Company continue to navigate the shift into digital. First, in order to stay ahead of its competitors, US Foods should invest in research and development and stay on the cutting edge in terms of their digital capabilities.

As US Foods senior director of ecommerce and mobility points out, the need to stay ahead would also require the organization to align the company culture with digital change and continuous innovation\(^\text{138}\). Second, US Foods can leverage the data it gathers from the platform to provide better localized offerings. One key competitive advantage in the foodservice space is the ability to cater to the localized needs of the customers. For example, US Foods can offer business analytics and demand trends on a localized basis to further add value to their customers.

The medium-to-long term goal of the company should be to leverage the enormous amount of transaction data that passes through the system and create value with this data, much like what large technology companies do. For example, the data could be used to forecast end-consumer demand based on geography, type of customer, type of product, source of item, etc. Additionally, the data can be used to better track pricing information, which can help drive sales and promotional strategies throughout the supply chain.'

**B2B E-Commerce is a Food Wholesaler’s Best Friend\(^\text{139}\)**

‘The wholesale food industry is changing. Whether your business has already adopted an ecommerce solution or not, the global workforce is starting to be made up of professionals who grew up in the digital age. As a result, B2B eCommerce is dominantly positioning itself to be the main storefront rather than a nice-to-have presence. The number of 18-34-year-old B2B researchers increased by 70% between 2012 and 2014, and it’s only gone up since then. The food industry is not immune to this growth. In today’s post, we’re going to take a look at a few examples why the wholesale food industry should consider B2B eCommerce.’

Why should going online matter to a food wholesaler?

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\(^{139}\text{https://oroinc.com/b2b-ecommerce/blog/wholesale-food-b2b-ecommerce} \)
● ‘According to research\(^{140}\), 74% of buyers research their purchases online. Furthermore, 93% want to make the purchase online. Today, when a restaurant manager is seeking a food supplier, he/she typically goes online. A bulk food company that has already gone online automatically puts itself in a better position to gain new business. With the help of a proper ecommerce solution, a buyer can check out his/her custom price list, get quotes on interested products, and access all the product information she needs. ‘Google search’ is the new Yellow Pages and your online existence will be the pulse of your business. A user-friendly, scalable B2B ecommerce platform with out-of-the-box B2B features, is a must-have. It is not a matter of “if” the food industry will move online, it’s a matter of “when”.

● Ecommerce is the key to financial savings. It requires much less manpower and offers more scalability. It also has the capacity to fulfill orders at a faster rate than traditional offline sales.

● Automation reduces human error. When a business operates offline, it is highly susceptible to mistakes such as order entry errors. This can be frustrating for both the customer and employee. Things can easily get lost in translation when a salesperson takes orders over the phone. B2B ecommerce solves that problem since the customer is placing their own orders.

● Ecommerce solutions allow the sales team to focus on more important areas such as building customer relationships. Your sales team should be interacting with prospects and customers instead of taking orders and performing manual tasks. For example, Oro has uniquely developed its ecommerce platform with an integrated CRM software, which grants the seller access to customer interactions, priorities, needs, and interests. With that kind of ability to collect data and intelligence, the sales & marketing department can take appropriate measures for personalization, promotions, recommendations, marketing strategy, and more. This feature gives the marketing team a chance to shape the customer’s journey from the very beginning.

● According to BCG’s research\(^{141}\), about 50% of B2B queries today are made on smartphones. BCG expects that figure to grow to 70% by 2020. For the future, mCommerce (mobile ecommerce) is not an option but an essential element to business growth.

### Australia

In one example of government support, in December 2018 an ecommerce food innovation event took place in Perth, Western Australia\(^{142}\). The event involved a series of training workshops aimed at encouraging cross-border online trade.

Two ecommerce masterclasses, one focussing on China and one on South East Asia, were held at the Department of Primary Industries and Regional Development and made available to regional Western Australia via video conferencing technology.

The masterclasses aimed to upskill export-ready businesses about the online marketing arena with a diverse programme including an overview of major online players, how to increase website traffic and tools for ever increasing and important social media.

Internationally located speakers included Richard Ruddy, RedMart vice president, a leading online supermarket in Singapore, Kenneth Xu from SF Express, the second largest courier service in China, Al Liang from China Certification and Inspection Group and Sandra Lim and Kong Cheng from Austrade Malaysia. Participants shared insights and tips on trade in their regions. Local experts included Jack Lu from Austrade and Darren Levy from the Chamber of Commerce and Industry of Western Australia.

Jack Lu, an ecommerce specialist provided an in-depth session titled ‘navigating ecommerce’ which gave a broad understanding of ecommerce in Asia including emerging trends and industries, major South East Asia ecommerce platforms, and how to retail your product online, including the logistics of

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distribution and marketing. He used interesting case studies to highlight the pathways into the variety of ecommerce platforms available in each country.

Tradestart advisor Levy talked about ‘pre-market due diligence’ in an interactive session where participants were shown available online tools to help choose their export markets. The session also covered harmonised system (HR) codes, reading market trends, comparing free trade agreement advantages and navigating import and export requirements.

Masterclass participants, from a broad cross section of the food and beverage industry, all provided positive feedback in terms of the content and quality speakers. They all indicated a better understanding of ecommerce platforms and planned to apply knowledge learned to their businesses in the near future.

The Department of Primary Industries and Regional Development’s Food Industry Innovation project presented the ecommerce masterclasses in partnership with the Chamber of Commerce and Industry of Western Australia.

The masterclass was shared on the government department’s past events and seminar resources webpage.

Norway

Chinese consumers’ demand for imported fresh food is growing, and China holds promise for Norwegian suppliers now that trade relations with Norway have improved. The following press story provides an illustration of Norwegian commercial response to the opportunity.

Bloomberg Mar 26, 2017—China is the next market to conquer for Norwegian salmon and this seafood investor.

“China is too big to ignore,” Hogne I. Tyssoy, portfolio manager of the Holberg Triton fund, said in a recent interview in Oslo. “Now when it’s opening again, Norwegian seafood has an exciting future in China.”

Trade relations between China and Norway were normalised in December, ending a six-year freeze that began after the Norwegian Nobel Committee awarded the Peace Prize to a Chinese dissident. Norway, the world’s largest Atlantic salmon producer, is seeking to increase seafood exports as the global demand for healthy proteins rises, especially in emerging markets such as China.

Tyssoy will join Prime Minister Erna Solberg’s delegation to China in April, along with other business executives and investors as Norway seeks to re-establish contact with the world’s most populous country. While the fund may consider investing in Chinese companies in future, Tyssoy is interested in seeing first hand what growth opportunities are in store for Norwegian fish farmers in China, he said. One such example is Marine Harvest ASA’s cooperation with Alibaba Group Holding Ltd., China’s biggest ecommerce company, to sell salmon on the internet, a collaboration that could “develop quickly,” according to the 55-year-old.

“It’s a bit of a revolution when the logistical chain works,” he said. “And Norwegian seafood with high quality and popularity can benefit.”

Online sales of food and imported goods are booming in China, thanks to several factors. Demand by Chinese online shoppers is surging: In 2015, Chinese consumers purchased

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143 https://www.agric.wa.gov.au/r4r/food-industry-innovation?page=0%2C5#smartpaging_toc_p5_s0_h2
144 https://www.digitalcommerce360.com/2017/03/26/online-sales-salmon-china-lure-norway-seafood-fund/
118.43 billion yuan ($17.22 billion) worth of overseas products through cross-border ecommerce, a 112% year over year increase. Cross-border ecommerce growth slowed slightly in 2016, with an annual growth rate of 86% and 219.8 billion yuan ($31.99 billion) in sales, but it remains a strong category in e-retail.

Online fresh food sales in China are expected to reach 100 billion yuan ($15 billion) sales when 2016 sales are tallied. Online would account for about 7% of China’s total sales of fresh foods, and it’s growing about 82% annually, according to Chinese research firm iResearch.

Japan

In Japan, the Government has established a fisheries ecommerce platform focused on helping to develop the coastal economy by creating a fair and transparent fisheries trade through technology innovation.

Conclusions & Recommendation for the Food & Drink sector

Whilst the illustrations above indicate how important ecommerce is becoming to the food and drink sector globally there are clearly many different component factors at work in this complex area. China has made digital skills a priority and the collaboration between state and tech companies is driving upskilling across the board. There has been a big push to equip rural communities with both online skills and the knowledge of the importance of logistics. This will benefit food and drink producers but it is important to note that even in China, a nation that is prioritising this area, there is no specific upskilling programme for food and drink businesses.

This is reflected in the rest of the world. Industry bodies such as the US Ecommerce Innovation Lab or Bord Bia in Ireland provide ecommerce knowledge as part of a general package of measures to support the growth of overseas sales. However there is no evidence of tailored programmes for food and drink companies. In the UK the DTI provides support in the form of workshops (see above) but a half-day session barely scratches the surface of what is required to run successful ecommerce campaigns.

The fact there are no bespoke courses for ether those working in the industry or those looking to join it should not be surprising as the options for growing sales online for food and drink businesses boil down to only four options:

1. A company-owned ecommerce platform
2. Selling to an ecommerce-capable distributor or reseller
3. Selling to a supermarket or retailer with ecommerce channels
4. Selling via an online marketplace.

Realistically, only the largest and most sophisticated food and drinks companies will be using option 1, and this more likely in the B2B arena.

The way that the global FMCG sales model has worked for decades has meant that multinationals and retailers have an interdependent sales model. The retailers do the ‘heavy lifting’ on the B2C element with highly trained in-house teams.

Given that 90% of food and drink businesses in Scotland are SMEs options 2 through 4 will reflect the bulk of their future online trading and means they will be using third party platforms and outsourcing to experts. The types of skills required, for producers, then, will need to focus less on creating in-house

145 https://aruna.id/
expertise and more on a holistic knowledge of sales and marketing; how ecommerce fits into this and how to recognise and employ the best partners.

There are already programmes underway in the food and drink sector that support companies to develop this kind of expertise, for example the Scottish Government-backed Scotland Food & Drink / Asda Food & Drink Academy Supplier Development Programme.¹⁴⁶

A further part of the jigsaw is the support for the development of the partners in Scotland; the ecommerce platforms or hubs that can understand the unique challenges of selling and delivering food and alcohol across multiple territories. This sort of coordinated and collaborative programme, working with retailers, producers, industry bodies, higher education and professional service companies has proved a successful and unique model for Scotland in the past 10 years.

¹⁴⁶ https://corporate.asda.com/newsroom/2016/01/01/asda-scottish-supplier-development-academy-launched
“Demonstrating equality shouldn’t be something that gets in the way of doing business. It should simply be a natural state of affairs”

Rt Hon. Nicola Sturgeon, MSP, First Minister of Scotland

Ecommerce, the buying and selling of goods and services over the internet, is one of the most flexible, low-risk and low-barriers-to-entry business models that exists today. This makes it particularly suitable for developing women’s enterprise.

It is also a potential component of the drive to close the gender enterprise gap¹ – a key objective of the Scottish Government, which has brought together the various women’s enterprise groups in Scotland to develop policy under the umbrella of the Scottish Framework and Action Plan for Women in Enterprise.

In this chapter we will examine the female enterprise landscape in Scotland and look at how promoting upskilling and reskilling for the benefit of national ecommerce capacity, can also help close the gender enterprise gap and grow the Scottish economy.

Setting The Scene

According to work undertaken by the Hunter Centre for Entrepreneurship at Strathclyde Business School, of the 365,000 enterprises in existence in Scotland as of March 2017, 70.6% were sole traders, responsible for 13.5% of total employment and 4.9% of private sector turnover. A further 27% were companies with 1-49 employees, responsible for 29.1% of employment (small) and 21.8% of turnover.

Only 1.1% of companies in Scotland had between 50 and 249 employees, accounting for 12.4% of employment and 13.4% of turnover (medium). Finally, less than 1% of Scottish companies were in the large business bracket with employee number in excess of 250. These accounted for 45% of employment and almost 60% of turnover.²

¹ Women’s Enterprise Scotland mission statement
² Women's Enterprise in Scotland: Setting the Scene. Professor Sara Carter University of Strathclyde Business School.

© Institute of Ecommerce
In terms of business ownership, women own businesses account for a third of businesses with zero employees, 19% of small enterprises and just 2% of medium enterprises. Women-owned enterprises comprise under 20% of all enterprises in Scotland, representing a significant gender enterprise gap.\(^3\)

According to lobbying organisation Women’s Enterprise Scotland, “Estimates suggest that women-led businesses contribute (at a minimum) £5bn Gross Value Added (GVA). If rates of women-led businesses equalled those of men, the contribution to Scotland’s GVA would increase by £7.6bn to nearly £13bn. This equates to a 5.3% growth in the size of the Scottish economy”.\(^4\)

Women-led businesses are defined by the Scottish Government as enterprises that are “controlled by a single woman or having a management team composed of a majority of women”\(^5\).

According to the HM Treasury-backed Alison Rose Review of Female Entrepreneurship: “Up to £250 billion of new value could be added to the UK economy if women started and scaled new businesses

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\(^3\) Women’s Enterprise in Scotland: Setting the Scene. Professor Sara Carter University of Strathclyde Business School.

\(^4\) https://www.wescotland.co.uk/

at the same rate as UK men. Even if the UK were to achieve the same average share of women entrepreneurs as best-in-class peer countries, this would add £200 billion of new value to the UK economy.

Strengthening women-led businesses is central to achieving inclusive growth. According to the UK Women’s Enterprise Taskforce, “the under-representation of women in enterprise is primarily an issue of economics, not of equality”.

If women in the UK started and owned businesses at the same rate as women entrepreneurs in the US, where women own 39% of all privately-owned firms, it would add £23bn in GVA to the UK economy each year, creating another 900,000 businesses.

Women’s Enterprise Scotland points out that women-led businesses already contribute £8.8bn to the Scottish economy every year. That is more the growth sectors of Food & Drink (£5.3bn); Creative Industries (£4.4bn); Sustainable Tourism (£3.9bn) and Life Sciences (£1.5bn).

Research carried out by McKinsey & Co has shown that companies with the greatest gender diversity on their executive teams are 21% more likely to outperform peers on profitability and 27% more likely to create superior value.

There is, therefore, a widespread consensus around the economic desirability of encouraging more women into business and of closing the gender enterprise gap.

The main obstacles to women’s enterprise

According to research by Strathclyde Business School, the main obstacles facing the development and growth of women-led businesses fall into three categories – money, markets and management. Issues affecting the growth of female-owned businesses include the fact that they tend to be younger and smaller than male-led businesses; that they are more likely to be sole traders; that they are more likely to operate from home; they are concentrated in traditionally female sectors; that they have lower average sales turnover; lower average employment profiles; they are more likely to have part-time employees and women are less likely to own more than one business. The obstacles facing women entrepreneurs are more acute for women from black and ethnic minority backgrounds.

Women often start businesses with lower levels of capitalisation than men and even when starting identical businesses, women’s businesses still use only one-third of the capital used by male-owned businesses.

Women-only funding teams were given £32 million in investment in 2017, while male-only teams received more than £5 billion, over 150 times that amount, according to figures from the British Business Bank.

While there is no evidence that banks and other lenders discriminate against women, women are more likely to rely on personal savings and informal finance sources when starting businesses. A common perception that women are more risk-averse is not sustained by the evidence but there is some evidence that women have fewer financial resources than their male counterparts, are more conservative with money and are more debt-averse.

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7 https://www.womensenterprisetaskforce.co.uk/
8 Women’s Enterprise in Scotland: Setting the Scene. Professor Sara Carter University of Strathclyde Business School
9 Women’s Enterprise Scotland mission statement
11 Women’s Enterprise in Scotland: Setting the Scene. Professor Sara Carter University of Strathclyde Business School
12 WES-URGES-SCOTTISH-GOVERNMENT-TO-IMPROVE-ACCESS-TO-FINANCE-FOR-WOMEN-BUSINESS-LEADERS
13 Women’s Enterprise in Scotland: Setting the Scene. Professor Sara Carter University of Strathclyde Business School

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These facts are important because business performance is directly related to initial capitalisation and resource endowments. The underperformance of female-led businesses relates to a lack of resources, not a lack of commercial skills. When given the same initial resources, the performance of female-owned and male-owned businesses is identical.

As shown by the graphs below, the level of women’s entrepreneurship in Scotland is broadly in line with counterparts in Finland and the UK, but behind the Republic of Ireland, while all of these countries are significantly behind the USA.

The female-to-male total entrepreneurial activity (TEA) ratio in Scotland has continued to climb over the last 13 years and young Scottish women (18 -29 age bracket) have trebled their TEA ratio.

This is significant as younger entrepreneurs are more open to adopting technology and adapting it to help drive business growth.

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14 Women’s Enterprise in Scotland: Setting the Scene. Professor Sara Carter University of Strathclyde Business School
15 An International Comparison Professor Jonathan Levie University of Strathclyde Business School

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Why Ecommerce?

A number of organisations, including Women’s Enterprise Scotland and the British Association of Women Entrepreneurs (Scotland) are working to close the gender enterprise gap, most significantly in the form of the Women In Enterprise Action Group\(^\text{16}\) established in 2014 by the Scottish Government to promote female entrepreneurship by focusing on mentoring, networking, role models, finance, skills development and support.

It is the argument of this chapter that aspects of women's entrepreneurship often depicted as impediments when it comes to closing the gender enterprise gap, can be overcome using e-commerce as the business model. These barriers that can be minimised by e-commerce include, but are not limited to:

- Lower levels of capitalisation and a lack of access to finance.
- The propensity for women-owned businesses to be run from the home
- Issues around childcare and flexible working
- Lower levels of full-time employees in women-led businesses
- The concentration of women’s enterprise in “traditionally female sectors”

Lower levels of capitalisation and access to finance.

Women-led startups utilise only one-third of the capital used by male-led businesses. Under-capitalisation at the start-up stage can be a significant impediment to the long-term survival and 'scale-up' potential of a business. A scaleup is defined as an enterprise with average annual growth in employees or turnover greater than 20% per annum over a three-year period and with more than ten employees at the beginning of that period\(^\text{17}\).

On average, female-led businesses are only 44% of the size of male-led businesses, in terms of their


contribution to the economy, and male SMEs are five times more likely to scale up to £1 million turnover than female-owned SMEs\textsuperscript{18}.

Only 154 of the UK’s scaleups are led by women. They span a variety of sectors: food; fashion; energy; engineering; healthcare; hospitality; manufacturing; management. Approximately 0.44% of the UK’s scale-ups are led by women. They have a combined turnover of £1.6bn and account for 60,700 jobs. Nine are located in Scotland\textsuperscript{19}.

Women are ambitious to scale up. Among women-owned businesses in Scotland, there is considerable growth aspiration. Women’s Enterprise Scotland found that 91% were planning growth and over 30% wanted to grow rapidly\textsuperscript{20}.

Access to, and awareness of, funding was highlighted as the number one issue for female entrepreneurs across the entire entrepreneurial journey, from intention to scaleup\textsuperscript{21}.

Compared with other business models, the barriers to entry for ecommerce businesses are low and are, overall, skills-based rather than capital-based. Using the power of platforms such as Ebay, Amazon, Etsy and Notonthehighstreet.com, income can be generated almost immediately without the need to develop a stand-alone website. Marketplaces such as Alibaba allow entry-level ecommerce businesses to bulk-buy goods to sell on platforms.

Scaleups are easier to achieve with an ecommerce business model than a traditional bricks and mortar retail model as there are no physical barriers to growth and fewer costs associated with expansion.

Because the entire supply chain can be interlinked with business-to-business ecommerce systems, procurement becomes faster, transparent, and cheaper, and there’s no need to handle currency notes or cash, which further cuts down on costs and opportunities for accounting errors.

The ecommerce business model allows the cash-flow issues that can hamper under-capitalised start-ups to be less of a threat. The model removes the need to invoice customers and to tolerate the associated delays in payment reaching the seller’s bank account. Merchant services providers and payment platforms such as PayPal, Apple Pay and Amazon Pay cost the vendors a small percentage of turnover.

\textsuperscript{19} Women Entrepreneurs and The ScaleUp Challenge Professor Eleanor Shaw University of Strathclyde Business School
\textsuperscript{20} https://www.gov.scot/publications/scottish-framework-action-plan-women-enterprise/
\textsuperscript{21} https://www.gov.uk/government/publications/the-alison-rose-review-of-female-entrepreneurship

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Ecommerce provides a business model which in its purest form is both simple and highly cash-generative. The rise of Just In Time (JIT) retailing means that ecommerce business owners can use a drop-shipping model: the supply chain management method in which the retailer does not keep goods in stock but instead transfers customer orders and shipment details to the manufacturer, another retailer, or the wholesaler. Supported by a high level of automation and the ability to sell on platforms such as Amazon, the practice of ecommerce does not require a cash outlay before payment is received for the order.

Through this model, a small ecommerce business can sell thousands of different product lines or offer thousands of skus (stock keeping units), without the need to warehouse stock. This model is already being successfully exploited by Scottish women-led businesses. The author of this chapter has personal knowledge of over a dozen women in the Glasgow area alone who are turning over £1m or more from their kitchen table using platforms such as Ebay.

For women lacking access to capital, a pure-play ecommerce business can generate revenue from day one, making it a highly attractive and highly inclusive business model.

The propensity for women-owned businesses to be run from the home

According to research by Strathclyde University, women are more likely than men to run businesses from home. Traditionally the constraints of a home-based business limit scaleup. The home setting often involves a lack of physical space in which to expand and a perceived lack of professionalism. It can be more difficult to recruit and retain employees when a business is based at home. It can be difficult to reach larger marketplaces when operating a home-based business.

By contrast, the ecommerce business model is highly flexible when it comes to location. Ecommerce businesses can be run from the kitchen table, the local coffee shop or from locations more commonly associated with leisure. This is particularly true for non-physical product ecommerce businesses. All an ecommerce business requires is a basic connectivity, a degree of automation and, where necessary, the outsourcing of fulfilment. Overheads, such as rent and rates, associated with ecommerce businesses are lower than for other business models.

The rise of cloud-based computing and the development of low cost, easy to-use web development platforms such as Shopify and Woo Commerce have made the ecommerce model highly attractive in terms of start-up costs. Social media platforms such as Facebook, Instagram and YouTube allow even the smallest of ecommerce businesses access to a customer base running into the tens of millions at relatively low cost through advertising assuming they have some command of their own business objectives and targeting strategy.

As a result of these platforms’ use of an auction model to sell advertising, basic skills in social media marketing has become an essential aspect of ecommerce for B2C businesses, particularly in the fashion or luxury markets. Because of the potential reach of such platforms, school-based enterprise groups and entrepreneurial teenagers, without access to funds, are turning to ecommerce to generate an income. Developing ecommerce training in schools as part of the digital agenda for a cohort already routinely using eBay and Depop to buy, sell and swap goods, is of obvious benefit and is likely to promote the development of the next generation of female ecommerce entrepreneurs.

For women living in rural locations, assuming a basic level of network connectivity, the indifference of ecommerce to business location makes it the optimal business model.
Issues around childcare and flexible working

According to The Rose Review published on March 8 2018 for International Women’s Day, “disproportionate primary/family care responsibilities affect female entrepreneurs throughout the entrepreneurial journey. Women are twice as likely as men to mention family responsibilities as a barrier to starting a business. In addition, for female entrepreneurs with children, primary care responsibilities are the #1 barrier to further business success, with 46% of female parent entrepreneurs identifying it as a “very important” or “important” barrier versus 33% of male parents with businesses”.

In addition to flexibility around location, the ecommerce business model is highly adaptable in terms of the working day. As a model it lends itself to ‘side–hustles’ and helps facilitate the transition from employee-status to self-employed entrepreneur. Many of the most successful ecommerce business have started as ’5-9’ enterprises. Running an ecommerce business part-time from home can allow budding entrepreneurs to test the market for their product while still relying on the safety net of a regular salary. Providing that the product or service on offer meets a demand, it is possible to build a six-figure ecommerce business within the space of six months to a year, while in full-time employment, thus cushioning the leap into full-time entrepreneurship.

Women barred from full-time employment because of the high cost of child care, caring responsibilities for the elderly or children with special needs, have successfully used the ecommerce model as a springboard to entrepreneurship.

Examples of women entrepreneurs running successful ecommerce businesses in Scotland include:

- Anita Clark; Jenier Teas; [https://www.jenierteas.com/](https://www.jenierteas.com/)
- Jenny Lockton; Bohemia Design; [https://www.bohemiadesign.co.uk/](https://www.bohemiadesign.co.uk/)
- Kerri Binnie Middleton; K Two Products; [https://busyb.co.uk/](https://busyb.co.uk/)
- Fiona Smyth; TotsBots; [https://www.totsbots.com/](https://www.totsbots.com/)
- Kirsten Fairlie & Heather Laughland; Pole Junkie; [https://www.polejunkie.com](https://www.polejunkie.com)
- Gillian Crawford; Lily Blanche and Tartan Twist [https://www.lilyblanche.com/](https://www.lilyblanche.com/); [https://www.tartantwist.com/](https://www.tartantwist.com/)
- Debbie Houston: Dales Cycles; [https://www.dalescycles.com/](https://www.dalescycles.com/)
- Claire Henderson; Oh Polly; [https://www.ohpolly.com/](https://www.ohpolly.com/)
- Nicola MacKay; Premier Welding; [https://www.premierwelding.com](https://www.premierwelding.com)
- Bronagh Carey : YARD Direct; [https://www.yarddirect.com/](https://www.yarddirect.com/)
- Jane Adams; Author Interiors; [https://authorinteriors.com/](https://authorinteriors.com/)
- Erica Moore; Eteaket; [https://www.eteaket.co.uk](https://www.eteaket.co.uk)
- Ann-Maree Morrison; Labels 4 kids; [https://www.labels4kids.com](https://www.labels4kids.com)
- Eleanor Stevenson; Fabulous Black; [http://www.fabulousblack.com](http://www.fabulousblack.com)
- Karen Sommerville; Angels’ Share Glass [https://www.angelsshareglass.com](https://www.angelsshareglass.com)
- Kate Mooney; Houseology; [https://www.houseology.com/](https://www.houseology.com/)
- Patricia Molina Benitez; Patoo Watches; [https://patoowatches.com](https://patoowatches.com)
- Araminta Campbell; Araminta Campbell; [http://www.aramintacampbell.co.uk](http://www.aramintacampbell.co.uk)

Women returners

Ecommerce is also a highly adaptable business model for women returners to the workplace, many of whom find themselves effectively barred from their previous careers because of a skills gap opened up during maternity or other absence. Women who are returning to employment after a career break are often more open to upskilling or reskilling and eager to learn new skills or refresh existing skills. This is also a time of life when many women consider working for themselves to meet their childcare or extended family commitments. Ecommerce courses targeted at women returners through a dedicated Institute of Ecommerce would be an effective way of improving the rate of women-led start-ups.

The UK scores highly in international indexes of female entrepreneurship, comparative studies which assess business environment, ecosystem and quality of aspirations. According to The Rose Review: “It is clear that tailored support from specialists who understand the different challenges that female business owners face, as well as the way they think and run their business, makes a real difference to success rates.”

The environment currently exists in Scotland for upskilling and reskilling women returners. Following the Returners to Financial Services Scotland programme, which ran in early 2018, the Scottish Government has funded a Business Services sector programme using the Workplace Equality Fund. This programme started in November 2018 and ran for 16 weeks. Such a model can be used to retrain women in ecommerce skills via a new Scottish Institute of Ecommerce.

The offer of tailored training interventions in ecommerce directed at women returners would help achieve the objectives of the Rose Review and the Scottish Framework and Action Plan for Women in Enterprise.

Lower levels of full-time employees in women-led businesses

Women are more likely to operate in business as sole traders and are less likely to employee full-time employees. This means that for them to succeed in business they need a highly productive business model. Ecommerce is one such model.

Ecommerce is a rapidly expanding area of business and in 2017 it grew in the UK at 16% according to the Office for National Statistics. This represented the largest year-on-year increase since 2011. The sheer size and rapidity of growth in this sector makes the ecommerce sphere an attractive arena in which to do business.

Ecommerce is still in its infancy. Google, the most widely-used search engine in the Western world's internet market, was only founded in 1998. Marks & Spencer did not develop an ecommerce site until the mid-2000s. Ecommerce is defined as a growth market with good opportunities for profit since demand tends to be stronger than supply in growth markets. New companies enter the market to try and capture those profits, resulting in a market with competition based more on product differentiation than by lowering prices.

In just 25 years, Amazon has gone from a small online bookshop to the largest internet company in the world and the second largest employer in the US. On March 6, 2018, Amazon founder Jeff Bezos was designated the wealthiest person in the world by Forbes magazine, with a net worth of $112 billion.

23 Dell 2018 Women Entrepreneur Cities Study
25 http://wrpn.womenreturners.com/scotland/
26 https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/ecommerceandictactivity/2017
29 https://www.forbes.com/profile/jeff-bezos/
Ecommerce relies on automation to optimise the selling process. As a result, it is a highly productive business model able capable of generating significant levels of revenue with small numbers of staff. Ecommerce lends itself to outsourcing and in the last decade a plethora of companies have sprung up to help automate and service growing ecommerce companies.

On March 5 2019, Forbes magazine named Kylie Jenner the youngest self-made billionaire ever and valued her company Kylie Cosmetics, founded in 2015 and 100% owned by the 21 year-old entrepreneur, at $900bn. For the three years to November 2018, Kylie Cosmetics was a pure-play ecommerce company selling make-up products to Kylie’s 175 million fans on social media. Revenue rose 9% in 2018 to $360m. Overheads are minimal, and the company employs just seven full-time and five part-time employees, making it one of the most productive enterprises on the planet.

By lending itself to high levels of automation and outsourcing, ecommerce is not only a female-friendly model, it chimes with Scottish and UK Government focus on increasing productivity.

**Women’s enterprise is concentrated in “traditionally female-friendly sectors”**

Women’s enterprise is concentrated in sectors which have traditionally been considered “female-friendly”. These include health; beauty; fitness; caregiving; fashion and retail. It makes sense for entrepreneurs to start businesses in a markets with which they are already familiar and where the competition and drivers of demand are well understood. The potential down-side of this focus can be the “ghettoization” of women’s business and the tendency of the market to dismiss of women’s enterprise as lifestyle businesses.

Ecommerce lends itself to sectors which have traditionally attracted female entrepreneurs. Women are the world’s most powerful consumers and their impact on the global economy is growing, with women’s global incomes predicted to reached £14 trillion this year. Women drive 70%–80% of all consumer purchasing through a combination of buying and influencing, according to Forbes.

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The US media analytics company ComScore’s Women on the Web report says while men and women make up approximately half of internet users, women account for 58% of all online purchases, and decide 83% - 87% of consumer purchases. Women spend more money online than men in all but three categories: electronics/computing, event/movie tickets, and flower/greeting cards/gifts.

If women make up a significant percentage of a customer base, it follows they should be well represented in management teams responsible for selling to that base. As practiced internet shoppers, women intrinsically understand the power and potential of ecommerce.

While ecommerce statistics specific to Scotland are notoriously difficult to source, there is some evidence that the ecommerce model is proving attracted to female entrepreneurs in the UK as a whole. eBay, in partnership with independent economists, Development Economics, published a study in 2015 which showed that Britain is home to the highest proportion of specialist online retail businesses established by women – 54%, compared to just 46% by men. In the US, the figure is 48% and for Germany 44%.

Women are active participants on social media channels which can be harnessed to create marketplaces for B2C ecommerce businesses. According to market researchers Audience Insights, women make up 52% of the UK audience and 54% of the US audience on Facebook. Women generated 50.3% of content on Instagram in January 2019.

Women are under-represented as employees in the technology sector and appear to be easily dissuaded from launching tech businesses - women still account for only 18% of digital technology roles across Scotland, compared to 39% working in other skilled occupations. But their role as leading ecommerce consumers should be highlighted to help demystify the skill set needed to become a successful ecommerce entrepreneur.

Conclusion: The ecommerce opportunity for women

There is a UK-wide consensus around the need to close the gender enterprise gap and to encourage more female entrepreneurs from all backgrounds into the marketplace. There is also strong and consistent evidence of the enduring barriers and obstacles that would-be female entrepreneurs face in starting up and scaling business. These include, but are not limited to access to finance, childcare, caring and family commitments and the requirement for highly flexible and adaptable business models.

The focus of government and women in business groups has been - as it should be - on breaking down and eliminating these barriers. This is proving a difficult task, not least because the gender enterprise gap is a global issue and because closing it involves factors and circumstances beyond the control of government and its agencies.

Many individual and company examples can be cited in support of the central thesis of this chapter: that ecommerce, because of its low start-up costs and extreme flexibility, can be used as a business model which circumvents many of the obstacles facing potential female entrepreneurs. By encouraging women to develop ecommerce businesses, much of the perceived risk of setting up in business can be minimised and barriers to scaleup overcome.

The advantages of ecommerce as a business model include, but are not limited to eliminating geographical limitations, gaining new customers with search engine visibility, lower costs for maintenance and rent, and higher capacity for handling goods and fulfilling orders.

The key barrier to entry for women to this potentially transformative business model is not financial but skills-based. The development of practical hands-on courses demystifying the technical aspects that are unique to ecommerce within the wider sphere of digital industries is key. So too is building on the


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innate understanding of ecommerce that many women have absorbed through their roles as sophisticated online consumers, is a highly cost-effective way of driving the growth in female entrepreneurship, thus helping to close the gender enterprise gap.

As stated above, ecommerce is still in the early stages of its development. It is an immature and fast-growing market which makes it attractive to new entrants seeking to scale. The proposed new Scottish Institute of Ecommerce could be a practical, efficient and highly cost-effective method of helping to deliver the stated Scottish Government objectives of increasing the number of women entrepreneurs and Scottish scale-ups. It would further dovetail with the wider goals of the Scottish government’s digital strategy.

Given the ability of ecommerce as a business model to help overcome the stated obstacles to the start-up and scale up of women’s enterprise, it appears self-evident that ecommerce must be at the heart of any future dedicated women’s business strategy and that the proposed Scottish Institute of Ecommerce develops modules specifically aimed at female entrepreneurs and their requirements for starting and scaling ecommerce businesses.

**Auticon & Remploy**

This section has emphasised ecommerce’s ability to promote equality of opportunity and diminish residual gender disadvantage in the UK jobs market. However other groups may be held back from that equality of opportunity due to physical or behavioural barriers.

Auticon is a London-based organisation that works with autistic people. It has recently opened an office in Edinburgh, and is already working with Royal Bank of Scotland, and has expressed an interest in participating in any ecommerce skilling courses available.

Emma Walker of Auticon in Edinburgh said:

> “Auticon is a commercial IT consultancy with the difference being that all of our consultants, without exception, are on the autistic spectrum. There are many traits that are common to people on the autistic spectrum. These include analytical and high levels of attention to detail, pattern recognition, error detection, above average ability at structured and logical tasks and prolonged concentration. These traits lend themselves to the types of roles typically required for ecommerce.
> Around 1 in 100 of the UK population (700,000) are autistic and currently only 16% of adults on the autistic spectrum are in full-time paid employment. However 77% of those who are unemployed are capable and willing to work.”

The authors of the report had discussions with the UK’s largest disability specialist, Remploy. Its objective is to help provide ways for those with physical or mental health issues to gain sustainable employment. It supports apprenticeships and mechanisms that help reskill suitable candidates.

Remploy estimates that between 3% and 5% of people they work with could be suited to a career in ecommerce. This would equate to around 800 people across the UK and around 60-70 people across Scotland. One of the key characteristics highlighted is that, for certain types of job, remote working is not an issue. Remploy expressed an interest in becoming involved in a reskilling project involving the people they support back into work.

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34 [https://auticon.co.uk/](https://auticon.co.uk/)
35 [https://www.remploy.co.uk/](https://www.remploy.co.uk/)
37 Ahmed Yousaf, Programme Director, Remploy, Glasgow; Contact: ahmed.yousaf@remploy.co.uk

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CONCLUSIONS

1. Reskilling & Upskilling
   a. The availability of reskilling and upskilling courses, training, apprenticeships appears to be remarkably small given the size, rate of growth and contribution of ecommerce to creating national wealth through growing trade.
   b. Although several sources suggested that there are few ecommerce-focused courses due to insufficient demand, this view is at odds with evidence from the jobs market or from the experience of ecommerce businesses themselves.
   c. There is no UK-wide national strategy or plan around the provision of ecommerce skills.
   d. In the UK there are no ecommerce-focussed apprenticeships and only one MSc course.
   e. The UK offers a healthy range of reskilling and upskilling opportunities for the component parts of ecommerce but almost nothing that promotes their effective combination.
   f. Reskilling is less well provisioned than upskilling. The main reason appears to be that reskilling is more likely to be mediated by the public sector while upskilling tends to be mediated by industry itself, driven by commercial imperatives.
   g. A possible explanation for the dearth of ecommerce skills courses is that, as a result of the acute skills shortage, highly skilled people in academia or in the supply industry are encouraged into private ecommerce careers rather than teaching and training.

2. Market Need
   a. Every ecommerce business contacted through this study claimed that its workforce did not have all the skills necessary for its ecommerce business.
   b. Most ecommerce companies and ecommerce suppliers were actively trying to recruit but finding it difficult to find suitable candidates.
   c. Most if not all UK companies in the ecommerce industry receives multiple approaches from overseas suppliers offering ecommerce-trained professionals.

3. International Efforts
   a. The digital skills crisis is a global phenomenon. Within ecommerce only China and Germany appear to have national plans in place. This is probably because both are top export-focussed economies, ranked number one and three respectively. China appears to be ahead having implemented the first national plan for ecommerce training.
   b. Germany has made a number of recent announcements that suggest a national strategic plan around ecommerce. The German approach is geared more towards vocational apprenticeships. These combine time spent on the job with external training, both face-to face and computer-based training.
   c. The US appears to be particularly strong around upskilling via computer-based training. The likely reason is that many of the IT companies that provide the platform technologies that drive ecommerce are native to the US. These companies provide online training - mostly as ‘how to’ videos.
   d. Suppliers of IT systems and software that provide training videos have a clear bias in favour of their own products and platforms. If an ecommerce company has no choice but to use that product then this commercial reality is unavoidable. However, if they are seeking to compare a range of available products then inducements into a particular commercial ‘ecosystem’ are potentially misleading and can limit a company’s adaptability in a dynamic industry.

4. Different levels of skill
   a. Skills are required at many levels within an ecommerce business. While the subject of ecommerce is largely generic across very different types of business, the skills required differ depending on an individual’s role within an organisation.

5. Equality of learning

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a. Ecommerce appears to be a female-friendly business area. Within Scotland it has attracted many women entrepreneurs. This is mostly down to low levels of initial investment combined with a high level of work flexibility.

b. There appears to be a willingness amongst some specialists in the field of disability employment to become involved in ecommerce training interventions.

6. Recognised Certifications and Qualifications in Ecommerce

a. There are many tens of thousands of ecommerce businesses across the UK. Even if only half have ecommerce managers then we have many thousands of highly qualified professionals who do not have qualifications that mirror their jobs.

b. When interviewing people for ecommerce jobs, employers have to base their selection around the vocational history of the candidate rather than a qualification for the role.

7. Effectiveness of Training Interventions

a. The UK’s relatively laissez faire approach to ecommerce skilling has sufficed so far because of the country’s initial dominance in ecommerce combined with a strong overall educational sector. This has resulted in a number of skilled ecommerce practitioners involved in the traditional peer-to-peer process of showing colleagues what to do. Meanwhile the acute shortage of skilled ecommerce people has resulted in relatively high job mobility through aggressive head hunting of qualified practitioners. This high mobility disadvantages SME businesses. As soon as SMEs manage to have a key member of staff achieving a high level of skill in ecommerce he or she is often ‘poached’.

b. It has proved particularly difficult to gather any data or statistics on skills effectiveness from different courses or across different territories. The only alternative is to assume a positive relationship between the level of ecommerce competence within business and overall economic performance[^39]. The study by Forbes[^40] confirmed that there was a strong relationship between ecommerce business performance and quality of education. Unfortunately, due to the sparse provision of ecommerce skills training, confirming a more precise relationship has not proved possible.

If the ONS data is correct then, pro rata, Scotland with 8% of the UK economy should have an ecommerce turnover of £45 billion. The authors of this report are not aware of any other equivalently important area of technology that currently has such negligible skills provision. The case for pragmatic, results-led investment and intervention in ecommerce training is overwhelming.

[^40]: https://bit.ly/2Fl4GLw

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RECOMMENDATIONS: A SCALABLE PLAN FOR SCOTLAND

The authors of this report believe that the shaping of a national plan must be based on the following principles:

1. It should encompass a longer-term strategy developed and measured over at least 5 years.
2. The plan should be punctuated with pilot projects, each of which can be measured prior to further commitment of time and resources.
3. The plan should involve a number of training interventions developed and delivered in different ways in order to be of maximum relevance to the numerous and various groups within the industry. This means a broad spectrum of mechanisms for communicating the empirically-based and case study-based benefits of ecommerce.
4. Emphasis should be placed on avoiding unnecessary duplication of effort.
5. Some of the activities listed are directly related to reskilling and upskilling, others are concerned with promoting the subject which will help bring people into reskilling and upskilling activities. Others are there to provide feedback in order to ensure that all resources are used effectively and provide a measurable return on investment (ROI).

We propose a seven-part plan as follows:

1 Gathering of statistics and information about ecommerce in Scotland.

The objective of any set of reskilling or upskilling training interventions in and around ecommerce will be the creation of wealth via additional ecommerce jobs. These in turn should lead to increases in exports and productivity.

Without gathering statistical data there is no way to measure any resulting success in further training outcomes. We propose that participating companies gain reduced rates on their training in return for agreeing to provide statistical performance about their business. This data would be anonymised in order to protect the commercial interests of the participants. This “training for data” scheme would also allow the Scottish Government, for the first time, to have reliable performance data for ecommerce in Scotland. This in turn would allow it to make effective investments in the area.

2 Creating and Syndicating Ecommerce Case Studies.

People are naturally drawn to stories - especially those that are strongly pertinent and relevant to their own circumstances. If a business that currently doesn't do ecommerce or does it badly sees how a similar type of business has found a way to help it grow and increase profits then it is likely to want to copy that success. At present there are few stories available about successful ecommerce businesses in Scotland. Importantly, these stories should include some ‘how to’ information such as what platforms they used, whether they outsourced or ‘went DIY’, the real costs involved, unexpected problems and things that went wrong and what their realistic expectations are for the future.

Once collected, these case studies need to be communicated, most effectively in the form of short videos and text-based/photo-based stories that can be distributed through a wide range of channels. These channels should include, but should not be limited to:

- TV, Newspapers, Magazines and Radio
- Youtube, Facebook, LinkedIn and other social channels
- Government Agency websites
- Company sites such as ScotlandIS, Scotland Food & Drink, IoE and FSB.
The syndication is as important as the collection of case study data in the first place. The resulting case studies will be a central component of the engagement and promotion needed to increase the number of businesses wanting to engage both with reskilling and upskilling in ecommerce. The case studies will also be used to help punctuate workshops and events as well as the main courseware used for training.

3 An Ecommerce Online Destination

A central objective for Scotland should be to create a critical mass ecommerce community. One important component of this is to have shared online resources, where the community can visit to learn, to find out about shared issues with others within their local community and to assist with self-help from others who are working with similar issues. While there are plenty of online destinations, there are currently none focusing on issues specific to businesses in Scotland. For example, if a courier opened up new depots in Edinburgh and Glasgow that might help local businesses get their products to their customers. Possible changes around tax or regulation as well as new suppliers opening up, say, in Aberdeen might all be relevant.

Having easy access to a new online ‘umbrella’ resource for Scottish ecommerce businesses is one important component in helping create the critical mass of connected activities that, as elsewhere in the UK, denotes a thriving ecommerce community.

4 Courses

A suite of courses needs to be developed for a variety of targeted interventions for both reskilling and upskilling. While most of the background content is already known and has been used in other settings, we believe that it would be a helpful component of the skills training infrastructure to have a common suite of content. Once developed, the suite of content would be under continual review and would be edited by a mixed team of specialists. In addition to using the content to provide tailored reskilling and upskilling interventions, it would also be used as a ‘train-the-trainer’ mechanism. It is fully expected that, following development and feedback, there will be a series of changes and revisions made based on this experience. This is to be encouraged. The final step will be to convert the revised courseware into a computer-based training environment. Early discussions are taking place to look at the potential viability of a conversion MSc in Ecommerce.

5 Ecommerce Apprenticeships

There is much that can be learned from the German vocational model using apprenticeships. It is strongly recommend that a small number of ecommerce apprenticeships be piloted with a few carefully-chosen ecommerce businesses. The apprenticeships should lead to a qualification. One essential component that we would add to the German model is that apprentices, when at work in the ecommerce business, must be carrying out the duties of, for example, an ecommerce assistant and be working directly on tasks related to growing the business performance of online trading business.

A final recommendation is that the apprenticeship scheme should be set up quickly. The German system involved five years of planning. Every one of the companies we spoke to in the section looking at demand said that they would take on ecommerce apprentices right away if (a) the candidates were right and (b) if the associated training was good.
6 Ecommerce Clubs

Useful experiments with Ecommerce Clubs have taken place in both Stirling and Edinburgh. Again, we view such ventures as an essential requirement to achieving scale and providing a Scotland-wide framework for growing a business community around ecommerce. The Stirling club, based at the city’s CodeBase facility, attracts between six and twelve people for each gathering, Edinburgh has seen similar attendance. For these clubs to operate, we recommend that those leading them receive a small budget to cover basic running costs. Initial enquiries and believe we have possibly found a suitable commercial sponsor to provide free ‘Pop and Pizzas’ as a mild inducement to encourage attendance. These ecommerce clubs provide a strong basis for self-help training where local online traders can share ‘tips and tricks’ and help participants other iron out each others’ challenges on the basis of mutual knowledge exchange.

For maximum impact, these clubs need to be provided with shared resources (point 3) and an ability to circulate good speakers who can attend as invited speakers to the different clubs to provide inspiration and practical advice.

7 Annual Event

Scotland is the only component nation of the UK that currently does not run a national event dedicated to ecommerce. The Institute of Ecommerce has already been working with both the Glasgow Convention Bureau⁴¹ and the Scottish Event Campus⁴² to investigate the organising and running of a national flagship event. It is expected that the annual event will be associated with a themed conference, that will become a focal point for ecommerce policy formulation and community-building.

If a smaller and narrower action plan is deemed a better approach for Scotland then the item we recommend be followed is a stand-alone ecommerce apprenticeships plan. This would be similar to that being developed in Germany but with the requirement that, when at work, the apprentices be fully engaged in implementing the plans developed in their courseware. This would include the provision of anonymised KPI’s around growth, exports and ecommerce business performance.

⁴¹ https://glasgowconventionbureau.com/
⁴² https://www.sec.co.uk/
APPENDIX 1: DEFINITIONS

Ecommerce

The OECD definition for ecommerce\(^\text{43}\) has been adopted by Governments and their agencies in most of the major economies. It is:

“The sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online. An ecommerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations. To be included are orders made over the web, extranet or electronic data interchange. The type is defined by the method of placing the order. To be excluded are orders made by telephone calls, facsimile or manually typed e-mail.”

The OECD reference goes on to say in relation to the output of ecommerce:

“Measuring electronic commerce is difficult for a number of reasons including defining what constitutes electronic commerce, the speed of its growth and evolution and the fact that in many cases firms conduct both electronic commerce and traditional commerce simultaneously. Quantifying the value associated with electronic commerce activities can be challenging since many of its key qualities -- convenience, variety and ease of access to information -- are difficult to measure. This leads to a situation where it appears unlikely that official statistical offices will be able to provide accurate statistics on electronic commerce and quantitative insight into the nature of this activity will have to rely on private providers of data which suffer from a number of shortcomings, not the least of which is a transparent definition of what is meant by electronic commerce.”

Until 2014, the UK was the largest ecommerce economy in the world\(^\text{44}\). Because of that, most other leading economies (e.g. Eurostat) followed the UK Government Office for National Statistics in the way they define and measure ecommerce. The UK ONS bases its definition on the OECD definition\(^\text{45}\).

The OECD definition highlights the point that whether something is or is not ecommerce depends on the methods used\(^\text{46}\). Ecommerce is not defined wholly by the single step of the electronic transfer of money, but rather by the set of internet-based methods and processes that lead to and from the transfer of money. This means the marketing and promotion as well as the multiple interactions with the customer along with fulfilment. For most ecommerce purchases, fulfilment is conducted offline but with online access to ascertain the delivery date or customs status. Throughout the entire purchasing cycle, the internet dominates as the joined-up mechanism by which the process is managed.

The most frequently used alternative definition to the OECD definition is where the meaning of the term ecommerce is limited or narrowed down in two ways:

1. Avoiding EDI (electronic data integration) transactions.
2. Retail only.


\(^{45}\) [https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/ecommerceandictactivity/2017](https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/ecommerceandictactivity/2017) (point 2)

\(^{46}\) [https://www.oecd.org/internet/ieconomy/2771174.pdf](https://www.oecd.org/internet/ieconomy/2771174.pdf)

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EDI transactions are included in both the OECD and the UK ONS definitions. They use the Internet but make use of earlier (pre-web) protocols such as Edifact or X12 that have been in use since the early 1970’s. EDI systems are exclusively Business-to-Business (B2B) and account for around half of all ecommerce in the UK. The ONS annual report highlights that EDI systems are quickly being replaced with web-based mechanisms.

In the case of retail ecommerce purchases, financial transactions take place using payment service providers such as PayPal or WorldPay. Alternatively, with B2B ecommerce business selling in wholesale volumes, the transaction itself often ties in with electronic invoicing or other business procurement mechanisms. Large B2B ecommerce systems can often integrate with major procurement systems such as those used within the public sector.

Within the UK, ecommerce statistics are often supplied by organisations such as the British Retail Consortium which limits its definition to retail only. Many of the larger online traders pay little attention to whether a sale is to a business or to an end-user customer. These suppliers provide multiple ways to pay along with numerous options for buying in different volumes at different prices. From their perspective, ecommerce is a spectrum that is defined simply by volume and price.

As well as definitions being set formally by respected organisations such as the OECD, it’s also appreciated that definitions are influenced by common assumption and usage. To help bring a shared understanding of what is meant by ecommerce, we looked at the top five best-selling books on Amazon on general ecommerce and looked through the index of each to identify commonly considered topics that fell within the subject area of ecommerce. Examples of just a few example headings, topics and sections are listed below:

<table>
<thead>
<tr>
<th>Ecommerce platforms</th>
<th>Warehousing &amp; Logistics</th>
<th>Marketplaces</th>
<th>Dropshipping &amp; Returns</th>
<th>Retail Arbitrage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecommerce marketing</td>
<td>Naming &amp; descriptions</td>
<td>Internationalisation</td>
<td>Conversion Optimisation</td>
<td>Personalisation</td>
</tr>
<tr>
<td>Price optimisation</td>
<td>Product photography</td>
<td>Regulations and tax</td>
<td>Analytics &amp; Dashboards</td>
<td>Payment Mechanisms</td>
</tr>
<tr>
<td>Seasonality</td>
<td>Data wrangling</td>
<td>Social channels</td>
<td>Omnichannel selling</td>
<td>Automation &amp; Productivity</td>
</tr>
</tbody>
</table>

In terms of topics covered and course content, the following Venn diagram helps illustrate the relationship between business subjects and technical subjects:

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Within the established literature there is unanimity that ecommerce requires a combination of both business and technical skills.

The final point is to clarify and standardise the name that we give to the subject. Even the OECD is inconsistent and uses multiple terms including “e-commerce” (3,810 occurrences), “ecommerce” (458 occurrences), “eCommerce” (458 occurrences) and “electronic commerce” (2,170 occurrences) to say exactly the same thing:

In order that we all use the same name to describe the subject we compared overall search volumes worldwide using Google Trends:

Search volumes are the measure of the numbers of times that words are typed into search engines. They provide a clear picture of how different words and spellings change in popularity and usage over time.

While we recognise that there will remain a difference of opinion over what to call the topic, we note the trend in word usage towards adopting the term “ecommerce” rather than “e-commerce”. The word eCommerce presents difficulties when used at the start of a sentence with while all other names for the subject show much smaller search volumes. Ecommerce is simpler and shorter. This is probably the main reason for its increased use. Finally, it is worth noting that sites such as Google treat the two words almost interchangeably so that searches on e-commerce will also show similar results for ecommerce.

For the purpose of this report, the definition that we will use for ecommerce is the one originally defined by the OECD and given at the start of this section. In terms of the name that we will use to describe the topic in this report, we will use the word ‘ecommerce’.

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Skills

The Oxford English Dictionary defines skills as the ability “to do something well; expertise”\(^{54}\) while skilling is the act of “training somebody to do a particular task”. Wikipedia defines a skill as “the ability to carry out a task with determined results often within a given amount of time, energy, or both” \(^{55}\).

‘Skills’ is a broad term that is based around the application of knowledge when undertaking a task. Skills should be performance-based and task-specific. Clearly those with good skills are able to perform tasks better and more quickly than those without skills. Just a few examples of the skills necessary for those involved in ecommerce might include:

- Business owners who need to decide which market sector in what territory to move into.
- Supply chain managers who need to decide what levels of stock to purchase and when so as to optimise Amazon margins.
- Ecommerce managers who need to decide which tasks to prioritise.
- Pick-pack-dispatch operatives who need to adopt improved packaging options for different couriers.
- Merchandise photographers who need to improve background subtraction so as to comply with shopping ‘feed’ standards.
- IT company technicians who need to devise website hosting architectures in order to cope with specific patterns of marketing at different times and in different countries.
- Conversion Rate Optimisers who need to analyse what the data suggests about the psychology behind customer purchasing behaviour in order to increase basket size.

Some skills can be very specific to particular market sectors and to particular countries. Examples might be:

- The need to optimise returns policy mechanism for female fashion garments in different countries\(^ {56}\).
- The need to meet legal compliance mechanisms for shipping B2C sports supplement sales into China.
- The need to avoid banned product marketplace listings (e.g. chewing gum in Singapore, where the import is banned).
- The need to optimise Global Google Adword campaigns for selling Whisky/Whiskey in the US.
- The need to optimise courier fulfilment times for chilled B2B food categories.

Reskilling

Reskilling can be defined as “the process of learning new skills so you can do a different job”\(^ {57}\).

Reskilling often applies to those caught up in a major shift in the type of work they have previously done through personal circumstances. Examples might include service personnel leaving the army or former sports people wanting to move into business.

Another impetus to reskilling is where a skilled person has been doing a job that has been transformed as a result of the introduction of new technology. Examples might include a high-street shop sales assistant who has been asked to look after some aspect of the shop’s online sales activity.

\(^{54}\) https://en.oxforddictionaries.com/definition/skill
\(^{55}\) https://en.wikipedia.org/wiki/Skill
\(^{56}\) https://www.worldpay.com/global/blog/2017-02/are-online-returns-really-killing-ecommerce
\(^{57}\) https://dictionary.cambridge.org/dictionary/english/reskilling

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The key point about reskilling is that it is part of a process that results in achieving a completely different skill set.

**Upskilling**

Upskilling is defined as “Teaching (an employee) additional skills and expand their capabilities” ⁵⁸.

Upskilling differs from reskilling in that it is largely about building on existing skills rather than learning new ones. Many claim that upskilling can reduce costs while improving productivity ⁵⁹. In a rapidly changing area of technology such as ecommerce it is almost taken as read that all those involved will be undertaking some form of continuous training or improvement. This is essential to keeping up to speed with the skills required to perform a job effectively and efficiently. Upskilling is often a key part of any productivity improvement plan ⁶⁰.

It has been estimated that the cost to an average business of losing a skilled young employee was to be around $25,000⁶¹. When the costs of interviewing, hiring and training a replacement employee are added, the cost can be over $35,000. Replacing staff is expensive so it invariably makes more sense to invest in upskilling.

The Australian Government’s Productivity Commission has concluded that Upskilling and its associated retraining programmes are central to improving productivity⁶². Their report claims that upskilling also reduces workforce vulnerability and leads to improved job satisfaction. The report found no evidence that upskilling staff led to them being more likely to use their upskilled qualifications to leave for another job.

Upskilling can involve a mix of components including:

1. Peer learning where a work colleague will help and assist a worker to learn a new skill.
2. Using the web to research and learn about a new topic. Videos and webinars can assist.
3. Using structured computer-based training that can lead to a qualification e.g. Google University.
4. Attending a traditional course that can also lead to a qualification.
5. Attending work specialism-relevant events, workshops and seminars.

What individuals in both of these groups have in common is that they bring with them a great deal of background knowledge and skill. Broader skills can be ‘life skills’, ‘general business skills’, ‘numeracy’, ‘problem-solving skills’ or ‘general technical aptitude’. These background skills, aptitudes and personality types can sometimes be used as part of a candidate screening process to try to establish how likely individuals might be to benefit from either reskilling or upskilling.

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⁵⁸ [https://en.oxforddictionaries.com/definition/upskill](https://en.oxforddictionaries.com/definition/upskill)
⁵⁹ [https://www.simplilearn.com/ways-upskilling-will-cut-costs-boosts-productivity-article](https://www.simplilearn.com/ways-upskilling-will-cut-costs-boosts-productivity-article)
⁶⁰ [https://businesspartnermagazine.com/upskilling-team-improve-productivity/](https://businesspartnermagazine.com/upskilling-team-improve-productivity/)
⁶¹ [https://www.huffingtonpost.com/julie-kantor/high-turnover-costs-way-more-than-you-think_b_9197238.html](https://www.huffingtonpost.com/julie-kantor/high-turnover-costs-way-more-than-you-think_b_9197238.html)
⁶³ [https://www.geolearning.com](https://www.geolearning.com)

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