DIGA - Digital Innovations for Growth Academy

The Use of Digital Technologies – A Multi stakeholder Perspective of Entrepreneurs, Educators/Trainers and Entrepreneurial Learners
Summary of Key Findings and Recommendations

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The Role and Use of Digital Technologies – A Multi stakeholder Perspective of Entrepreneurs, Enterprise Educators/Trainers and Entrepreneurial Learners

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Table of Contents

Executive Summary

The proliferation of digital technologies in personal and business contexts, most notably in the advent of social networking platforms generate new modes of social interaction, dialogue, exchange and collaboration in different situational contexts, for instance between, individuals in a personal family and social capacity; the learner and educator; individuals as consumers and how they interact with business; businesses (public and private institutions) and how they engage with their consumers and other stakeholders. Digital is a pervasive force that is driving innovation and new business opportunities by bringing individuals and organisations into an interconnected and ever changing digital realm.

The DIGA research presents key trends driving the increased use of digital technologies from the dyadic perspectives of the enterprise educator/trainer and the entrepreneurial learner encompassing aspiring and established entrepreneurs. The changing role of the net-generation of enterprise learner is examined and their learning preferences and expectations will identify the pertinent factors to consider when incorporating digital technologies into the enterprise curriculum. This information is compared with the insights obtained from the enterprise educator/trainer who determine strategically the value placed on digital technologies and how they are resourced from financial, technical and educator training and development viewpoints.

For the purposes of the DIGA project, research adopted a two tier approach investigating both theoretically and empirically the role and practices of digital technology amongst a tripod of inter related stakeholders, namely, entrepreneurs, entrepreneurs as learners and educators (those engaged in the teaching, training and competency design and delivery to small and medium firms).

The first tier involved a comprehensive theoretical review of the extant literature and policy initiatives which draws attention to contemporary perspectives on the changing landscape of digital technology and its impact on how, when and where business transactions are undertaken and their subsequent consequences for entrepreneurs at the various stages of their entrepreneurial journey of business start-up and growth. Furthermore the results of the review highlighted the primary issues that merited investigation in the empirical study.

The second tier, an empirical multi country study incorporated the administration of an email survey consisting of a semi structured questionnaire to a sample of entrepreneurs, entrepreneurial educators and trainers (ETE) and entrepreneurial learners.

The results from the entrepreneurs survey shows that the majority are engaging with digital technologies and demonstrate intent to increase their usage of various digital tools over the next year. Further, respondents engaged a variety of digital tools beyond Facebook and LinkedIn to extend into online selling, online networking and ecommerce to a lesser extent. The ability and need for integrating digital into mainstream business activities that require attention and is a fundamental foundation on which any successful digital strategy is built on. This would suggest that entrepreneur's decide on training on a piecemeal approach reflecting the current or immediate needs of the enterprise rather than a holistic and future planned approach. These results indicate that It is necessary to encourage entrepreneurs to adopt a more strategic long term perspective on the role and contribution of digital technologies to the next stage of development and growth of their enterprise, as opposed to an add on function or on the periphery and undertaken reactively when needed.

Related is the lack of clear measurement or tracking tools for assessing the performance of digital efforts and resources– this lack of measurement perhaps is linked to the absence of a clear set of objectives and uncertainty as to the potential quantifiable benefits of digital technology for a small enterprise.

The majority of entrepreneur respondents indicated an interest in receiving training in digital technology across a range of digital topics relating to digital tools per se, and highlighted their preferred mode of delivery and timing of training. Cumulatively, the findings generate a more informed comprehension of the practices of digital technology in small firms, their future plans in this area, the areas they require training in and suggestions on how this training should be delivered - all which direct a more targeted and focused design of a digital skills competency programme.

In tandem, the results of the entrepreneur trainer and educator (ETE) survey generates some thought provoking questions in relation to the use of digital technology in enterprise education. For instance, how digitally competent are enterprise trainers and educators in delivering on what the entrepreneurial population require in terms of digital skills to start, develop and grow their business competitively. So while the results of the survey show that educators engage with and adopt digital technology and in the main appear to be confident and eager to try out new technologies, the evidence on its usage would not entirely concur in terms of the novelty and interactive nature of what digital is and will be about for emerging entrepreneurs. Therefore it brings to the fore and questions how the current level and adoption of digital in enterprise education prepares enterprise learners to adapt take on new roles and develop new opportunities in an increasingly digitalised marketplace given the digital skills gap at the educator level.

Likewise, given narrow and topic driven understanding of digital technology by the educator/trainer, is this is influencing current digital training on offer to entrepreneurs. If so, then the provision of digital in enterprise education is driven by the educator skills as opposed to the needs and requirements of the entrepreneur at the various stages of enterprise start up and growth. This empirical study addresses that issue and the collection of the multi stakeholder viewpoints ensures that the ultimate client needs (the entrepreneur) are known and met through the provision of a relevant digital training programme.

The results from the entrepreneurial learner survey provided a broad and diverse range of digital topics that they would like to receive training in. The list was somewhat fragmented as was the case with the entrepreneur stakeholder findings and indeed as was the case with educators. Common across the three cohorts of respondents, educators, entrepreneurs and entrepreneurial leaners was the presentation of a range of topics and individual digital tools as opposed to a strategic perspective of the use of digital technology.

The present technology rich learning environment is characterized by a sustained use of digital media, their integration into formal contexts, and a shift toward personalisation of learning. To take full advantage of new technologies, educators and policy makers need to rethink approaches to entrepreneurial learning and education; the relationship between education and technology and its influence on learner identity and the role for the educator and strategy of the educational institution. Entrepreneurial learning is an ongoing process and undertaken by a broad and diverse profile of entrepreneurial learner in terms of age and background and thus the notion of lifelong learning can be enhanced and made more accessible advanced digital competence for all for all learners.

Tables

1.0 Introduction

Digital technologies hold potential for the creation of new businesses and opportunities including, innovation, new ways of engaging with customers, higher revenue streams, faster times 'to-market', enhanced service provision, reduced costs and increased productivity. While small firms are increasing their digital footprint and are more active in website development, they are less active in integrating and capitalising on the potential of the ever increasing array of digital technologies, in particular engaging in ecommerce; selling to international customers via ecommerce and mobile marketing, thus missing out on market expansion and sales opportunities (Ettlie and Pavlou, 2006; Kohli and Grover, 2008; Rai et al. 2012). Entrepreneurs and owner-managers need to transition their business activities to a 'go digital' mode of behaviour with digital technologies becoming an essential component of modern business. Trends such as virtualisation, cloud computing and social networking are likely to intensify in their presence in the 'go digital' process adopted in business, education, learning and social contexts. In order to move the entrepreneur and owner-manager to the 'go digital' mind-set and mode of behaviour they need to develop associated eLeadership competencies and capabilities to enable the productive use of digital technologies across and between business functions.

The need to address this digital gap in the small firm is acknowledged in current literature and endorsed as a priority area for action in national and EU industry and Information Communications policy documents. According to Catinat (2014) 'managers, entrepreneurs and business executives must have e-competences to grow, export and be connected to global digital markets in a digital economy and thus eLeadership skills are essential' (Catinat, 2014:5). This need is further endorsed in documents such as (Communication on e-Skills for the 21st Century (2012); the Digital Agenda for Europe 2012; Digital Entrepreneurship Forum 2014). Empirically, the need to develop a more integrated perspective of digital and ICT across business functions was highlighted in the findings of a previous EU funded collaborative project titled, e-Business Enterprise Learning for Women (EBEL) whose objective was to evaluate the use and application of Information Communications Technology (ICT) in female owner-managed small firms. The findings of that study will guide the development of digital competency curriculum for the DIGA project.

The strategic imperative for a composite set of eSkills and eLeadership competencies poses challenges for educational and training institutions, trainers and consultants who work with emerging entrepreneurs to identify the most appropriate digital competency programmes that have impact at the personal and business performance levels. Ensuring the supply of digital training content is relevant, timely and appropriate for the needs of the small firm and the personal needs of the entrepreneur requires an understanding of both the current digital practices in small firms and what digital technologies will impact on their future business activities.

To achieve the aim of the DIGA project, namely, to identify and develop digital competency interventions to improve the capacity and capabilities for the deployment of digital tools for enterprising activity the research investigated both theoretically and empirically the role and practices of digital technology amongst a tripod of inter related stakeholders of entrepreneurs, entrepreneurial trainers and educators (ETE) and entrepreneurs as learners.

The first tier involved a comprehensive theoretical review of the extant literature and policy initiatives which draw attention to contemporary perspectives on the changing landscape of digital technology and its impact on how, when and where business transactions are undertaken and the subsequent consequences for entrepreneurs at the various stages of their entrepreneurial journey of business start-up and growth. Furthermore, the results of the review highlighted the primary issues that merited investigation in the empirical study.

The second tier explored the digital practices and training needs through an empirical study with primary stakeholders in the entrepreneur, educational and learner arenas as a means of establishing their current and future digital competency needs and suggestions for the components of a digital competency framework. This first hand contact with these stakeholders provided a more nationalised understanding of what is happening in the small firm in relation to digital technology. The inclusion of respondents existing at the various stage of the entrepreneurial journey, entrepreneurs as leaners and a mix of early stage and established entrepreneurs allowed for capturing differences that might exist with individuals at the various stages of the Digital Continuum spectrum or between the 'digital native' or the 'new millennium entrepreneurial learner' categories. This is important as any competency training programme will need to balance content and delivery between and amongst the digital native and digital immigrant profile of entrepreneurial learners.

This summary report presents the pertinent findings emerging from the empirical investigation. The report commences with the research methodology describing the stages of the design and administration of the surveys, the analysis of the data and the issues and learnings accrued from the process of undertaking a multi stakeholder holder survey across seven countries. This leads into the presentation of the summary results from the entrepreneurs survey which explores themes such as their use of digital technologies, their objectives if any for social and digital media; allocation of budget to digital technologies, their planned use of digital tools, the benefits accruing from digital technologies their approach to measuring and capturing the performance of digital activities, their participation in digital training and identification of the digital topics they would like to develop competencies in and how they prefer such training to be delivered. Subsequently, the results of the supply side or the educator, defined in the broader sense to include individuals who are engaged in training, mentoring, education of entrepreneurs at various stages of the entrepreneurial start up and business growth continuum are presented. The focus of this survey was to ascertain the use and adoption of digital technology in their professional role and to determine what extent they perceived it as a benefit to programme delivery; to obtain insights into the barriers and challenges they encounter with digital technology and an identification if they had received training in the area of digital technology, and, if they were interested in having their digital skills and knowledge enhanced and if so, what was their preferred mode of delivery of such training.
The next section of the report presents the findings from the younger enterprise entrepreneurial learner – or more closely aligning with the digital native to determine their digital technology practices in a personal and in an entrepreneurial learner capacity; identification of what technologies they use, perceived benefits arising from their use, the challenges they encounter in their use and what trends in digital advancements will impact on their professional entrepreneurial career.

This multi stakeholder investigation adds value and novelty to the research as it provides a composite understanding of the needs of different related groups to identify common themes emerging, areas of diversion and issues at the demand and supply levels of digital training.

The research moreover adds a contribution to the supply side of digital training and competency development domain as this stakeholder is central to the development of relevant and appropriate eLeadership skills and competencies for entrepreneurs but yet is a relatively under researched topic and one which merits attention if the necessary digital competences are to be developed in the entrepreneurial population. Furthermore, the findings provide a method of conducting a training needs analysis in digital technology for educators and trainers which is lacking to date in the literature.

Finally, the multi stakeholder perspective endorses and supports a call in policy for 'cooperation between enterprises and higher education as the development of digital skills relies on the interplay

of multiple stakeholders within and external to educational institutions to inform what digital skills and knowledge entrepreneurial learners require and to direct educators in digital programme design, delivery and assessment' (Digital Agenda for Europe: A Europe 2020: European Commission 2010); (ACCA 2010); Williams et al., (2010); ICT, E-Business and SME's (2006); National Digital Strategy for Ireland (2014).

The report concludes with some suggestions to help enterprise educators effectively meet the needs of the net-generation of entrepreneurial learners while preparing them for the 21st century workplace. The learnings from the small firm sector will inform the design of policy interventions and will identify for trainers and consultants what type, level and content of digital training and mentoring assistance is required by entrepreneurs to become more efficient digital users.

2.0 Empirical Investigation Research Methodology

The multi country study incorporated the administration of an email survey consisting of a semi structured questionnaire to a sample of entrepreneurs, enterprise educators and trainers (ETE) and entrepreneurial learners. The semi-structured questionnaires explored how each of the stakeholders engaged with digital technology, their digital practices, the challenges they encountered in using digital technologies, if they participated in digital training and if they considered they had digital skills gaps they would like to receive training in, and if so, what were the topics and what was their preferred mode of delivery of such training.

The inclusion of a range of open ended questions to elicit comments allowed the voice and narratives of respondents to come to the fore and provide more detail on topics such as future digital technology areas of interest and information on digital training they are interested in. The research methodology process involved an iterative process of designing, refining and pilot testing the surveys, dissemination to DIGA partners for their feedback, incorporation of feedback and re-sending to partners for final agreement and ultimate dissemination to the three stakeholder groups.

The surveys were distributed through Survey monkey (www.surveymonkey.com) to increase efficiency in the distribution of the survey and allow for simultaneous administration of a multi country survey. The translated surveys were allocated a country specific link, were accompanied by a standard covering note providing an introduction to the survey and a set of instructions for its completion along with a partner contact name and details as a reference point for any questions.

The completion of such a comprehensive survey, comprising of research participants belonging to 3 distinct groups which had to be administered in 7 countries with different languages set challenges and produced some useful learnings which will benefit the research process of similar future collaborations. These learnings largely emerged from logistics and time management of the process which was less than expected as initial project tasks had to be completed within a reduced timeframe than had been planned for when devising project timelines. Despite these time constraints the tasks were achieved within the timelines. However, additional time would have benefited the work process, for example more time to discuss the topics emerging in the literature review and indeed for conducting the review of the extant literature; time to identify and collaborate with external digital trainers and professional associations to develop the relevant questions for the surveys and to gain their commitment for the study. For future projects this task of survey design and editing would be more effectively and efficiently executed if it was undertaken at a face to face meeting of partners, such as a partner meeting or a follow up SYKPE call. This would have reduced the amount of ongoing communication via email and the need to seek clarification and consensus on suggested question changes.

Pilot testing resulted in changes to phrasing of some questions and the inclusion of options for responses to be able to provide comments as opposed to only ticking a box. Also country differences on the meaning applied to the terminology describing digital technology and variations in the interpretation of its definitions required some changes to the wording of questions to ensure it was appropriate for the various stakeholder groups and less academic for the non-educator respondents. To address the challenge it was decided to adopt one definition or descriptor endorsed by EU policy and this set a common context for respondents across all countries when completing their surveys. This definition was written into the first page of the questionnaire and referred to again in the common covering note that was sent to all respondents. Further, the consistency in the use of digital technology definitions and the common covering note ensured that rigour and consistency were continued into the analysis of the data. A valuable learning resulted from issue with language and indeed attention in the use of terminology is an issue to note in the development of the digital competency framework as similar interpretation issues may emerge.

Response rates to the survey by 3 stakeholder groups and in particular the entrepreneur was lower than anticipated in the initial stages. This necessitated partners to identify and implement additional tactics and options to follow up with existing samples to encourage responses. Further, partners had to source new samples of possible respondents and time was spent on explaining the purpose of the survey and what the results would be used for. When completing this type of multi-stakeholder survey in the future consideration might be given to providing incentives to the respondents to encourage greater participation in the survey.

Additionally anecdotal feedback from respondents indicated that in particular with the entrepreneurs cohort that they are receiving a large number of surveys and do not have time to respond to them all. Compounding this is the frequency of surveys which are being administered as part of funded projects and in some instances with similar objectives. Given the above challenges, consideration should be given to how alternative survey options to the email survey can be effectively executed to gather the information needed to address the objectives of the research project. For instance the use of face to face interviews, focus group interviews and case studies could be considered as an alternative to provide the necessary information.

Overall despite the challenges encountered the partners are confident that the number of responses received in each category to a detailed survey produced comprehensive and consistent results has enabled rigorous analysis to be competed and the objective of informing curriculum development has been achieved. Statistical analysis of the overall aggregate number of responses and individual country responses was undertaken and complemented by the inclusion of comments to the open ended questions in the survey.
It was anticipated that an empirical study would be undertaken in each DIGA partner country however it transpired that despite many efforts partners in Norway were unable to obtain responses to the surveys. The Norwegian partner (ECWT) sent out the survey to their Norwegian partners and a large database of entrepreneurs, small firms and relevant educators, trainers and entrepreneurial learners. Despite receiving a number of registered phone calls and expressions of interest in the survey there was no completed surveys returned. In the absence of direct feedback from the 3 stakeholder groups, the Norwegian partner has supplemented this research with evidence from related research projects focussing on the role of ICT and digital in small firms. ECWT leads the INSPIREYOWUP project, producing innovative training materials to inspire and empower young and women to start-ups http://www.inspireyowup.eu/docs/Training_Needs_Analysis.pdf. In the project an on-line survey was carried out in the partner countries (Norway, Cyprus, Greece, Ireland, The Netherlands and Spain) which 891 people have answered through survey monkey of which 62 were from Norway. The results of this survey will be incorporated in the most relevant areas of the DIGA

project and to guide the design of the digital competency curriculum. The overall response rate for the 3 surveys is presented in Table 1.0.

Table 1.0 Breakdown of Respondents

Partner	Entrepreneur Trainers / Educators	Entrepreneurs	VET Learners / Entrepreneurial Learners
The Women's Organisation (UK)	31	85	13
University of Limerick (Ireland)	35	36	35
EIM, HRDC – Economic Institute of Maribor, Human Resource Development Centre (Slovenia)	19	28	16
Inercia Digital (Spain)	19	38	7
Social Innovation Fund (Lithuania)	28	40	17
Bulgarian Centre for Women in Technology (Bulgaria)	9	12	14
Total	***141***	***239***	***102***

The results of the surveys are presented under a number of primary themes which incorporate related questions as a means of reporting a composite and integrated perspective of the findings and provide more in depth analysis.

3.0 Entrepreneurs Use of Digital Technologies – Key Research Findings

3.1 Respondent Profile - Personal and Enterprise Profile

The majority of respondents, 56.9%, were in operation for more than one year, with 36.8% of those being in business in excess of four years and a further 20.1 % operating between 1 and 3 years. This mixed age cohort shows an emphasis on the more established firm across all countries. In Slovenia the majority of their firms were in operation for in excess of 4 years as was the case in Lithuania (42% over four years in operation and 17% in operation between 1-3 years) and Ireland 33% were in operation between 1-3 years and 30% were over 4 years in existence. Bulgaria showed an evenly divided sample where 50% of respondents were under 1 year in operation and the remaining 50% were evenly distributed between 1-3 years and 4 years plus categories. Spain had 39% of their sample falling in the creation stage and 13% less than one year in operation. A similar pattern emerged in the United Kingdom sample where 37% of responses were categorised as in the creation stage and a further 15% in the less than one year category. The findings are summarised in Table 2.0 below.

In line with these results the Norwegian respondents in the INSPIREYOWUP survey were in operation for similar time frames with the majority of businesses in operation between 1-3 years and the second biggest group consisted of enterprises in operation for more than five years.

Table 2.0 Age profile of respondents

Stage of business development	Number of respondents (N= 239)	Response Percentage
In the creation and early start up stage	71	29.7
Less than one year in operation	32	13.4
1-3 years in operation	48	20.1
4 years plus in operation	88	36.8

As expected given the established nature of the enterprise, the average age cohort of the respondent is between 33 and 45 years and this varied slightly by country where the average age of the entrepreneur in the UK was 40 years; Bulgaria was 36 years; Slovenia was 45 years; Ireland was 39 years and in Spain the average age was between 40 and 45 years. Entrepreneurs from Norway showed a similar average age bracket ranging between 40-46 years. The majority of individuals who responded to the survey were female (66.5%) which is in keeping with the representation in the NSPIREYOWUP survey.

The varied age profile of respondents provide an interesting cohort for investigation as they predominately fall within the late adopter of digital technology if age and gender characteristics are applied as some of the literature promotes (Prensky, 2001, Helsper and Eynon, 2009) and it will be interesting to determine how this transfers into the use and adoption of digital technologies in their business context.

Moving on to the profile of the enterprise, data showed that the majority of firms were categorised as micro (employing up to 10 persons) as was the case in the UK, Ireland and Bulgaria where the vast majority comprised of micro firms with many employing less than five persons. The Slovenian sample saw a more mixed cohort in terms of employee numbers where some firms employed over 20 employees and a few employing over 100 persons. The respondent firms across the survey and within each country predominately operated in the service sector and in the main in general retail (22%) followed closely by firms offering education and training services (20%). The depth of response on the service sector allows for assembling more comprehensive understanding of the issues relating to this broadening and increasingly important economic growth sector in all countries and moreover the use of digital technology is more pervasive and critical to the successful growth of small service firms.

Table 3.0 Industry Sector Business Operates in

industry sector	Number of responses(N=244)*	Response Percentage
General Retail	54	22.0
Education/training	48	20.0
Software/information Technology	29	12.0
Financial services	24	10.0
Food/ Drinks	25	10.0
Electronics and engineering	15	6.0
Health and Wellbeing	29	12.0
Textile Manufacturing	8	3.3
Publishing and Printing	9	3.7
Other	3	1.0

*Note: a few respondents inserted an answer in the 'other category' in addition to one of the industry sector choices and thus N=244.

The diversity of service offering is highlighted by the fact that 12% of respondents managed businesses in the high tech sector in the software and ICT domain and those sold more to the commercial market than the previously mentioned retail sectors. The high tech sector dominated the profile of enterprises in the NSPIREYOWUP survey.

The majority of enterprises sell into consumer markets and secondly to commercial markets. The dominant prevalence of service entities targeting the consumer markets necessitates the possession of digital media strategies and digital competencies as research strongly endorses that the social, cultural and business effects of the inter-relational hyper connectivity via social media results in a more dynamic and technically engaged consumer - a more 'wired' and 'wireless' generation of consumers (Weinberg, 2009; Sashi, 2012).

3.2 Existence of Website, its use and functionalities

The following section presents an overview of the importance placed on the website as a means of showcasing enterprise activities and is discussed under a number of themes as follows:

Existence of a Website: Overall 69% of respondents had developed a website for their enterprise and the country breakdown is displayed in Table 4.0.

Table 4.0 Existence of a website in the enterprise

Have a website	Ireland	UK	Spain	Lithuania	Bulgaria	Slovenia	Response Percentage (of 207 respondents)
Yes	21	43	22	23	8	25	68.5
No	11	21	9	17	4	3	31.5

There were no major differences in the existence of a website by stage of business development but rather by the nature of their customer base. Off the respondents who had a website, in the majority of cases the respondent themselves had an input to the development of their site but also employed external commercial website developers to complete this task. To a lesser extent assistance from family, friends or free sources of assistance in the development of the site was mentioned. A few (8 respondents) indicated that they used existing website templates such as Square Space template: Smiling Wolf: Google templates as a means of developing their sites.

The following were some reasons why respondents did not have a website for their business;
'In progress'; 'Developed under focus social media as that's who I do most of my work for 'Up and running shortly'; ''Not yet';' 'Currently in progress '; ''holding meetings with Web Developers '; 'Too early'.

Information contained on the company website: The majority of respondents indicated that 'product service description' (65.3%) and 'company background information' (65.7%) were the core elements included on their website. This was followed by customer enquiry forms cited by 42% and 'Information on key personnel/owner-managers in the firm' was included by 33.9% of respondents. It was positive to see that 30.5% had incorporated 'testimonials from satisfied customers' which are an important and impactful source of selling and promoting the business. Despite this availability of information, the analysis would suggest that the depth of use of the enterprise website beyond a promotional tool. The findings raise questions as to what is the perceived function(s) and capabilities of the website, and how strategically are respondents utilizing or leveraging all promotional, e-business; e-commerce; selling and researching functionalities and capabilities that a website can return to the small firm. These findings indicate the need for entrepreneurs to be educated to view

a website with the ability to 'wear many hats' or act as a multifunctional marketing and selling tool. A website needs to not just exist, it needs to perform to attract visitors, educate them and convince them to purchase and become advocates for the product and business which necessitates integrating search, social media, content, blogging, and other social media platforms.

Frequency of updating of website: The majority of respondents identified that they updated their websites monthly (32.1%) and secondly, 22.7% indicated that they updated their site sporadically. A near to an equal percentage of respondents indicated that they updated their site weekly (20.9%). So whilst responses on the content of the sites was relatively good and show that respondents are committed to having a website, the responses on the frequency of updating their sites is less encouraging.

Digital and social media tools used by entrepreneurs: Similar trends were evident across all DIGA partner responses where Facebook and Twitter were the most frequently used tools. Twitter was more popular amongst firms in the UK, while in Ireland, Slovenia, Bulgaria, Lithuania and Spain LinkedIn came second to Facebook as the most frequently used tool. Reasons for variations relate to the nature of the businesses as those in retail and personal services (dominant in UK sample) used Twitter. This cohort is useful to review as they demonstrate how Twitter can be used as an effective social media tool for service businesses with a consumer customer base. This learning can also be extended to the use of Instagram and Pinterest as their presence was highest with UK firms, who overall displayed the greatest diversity and advancement in the adoption of contemporary digital tools.

Consistent across all firms was the low level of adoption of blogs, slide share and wikis etc. This suggested low level of usage highlights untapped potential that should be examined by entrepreneurs at any stage of business start-up and growth. This finding mirrors the evidence in the literature (Dixon, 2010; Strategic Policy Forum on Digital Entrepreneurship, 2014). These outcomes suggest that greater attention should be afforded to moving entrepreneurs from their comfort zone to the 'go digital' mind-set of exploring more of the emerging digital tools with a view to aligning and integrating them with existing ones to develop a cohesive and consistent marketing and branding messages. These findings concur with those of the literature and are not unique to this cohort of entrepreneurs serving to further reinforce the need to increase the digital capabilities of entrepreneurs and owner-managers (Stimulating Innovation through Smart use of ICT, 2013; e-BEL, 2012).

Business activities conducted via digital technologies: Digital tools were used for a wide variety of business activities such as responding to customer queries (44.3%), email marketing (36.8%) and online networking (35.6%).

Essentially usage of digital technology emerged at two levels, marketing and promotion and secondly at operational level. The former dealt with responding to customer queries which was highly rated across all countries, online selling, which is a positive trend; seeking new customers which is more dominant in the UK and Irish responses; and email marketing which again is strongly rated in Ireland, UK and Lithuania.

Operationally, online banking and back office administration tasks such as payment of invoices and spreadsheet generation for operations are being completed via digital technology which is positive to see and these functions were more evident in UK, Slovenia and Lithuania. These results demonstrate a positive commitment to digital technology use albeit with a bias towards more general marketing functions. Today's buyer wishes to consume information when they want and how they want and often-times without the involvement of a sales person. And more importantly, they want to be educated and not sold to, which renders digital marketing, sales and new forms of inbound marketing content (such as podcasts, blogging and social media) becoming influential in the

consumer buying behaviour process. These trends make it necessary that small firms are more equipped and have available online selling and payment capabilities and facilities to allow interaction and as a means of establishing a relationship with consumers. The results of this survey point to the need to develop more advanced digital skills which resonate with entrepreneurs' inbound marketing and selling activities to assist them expand their online presence and act as the 'silent sales person' or the means of conversing with customers and other relevant stakeholders.

3.3 Establishment of goals for digital technology, its measurement and planned future use.

Objectives for digital technology: The majority of respondents indicated that they did not have specific goals for digital media bar one exception where, in the UK 57% indicated they had specific targeted offline objectives. Responses in Bulgaria were evenly divided where 50% of respondents had objectives and 50% had not objectives for digital media. Whilst in comparison in Ireland 54%; Spain 67.74%; Slovenia 75%: Lithuania 72% of respondents indicated that they did not have objectives for digital media. The reasons for the lack of objectives were reflected in the following sample of comments: *'do not have time'; 'we just decide on social media choices as we go along';* 'don't *know what to set or how to set targets as difficult to measure what we get from it'; 'follow competitors'; 'mainly sell via sales reps and attending trade shows'; 'haven't given it any thought yet as just at the early stages'; 'not sure how to'*; '*not yet*'; '*time restraints'; 'not relevant yet for my business'; 'not very confident with social media'* which are clear markers of the practical time constraints and knowledge deficiencies of what digital and social is about that educators need to take cognisance of in the design and delivery of a digital competency programme.

Measurement of digital activities: The vast majority of respondents indicated that they did not measure the benefits or the impact of digital tools on their enterprise outputs. Indeed there was an overall low response rate to this question in each country which in itself infers that it is a topic not highly engaged in by respondents which is a concern and barrier to the sustained implementation of digital technologies endorsing the findings of the literature and policy documents.

The area which had the higher rate of measurement included "hits/visits/page views" which represents the beginning of the sales funnel - awareness, but is not very diagnostic of purchase. The following narratives were provided by the respondents as to how they measure and monitor their digital media activities; *'marketing reports*'; *'ask where enquiries have come from'; 'have used external source with limited effect'; 'asking customers'; 'only measure by any contact I receive via Facebook or twitter'; 'Facebook'* ;*'record it on excel'.*

The above comments demonstrate a general approach to measurement and the very sharp absence of metrics, analytics relating to specific digital tools' a lack of results or measurement techniques and a dearth of criteria adopted to assess or evaluate the outcomes of digital media activities.

Essentially, it would appear that 'one fits all' or a very general observation or scanning of the results of digital media takes place without a real interrogation or benchmarking of the results to determine if they are cost effective and productive. These findings when taken into consideration with the trends emerging in relation to the lack of digital objectives have implications for how these areas are incorporated into a digital competency training programme in a practical and user friendly manner for the entrepreneur. These results indicate the need to educate entrepreneurs and owner-managers about the ultimate value (financial and non-financial) of digital for their business as a means of achieving a competitive position, generate knowledge on how to establish objectives and determine what kind of tracking measures are required to implement before the commencement of a digital media campaign. Objectives may include generating revenue, reducing customer service costs, shifting brand sentiment, improving operational efficiency, cultivating customer relationships or gleaning insight into target markets.

Planned usage of digital technologies: Primarily, respondents indicated that they would increase their use of digital and social media with a strong emphasis on social media marketing, Facebook as a marketing tool; blogs as marketing tools and Ecommerce.
An interesting point emerges in relation to the percentage of respondents who indicated that they have a learning curve for digital technologies and this is cited by respondents who are more active in their implementation of digital tools. This could suggest that those who are engaged in and active in digital practices are open to learning more about digital technology as a business and marketing tool and indeed may more readily see the need for competency enhancement in this area, relative to entrepreneurs who are not as active in the digital practices. Consequentially, digital skills programmes should ensure programme content and outcomes are developed to cater for the different digital user profile and their existing usage of digital in addition to enterprise characteristics such as sector and customer profile.

3.4 Skills, Competencies and Training in Digital Technology

Participation in digital technology training: Of the 205 respondents to the question on training, 67.8% had not participated in any form of digital technology related training which is worth noting given the increase in planned level of activity entrepreneurs and owner-managers have for digital media.
Some common trends and themes emerged in the results of the 32.2% who had participated in training, for instance most popular topics were Facebook; LinkedIn; Website development, where programmes were undertaken on a part time basis. Of the respondents who had participated in training, the most common mode of delivery was via a blended learning approach which combined traditional classroom and online and followed by traditional classroom and mentoring which indicates the importance of the one to one interaction of the participant with the person delivering the content. Generally respondents were very satisfied with their experience of the training (37% rating very satisfied and 41% rating their experience as satisfactory). The training received was located and delivered primarily from the trainers or consultants own organisation.

Mode and Timing of digital training delivery: Of note is the trend towards individual topic or module specific courses as opposed to an integrated programme incorporating a suite of related digital technologies and their collective and interrelated use. In line with their previous experience in participating in training, the majority of respondents showed preferences for a blended learning approach combining online and in class delivery, and a second preference for a classroom and mentoring combination of delivery, both preferences emphasising the importance and need for personal induction and face to face interaction with the trainer and educator.
Whilst a variety of time periods were suggested, widespread preference was the 'block' format which did not consume full working days consecutively and therefore afternoon sessions/ evening sessions or one day events were viewed as appropriate for delivery. The responses to these questions should be placed in the context of the type of digital technology undertaken to date which was mainly topic specific and thus would perhaps not demand the longer time duration that a more comprehensive integrated and multi topic digital competencies training programme necessitates.

This detail has value in informing the number of hours or time that should be allocated to training programmes and its frequency of delivery which will be an important design consideration to ensure the sustainable commitment of the entrepreneur to engage in and complete a digital competency training programme. Furthermore, the duration and timing of the programme can be aligned with and indeed may be influenced by the preferred mode of delivery.

Digital Topics of interest for training: The list of topics reflect the modular, topic focus of elements of digital technology per se and do not extend to identify the more integrated or holistic strategic perspective of digital technology in developing a digital strategy for their enterprise. The findings

are informative as to the perception and interpretation of respondents as to what is needed by their enterprise, which align with the topics many have already received training in or reflect the commonly used digital tools in use by respondents. Central to the design of the digital competency programme is ensuring that content is appropriate and relevant and the summary list of topics (presented in Table 5.0) suggested by respondents can guide content design

Table 5.0 Suggested Digital Training Topics

United Kingdom	**Slovenia**	**Lithuania**
- All of it - Facebook for Business - How to maximise the use of social media - Online marketing strategy - Mailchimp - How to use analytics - Conducting promotions through social media - Social Media for Business - Twitter - Website maintenance - Wordpress - LinkedIn - Hootsuite - How digital media can help to grow my business	- Brand development; - Launching of new product; - Project management; - Sales skills - Facebook, - LinkedIn; - Blogs; - Promotion; - Increasing of web traffic; - Finances - Use of new tools, integration of them into work processes - Internet marketing - online marketing; - blogs, web sales; - advanced computer technologies; - CRM, BPM, PCM;	- Know how to use new technologies - Yes, I myself should be understood as running, exercise - Training about their business benefits - We keep track of the news
Bulgaria	**Ireland**	**Spain**
- Online marketing, - Digital trends, - Content creation and management, - Networking apps, - Google add word, - Facebook, - Marketing data science, - webinars, - YouTube, - Website development	- Online marketing strategy - How to use analytics - Social Media for Business - Blogging - Website maintenance - SEO - How to target customers better online - Measuring results from online activities - How to develop good content	- Yes, to make an enterprise plan

Therefore, taking into consideration the above listing, many of the related and similar topics can be developed into themes for inclusion in a digital competency framework. That said it is important and more so necessary to extend competency development beyond digital topics to provide a more holistic and integrated digital training programme to include the steps the entrepreneur should adopt in the final choice of digital tool to adopt, why and how to measure each digital tool's performance. These decisions must be driven and guided by a set of objectives as to what they want to achieve from digital technology, what tools to adopt on an integrated and interlinked basis; how they should be implemented and resourced and their ultimate evaluation and monitoring to determine their return to sales and revenue streams in an effective manner.

Perceived business opportunities offered by digital technologies: The narratives provided by respondents to this question produced interesting insights into the language used when discussing digital and their level of awareness of emerging technologies as opposed to commonly known tools as are presented in Table 6.0.

Table 6.0 Business Opportunities arising from Digital Technologies

- Yes it gives a platform for small business to attract attention and build interest around the brand.
- Digital technology does provide greater opportunities for SME but as I have limited knowledge of this media I am finding it difficult to exploit its potential
- No business will be able to grow and exist without using the digital technologies available
- Yes but not an area we are confident in at present
- Yes I do but you need training and support to gain the knowledge and skills to develop your strategy
- Yes, as networking is made easier and contacts can be made across the country and abroad
- Of course , since this is a very favourable option for the promotion of companies and necessary to operate
- you can reach the target group easier / faster
- I think that they are important and at the same time among the cheapest methods of promotion
- Certainly. New businesses may take advantage of web technologies for its promotion
- With small input you can use specific skills, activities
- Absolutely. It saves time and money
- Yes, because they enable them to operate with smaller costs and enable processing large amounts of data, flexibility
- Definitely because this is the cheapest way of communication between the seller and customer
- Allows greater access to more customers and to get closer feedback from customers also means of identifying new ideas for products
- I think they do but would like to hear about the specific benefits
- Along with the typical focus on social media marketing I would like it if there was a focus on customer management systems. mobile marketing and ecommerce, social networking and online video
- Digital technology is a very very wide area ... it's a little like asking does electricity offer opportunities to grow the business!
- Yes. Mobile applications such as Salesforce
- Yes and no, as all depends in time and resources available in that particular small business
- Yes. Technology will "eliminate" some expensive work positions (employees)
- All start-ups the reference, it is now very popular, and without it is impossible to run business successfully.
- Digital technology optimizes the work process itself. Since this can be done in many areas, there is a wide range of activities of the establishment.
- I think so, because the use of digital technology provides more opportunities to advertise and find new customers, build relationships with partners.
- Well, this trade developed after all the Internet. Without the Internet we cannot be successful in the market
- I do not have experience, but looking at what is happening in the world – helps
- Yes. I have many years of experience in managerial positions and you would have the impact of technology on business where I worked, I think the same will and walking along my business
- I think that via digital way people get more information.
- Yes, and it is on the beginning of the development, All people are more and more involved in it.
- Yes, I think that helps to develop a business, create networks, and the people themselves are beginning to show interest.
- It helps to find new clients; services providers can share their activities.

When reviewed these comments have consequences for the development of a digital competency training programmes on a number of fronts, such as it demonstrates the digital language used and its level and depth; it demonstrates the vagueness of what digital is about and what it can achieve in an entrepreneurial context; it highlights the level of knowledge, or lack of understanding of the emerging digital tools and technologies. Essentially there is an acceptance that it is an inevitable aspect of business but not sure what aspects are most relevant for them.

Challenges and fears associated with digital technologies: Common trends emerged in terms of the concerns entrepreneurs have about using digital technology across the partner countries and these resonate on the personal or internal resources constraints and secondly with the technology itself and its functionality. From the personal entrepreneurial perspective, challenges relate to a lack of people, insufficient digital skills and the scarcity of the entrepreneur's time to develop digital content and to maintain digital platforms. These concerns are compounded by the lack of knowledge about digital technology, exposure to information overload and their ability to keep up to date with social and digital media advancements. In relation to the more technical concerns, issues of security of information, payments, control of information, manipulation of information etc. were mentioned. These need to be addressed and alleviated for the entrepreneur to provide greater reassurance of the safety of internal and external information contained on their site and in particular in relation to payment and in the establishment of ecommerce sites which was an area in need of development cited by a number of respondents.

Digital technologies dominating enterprise activity over the next year: The phrases from respondents describing the influential technologies centred on individual tools and platforms with multiple repetitions of tools such as Twitter; LinkedIn and Facebook. To a lesser extent the cloud, mobile technologies, blogs, were mentioned as tools that would dominate. In addition to the suggestions a number of respondents in each country also suggested that they '*were unsure'*; '*did not know what ones'* would dominate their business over the next few years.
Consequentially, the results demonstrate a somewhat narrow interpretation as to the emerging technologies and their likely impact or benefits that they could deliver to their enterprise. This is an important learning from the results as it highlights the need to increase the baseline level of knowledge and understanding of the applications of emerging digital technologies in the small firm context and how to leverage their potential for increased business performance.

The next section reports the findings from the entrepreneurial trainers and educators survey to reveal the matching enterprise training supply side perspective on the practices and understanding of digital as it applies to enterprise learning from the supply side dimension.

4.0 Educators Use of Digital Technologies -Key Research Findings

4.1 Respondent Profile - Personal and Employment Profile

A combination of trainers, educators, mentors and consultants representing third level institutions, private training organisations, public and private sector organisations comprised the 141 respondents to this survey. The number of respondents by country is displayed in Table 7.0.

Table 70 Respondent Profile

Country	Number of Respondents	Percentage response rate
United Kingdom	31	21.9
Spain	19	13.5
Lithuania	28	19.8
Bulgaria	9	6.4
Slovenia	19	13.5
Ireland	35	24.9
Total respondents	141	100

The profiles of enterprise educator and trainer (ETE) varied in demographics and experience and across the digital spectrum of digital native to digital immigrant. The majority of respondents were female (63.8%) and the sample consisted of an even mix of respondents aged between of 31-40 years (30.5 %) and 41-50 years (33.3%) with 24.8% aged 51 years plus. Concurring with their age cohorts, respondents had accumulated extensive experience in the delivery of entrepreneurship education programmes, where 30.5% had accumulated 6 to 10 years' experience; 22% having acquired more than 15 years' experience and 19.9% had attained between 11 and 15 years training experience. This experience consisted of delivering enterprise programmes to smaller groups, where group sizes of between 4 and 10 and 11 and 20 people were most commonly cited across the partner countries. The larger groups of 51-80 and 81 above of entrepreneurial learner were more evident in full time education programmes and at third level educational institutions.
Consistent with the variety of respondent roles they also displayed experience in delivering a comprehensive range of enterprise related modules and programmes which dealt with the start up to growing and internationalising a small business. Experience was also held in delivering related enterprise modules on functional aspects of the business (marketing; finance, accounting for start-ups, project management, etc.).

Respondents represented a variety of roles related to teaching, training, lecturing, mentoring, and consultancy to mainly learners who were predominantly in the 21–30 years age cohort, followed by entrepreneurial learners aged between 31 and 40 years. All respondents indicated that they had experience of working with a mix of ages. The public sector was the dominant employer of this group and while engaged by the public sector some respondents gained experience of working with private sector training and development companies to deliver enterprise training and education programmes.

4.2 Digital Technologies Practices, of Enterprise Education

Use of Digital Technology: The results indicate that digital technology is used as a conduit through which content and assessments are delivered and made accessible to learners, who in many cases are not attending full time education or training programmes. Further the use is one directional in nature using existing technologies as opposed to developing personalised interactive exercises or engaging digital technologies specific to a group or enterprise programme (e.g. videos; webinars; podcasts; blogs etc.)

Objectives for the use of digital in enterprise education: A variation of objectives with similar underpinning themes were cited by respondents in each country as are presented in the narratives contained in the Table 8.0.

Table 8.0 Objectives for the use of Digital Technology in Enterprise Education

- More effective work and cooperation with/between participants
- Availability of contents anytime, anyplace'
- Adaptability towards participants
- Better reach of customers
- Establishment of interactive communication outside of specific class; encouragement for usage of digital technologies in seeking of information necessary for team and individual assignments; encouragement of teamwork in e-environment; encouragement for seeking and studying of good practices; testing before crucial tests; business simulation games
- Holistic insight into specific topic/class, encouragement of students to search for relevant information, encouragement of innovative study approaches (for example: blogs for stating their own views on specific area which requires previous study and understanding of a topic
- It's Convenience/Access anytime
- Get Learn to use/ Comfortable with digital technology
- Supporting the learning experience of student
- More enjoyable learning experience/Greater engagement
- Learning through the use of games and simulations, efficiency in online communication
- Decrease the administrative expenses for the course
- To increase competition
- To prepare young people for future work
- For better communication and involvement of co-workers
- To differentiate way of studies, to make it more attractive
- To make a work faster, more effectively
- To facilitate completion of business plans and financial forecast
- To enable women to use the internet and social media to support their businesses

Digital technology was used with multiple objectives which focussed on the benefits of the infrastructure of technology and secondly on using digital tools to enhance pedagogy and learning outcomes for learners. Respondents focussed on the use of technology as an enabler and means of communication and dissemination which was dependant on the available infrastructure of digital technology to do this successfully. Technology was viewed to increase educator efficiencies and create greater access to the entrepreneurial learner.

The pedagogical related objectives resonated on enhancing the professional skills set of the learner such as generating confidence and greater experience in the use of digital technologies that relate to the business needs. The findings reveal that while digital technology objectives are in place they are traditional and relatively standard educator ones and do not bring to the fore any creative aspirations for imparting more 'digitalised mind-set' or knowledge into the learner.

Digital Use in the delivery of enterprise education: The respondents to this question were consensual in their agreement (85%) that technology should not be a substitute for the educator rather, used by the educator as part of the delivery process. When this response is taken into consideration with the reasons digital technology is used in the delivery of programmes (distributing notes/reading material and notices about the subject/classes; facilitating online student to student discussion; for class announcements) it provides a deeper insight into the more traditional use of digital technology in the content and also in its role in the delivery of entrepreneurship education programmes.

Use of Digital between personal and Work: Of the 125 responses to this question 65.6% indicated that they used technology mostly for work reasons and 32% highlighted that they used it for equal amounts of personal and work purposes suggesting an interest and awareness of digital but yet, it does not appear to transfer into enterprise education programme development and delivery. As expected the majority of educators possessed an account with a professional networking site (86.6%) with LinkedIn as the most popular site mentioned followed by Facebook. Twitter was viewed as second most important and more so for United Kingdom and Irish respondents.

4.3 Barriers, Benefits and Challenges in applying Digital technologies

Barriers to the adoption of Digital technologies: The most frequently cited barriers relate to aspects of the technology itself, such as issues about loss of control of the interpretation of content as it passes to the learner and how to ensure safety and security of the information on networks, which point to the need for the employing institution and organisations to have these issues addressed. The existence of an overall institutional/organisation digital strategy should address these issues. This was a topic emerging in the literature where Plomp et al., 2008; Shear et al., 2010a; Shear et al., 2011) strongly endorsed that the commitment to the use of digital technologies must be translated into the provision of resources to support the learner and the educator. It also promotes the imperative for the professional development of the educator to ensure that they are equipped with digital skills and secondly digital pedagogy and assessment and have the necessary infrastructure in place to achieve appropriate digital learning outcomes**.**

Benefits of digital technologies in the delivery of enterprise courses: The benefits revolved around how technology created greater access to more students and allowed for speedier and seamless contact with the entrepreneurial learner and equally allowed the entrepreneurial learner to have speedier and more direct access to the educator at all times. This facilitated the adult or entrepreneurial learner who was not located in a structured full time programme.
The positive aspects of digital technology are less obvious in areas such as developing enterprising skills, the development of enterprise decision making skills, personal or communication skills or providing flexibility to respond to a variety of learners which are important points to consider in any programme development and design.

Challenges encountered in the adoption of digital technology for enterprise education: The barriers to the use of digital technologies identified those connected with access to technology and technical supports aligned with challenges relating to the lack of confidence and skills in the use and trialling of digital technology in the delivery of enterprise training programmes. The analysis of this question and its low response rate and the number of 'not relevant' responses suggests that there are no major barriers to the use of digital technology. Of note is the issue in relation to the lack of time to spend on developing digital as part of their curriculum, which could be viewed as a contradiction or against the ethos of their core business of teaching which requires a time commitment to learn on the educators part and the imperative to constantly update themselves in what they are educating for!.

Questions arise as to how can digital as a conduit, enable the acquisition and development and indeed the testing of eLeadership and eSkills which are promoted by many policy documents. Enterprise programmes must incorporate digital technologies as they apply to the context of the start-up or established enterprise and the application can be best understood by leaners though incorporating practice based assessment and practical entrepreneurial related projects with a digital focus and theme.
In considering these issues decisions need to be made on how best to incorporate non-digital delivery methods to complement and support digital technologies for the topics of personal

communication, decision making and the skills pertinent and necessary for the entrepreneur to possess.

This finding suggests that educators are not fully capitalising on the functionalities or the potential of digital in learning and delivery and it is important that technology per se on its own is not the sole or primary driver of the delivery mechanism nor should the emphasis on technology drive or be the main determinant of content, assessment or personal skills development. As is the case in the literature, technology is the tool, or digital technologies provide the conduit or platforms on which to develop a more digital savvy enterprise learner and be in a position to more relevantly transfer this learning into starting and developing a new business.

Good practice Digital Technology adopted in entrepreneurial learning: The examples provided demonstrate the range of possible good practices which can be further researched as a means of identifying topics inclusion in a digital competency training programme and more so issues in relation to delivery and pedagogy and ideas on how digital can be incorporated to enhance the appropriate digital skills competencies and practice for entrepreneurial learners. Key themes in these good practices emphasis interactive and practice based learning for a range of digital tools.

So taking into consideration infrastructural and hardware issues efforts must be made to ensure educators become more confident and comfortable in the use of digital technology beyond the dissemination of notes. The barriers to learning about and engaging in the adoption of enterprise relevant digital technology must be clearly communicated so that educators comprehend that despite time being a barrier, that engaging in digital as part of enterprise learning is ultimately necessary and it will also generate long term professional and pedagogical benefits. Moreover, as educators will in the future be engaged with a younger age cohort of entrepreneurial learner or one who is more digitally equipped and competent then the educator must be capable and confident in meeting their needs.

4.4 Skills, Competencies and Training in Digital Technology

Participation in Digital Training and topics of interest for training: The majority, 71% of respondents had not participated in digital training. As with the responses from the entrepreneurs survey a broad range of topics emerge which are related to the popular and commonly used digital media tools. As with the entrepreneur's results, suggestions were given on a single topic or digital subject basis and less attention to training needs on a more holistic perspective of digital marketing as it applies across business activities.

The following table presents a summary of the common topics where training was required.

Table 9.0 Digital Topics suggested for Training

UNITED KINGDOM	IRELAND	SLOVENIA
- I would like to improve my knowledge and skills in using prezzi and survey / polling programmes. Also to learn about new simulation games etc. - Numerous - as technology keeps moving forward while I struggle to keep up - film making - Website Development and Search Engine Optimisation - I need time to explore appropriate tools and funding to pay for platforms and tools that are useful. I need a leaner procurement process	- ecommerce, selling online - emarketing, mobile technology, - Yes - how to interlink different digital sources into one platform; how to create engaging content that offers choices to students in how they learn; - new tools to enhance the learner experience - specific examples of how others have integrated technology successfully in their modules - Interest in knowing more about how to develop content; SEO; Analytics; measuring social media activity - Designing social media plans for small firms, website development; online selling and email marketing - Twitter for business; ecommerce trends measuring social media impact - Online selling, producing effective blogs, video marketing and online CRM - How to track and measure social media activity and relate to costs of doing it; CRM via online methods; online networking - Ecommerce; developing aps; effective content design - Webinar development; SEO; Analytics; digital customer service - Ecommerce and mobile marketing strategies - Turn tin and Policies and procedures for assessing using digital tools. - Training for online assessment and eLearning material design - ecommerce and ebusiness; cloud computing	- Learning of new approaches - Social media - New technologies - New technologies, world trends - Types of technology and its practical use - Video - Detailed presentation of (dis)advantages of all options which the e-environment provides - Combination of different technologies, data protection in internet, advanced Excel - Usage of video content, preparation of video materials for learning - Combination of e-learning with learning in classroom - Social media - Innovation in technology - Usage of different types of technologies - Combining technologies - Data protection on world wide web - Microsoft Excel advanced level - The use of video content and preparation of these for learning - Interactive materials - Webinar - Mailchimp

Digital technologies which will impact on role of entrepreneurial educator over the next five years: Whilst some differences existed by partner institutions a number of common areas of technology emerged such as website, mobile technologies, online platforms, apps; google platforms.
A number of comments such as 'don't know'; 'too many' and 'unsure' comments were obtained, which highlights an important issue to address as if educators are not aware of the emerging digital technologies for entrepreneurs then the digital needs of the entrepreneur will not be addressed in a sufficient manner. This finding, when taken into consideration with the results emerging from the entrepreneurs brings to the fore the digital divide between 'theory and practice' which our research shows may be founded in the lack of skills and competencies or insufficient knowledge of digital as it applies to the entrepreneurial context of the educator. So irrespective of the digital needs articulated by the entrepreneurs in their survey, if the entrepreneurial educator does not possess the relevant knowledge and skills then the digital competency gap of the entrepreneur will not be bridged.

The results of the entrepreneur/trainer educator survey raises debate if and how the current level and adoption of digital in enterprise education prepares enterprise learners to adapt, take on new roles and develop new opportunities in an increasingly digitalised marketplace? Moreover, these findings raise questions as the enterprise educator/trainer adopts a narrow and topic driven understanding of digital technology, then, is this what is influencing current digital training on offer to entrepreneurs? If so, then the provision of digital technology programmes is driven by the educator skills as opposed to the needs and requirements of the entrepreneur at the various stages of enterprise start up and growth. This empirical study addresses that issue and the provision of the multi stakeholder viewpoints ensures that the ultimate client needs (the entrepreneur) are known and met through the provision of a relevant digital training programme – a bottom up or needs analysis driven approach to digital programme design and delivery. This bottom up approach is further informed by the inclusion of the results of the survey of entrepreneurial learners on their digital practices and skills needs. These results are presented in the next section.

5.0 Entrepreneurial Learners Use of Digital Technologies – Key Research Findings

5.1 Entrepreneurial Learner Profile

The sample consisted of 102 entrepreneurial learners and the country breakdown is presented the Table 10.0 below.

Table 10.0 Respondent Profile by Country of Origin

Country	Number of respondents (N=102)	Response percentage
Ireland	35	34.3
UK	13	12.7
Spain	7	6.9
Lithuania	17	16.7
Bulgaria	14	13.7
Slovenia	16	15.7

The majority of respondents were female (64%) and the sample of respondents spanned different age cohorts, employment categories and were in both full and part time education. Just over 15% of the respondents were less than 21 years and 32% of respondents were aged between 22 and 25 years with the remaining 53% over 26 years. This age spectrum reflects individuals across the digital native classification, with the digital native used to describe people born after 1980 (Prensky 2001), from the Net-Generation (Jones and Shao, 2011; Bennett, Maton and Kervin, 2008) or also known as

the new millennium learners (OECD 2008). These learners are able to intuitively use a variety of digital devices and navigate the internet as it's been a natural part of their growing up and thus expectations and perceptions of the role and value of digital technologies is viewed as part of their identity (Jones and Shao 2011; Bennett, et al. 2008). The breakdown by age is presented in Table 11.0.

Table 11.0 Age profile of Respondents

Age Profile	Ireland	UK	Spain	Lithuania	Bulgaria	Slovenia	Number responded	Response %
15–18 years	2	0	1	0	0	0	3	2.9
19-21 years	9	1	1	0	0	1	12	11.8
22-25 years	16	1	3	2	2	8	32	31.4
26 years plus	8	11	2	15	12	7	55	53.9
Total	35	13	7	17	14	16	102	100.0

The analysis shows slight variation in age groups by country with the majority of younger learners falling into the Irish sample of respondents. The mixed learner age profile demonstrates the broad nature and diversity of age groups who are participating in enterprise training and education and thus represent the needs of a target market for digital competency training programmes.

Respondents possessed a wide variety of educational achievements across disciplines beyond business and management. In reviewing the level of the awards held by respondent's cognisance must be taken of the country specific nature of the awards and note that each country has its own accreditation and awarding bodies and thus the level or how the awards are described will vary. The majority of respondents had completed second level education and participated in on-going training or further education programmes.

In addition to the more formal educational qualifications the respondents had and were engaged in developing their entrepreneurial mind-set and understanding by completing a range of enterprise related training or educational modules. The modules included entrepreneurship as a focus and those where entrepreneurship was linked in with functional specialist topics. The variety of modules completed, when examined in relation to both the variation and heterogeneity of learner profiles and the type and mix of educational providers heightens the increasing popularity and interest in entrepreneurship learning and the need to increase access and availability to a multi participant sector and beyond the traditional educational institution. Increasing access and the ability to customise entrepreneurial learning to the diverse range of learners can be facilitated by the use of digital technology. These findings are in line with those of the Modernisation of Higher Education Report (2014) which highlighted that the landscape of learning has changed dramatically with increasing opportunities for open and distance learning as technological capacities have evolved creating the potential to reach more and newer target groups of learners in a more flexible manner.

5.2 Entrepreneurial Learner Familiarity and use of Digital Tools and sites

Access to digital Technologies: As expected the vast majority of learners had ready and constant availability to multiple technologies including laptops, tablets, MP3 players allowing greater flexibility and access by learners to information and consequently to training. These results support the notion put forward in the digital technology user literature and policy that the 'net generation' of learner is tightly linked with technology where it is a natural and expected part of their daily lives and thus will naturally be used in their work life in the same manner (digital consumers think of

digital technology as something akin to 'oxygen; they expect it, it's what they breathe and it's how they live' (Brown, 2011).

Membership of a Social networking site: Over 95% of respondents were members of a social networking site where 72% of those were members of a site for more than 3 years and 22% members for between 1 and 3 years, demonstrating that learners commence membership of sites at younger ages. Additionally, respondents were members more than one social network site where results showed an equal distribution between membership of 1 -3 sites (48%) and equally 48% were members of between 4-10 sites with the majority (52%) mentioning that they had between 1 and 250 members and 23% suggesting that they had between 251 and 500 members on those sites.

Sites Used for Social and Study purposes: The most commonly cited networking site for social purposes and lifestyle was Facebook; followed in order of popularity by Twitter, Google Plus; Instagram, Pinterest and Snapchat. In comparison the sites used in a learning and study context reinforce the popularity of Google Plus followed by Facebook; Pinterest and equally by Twitter and YouTube. Taken together the results show the consistent high use of Facebook as a social and a study tool and also brings to the fore the range of digital tools entrepreneurial learners have both exposure to and familiarity with. With these patterns of usage in mind the expectations of this profile of learner will be increasingly focussed on digital as part of their daily routine with less separation of its use for personal and professional or study roles.

Motivation and reason for joining sites: When reviewed, the reasons motivating the respondents choice to become a member of a particular site was dominated for the purpose 'of communicating with and having access to family and friends' and secondly as a result of 'peer pressure where their friends are on a social site'. Indeed these two motivating reasons may be interlinked as peer pressure tends to dominate across the family as well as the non-family social spectrum underpinned by the need to 'belong and be part of' a group which is enabled by social platforms such as Facebook and Twitter. This reinforces the findings in studies which portray digital natives as having access to networked digital technologies and the related skills to use those technologies as part of their lives and daily activities mediating social interaction, friendships, civic activities, and hobbies and social networking platforms enable sharing, promoting and discussion about products and services on social channels to a wide community in real time (Spear 2007; White and Le Cornu 2011; Ramanau, Cross, and Healing 2010).

In comparison of the 4% who were not members of a social networking site the reasons cited were *'lack of knowledge of what they entailed'* and a *'lack of interest in social sites',* with and a number of respondents indicating that prior negative experiences on a social site resulted in them leaving the site and are not interested in re-joining social site. The following is a sample of the comments received by those not possessing membership of social networking site; *'I don't know what a social network is'; 'I am not interested in joining social networking'; 'I joined once, but I didn't enjoy it' ; 'It's against my culture/beliefs'.*

Information provided on social sites: The respondents indicated that they provided their real name (84%); equal amount of responses were received for sharing pictures as was the case for email address (60%); very similar percentages were rated for sharing hobbies (44%) and interests (47%). The uploading of student status was shared by 52% of respondents. The least shared topics were mobile phone numbers and religion. The detail is standard information and related to the person and is liked with the motivation to join a site –to keep in touch and contact with family and friends and sharing information and stories. The time spent on using digital media varied and 50% spent an equal amount of time on digital for study and personal life, with 28% stating that they spend more

time on digital for personal uses as opposed to study. These collective results strongly indicate the increasing prevalence of digital as a normal part of the everyday life of the entrepreneurial learner.

Use of digital tools in learning: As was the case with the results of the educator survey, and indeed perhaps as a consequence of, the use of digital tools for learning was traditional and narrow in focus and centred on accessing notes and learning material (89%), and secondly as a means of communicating with team members (79%) and using tools such as PowerPoint for presentation purposes (74%). These trends were consistent across the findings in the partner countries and the use of technology for communication with team members was very strong. In addition technology as a learning aid or as a means of supplementing learning by using tools such as YouTube and videos were more commonly used in Lithuania, Bulgaria and Slovenia. The emphasis or high rate of usage of digital as a means of communicating with peers is consistent with the motivation for joining social sites and concurs with the characteristics of the increasingly digitalised native learner and thus is important to consider these characteristics when framing curriculum content. There is a need to identify suitable digital means for communication with learners through the creation of a digital infrastructure for focussed peer and team learning via digital. Interestingly the educator feedback highlighted that decision making and communication skills were more problematic to develop via digital technology. These opposing positions are important as attention must be afforded to how to balance the use of digital technology to in some way leverage it to facilitate, enhance and test communication and team working skills relevant to an entrepreneurial context.

5.3 Barriers and Benefits of adopting digital technology in learning

Barriers to the use of digital technologies: Coincidently, the barriers to the use of digital technologies predominately resonate on the lack of relevant skills and knowledge of digital in an entrepreneurial role. Over 32% of respondents indicated that their lack of skills in the use of the technology was a barrier, followed closely by 26% who reported that they were not sure of the possibilities or what it allows in a learning environment. Similar results emerged from the entrepreneur and educator surveys and thus have implications in terms of the design and supply of digital technology programmes. For instance, the supply side or educators suggest that they have insufficient skills in digital to deliver to a target audience who equally feel they do not have the requisite digital skills or competences for starting or growing a new business – clearly resulting in a gap and lost opportunity in addressing entrepreneurial digital skills and competency needs.
These findings serve to heighten the commonalities of the digital needs of the entrepreneurial population and equally draw attention to the lack of skilled and competent educators who understand the digital knowledge and skills requirements of the entrepreneur – any suggested entrepreneurial digital curriculum must address the digital knowledge and skills gap whilst addressing the needs of the entrepreneur.

Benefits of Using Digital Technology: The primary benefits perceived with the use of digital technology in programme delivery were centred on creating speedier and greater access for the learner (91%) and another 90% suggesting that incorporating digital into learning created awareness of the broader use of technology beyond personal use and 91% indicated that it prepared learners for the real world of work where technology is in use. The results again were common across partner countries and overall the responses showed that technology was very beneficial or beneficial part of their entrepreneurial learning experience.

5.4 Digital Training Need and Preference for Digital Programme delivery

Digital topics of interest for training: The broad and diverse range of topics cited indicates the somewhat fragmented perceived needs of the entrepreneurial learners as was the case with the entrepreneur stakeholder findings and indeed as was the case with educators. Common across the three cohorts of respondents, educators, entrepreneurs and entrepreneurial learners was the

presentation of a range of topics and individual digital tools as opposed to a strategic perspective of the use of digital technology. Further in reviewing the results it is important to note that a number of respondents were unsure about what digital training they required ' *not sure' 'don't know' or wanted training on 'all of it*' which is a reflection on their lack of understanding of the extremely and ever increasing array of digital technologies emerging.

The level of unsure responses, whilst small, brings a more practical insight into the reality that not all 'younger' learners are as digitalised as might be assumed and this needs attention in digital curriculum development. Additionally, while digitally competent in a personal context their ability to apply or in the first instance understand digital application (what digital to use; why and how to use it) in an entrepreneurial context is lacking and compounding the problem and digital skills gap.

6.0 Synthesis and Concluding Comments – Entrepreneurs, Enterprise Educators and Entrepreneurial Learners

Overall, some interesting perspectives from the learner survey emerge which confirm the increasing use of digital technologies by younger age cohorts of entrepreneurial learners for personal and study situations. The use of digital technologies in learning is still quite mainstream and traditional and perhaps this is due to the educator influence and driven by their level of knowledge and skills in this area. The results of the learner survey, when linked with the entrepreneur survey present common findings in terms of the level of knowledge of digital specific to an entrepreneurial context. The results of the educator survey suggest that educators have a more general understanding of digital as it applies to the dissemination of material and as a mechanism for the delivery and collection of learning material as opposed to having digital as content which includes '*learning about; for and with digital*' for application in an entrepreneurial context.

Building on the previous point, educators must ensure that digital learning should not be about technology per se or the array of digital tools but demonstrate what they are used *for (purpose) and how they are used (process and strategy)* to effectively achieve that purpose in an entrepreneurial business environment. The purposes relate to how digital can be applied within and across the functional disciplines of the enterprise, most notably marketing and sales, market expansion, branding etc.

The findings of the tripod of stakeholders, entrepreneurs, educators and entrepreneurial learners more holistically identify the critical role of the educator and trainer who can be a primary conduit, enabler and or barrier to digital skills and competencies development in the entrepreneurial learner. If the educator or trainer is not equipped in the knowledge of the '*what'* or *'how'* of digital technologies and their functionalities then the learner needs will be not sufficiently addressed. Critically, the educator needs to be competent in identifying and applying in a practical manner what digital tools are most relevant for the entrepreneur at the various stages of start-up and growth of the enterprise and the necessity for an integrated digital strategy as opposed to understanding what digital tools exist independently. This necessitates that the educator and trainer knowledge is developed on two fronts, firstly in terms of digital technology as a strategy and set of interdependent components and secondly, made familiar with the entrepreneurial mind-set and the digital requirements of the business from inception to growth and expansion.

Educators need to embrace the use of technology and how it influences programme content, design, delivery and assessment and engage digitally with the net generation learner. Aligned with this digital knowledge educators must become comfortable and the use of digital should be about reducing fear, building confidence, practice, use, trial and error, to ensure this confidence is

infectious and passes on from the educator/trainer to the entrepreneurs when they are delivering the digital training.
At the educational level resources must be afforded to making the necessary technological applications and platforms available to educators and learners which in concurrence with the literature and emerging from this study indicate the need to consider the following characteristics of the learner to inform curriculum architecture and ethos and subsequent content and pedagogy of a digital competency programme:

- **Social based learning** - Learners want to leverage emerging communications and collaboration tools to create and personalize networks of experts to inform their education process.
- **Un-tethered learning** - Learners envision technology enabled learning experiences that transcend the classroom walls and are not limited by resource constraints, traditional funding streams, geography, community assets or even educators knowledge or skills.
- **Digitally rich learning** - Learners see the relevance of digital tools, content and resources as a key to driving learning productivity, not just about engaging learners in learning.

Educators must therefore examine how they can best leverage technology to facilitate digitally rich learning environments where learners have opportunities to learn collaboratively, with peers and or educators, anytime or anywhere. The following section will present suggestions on programme content and pedagogy to address the collective needs of the entrepreneurs, entrepreneurial learners and the needs of the educators who will be charged with delivery of such a programme.

7.0 Bridging the Digital Competency Divide - Developing eLeadership Skills for Entrepreneurs and Owner- Managers

Entrepreneurs that do not embrace the digital technological revolution are unlikely to maintain their competitive edge and may struggle to survive. This may impact some industries more than others, but it is unlikely that any business will be able to ignore digital technologies over the long term. The ever changing digital marketplace and more digitalised consumer places pressure on entrepreneurs to scale up on their digital skills in order to compete in an increasingly highly digitalised consumer marketplace. There are many low cost digital and social media tools available to entrepreneurs which if used in an integrated manner provide beneficial customer relationship management (e-CRM) systems that can secure a competitive advantage and enable positive customer advocacy and customer responsiveness strategies.

However, such tools must be managed and supported with a well-considered integrated digital marketing strategy that is part of and is supported by the broader business plan or strategic plan. That said with the benefits come challenges and fears which are embodied predominately in a lack of knowledge and understanding of the array of digital technologies available, their functionalities and applications and the benefits accruing from them or the return on their investment. In addition to the lack of knowledge and perhaps as a result of is the accompanying scarcity of digital savvy skills and competencies on how to apply, implement, manage, monitor and measure the results and benefits of digital technologies.
Therefore capability and competency development are fundamental resources to enable and embed a digital mind set and sustainable behaviour which equals the ever changing digital consumer and buyer.

7.1 A Roadmap for Successful Digital Competency Development- - Developing eLeadership Skills for Entrepreneurs and Owner- Managers – Key criteria/ building blocks for digital skills enhancement

The design of a digital competency programme must incorporate a digital learning pedagogy, which contains views on the '**what' and the 'how'** of digital as it applies to an entrepreneurial context, and which provides opportunities for the learner to experience and learn '***with' and 'from'*** the entrepreneurial application of digital, thus instilling real world and relevant digital '***know how***'.

The following are some points to consider in the design of a proposed digital competency programme based on the issues emerging in the literature review and expanded upon by the results of the empirical research from the entrepreneurs, entrepreneurial educators and entrepreneurial learners. Prior to deciding on content some fundamental tasks require consideration as follows;

- **Establish the Context - internal context of the firm:** Review the personal and business perspectives and define an overall strategic vision for the enterprise. This involves identifying the stage of development of the enterprise. In conjunction with the aforementioned questions it is important to ascertain the digital skills vision for the enterprise. This analysis should be driven by the ethos of the entrepreneur, where they want the business to go and within what time frame. This detail focusses the mind and intentions of the entrepreneur and forces them to take a longer term integrated perspective of where their business is going and what is required to take it to that next level.
- **Establish the context - The external context:** The development of a digital competency framework must apply a broader external and internal stakeholder viewpoints to ensure what is delivered is relevant not only to the entrepreneur but takes cognisance of the emerging trends in digital media and technology which will impact on business and consumers in the next few years. This will involve addressing the digital knowledge gap by providing an appreciation of the digital landscape and array of digital tools and techniques relevant and appropriate for the evolving stage of the enterprise. This comprehension must include an explanation of the language, terminology and acronyms adopted when discussing digital. It is important that language does not cause a barrier or is viewed as a deterrent or results in a lack of understanding of digital as it applies to the small firm context.
- **Complete a digital knowledge, language, skills and practices needs analysis:** At entrepreneur level and business levels. Once a vision has been established and future skills requirements defined, the enterprise needs to conduct a self-assessment of their existing skills. The aim is to compare existing skills levels to desired levels of proficiency and determine the skills gaps - entrepreneur and enterprise level.
- **It's not just about tools and technology but tactics and strategy:** Adopt an integrated perspective as to where digital technology as a process of interlinked and integrated activities align and support the achievement of overall business objectives and strategies. This involves generating objectives and goals, time frame and timelines for their digital strategy.
- **Content and topics - Digital 'A La a Carte Menu' – chose the best option:** The aim of this programme is to develop competency in digital technology for application in an entrepreneurial business context to enable effective entrepreneurial digital learning and responding to the identified needs of entrepreneurs, learners and their educators. Thus a Digital a La Carte menu of digital related topics can be chosen accordingly. A developed programme content could include a comprehensive range of modules and provide a roadmap to guide the enterprise trainer and educator to choose the best option for the entrepreneur and the business needs. These dual needs will be identified from the digital skills analysis undertaken and as described in previous point.

- **Manage Monitor and Measure:** For many owner-mangers the value of adopting e-business strategies is contingent on their being able to see direct benefits from any investment in such technologies. This is particularly the case for very small firms where the expectation is in immediate increases in sales or reductions in costs. Therefore key factors to incorporate into skills development are manage, monitor and measure
- **Delivering Digital:** Given the feedback from respondents it is proposed that the delivery of the programme be offered via a blended learning format which combines lectures and face to face briefing sessions with a focus on action and experiential learning including interactive presentations, industry specific case studies, individual assignments and business-related projects. The programme places emphasis on 'challenge-based' action learning.

7.2 Concluding Comments

Ultimately, and in agreement with (Stephenson, 2006, Nawaz and Kundi, 2010a, Zubair et al.2013) the empirical evidence suggests there is no one 'fits all' eLearning training intervention or programme and that the success of any digital initiative is anchored on the interest of the users and support of the total work environment. Both internal and external contextual factors play their role in setting a scene for the useful applications of information and communication technologies in the learning environment. Therefore, entrepreneurial learning digital interventions should be developed to reflect entrepreneurial educator and trainer and practitioner accounts, with the entrepreneurial learner as co-learners, co-planners, co-produces, and co- evaluators as they design, implement, and continually refine their work in progress to meet industry needs in a professional manner.

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