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DBS BUSINESS REVIEW

DBS Business Review

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Book Reviews

Editorial

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DBS Business Review has emerged from recent developments in peer reviewed academic journal publishing at Dublin Business School (DBS). DBS Library and the SAH Kartel (comprising DBS faculty and faculty from across the higher education sector) have already published a successful peer reviewed, open access academic journal, Studies in Arts and Humanities (sahjournal.com), which is indexed on the Directory of Open Access Journals and on an international EBSCO research database. A key aspect of this publishing endeavour has been the library-academic partnership. Buoyed by this success, DBS Library staff, along with Alan Morgan, Course Director - Marketing, at Dublin Business School and a cohort of lecturers in the business school, identified an opportunity to replicate this model in the discipline of business.

Scholarly Publishing and Academic Resources Coalition (SPARC) defines open access as the 'free, immediate, online availability of research articles, coupled with the rights to use these articles fully in the digital environment.' The open access journal publishing sphere is heavily dominated by the arts and sciences. The publication of an open access journal in the discipline of business might appear contradictory in a field dominated by the practice and semantics of marketing and sales, but in the discipline of business it is no less critical to have a range of scholarly communication channels which also encompass the free and open dissemination of high quality business research. The need for freely available peer reviewed business research is equally important for the public, the business community, start-ups, academic institutions and established brands.

An appetite for open access publishing in the business sphere in the Irish higher academic landscape and beyond was immediately apparent as academics, senior academic managers, practitioners and librarians from across the sector from a variety of university, institute of technology and private higher education institutions joined the Editorial and Advisory Boards of the journal. Editorial Board and Advisory Board members are drawn from Dublin Business School, Alliance Manchester

Business School - University of Manchester, Cork Institute of Technology, Waterford Institute of Technology, Institute of Technology Tallaght, Dublin Institute of Technology, London Metropolitan University, Dun Laoghaire Institute of Art, Design and Technology, Dublin City University, Griffith College Dublin, Ulster University, the Bar Council of Ireland, IReL, ALBA Graduate Business School, Greece and University College Dublin.

Many of the scholars who have joined DBS Business Review have traditionally published in proprietary journals but have been eager to embrace the open access publishing model for a variety of reasons. The Irish Government has published its [National Principles for Open Access Policy Statement](#) which states that:

> "Open Access adds value to research, to the economy and to society. The outputs from publicly-funded research should be publicly available to researchers, but also to potential users in education, business, charitable and public sectors, and to the general public."

One of the statement's three key principles also illustrates the impact that open access publishing can have on the dissemination of research output internationally, on research informed teaching and innovation.

> "This policy is designed to support the free flow of information across national and international research communities; to support the principle of research-enabled teaching and learning and the generation of Open Educational Resources (OER); to contribute to Open Innovation through richer and more effective knowledge transfer and diffusion"

As far back as 2001, the beneficial impact of open access publishing on citation impact was being reported in the academic literature. Lawrence's 2001 study in Nature, reviewed 119,924 computer science articles, reporting a 157% increase (2.5 times more likely) in the mean number of citations of open access articles over non-open access articles. Hajjen, Harnad and Gingras (2005) executed a ten-year cross-disciplinary comparison of the growth of open access and its impact on research citation impact. The study researched 1.3 million articles across 12 years in 10 disciplines. Findings indicated that open access articles received 25%-250% more citations that non-open access articles.

McCabe and Snyder (2013) caution against the crude methodologies of early studies which do not account for article quality or journal ranking. Methodologically refined studies continue to emerge, however, that still reinforce a powerful correlation between open access publishing and enhanced citation impact. Donovan, Watson and Osborne (2014) found that open access law articles enjoy a 53% higher citation rate. The benefit was lower (11.4%) for top tiered ranking journals due to the attention such prestigious works routinely receive regardless of the format, but for new scholarship the aggregated advantage rose to 60.2%.

A key goal of DBS Business Review is to facilitate a robust and dynamic scholarly communication across business schools in Ireland and beyond, including non-cognate disciplines. The journal also aims to infuse these conversations with ideas and submissions from professionals, practitioners and industry experts. It is intended that the cross-fertilisation of this broader conversation will spark new insights and innovations as well as foster enthusiasm, humanity and creativity within the business

community. DBS Business Review also seeks to dismantle some of the boundaries that exist between disciplines such as business and arts. The journal welcomes submissions with an interdisciplinary focus.

The inaugural issue of DBS Business Review has achieved this goal. In keeping with the journal's aim of incorporating high quality student research, the inaugural issue contains cutting edge articles on entrepreneurialism in the public sector and production planning and lean management which have been co-authored by senior academic faculty and postgraduate students and graduates from Waterford Institute of Technology. An article co-authored by researchers at Dublin Business School and Ulster University on consumer behaviour and online auctions, as well as an article on visual literacy training in the business curriculum at Dublin Business School co-authored by a member of the DBS Library team and a member of DBS faculty, are interdisciplinary in focus, spanning the disciplines of psychology, business, IT and media. A submission from a post-doctoral researcher at University College Dublin on the commodification of health care was particularly welcome in light of the journal's goal to foster 'enthusiasm, humanity and creativity in the business community'.

The inaugural issue also contains an insightful and dynamic interview with brewing company, The Wicklow Wolf, capturing real world business practice on the ground in relation to corporate strategy, marketing and other key business practices. Content also includes book reviews, an opinion piece, a conference report and an industry update from an Emeritus Professor, the proprietor of a private higher education institution, a librarian and lecturers spanning diverse topics such as General Data Protection Regulation (GDPR), the Cassells Report, Dublin Tech Summit, emotional intelligence and Gross Domestic Product.

Submissions to the journal have emanated from Dublin Business School, University College Dublin, and Institute of Technology Tallaght, Trinity College Dublin, College of Computing Technology, Ulster University and more. Peer reviewers have been sourced from Trinity College Dublin, Dublin Institute of Technology, the University of Limerick and others. The publication of DBS Business Review has been a powerfully collaborative endeavour.

DBS has a rapidly expanding research culture with faculty at various stages of their research journey. Some faculty members are seasoned researchers publishing independently and with the university sector in highly ranked journals. Some of these researchers have submitted to the inaugural issue of this journal. With the publication of DBS Business Review, DBS evolves its own research journey further - engaging students, librarians, practitioners and research stalwarts from across the sector. The publication of DBS Business Review demonstrates that the private higher education sector can be a key stimulator as well as contributor to the research output of the higher education sector in Ireland and beyond in new and exciting ways.

SPARC (2016) states that:

> "Over the past decade, Open Access has become central to advancing the interests of researchers, scholars, students, businesses, and the public — as well as librarians. Increasingly, institutions that support research - from public and private research funders to higher education institutions".

DBS Business Review provides a new open access publishing platform within disciplines of business and law for the diverse range of research-active agents across the sector: students, faculty, librarians, academic management and practitioners.

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Consumer to Consumer (C2C) Online Auction Transaction Intentions: an Application of the Theory of Planned Behaviour

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Abstract

There has been a dramatic growth of individuals using online auctions especially within Consumer-to-Consumer (C2C) e-commerce coupled with increasing academic attention to behaviour in the online environments. Literature has identified the influence of attitudes, perceptions, trust and security on individual's online auction transaction intentions and behaviours. The aim of this study, therefore, was to predict and understand individuals online auction transaction intentions and behaviours through the application of the Theory of Planned Behaviour (TPB). Three hundred and seventy-two respondents completed the survey within two geographical regions. Findings reported that attitudes, self-efficacy and trust significantly influenced intentions; while intentions and self-efficacy significantly influenced online auction behaviours. Interestingly, social pressures, perceived control and security failed to have any influence. Overall, the study provided greater insight into which salient drivers influence transaction behaviours and intentions.

Summary statement of contributions

The discovery of attitudes, personal abilities, trust and intentions as influential factors within the current research further highlights the need for online auction site marketing messages that emphasise aspects, like convenience and ease of use, while enhancing consumer confidence in the service provider. The attitude and satisfaction related variables identified in the current research are invaluable in terms of attracting new online auction site consumers, and retaining the existing consumer base.

Introduction

The overall aim of this study is to examine the antecedents of online auction purchasing and selling transactions through an application of the Theory of Planned Behaviour model (TPB: Ajzen, 1991) with the addition of both trust (Delafrooz, Paim and Khatibi, 2011) and security (Abbass and Ibrahim, 2011) factors. The medium of e-commerce is becoming more important with the numbers of online buyers and sellers increasing over the past number of years (Rauniar *et al.*, 2009; Xu, Lin and Shao, 2010; Leonard, 2012). Furthermore, the success of customer-to-customer (C2C) transactions has grown over the past number of years and particularly in the area of online auctions (Chu and Liao, 2007). Online auctions such as eBay account for millions of transactions each day (Roggio, 2012; Armitstead, 2013; Music Trades Corporation, 2016). With high volumes of online auction transactions the issue, therefore, is not of how successful online auctions are, but rather to understand the salient influences that drive consumers to buy and sell in these marketplaces.

Conceptual model development

Consumers behave in different ways and are influenced by various stimuli which in turn influence their purchasing motivations, intentions and behaviours (Davidson, 2011); and understanding the role that these play is important for firms (Jack and Powers, 2013). The consumer behaviour process consists of several interlinked stages where consumers undertake a number of activities in relation to a purchase, such as information gathering and evaluation of purchase options and overall purchase (Engel, Kollatt and Blackwell, 1993; Gabbott and Hogg, 1998; Davidson, 2011). Numerous conceptual models have been developed to better understand this consumer behaviour process. Ajzen (2015) identifies both the Multi-Attribute Decision-Making (MADM) and the Subjective Expected Utility (SEU) approaches that have been applied to understand the decision-making of consumers. Within these approaches the consumer rates competing brands by their attributes, and inferences are made then about their choices. However, these approaches do not consider the role of social influences that can inform consumer's choices; for example, brand attributes presented may not be realistic or relevant to consumer choice due to various social influences (Ajzen, 2015). These models are more applicable to understanding choices around products or brands available online rather than consumer motivations, intentions and purchasing.

There is one theoretical model which measures not only consumers' purchasing behaviours but also their intentions and motivations: this model is the TPB (Ajzen, 1991, 2002, 2011). Applying a theoretical framework model such as Ajzen's (1991) TPB would provide an integrated understanding of consumer's decisions and purchasing within an online auction. The TPB posits that consumer behaviours and decisions are influenced by motivations such as attitudes towards the behaviour, subjective-norm (SN) and perceived behaviour control (PBC: Ajzen, 1991, 2011). Within the theory, consumer behaviour can be influenced by the level of readiness, intention the individual holds in carrying out the behaviour, and the level of perceived behavioural control over carrying out the behaviour. Predicting purchasing intentions can be dependent on the strength of the consumer's attitudes, possible social pressures as measured through SN, and their PBC. Each of these motivational factors, and their role within the model, are addressed in the following sections.

Motivations to use online auctions
The increasing popularity of online auction marketplaces is due to several motivating factors that positively influence consumer attitudes, beliefs and experiences. Studies have identified key factors that influence attitudes towards online auctions; for instance, convenience (Burke, 1998; Li, Chung and Fiore 2017) and ease to locate products (Weinberg and Davis, 2005). Evidence suggests that those who believe online auctions are a more convenient way to shop, as they can easily find what they want to purchase or bid on, were likely to use the service more. In addition, consumers emphasise the importance of having a good experience while bidding during an auction (Saputra, Warokka and Naruephai, 2012). Thus, online auctions provide consumers with a convenient, easy and enjoyable way to purchase online. However further emphasis should be placed on the attitude-intention relationship (Ajzen, 2015; Schlaegel, 2015) and how attitudes influence transaction intentions (Schlaegel, 2015). Therefore, the current study tests the following hypothesis:

H1   Favourable attitudes will positively influence intentions to use online auctions

Previous literature has highlighted the importance of social motivations for online customers (Hou and Elliott, 2016; Li, Chung and Fiore, 2017): online consumers' enjoyment of their shopping experience due to their social interactions with other shoppers, family and friends (Hou and Elliott, 2016). So, the online purchasing process is not an isolating experience for many but rather one with much interpersonal communication, which in turn influences the consumer's perception of the website (Li, Chung and Fiore, 2017). Considering the present research, the role of social influences is viewed as a motivational factor to engage (Ajzen, 1991); social influences are measured by SN. According to Ajzen (1991), SN is the amount of influence the individual feels either to engage or not with the intended behaviour; thus, positive social influences would be more associated with increased likelihood to engage with online purchasing (Parsons, 2002; Rohm and Swaminathan, 2004). Recently, Lim *et al.* (2016) and Hasbullah *et al.* (2016) report that SN had a significant role in predicting online purchasing intentions. In both instances, consumers who had taken on the favourable views of others were more likely to purchase compared to those who did not. However, not all research is consistent

with this; others have reported that the role of SN does not account for any influence on online auction purchase intentions (Huang *et al.*, 2011). Thus, with such inconsistencies within the literature the current study explores the possible role of SN in predicting online auction intentions. Therefore, the current study tests the following hypothesis:

H2   Favourable SN views will positively influence intentions to use online auctions

Evidence reports that PBC has an important role in predicting consumers' intended use of online auctions (Bosnjak, Obermeier and Tuten, 2006; Huang *et al.*, 2011), suggesting that those consumers receiving more encouragement have greater intentions to use online auction sites. Though PBC influences behaviour as well as intentions, not all research has shown this to be consistent (Bosnjak, Obermeier and Tuten, 2006). Bosnjak, Obermeier and Tuten (2006) report that PBC influences consumer intentions but not the number of bids they placed online; suggesting a further investigation of the PBC-behaviour relationship. Interestingly, Chen *et al.*, (2007) when suggesting future research in relation to online auctions, stated that consumer's capabilities and self-efficacy should be taken into consideration. Similarly, Ajzen (1991) suggests that PBC can comprise of two distinct dimensions. Evidence suggests that internal (self-efficacy) and external (perceived) control may be related but not necessarily synonymous constructs (Terry and O'Leary, 1995; Conner and Armitage, 1998), but rather distinct (Lunardo, 2011). Self-efficacy focuses on individual internal abilities that may influence decisions to carry out the behaviour while perceived control takes into account the number of perceived barriers to overcome to carry out the behaviour (Terry and O'Leary, 1995; Armitage and Conner, 1999; Lunardo, 2011). Rather than just use both these terms interchangeably, it's important to provide clarification on the role of self-efficacy and perceived control in predicting consumer intentions and usage of online auctions. Based on this, four hypotheses are formulated*:*

H3   Increased levels of self-efficacy will positively influence intentions to use online auctions

H4   Increased levels of self-efficacy will positively influence frequency of online auction transactions

H5   Increased levels of perceived control will positively influence intentions to use online auctions

H6   Increased levels of perceived control will positively influence frequency of online auction transactions

Not only is it important to understand the role of control factors in predicting online auction use intentions and behaviours, but there is also a need to further understand user intentions to purchase (Abbass and Ibrahim, 2011). Not all previous research explores the link between intentions to use online and actual usage; some have only examined the antecedents of intentions (Huang *et al.*, 2011). However, one recent meta-analytic study of online auctions reports the important role of intentions in

predicting online auction usage but it recommended that more research needs to be conducted exploring the role of motivational factors and intentions on behaviours (Schlaegel, 2015). The TPB (Ajzen, 1991) theory provides a valuable approach to understanding these links. The theory proposes that increased intentions link to greater likelihood the individual will carry out the behaviour (Ajzen, 2015). Thus those consumers who express stronger intentions will be more likely to engage in online auction transactions. To explore the influence of intentions on behaviour, the following hypothesis is formulated:

H7   Favourable intentions will influence more frequent online auction transactions

Past research has successfully demonstrated the utility of the TPB model in explaining various online intentions and behaviours such as online trading intentions (Gopi and Ramayah, 2007), banking adoption (Lee, 2009), internet banking (Sanayei and Bahmani, 2012), self-protection intentions around online privacy (Yao and Linz, 2008), online shopping behaviours (Hsu *et al.*, 2006; Pavlou and Fygenson, 2006; Hansen, 2008; Huang *et al.,* 2011; Schlaegel, 2015) and behaviour (King, Dennis and Wright, 2008; Schlaegel, 2015). However, applying an expanded TPB (Ajzen, 1991) approach to understand online auction behaviours such as to sell or buy a product has been quite limited. Despite the limited application of Theory of Planned Behaviour to explain the influences on online auction behaviour, its merit and value as a tool to examine and explain behaviour is evident and longstanding (Schlaegel, 2015). Similarly, alternative online auction research has investigated intentions to use online auctions (Chen *et al.,* 2007; Yen and Lu, 2008a, 2008b; Chiu *et al.*, 2009; Huang *et al.*, 2011) but also importantly the role of trust (Schlaegel, 2015) and security (Chen *et al.*, 2007). The current study examines an expanded TPB model with the additional constructs of trust and security.

Trust and security in online transactions
Over the past few years there has been a growth in online auctions which are also central points for customer-to-customer (C2C) e-commerce (Leonard, 2012; Lu and Lin, 2012). Unlike B2C, where transactions are generally conducted online directly between the retailers and the customer, C2C online auctions are done between the buyer and seller with the auction site overseeing the transaction. B2C online transactions are dyadic (seller and buyer) while C2C are triadic (seller, buyer and auction site) and trust would be placed differently within the transaction relationship. In B2C transactions the buyer is directly dealing with the retailer, a two-party transaction, where the buyer is the weaker party. In addition, the buyer would be aware of the reputation of the seller. However, in C2C e-commerce auction transactions the buyer and seller are relatively unknown to each other even when taking into account other user reviews of past behaviour; this is referred to as information asymmetry (Chiu, Huang and Yen, 2010). Consumers' perceptions of risk associated with online marketplaces and variable knowledge of sellers impacts their social interactions with online auctions. Thus this online transaction is based on trust, for example for customers there is the expectation that the product they bought arrives in an appropriate condition (Schlaegel, 2015). However, untrustworthy sellers could exploit information asymmetry to serve themselves by misrepresenting the condition of the product.

Trust enhances purchase intentions and customer retention (Gefen and Straub, 2004), and its influence is not underestimated (Chen and Barnes, 2007; Chiu, Huang and Yen, 2010). Therefore, trust can ultimately affect the relationship between e-consumers and online providers (Gefen, Karahanna and Straub, 2003; Koufaris and Hampton-Sosa, 2004). However, most research within the area of trust and online transactions has focused on B2C and not C2C (Shareef *et al.*, 2013). Furthermore, Wu, Cheng and Yen (2014) argue that there has been limited detailed investigation of trust in C2C online auctions.

Security factors surrounding the storage of personal information of users have been shown to have a significant role in the adoption or non-adoption of e-commerce (Yousafzai, Pallister and Foxall, 2003; Gregg and Walczak, 2008; Abdelghaffar and Moustafa, 2013). The role of trust and security within e-commerce transactions are related (Chellappa and Pavlou, 2002; Shareef *et al.*, 2013) not only to each other, but also with the attitudes of users towards the service (George, 2002), which impact on consumer transactions (Vijayasarathy, 2004). The current study explores the role of trust and security further with the following hypotheses:

H8   Perceptions of trust will positively influence intentions to use online auctions

H9   Perceptions of trust will positively influence frequency of online auction transactions

H10   More favourable perceptions of security will positively influence intentions to use online auctions

H11   More favourable perceptions of security will positively influence frequency of online auction transactions

TPB research has provided important insights into understanding psychological motivations that underlie consumers' online auction intentions and behaviours (Pavlou and Fygenson, 2006; Huang *et al.,* 2011) while expanded TPB models have provided further insights relating to additional antecedents of intentions and behaviours (Schlaegel, 2015). Within the current research trust and security are included alongside attitudes, SN and control factors in an expanded TPB model, to further understand their influences on online intentions and behaviours. The expanded TPB model tested in the current study is represented in Figure 1.

Figure 1: Expanded TPB model examining online auction transactions with associated hypotheses
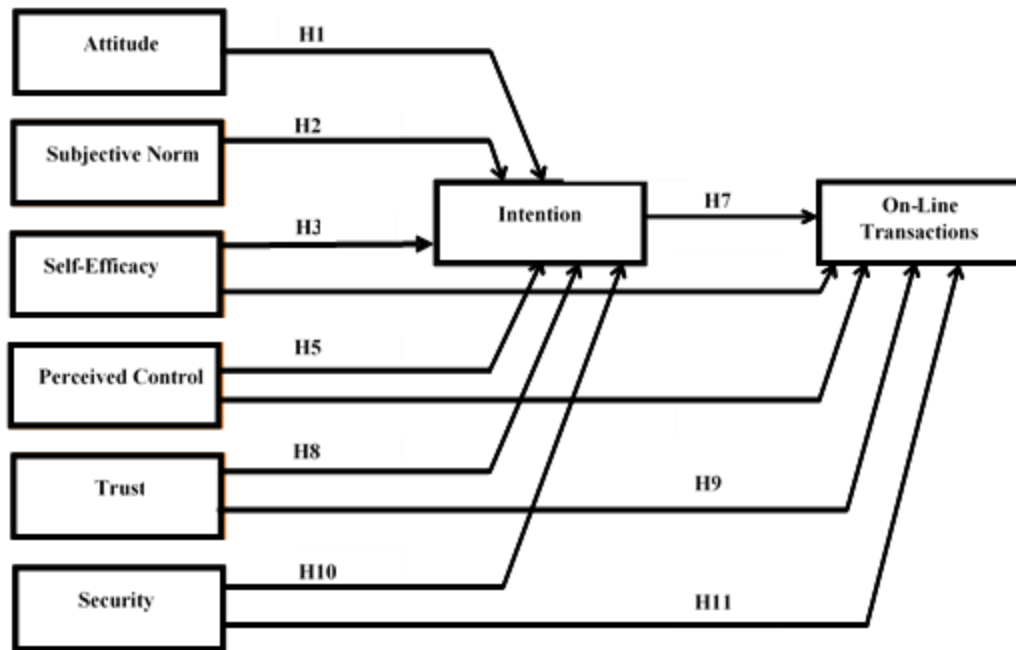
Method

Sample and procedure

Administration of the survey took place in two geographical locations within Northern Ireland and the Republic of Ireland to examine the robustness of the data over different national environments (Kautonen, van Gelderen, and Tornikoski, 2013). Due to the global presence of eBay the inclusion of more than one geographical region was an important aspect of this study. Participants in the study are representative of eBay UK (www.ebay.co.uk) and eBay Ireland (www.ebay.ie). Participants were recruited from a series of business events. All surveys were conducted in a face to face setting and contained an instruction sheet which explained how to complete the survey and semantic differential scales; additionally, all participants were informed they had the right to withdraw at any time. Statistical analysis employed IBM SPSS v22 for descriptive statistics, factor analysis and correlations and IBM AMOS v22 was used to test the hypothesised model. In total, there were three hundred and seventy-two (N = 372) participants who voluntarily took part in the survey; of which one hundred and fifty-four (n = 154) were males and one hundred and ninety-two (n = 192) were females. The average age was 24.59 years (SD = 7.43) for participants; with slightly more coming from a suburban (n = 136; 38.4%) background than urban (n = 109; 30.8%) or rural (n = 109; 30.8%) for those that responded. Most participants within the sample rated that they were buyers and sellers (n = 149; 41.6%) or sellers (n = 143; 39.9%) on the eBay auction site; however, fewer participants rated themselves either as just buyers (n =4; 1.1%) or not using the service to buy or sell (n =62; 17.3%).

Measures

The questionnaire was developed to measure those constructs contained within the original TPB (Ajzen, 2002) and the application of TPB (Armitage and Conner, 2001) models; following recommendations for questionnaire design as suggested by Ajzen (2015). As outlined by Ajzen (2002), direct predictors were assessed on seven-point semantic differential scales. An instructional sheet explaining the seven-point scale used was provided to the respondents. All statements were based on action, context, target and time elements. Higher scores represented more online service use, more favourable attitudes, positive social influence and more perceived behavioural control over using an online auction site.

Intention

This construct measured an individual's motivation to use a globally renowned and established online auction service, namely eBay. There were three statements posed at various points within the questionnaire, requiring respondents to think about the likelihood of using an online auction within the next month. For example: '*How likely are you to use eBay to buy/sell an item in the next month*?'

Attitude toward the behaviour

The direct measure of attitudes examined a respondent's affective feelings towards using an online auction service such as eBay using a set of six differential scale items; these included practical/impractical, complicated/uncomplicated, appealing/unappealing, good idea/bad idea, valuable/worthless and easy/difficult.

Subjective norm

At a direct level the measurement of subjective norm is the extent of how much importance the respondent views the role of '*significant others*' in their life in endorsing them to use an online auction site to buy or sell an item. Each respondent was asked to evaluate the following statement: '*Most people who I know think that using eBay to sell or purchase an item in the next month is a good idea*?'.

Perceived behavioural control

In regard to perceived behavioural control (PBC), nine items were employed to measure a respondent's confidence in using an online auction site to buy or sell an item within the next month. These included: '*I would feel very confident to buy or sell an item on eBay within the next month*' and '*I feel that I have no control over the selling or buying of an item on eBay if I were to use it*'.

Trust and security

In the expansion of the TPB model, two additional variables were included. Firstly, trust in online auctions was measured by one item: '*I don't trust a service like eBay when purchasing or selling an item*'. The perception of security was also measured with one item: '*Providing personal information would discourage me from using eBay to buy or sell an item*'.

Behaviour
A respondent's frequency of eBay online auction behaviour was measured using one item. This item examined if the respondent had ever bought or sold something using an online auction site and was rated on an eight-point scale (*not at all – daily*).

Results

Exploratory factor analysis
Exploratory factor analysis (EFA) using maximum likelihood analysis with Direct Oblimin was used and factors with Eigenvalues over 1 were reported. Two factors emerged which accounted for 59.97% of variance (see Table 1). The results indicate that control perceptions in using an online auction site fall into two factors. Factor 1 would reflect confidence in an individual's ability to use an online auction site and can be referred to as self-efficacy, while Factor 2 reflected more perceived barriers or efforts regarding using an online auction site. This factor can be referred to as perceived control. Thus, this analysis suggests that the PBC element of this TPB model consists of two factors, self-efficacy and perceived control. The subsequent analyses include both these factors as separated rotated variables rather than one variable for PBC.

Table 1: Exploratory Factor Analysis of PBC Items

PBC items	Factor	
	1	**2**
'I would find using eBay as pretty straight forward'	.83	
'I know I would have the ability to use eBay'	.78	
'I would feel very confident using eBay'	.76	
'I feel that I would encounter very few problems using eBay'	.67	
'It would be difficult for me to be able to receive items bought on eBay'		.73
'It would be difficult for me to be able to send items which I sold on eBay'		.70
'I feel that I don't have enough capability either to sell or purchase an item on eBay'		.57
I feel that I have no control over the selling or purchasing of an item on eBay'		.51
'I feel using eBay in the next month would take too much time'		.50
Eigenvalues	3.72	1.68
Percentage of variance	41.34	18.62
Percentage of variance explained	59.97	

Descriptive and correlational analysis

Descriptive statistics for each of the TPB and behaviour measures employed in the current study are displayed in Table 2. Alpha coefficients were favourable (Kline, 2005). Overall in relation to use of online auction sites intentions (M = 14.30, SD = 5.61), attitudes (M = 21.83, SD = 8.39), self-efficacy (M = 13.18, SD = 6.38), perceived control (M = 16.92, SD = 6.48), security (M = 4.39, SD = 1.85) and trust (M = 3.59, SD = 2.02) were moderately favourable, while overall respondent behaviour (M = 6.79, SD = 1.40) reflected very frequent online auction site use. However, the average rating of SN (M = 2.90, SD = 1.50) was less favourable.

Zero-order correlations are also presented in Table 2 and it is evident that the strongest significant relationships with intentions to use the online auction site were with attitudes (r = .73, p < .001), self-efficacy (r = .57, p < .001) and trust (r = .45, p < .001). Furthermore, more moderate to weaker significant relationships with intentions were reported with the variables perceived control (r = .31, p < .001), SN and security (r = .14, p = .011). Lastly, behaviour was significantly related from strongly to moderately with intention (r = .70, p < .001), attitude (r = .55, p < .001), self-efficacy (r = .50, p < .001), trust (r = .42, p < .001) and perceived control (r = .33, p < .001) while SN (r = .18, p = .001) and security (r = .14, p = .009) were significantly, yet weakly, related. Lastly, each of the predictor variables were related to the each of the criterion variables of intention and behaviour, supporting further examination of relationships through path analysis.

Table 2: Descriptive and Inferential Statistics for Aggregate TPB Variables

	M	**SD**	**Range**	**α**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1. Intention	14.30	5.61	3-21	.87	----							
2. Attitude	21.83	8.39	6-42	.87	.73***	----						
3. SN	2.90	1.50	1-7	†	.31***	.39***	----					
4. Self-efficacy	13.18	6.38	4-28	.85	.57***	.67***	.38***	----				
5. Perceived Control	16.92	6.48	5-35	.76	.31***	.36***	.01	.39***	----			
6. Security	4.39	1.85	1-7	†	.14*	.09	-.07	.05	.24***	----		
7. Trust	3.59	2.02	1-7	†	.45***	.44***	.16**	.44***	.51***	.39***	----	
8. Behaviour	6.79	1.40	1-8	†	.70***	.55***	.18**	.50***	.33***	.14**	.42***	----

Note: * significant at the .05 level; ** significant at the .01 level; *** significant at the .001 level;

   † only one item.

Estimation of the TPB model

The path analysis testing the TPB model is shown in Figure 1 and the overall fit of the model was reported (see Table 3) to be a good explanation of the relationships within the data (χ^2 (372) = 3.142, df = 2, p = .208, RMSEA =.039). The chi-square values in conjunction with the degrees of freedom were reported to be low and non-significant and the RMSEA was less than .05 (Browne and Cudeck, 1993; Hu and

Bentler, 1999), thus indicating a close fit of the model to the data. Incremental fit indices were also employed for the evaluation of the model fit as suggested by Hoyle and Panter (1995,) and Miles and Shevlin (2007). The values indicated that the NFI (.997), IFI (.999), and TLI (.981) were all greater than the .95 cut off point and furthermore suggested that the tested model provided a good approximation and explanation of the data. Overall, based on the descriptive and incremental fit indices, the TPB model provided a good fit to the data.

Table 3: Path Coefficients and Fit Statistics of the TPB Model

Path (Hypotheses)			R^2	Path coefficients	p	Hypothesis supported
(H1) Attitude	→	Intention		.60	.000	Yes
(H2) SN	→	Intention		.01	.877	No
(H3) Self-efficacy	→	Intention	.561	.12	.020	Yes
(H5) Perceived control	→	Intention		.03	.535	No
(H10) Security	→	Intention		.03	.414	No
(H8) Trust	→	Intention		.14	.004	Yes
(H7) Intention	→	On-line Transactions		.59	.000	Yes
(H4) Self-efficacy	→	On-line Transactions		.10	.030	Yes
(H6) Perceived control	→	On-line Transactions	.519	.07	.122	No
(H11) Security	→	On-line Transactions		.01	.891	No
(H9) Trust	→	On-line Transactions		.07	.131	No
Goodness of fit statistics						
X^2			3.14			
Df			2			
P			.208			
RMSEA			.039			
Incremental fit indices						
NFI			.997			
IFI			.999			
TLI			.981			

Figure 2 and Table 3 illustrate the predictor variable relationships with intentions and behaviours regarding the use of an online auction site. Attitudes (γ = .60; p < .001),

self-efficacy ($γ$ = .12, p = .020) and trust ($γ$ = .14, p = .004) had significant relationships with intentions, with attitudes being the strongest predictor of intentions to use the online auction site. However, perceived control ($γ$ = .03, p = .535), SN ($γ$ = .01, p = .877) and security ($γ$ = .03, p = .414) did not have any significant relationships with intentions. These factors accounted for 56% (R^2 = .56) of variance in intentions to use an online auction site. In regard to predicting online behaviour, intentions ($ß$ = .59, p < .001) had the strongest significant relationship with the criterion variable followed, to a lesser extent, by self-efficacy ($γ$ = .10, p = .030). The path analysis indicated that perceived control ($γ$ = .07, p = .122), trust ($γ$ = .07, p = .131) and security ($γ$ = .01; p = .891) did not have significant relationships with online auction site behaviour. These factors accounted for 52% (R^2 = .52) of variance in online auction site use behaviour.

Figure 2: Path Diagram of the applied TPB Model
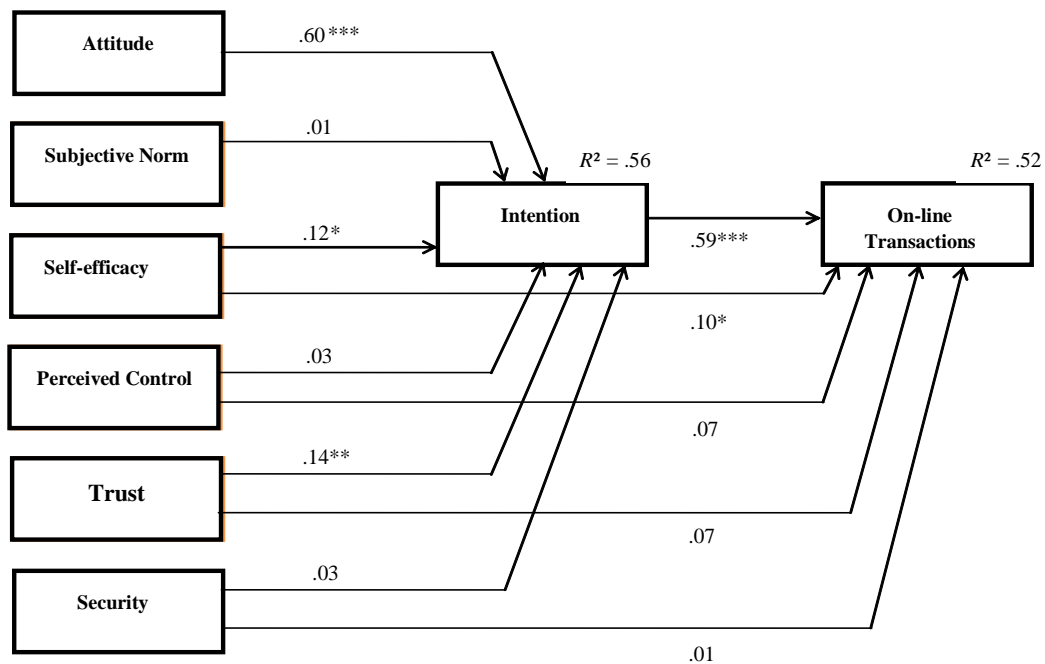
Note: * significant at the .05 level; ** significant at the .01 level; *** significant at the .001.

Discussion

The overall aim of this study is to further understand the role motivational factors, trust, and security have in influencing consumer's online auction intentions and transaction behaviours. Overall the TPB (Ajzen, 1991) model provided a good

explanation of online auction intentions and transaction behaviours and the evidence further supports previous suggestions that applying an expanded model such as the TPB can be beneficial (Schlaegel, 2015). Further evidence from the current findings show how attitudes (**H1**), social influences (**H2**), abilities (**H3**, **H4**, **H5** and **H6**), trust (**H8** and **H9**) and perceptions of security (**H10** and **H11**) influence consumer's online auction intentions and frequency of transactions, while also establishing the link between online auction intentions and frequency of transactions (**H7**).

Predicting online auction intentions
Within the current study TPB framework, attitudes towards using online auctions (**H1**) had the strongest influence on online auction intentions; suggesting that the more favourable the consumer's attitudes toward online auctions the more favourable their intentions to use such a service. This is consistent with other studies that found favourable attitudes to using an online auction are generally related to more bidding or selling transactions (Pavlou and Fygenson, 2006; Huang *et al.*, 2011; Schlaegel, 2015). Thus, perceptions of transaction convenience, ease and success inform attitudes towards online auctions (Burke, 1998; Li, Chung and Fiore 2017) but also demonstrate the strength of the attitude-intention relationship regarding consumer's engagement with online auctions (Ajzen, 2015; Schlaegel, 2015).

Furthermore, the current study findings also reflect the inconsistent nature of SN (**H2**) as social or normative pressures neither increased nor decreased consumer's intentions to use an online auction site (Huang *et al.,* 2011). This would mean that they did not view the expectations of others as important when considering using an online auction service like eBay, which contradicts the conclusions drawn by Rohm and Swaminathan (2004), and Parsons (2002). Thus the current study suggests that the opinions of friends, family and others do not necessarily influence the online auction decisions of consumers, even if these experiences are informative or cautionary. Therefore, it seems to be down to the consumer's own attitudes towards online auctions, rather than the opinions of others, that influence their transaction decisions.

The current study identified self-efficacy and perceived control as two constructs linking to PBC, which is consistent with previous research (Terry and O'Leary, 1995; Conner and Armitage, 1998; Lunardo, 2011). Apart from consumer attitudes, the only other construct within the TPB (Ajzen, 1991) that influenced online auction intentions was self-efficacy, suggesting that consumers with more confidence in their ability to use online auction sites were slightly more likely to intend to use online auction sites (**H3**). By separating PBC into two constructs it also becomes clearer that consumer confidence in their abilities is more important in predicting consumer intentions than perceptions around perceived control barriers. Consumers perceptions around barriers to engaging with online auctions did not have a significant influence on their intentions (**H5**), thus possible barriers to using online auctions do not seem to influence intentions to use the service. However, consumer confidence in their ability to engage with bidding, selling or purchasing within an auction marketplace was not as important as their attitudes toward the service. This current finding partially supports previous research, which explored the important

role PBC has in prediction of online auction intentions (Pavlou and Fygenson, 2006; Huang *et al.*, 2011; Schlaegel, 2015).

Although both trust (**H8**) and security (**H10**) were included within the expanded TPB (Ajzen, 1991) model, only consumer's perceptions of trust had a significant but weak influence on intentions to use online auction sites. The current research supports previous findings with regard the role of trust in predicting online auction intentions (Chiu *et al.*, 2010) but it also highlights that this role is secondary to the role of consumer attitudes. This is consistent with past research where consumer trust aligns with consumer online auction satisfaction levels regarding the bidding, purchasing and selling process (Schlaegel, 2015). Trust may have a role informing consumer intentions but a more important role could be informing consumer satisfaction levels. This further suggests that within C2C online auctions trust may be an important issue around service quality and satisfaction for the consumer (Vijayasarathy, 2004). Despite the weak role for trust within the model, its statistically significant relationship with online auction intentions does provide more evidence of its, at least minor, role within the C2C transactions (Shareef *et al.,* 2013). In contrast to previous findings, the impact of security in relation to storage of personal information by online auction services was non-significant in the current study (Abdelghaffar and Moustafa, 2013; Sanayei and Bahmani, 2012).

Predicting online transaction behaviours
As for predicting frequency of online auction behaviour, both consumer intentions (**H7**) and self-efficacy (**H4**) played a significant role. Consumer intentions had the stronger influence suggesting that when engaging with online auction bidding, purchasing or selling consumer's intentions, rather than confidence in their abilities, to use the service, held greater sway in deciding to use the service (Schlaegel, 2015). This may be due to the greater consumer experience with online shopping, and these websites being more user friendly. Contrary to previous findings (Terry and O'Leary, 1995; Conner and Armitage, 1998), perceived control of external barriers (**H6**) did not influence their online auction usage. Both trust (**H9**) and security (**H11**) failed to significantly influence consumer's online auction usage, contradicting previous findings (Pavlou and Gefen, 2005; Shareef *et al.,* 2013, Schlaegel, 2015), which suggested significant roles for trust and security in predicting e-commerce transactions. Importantly for C2C research, although trust significantly influenced transaction intentions, it was not a significant predictor of online transaction behaviours in the current study. Furthermore, perceptions of how secure online auctions are did not influence consumer transaction frequency, which is quite different from what other researchers have reported (Abdelghaffar and Moustafa, 2013). Abdelghaffar and Moustafa (2013) had identified that security issues around consumer information can influence consumer engagement. In contrast, the current research provides no support for this, rather online transactions are based on consumer intentions, and to a lesser extent their confidence in their own ability, to use the service. Finally, these findings demonstrate the importance of the intention-behaviour relationship, provide clarity on how the consumer is engaged with online auctions, and support the usefulness of the TPB model itself (Ajzen, 1991).

Implications and future research

The findings provide further valuable theoretical insight into online auction behaviours, which needed further exploration (Saputra, Warokka and Naruephai, 2012), especially in relation to C2C e-commerce (Leonard, 2012; Lu and Lin, 2012; Schlaegel, 2015). A central implication of this study is that it provides further insight into the role of motivational factors that can influence online auction decisions and transactions (Gopi and Ramayah, 2007; Sanayei and Bahmani, 2012; Hsu *et al.,* 2006). Like Yen and Lu (2008), the current research helps to develop a better understanding of the 'bidder's decision process when taking part in online auction' (p. 41). Furthermore, this study contributes to extending consumer behaviour understanding in an online auction environment (Drake, Hall and Byrd, 2012), adding to the work undertaken by Foxall (1993), Constantinides (2004), and Evans, Jamal and Foxall (2009). More specifically, the current study found attitudes towards using an online auction service, personal abilities (Pavlou and Fygenson, 2006; Huang *et al.*, 2011) and trust (Hou, Ma and Yang, 2011) in the service are important predictors of consumer online transaction intentions.

Furthermore, any marketing messages need to further echo and support the attitudes, in terms of convenience and ease of use, highlighted in this research, as these are crucial in encouraging usage and engagement in an online auction environment. Online auction services, such as eBay, need to continue to communicate messages to enhance consumer confidence, building trust, to enhance consumer's belief in the service provider, and therefore reduce perceived risks (Xu, Lin and Shao, 2010). The attitude and satisfaction related variables, like trust, identified in the current research are therefore invaluable in terms of persuading potential consumers to use the service, and maintaining the existing consumer base in the early stages of buying behaviour. In fact, this message needs to be reinforced at each of the interlinked stages that eBay consumers undertake (Engel, Kollatt and Blackwell, 1993; Gabbott and Hogg, 1998). Future online auction site strategies should take note of these factors when trying to retain existing consumers and when trying to attract new consumers (Chen and Barnes, 2007; Tseng and Teng, 2014). By highlighting factors influencing behavioural intentions, this research can inform online auction sites in ways they could increase their competitiveness. Another strength of this study was that rural, suburban and urban consumer online auction behaviours were accurately represented by an extended TPB model, which can be a valuable tool for a global brand such as eBay.

Commercial and academic research interests would be better served by applying conceptual framework models like the TPB and extending it with the inclusion of other antecedents. Further research could investigate the role of future behaviours (Wahab, Mohd and Ali, 2009) and the impact of past experiences (Lodorfos, Trosterud and Whitworth, 2006; Wu and Teng, 2011) on individual's decisions to use online auctions. Other antecedents such as gender could also be explored regarding online auction behaviours, as previous research has indicated that the motivations for males and females to use online auctions differ (Lai, Wu and Lin, 2008). Evidence such as this could to be further explored within the context of the TPB to examine if two possible models for male and female online transaction intentions and behaviours exist.

Limitations

Further geographical locations could have been employed, which would have added more representative scope to the sample. That is, the regions selected for the current study may have shared certain cultural attitudes and perceptions making the sample more homogeneous in nature due to geographical proximity. Thus, a third region could have been employed to explore possible variations and address any cultural variations as suggested by Xu, Lin and Shao (2010). Another sampling related limitation was that individuals attending business events were targeted so the sample itself may not be reflective of those from non-business oriented backgrounds or professions. Lastly, other variables may have explained online auction intentions and behaviours and so we encourage other researchers to examine additional variables like gender. However, as mentioned previously, these antecedents should be integrated within an extended TPB (Ajzen, 1991) framework. Despite these limitations, the authors argue that the current study adds to the existing understanding of online auction site behaviours for academics, online auction practitioners, other C2C e-retailers, and policymakers.

Conclusion

In conclusion, some previous research studies have only applied the TPB to exploring online purchasing intentions only (Yen and Lu, 2008a, 2008b), while the current study does much more. The value of the current study lies in predicting the frequency of online auction transactions, through the significant contributions of positive intentions, abilities around online auction transactions and trust. As the research within the C2C online auctions is relatively new, the current study findings are timely and of great importance as they provide evidence about the role of these drivers. Future research can build on these findings by further extension and application of theoretical frameworks like TPB to understand more about selling and buying in e-commerce sectors.

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The Commodification of Care: a Critical Exploration of the Marketing Mix for Domiciliary Care at the End-of-Life

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Abstract

The home care industry has grown exponentially around the world. In palliative care, the delivery of home care has been promoted as the ideal type of formal care; offering cost savings to local authorities and 'choice' for patients and their families. However, there is a dark side to the commodification of care that is rarely discussed in the marketing literature. The pursuit of profits, contracting and bureaucratising care can reduce care to physical, measurable elements and might ignore the emotional and relational aspects of care which cannot easily be costed or detailed in contracts. This paper critically examines the elements of the marketing mix for 'care packages' and highlights the impact of commodification on two parties involved in the market exchange: vulnerable patients and workers.
Keywords: Ireland; Domiciliary care; Marketing mix; Consumer choice; Affective equality

Introduction

The home care industry has grown exponentially around the world. Its value is expected to reach USD 349.8 billion by 2020, growing at a compound annual growth rate (CAGR) of 9.0% from 2015 to 2020 (Markets and Markets, 2015). The home care market is a highly attractive one (in profit terms) worldwide due to a range of factors including a rising aging population, increasing incidences of chronic diseases, technological advancements, and government initiatives to promote domiciliary healthcare (Eurostat, 2017; Tarricone and Tsouros, 2008). The home care service sector forms the largest part of the healthcare market (which also includes products, software and telehealth) due to their increasing demand and affordability (Markets and Markets 2015). Geographically, the home healthcare market is segmented into North America, Europe, Asia and the Rest of the World. In Ireland, the home care market was valued at €340.27M in 2009 (PA Consulting and IPHCA, 2009).

Ireland's economic crisis in 2008 had an important impact on the Irish welfare state which to date has been predominately debated in fiscalised terms, reflecting a tendency to understand social policy as an adjunct to economic and fiscal policy and related goals (Murphy and Dukelow, 2016). Like in many European countries the welfare state has been downgraded from a golden, to silver, to a bronze age (Arts, 2013). It has been argued that neo-liberalism has been a main driver for change in

the restructuring of welfare provision and regulation (Dukelow and Murphy, 2016). Privatisation is a key component of neo-liberal policy processes (Hermann, 2007). The transfer of activity through concessions, delegated management contracts, leasing or other forms of public-private partnerships is not always considered as privatisation but can be included as marketisation where non-monetised welfare is commoditised, given a market value and delivered through market mechanisms (Dukelow and Murphy, 2016 p. 20). This can occur thorough the private sector when state functions are outsourced like in the delivery of social housing (Finnerty, O'Connell, and O'Sullivan, 2016) and care (Brennan *et al.*, 2012). In Ireland the for-profit home care sector has quadrupled since 2000, with approximately 150 companies providing home care nationwide[1] . While there is no clear evidence of for-profit designated palliative care services in Ireland (although there are some consultants that hold private and public roles, see Wren, 2002) there is a clear outsourcing of home-care services from the State to for-profit providers and a push for home care for palliative care patients (IHF, 2014; Donnelly *et al.*, 2016).

Palliative care is an important public health issue. It is concerned with the suffering, dignity, care needs and the quality of life of people at the end of their lives. In recent decades we have seen the prioritisation of choice and autonomy as key quality indicators in many western palliative care services (Borgstrom and Walter, 2015; Ho, 2008; IHF, 2014). A clear illustration of this in Ireland and other European countries is the promotion of patient involvement (Dent and Pahor, 2015), especially in relation to place of care and death (Eurobarometer, 2007). In many countries, the delivery of home care has been promoted as the ideal type of formal care, offering cost savings to local authorities and 'choice' for palliative-care patients and their families. In Ireland there is an overlap in the provision of end of life care (EOLC) and palliative care (NCAOP, 2008). While home care is not exclusive to palliative care services, the increasing promotion of home as the ideal place of care and death has made domiciliary care an option among the choices patients can make at the end of life.

While a logic of choice (Mol, 2008) in palliative care has been critiqued in terms of the methodology used (Stajduhar, Allan, Cohen, and Heyland, 2008; Thomas, Morris, and Clark, 2004; Townsend *et al.*, 1990; van der Heide, de Vogel-Voogt, Visser, van der Rijt, and van der Maas, 2007) and the possibility of real choice at the end of life (Borgstrom and Walter, 2015; Drought and Koenig, 2002; Lolich and Lynch, 2016; Lolich and Lynch forthcoming) it is important to examine how the commercialisation of domiciliary palliative care can lead to poor quality of care and exploitative working conditions for employed carers. Ireland is now ranked number 4 worldwide in the overall score in the Quality of Death Index, which takes into account four categories: basic end-of-life healthcare environment; availability of end-of-life care; cost of end-of-life care and quality of end-of-life care (Economist Intelligence Unit, 2015). Therefore, how Ireland is adapting its long history and expertise in palliative care to develop EOLC policies for this newly developing palliative care scenario is of international interest.

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[1] Primetime, A prime time documentary that aired on Dec 13th 2010

Deconstructing care: The marketing mix for 'care'

The marketing mix is a set of controllable marketing tools that a company uses to produce the response it wants from its various target markets and, despite its detractors, it has been widely accepted and used in marketing (Rafiq and Ahmed, 1995; Zeithaml, Bitner, and Gremler, 2009). It consists of everything that a home care agency can do to influence the demand for the services that it offers. Tangible products have traditionally used a 4Ps model (product, price, place and promotion), the service sector on the other hand uses a 7P (Ivy, 2008; Zeithaml, Bitner, and Gremler, 2009) in order to satisfy the needs of the service provider's customers. These are: product, price, place, promotion, people, physical evidence and processes.

By unravelling the specificities of the marketing mix for care, it is possible to detangle 'care' from the positive language of the market (Table 1). The point is not that care cannot be a positive experience but that there is a dark side to the commodification of care that is rarely discussed in the marketing literature. The pursuit of profits, paying for care, contracting and bureaucratising care can reduce care to mundane, physical, measurable elements (Meagher and Cortis, 2009) and might ignore the emotional and relational aspects of care which cannot easily be costed or detailed in contracts. The commodification of care can be detrimental to the quality of life of the two parties involved in the market exchange: the vulnerable people in end of life care (EOLC) and the vulnerable workers - women, often poor and/or migrant.

Table 1: The extended marketing mix for domiciliary care

	Definition	**Consequences of the commodification of domiciliary care**
Product	The product is what is being sold. In the case of home care it is a complex bundle of activities, tasks and interactions that aim to satisfy the patient's care needs.	Defined as physical act e.g. bathing, toileting and dressing. Quantifiable and measurable set of activities. No time allocated for compassion or companionship.
Price	The price element of the services marketing mix is what is being charged for a care package.	Price needs to be higher than cost. Cost can be reduced by increasing productivity (higher patients to staff ratio) which results in lower quality of care. Profits can also be increased by reducing cost of staff.
Place	Place is the distribution method that the agency adopts to provide care to its market.	Prioritisation of home as the ideal place of care. Little control over the work space.
Promotion	Promotion encompasses all the tools that home care providers can use to provide the market with information on its offerings.	Language of the market contains only positive terms; however, care labour is physically and emotionally demanding work.

People	The people element of the marketing mix includes all the staff of the home care agency that interacts with prospective and current patients.	Care work is disproportionally women's work and increasingly racialised.
Physical evidence	Physical evidence is the tangible component of the service offering. The quality of care is hard to assess and monitor.	Market provision, driven by efficiency, will tend to meet the measurable outputs and side-line the less tangible aspects of good care
Process	Processes are all the administrative and bureaucratic functions of home care providers: from the handling of enquiries to registration, from making rotas and time parameters to defining work tasks, to name but a few.	Formal process of caring tightly controlled while the informal aspects of it, the emotional work involved, are side-lined.

The product element: care as a commodity

The product is what is being sold. In the case of home care it is a complex bundle of activities, tasks and interactions that aim to satisfy the patient's care needs. Multiple meanings of care have developed over the past decades, particularly within feminist writing, with distinctions drawn between caring about and caring for, between care as work and care as emotion and care as practice and care as disposition (Lloyd, 2012). In the commercialised home care market, the services the agency contracts to deliver to service users are defined as physical acts, 'work tasks', such as bathing or showering, washing and dressing, toileting and incontinence (PA Consulting and IPHCA, 2009 p.35). Care as a product is tightly defined as a quantifiable and measurable set of activities.

Care becomes an abstract noun, a package to be delivered to service users, the manner in which care acts are undertaken is not accounted for (Borgstrom and Walter, 2015). Allowing a patient a few minutes of time and attention to express fear, share a thought, or tell a story is excluded from the formulary of productive activities and as such is a 'non-productive activity' subject to administration sanction (Diamond, 1995). In a study done in Ireland (Timonen and Doyle, 2007) home care staff complained that there was no time allocated for companionship or compassion. Care is now a tradable commodity and domiciliary carers have to continually reconcile the tensions inherent in a care plan that offers no time to care (Bolton and Wibberley, 2014).

Quality differences are inherent in market provision; indeed it is through such differences that markets are supposed to promote efficiency (Brennan *et al.*, 2012). First, for quality control to work in care markets consumers must be able to switch poor quality providers for higher quality ones (Brennan *et al.*, 2012). However, continuity of care is important for people in care, so that exit can be too costly a

strategy (in emotional and time terms) when quality is found to be inferior. Carers learn how to care for particular people (Waerness, 1987). This tacit knowledge takes time to acquire and cannot instantly be replaced by a carer offering better value for money (Land and Himmelweit, 2010).

Second, making use of market information requires skills that are not equally distributed; an increased focus on choice favours those with more resources and education, who have considerable advantages in navigating the system (Eika, 2006). Third, where the market provides for both privately and publicly funded care, or care recipients are expected to top-up the service provided through their own resources, those with greater resources will be able to purchase higher quality. This critically limits the effectiveness of market mechanisms in ensuring care quality (Eika, 2009; Plantenga, 2010).

In recognition of these problems, governments may seek to aid transparency and effective choice through regulation, accreditation and the provision of information about how individual services perform against the standards. Inevitably, such standards capture the most easily quantifiable aspects of care rather than the less tangible, relational features that are of such importance to care recipients and their families (Waerness, 1987). Despite the US nursing home industry being one of the most highly regulated worldwide, this has not necessarily increased the quality of care for its patients (Harrington, 2001). Regulation has become a form of 'ritualism' where the providers go along with institutionalised means for achieving regulatory goals while not actually attaining the goals themselves (Braithwaite, 1993). The result is the bureaucratization of care provision and an overemphasis on tangible care aspects that are irrelevant to or a hindrance to individual care. An overemphasis on tangible and measurable aspects may also undermine the motivation of care workers; formal requirements that are perceived as problematic may crowd out workers' genuine motivation for good care (Frey, 1992).

The price element: cost and value in care
The price element of the services marketing mix is what is being charged for a care package. The pricing element is important in terms of bringing revenue to the agency and also as a criterion in the decision-making process for patients. In order for the business to be sustainable and make a profit, price has to be higher than costs. Providers in the for-profit sector fail in their duty to shareholders if they do not take every opportunity to reduce cost and increase profits. One way that profits can be increased is by increasing productivity, however it is hard to lower costs and increase productivity of care, because the need to develop a relationship with clients sets a limit on how many people can be cared for at the same time or how many home-care visits can be made in a day, without reducing the quality of care provided (Land and Himmelweit, 2010). Spreading care over more people becomes synonymous with reducing quality. This is not caused by the inefficiency in care provision but is inherent in the relational nature of care.

Another way to increase profits is by trying to reduce the cost of staff. The IPHCA claimed in 2009 that: 'Higher staff costs are the primary factor driving higher cost in the public and non-profit sectors [in the home care market] (PA Consulting and IPHCA 2009, p. 1). The low wages in the care sector causes recruitment and

retention problems (Land and Himmelweit, 2010) and this directly affects the quality of care that can be provided. For care to be of good quality, the care workforce needs to be paid wages comparable with those in other occupations.

In the absence of other information on the quality of the care provided, price becomes an important criterion to make a purchase decision. This applies not only for the end consumer, but also when for-profit agencies compete with one another and against public and non-profit providers for government contracts to deliver care packages to people at home. In the past few years the for-profit-led group, Home and Community Care Ireland (HCCI), has been lobbying the government for an outsourcing of home care service provision in Ireland (HCCI 2013, p. 4) claiming savings of up to €2 billion by transferring the home care provision to the private sector. In a report submitted to the Irish government, the IPHCA (2009, p. 2) stated: 'the current context of pressure to realise savings whilst meeting rising demand for home care highlights the need for the approach to the market to be reconsidered". Since September 2016 all new Home Care Packages approved by the Health Services Executive (HSE) are provided by organisations that have been selected following a tender process. Currently, there are 32 approved providers and this includes private providers (HSE, 2016). In the absence of reliable information about quality, price competition can lead to pursuit of 'value for money' that becomes a race to the bottom in terms of quality (Land and Himmelweit, 2010).

Studies of care service industries that indicated less efficiency in non-profits than in for-profits might not take into account the possibility that non-profits are supplying different kinds or qualities of services (Clarkson and Martin, 1980). In Ireland, it was found that a public nursing home bed costs more than in the private sector, however, as the HSE pointed out this is due to higher nurse staffing ratios, better terms and conditions for staff, the types of building used and geographical locations of services (Wall, 2016). Timonen and Doyle's (2007) study of domiciliary care in Ireland found that the composition of the care workforce is more diverse in the for-profit than in the public and non-profit sector operations, and in the nature of the tasks expected. Furthermore, the lack of regulation of the for-profit and non-profit (voluntary) domiciliary care sectors also facilities more flexibility with regard to qualifications, training and monitoring (Timonen and Doyle 2007, p.261) which allows managers to reduce standards in terms of hiring staff, training and paying them.

The place element: home as a place of care

Place is the distribution method that the agency adopts to provide care to its market. Place is an important element in services competition, especially in public services as many users want to receive services close to their home (Rankin, 2005), not least, because they might require it regularly or they may actually require the service at home, as is the case with domiciliary palliative care.

The prioritisation of home as the ideal place of care and death has grown significantly in Ireland and many other countries (Borgstrom and Walter, 2015; IHF, 2014; McKeown *et al.*, 2015; Weafer and Associates, 2004). In the UK, the NHS and Community Care Act 1990, emphasised as their objective a reduction in residential care for older people and an increase in the provision of home care (Bolton and

Wibberley, 2014) and in Ireland, the Irish Hospice Foundation (2014) proposed home as a place of care and death as a key quality indicator for palliative care.

A major factor shaping the domiciliary carer's labour process is that it takes place within a client's own home, where ability to control workspace is limited. Clients' homes can be challenging as a workplace as they vary in their layout, cleanliness, atmosphere, inhabitants, equipment and space (Bolton and Wibberley, 2014 p.688). Working in a range of different work spaces throughout the day means that domiciliary carers must continually be on the move between clients' homes, resulting in the introduction of ever more complex control mechanisms to ensure efficiency levels are maintained. Often domiciliary carers are scheduled to arrive at the next client at the same time as leaving their previous client; a logistical nightmare for managers, domiciliary carers, and clients (Bolton and Wibberley, 2014).

The promotion element: promoting choice
Promotion encompasses all the tools that home care providers can use to provide the market with information on its offerings: advertising, public relations, sponsorship, direct marketing and sales promotional efforts. Different promotional tools are used for different publics. For example lobbying (public relations) is used to influence government policy and mass media, like radio and TV, are used to communicate with prospective or current clients. When promoting home care as a product to be bought, a logic of care is replaced with a logic and language of the market (Mol, 2008). The language of market contains only positive terms. Products for sale are attractive. Tellingly and non-neutrally, they are called goods (Mol, 2008). Classifying patients as consumers creating value raises concerns (Nordgren, 2008). Patients accessing home care services become customers in 'careland' (Mol, 2008 p.32) and like other customers, they are invited to enter the market to buy care packages that they find attractive. However, the customer in domiciliary palliative care is a vulnerable customer and therefore a service provider's actions could be to the detriment of the customer (Hardyman, Daunt, and Kitchener, 2015 p. 101). The same frailty and dependence that creates the need for care limits 'consumer sovereignty' (Eika, 2009; Lolich and Lynch forthcoming).

For providers of care it is difficult to communicate the intangible aspects of good care when promoting their services. At the same time, it is equally difficult for patients and their relatives to gauge the quality of home care services before its purchase. Therefore, agencies may end up promoting, and patients may end up making choices, based not on quality of care (Greener, 2008), but on elements that are not intrinsic to care, for example price and locality. In this case, a choice of sorts is possible, but the focusing on elements that are peripheral to care is surely the basis for a rather irrational market, and one that creates particularly perverse incentives for health managers overseeing the delivery of the care services (Greener, 2008). In such a market it would make sense, for example, to spend money on branding and save on staff training. When patients are asked to choose in situations where the decision process is far from clear, marketing can provide a number of techniques for 'framing' (Callon, 1998; Callon, Méadel, and Rabeharisoa, 2002) the decision before choosers, which might or might not be in the best interest of all parties involved. Where services are of a type where users may not be able to accurately assess them, significant efforts might be made to attempt to differentiate services on the

basis of elements that make little or no difference to the quality of care on offer (Greener, 2008), for example, price.

The process element: formal and informal labour process
Processes are all the administrative and bureaucratic functions of home care providers: from the handling of enquiries to registration, from making rotas and time parameters to defining work tasks, to name but a few. Bolton and Wibberley (2014) delineate domiciliary care across two axes; the formal and informal labour process.
The formal process is tightly controlled with rotas defining the time parameters and intensifying the work; care plans specify a clear agenda via a task-based approach to care. On the other hand, the informal process includes tasks that are necessary but are not acknowledged in the care plan, such as information provision (Cooper and Urquhart, 2004) and the continual emotional work involved in delivering caring tasks (Brown and Korczynski, 2010; Stacey, 2011). Home-care organisations (and clients) become reliant on the discretionary effort of domiciliary carers (informal labour process) for good domiciliary care to be delivered. Structurally, the problem with domiciliary care and other care occupations is that it is difficult to increase profitability through any other means than standardising and intensifying the pace of work for the care givers (Bolton and Wibberley, 2014). Caring motivation – a guarantee of quality and effectiveness – can be squeezed out, with the risk that care is performed impersonally and to minimum standards (Folbre and Nelson, 2000; King and Martin, 2009).

The people element: people in care
The people element of the marketing mix includes all the staff of the home care agency that interacts with prospective and current patients. This article focuses on the most vulnerable group, the carer. Care work is disproportionately women's work, especially where it involves hands-on caring, paid or unpaid (Bolton, 2009; Bolton and Wibberley, 2014). This is the case not only in private markets but also in the public sector and the private sphere. Women are morally impelled by family members and by welfare authorities to take care responsibilities and provide care support to others throughout most countries (Isaksen, 2002; Kawachi and Berkman, 2001). In Ireland, the home care market is staffed 95-100% by women (Timonen and Doyle, 2007).

Care work is not only gendered it is also classed and increasingly racialised (Gutierrez-Rodriguez, 2014; Parreñas, 2001). Migrant workers in Ireland are at high risk of exploitation, discrimination and face precarious working conditions and chronic underpayment (MRCI, 2015). The for-profit home care sector in Ireland has a higher percentage of non-Irish workers than the public sector (Timonen and Doyle, 2007). The privatisation of home care services has worsened conditions of employment, making care jobs unattractive (McGregor, 2007). Since care markets deliver efficiency at the expense of workers' pay and conditions, care workers tend to be drawn from vulnerable groups in society: traditionally women and increasingly in eldercare, migrants (Shutes and Chiatti, 2012).

The physical evidence element: judging quality in care
Physical evidence is the tangible component of the service offering. The quality of care is hard to assess and monitor. Care is a quintessentially 'soft' product whose essential characteristics are not easily measured. It is possible to monitor the attainment of certain physical tasks, such as, whether a client has been bathed or taken their medicine. Market-driven provision, its drive for efficiency, will tend to meet these measurable outputs and economise on the less tangible aspects of good care (Land and Himmelweit, 2010).

When buyers have trouble evaluating the quality characteristics of the commodity, the market operates under conditions of asymmetric information; that is, buyers are at a disadvantage in exchange vis-à-vis sellers who have more information. If the patient cannot communicate his or her care experience to their representatives and these are not present when the care occurs, then conceptualising care as a commodity might reveal the person receiving care as an object to be produced. The quality of the care might be solely judged on the transformation of soiled, hungry, anxious people into clean, replete, calm people (Lee-Treweek, 1997; Toynbee, 2007; Wolkowitz, 2002). For-profit firms selling to poorly informed customers have an incentive to engage in hidden action; that is, to provide inferior quality on those aspects of services customers cannot evaluate (Morris and Helburn, 2000; Walker, 1991).

Conclusion

The home care industry has grown exponentially around the world. Within palliative care, the delivery of home care has been promoted as the ideal type of formal care; offering cost savings to local authorities and 'choice' for patients and their families. However, there is a dark side to the commodification of home care that is rarely discussed in the marketing literature. The paper critically examined the marketing mix for the care product, highlighting issues of inequality for patients and carers.

The commodification of care obscures the tensions between providing good quality care and making a profit. It also obscures the affective inequalities for patients and care providers. In the discourses of the market we do not see any suffering or vulnerability. One of the problems associated with importing choice into palliative care services can be explained by the fact that a logic of choice emanates from an economic system of thought which differs from a logic of care (Mol, 2008). Patients in home care are normally vulnerable people who are 'buying' into a service that they desperately need but not necessarily want. On the other hand, carers are doing a job that they might enjoy to an extent but that they would not necessarily choose. When these vulnerable groups meet under market conditions there is a tension between 'care' and 'profit'. Health care policies seem to have not considered the simplistic nature of the language of choice, when using it for home care services. The logic of the market excludes patient's vulnerability, lack of knowledge, the asymmetric relationship, the dependency and the need for care, as well as his or her varying abilities to make choices (Nordrgren 2010). It fails to take account of prior inequalities in power relations, economic and affective resources and differences in cultural values (Lolich and Lynch, forthcoming). The logic of the market also seems

to have overestimated patients' willingness to opt for choice in end of life care and carers' possibility to provide good care under market conditions.

The article underscores the importance of understanding the limitations of care markets and in doing so has highlighted that further work concerning the application of marketing strategies to domiciliary care is warranted. Determining how people can be properly cared for in a way that exploits no caregivers in particular, is the most profound challenge that remains in our society.

Acknowledgments

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Exploring Entrepreneurial Orientation (EO) of Public and Third Sector Organisations at Employee/ Volunteer Level

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Abstract

Public and third sector employees are facing increasing pressure to behave more entrepreneurially in their day-to-day work (Wakkee, Elfring and Monaghan, 2010). Literature on entrepreneurial orientation (EO) highlighted that EO enhances organisational performance, firms' competiveness and product innovation (Rauch et al., 2009; Lumpkin and Dess, 2001). While previous studies on EO have applied the concept in relation to the overall performance of an organisation (Wiklund and Shepherd, 2005), this research explores EO at the individual level (Jelenc, Pisapia and Ivanušić, 2015; Bolton and Lane, 2012; Okhomina, 2010).

The aim of the research is to identify entrepreneurial potential of employees in public and third sector organisations through an Entrepreneurial Orientation perspective. This provides a means to explore potential entrepreneurial behaviour by determining past experience of employees and the extent to which they behave proactively in their current job roles, as opposed to identifying entrepreneurial traits of volunteers and employees.

This research is based on a large European study which explored the EO of 450 employees/volunteers, representing 216 public and third sector organisations spanning across six European countries, including Ireland (South East Region), Iceland, Bulgaria, Greece, Italy (Sicily) and Portugal. This study is a preliminary investigation and the research indicates the value in pursuing this area further. The preliminary findings illustrate that

potentially employees in public and third sector organisations in Iceland and Ireland are more "entrepreneurial" in comparison to the other countries surveyed. Furthermore, the research indicates that there is a relationship between employees/volunteers that display entrepreneurial experience, their educational attainment, and the degree to which they feel empowered in the decision-making processes or are encouraged to seek new opportunities within their work environments.

Keywords: Entrepreneurial orientation; EO; Public sector organisations; Third sector organisations

1.0 Introduction

There is a recognition that public and third sector organisations and their employees/volunteers need to be more entrepreneurial and innovative in pursuit of economic and social development (Diefenbach, 2011; Morris, Webb and Franklin, 2011). This relates to the manner in which public, not-for-profit organisations (NPOs) and communities manage their domains, organise their work and deliver services to their customers. According to Gibb (2002), there is more emphasis and responsibility placed on the role of employees within these organisations in performing their day-to-day duties, hence forcing them to behave more entrepreneurially at work (Wakkee, Elfring and Monaghan, 2010; Zampetakis and Moustakis, 2010; Mair, 2005).

Research into the drive to stimulate and support entrepreneurial behaviour in public sector services has significantly grown over the last two decades (Bysted and Hansen, 2015; Kim, 2010; Zerbinati and Souitaris, 2005) as there is a perceived need to balance the socially driven mission with entrepreneurial actions to deliver greater financial sustainability and efficiency in public sector and not-for-profit organisations (NPO). Also there is evidence to suggest that the community and voluntary sector increasingly makes a valuable contribution to sustaining what is often referred to as 'civil society'[1]; the part of society that is neither in the domain of the state nor the private sector (Defourny and Nyssens, 2010). As a result there is increased interest in studying entrepreneurial behaviour within all types of organisations, regardless of size, age, or industry sector (Kraus, 2013; Zampetakis and Moustakis, 2010; Chell, 2007; Mair, 2005). Entrepreneurial behaviour within organisations (also called intrapreneurship) is regarded as a vehicle for organisational change, a way to improve performance which is essential for innovation (Kearney, Hisrich and Roche, 2008). Moreover, Mair (2005) evoked that entrepreneurial behaviour supports employees on a day-to-day basis in becoming more effective, more alert to innovation and more opportunity-focused.

With respect to entrepreneurial behaviour, entrepreneurial orientation (EO) is a significant resource for achieving greater performance and competitive advantage (Wiklund and Shepherd, 2005; Covin and Slevin, 1991), particularly through individuals' innovative, risky and proactive behaviour (Morris and Kuratko, 2002). EO represents a unique resource for organisations because it cannot be purchased and it is difficult to imitate, as firms invest considerable time in nurturing their EO cultures (Lee and Peterson, 2000). EO can apply to both the organisations and the individual

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[1] Civil society is called the "third sector" of society, along with government and business. It comprises civil society (community and voluntary sector organisations) and non-governmental organisations http://www.un.org/en/sections/resources/civil-society/index.html

(Covin and Lumpkin, 2011), as it is primarily concerned with entrepreneurial behaviour, rather than entrepreneurial traits (Covin and Slevin, 1991).

Although an abundance of literature exists pertaining to the moderating factors of EO at the organisational level (Miller, 2011), the past experience of an individual's entrepreneurial orientation has received limited attention (Jelenc, Pisapia and Ivanušić, 2015; Altinay and Wang, 2011; Okhomina, 2010).

2.0 Theoretical frame

Entrepreneurship is a multidimensional concept that can take place in multiple sites and spaces (Steyaert and Katz, 2004) and is a matter of everyday activities rather than the reserve of an elitist group of entrepreneurs (Gibb, 2002); hence, it should not be seen solely from a business perspective (Cooney and Murray, 2008). Thus, entrepreneurial behaviour and innovation holds the potential to flourish in public and third (including voluntary and social enterprise) sector organisations, but organisational support and encouragement is also important (Bysted and Hansen, 2015; Kuratko, Hornsby and Covin, 2014).

Public sector organisations are facing a dynamic, hostile, and complex set of environmental conditions, with increasing expectations to offer more public choices and to enhance public value creation (Moore, 1995). Literature regarding the public sector has repeatedly suggested that these organisations should become more entrepreneurially oriented as a way to respond to these challenges (Stewart, 2014; Kim, 2010; Currie *et al.*, 2008; Borins, 2002). Kim (2010) supported the concept that the public sector needs to be aligned to stimulate entrepreneurial activities and that employees should be allowed to function beyond the remit of their job description, as organisational rigidity can hinder entrepreneurial and risk-taking behaviour.

While in the private sector antecedents and consequences of a firm's entrepreneurial orientation (EO) have been studied extensively, such research in the public sector is scant (Westrup, 2013; Diefenbach, 2011). In particular, there is limited knowledge about the actual antecedents of EO that stimulate public administration or voluntary staff to be innovative, proactive, and even to some extent risk-taking, in their organisations (Diefenbach, 2011; Currie *et al.*, 2008).

According to Stewart (2014) implementing innovation in the public sector is not so simple, as "many innovative initiatives run against many restrictions and limitations, precisely because they challenge many existing systems, values and processes in the host agencies" (p. 241). Moreover, within social enterprise organisations, an increased demand for services provides reduced funding and increases costs associated with managing their domains (Venables, 2015; Grover and Piggott, 2012). Thus, the challenge that established organisations face is harnessing the energy of highly motivated and opportunity-driven employees who are willing to pursue new products, processes or services in their organisations (Wakkee, Elfring and Monaghan, 2010).

Entrepreneurial orientation (EO) has its origins in strategic management literature and has emerged as a firm-level phenomenon based on the seminal works of Miller (1983) and Covin and Slevin (1989) (all cited in Rauch *et al.*, 2009). EO entails the process aspect of entrepreneurship (Lumpkin and Dess, 1996) and generally refers

to a firm's propensity to be innovative, to be proactive and to take risks (Andersén, 2010). EO is primarily concerned with entrepreneurial behaviour, rather than with entrepreneurial traits (Covin and Slevin, 1991). This refers to the culture within the organisation in terms of how it supports, encourages and empowers employees to seek out and implement new opportunities based on their own initiative. Furthermore, encouraging the development of innovative behaviour has a far greater chance of success if the environment is entrepreneurial in nature (Feldman and Francis, 2004). While EO has been predominantly applied at the firm level, Covin and Lumpkin (2011) argued that the EO analysis varies considerably from SMEs, large organisations to multi-business organisations and, further, the authors contest the view that "...individuals can, for example, exhibit a proclivity toward entrepreneurial thought and action" (p. 857). Such multidimensional views on EO have opened up new research avenues within the EO space, such as the current study which explores the entrepreneurial potential of employees/volunteers in public and third sector organisations through an EO perspective.

3.0 Method

Organisations in the public, voluntary, and social enterprise (SE) sectors were surveyed in six European countries (Bulgaria, Greece, Iceland, Ireland, Portugal and Italy (Sicily)). Individuals from the third and public sectors, regardless of their job roles, were randomly selected and invited to participate in the survey. In total, 450 respondents from 216 organisations were surveyed across the six countries, with the public sector registering the highest number of respondents at 49%, followed by the social enterprise sector at 35% and finally a small sample of voluntary organisations at 16% (see Figure 1).

Figure 1: Respondents by sector (source: authors)
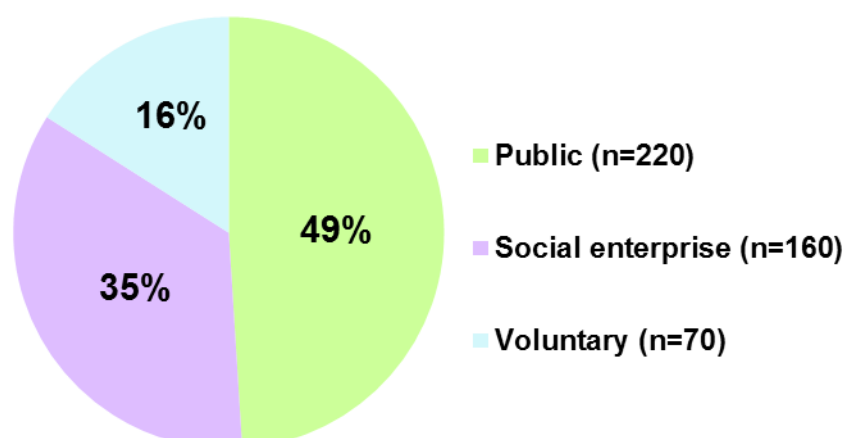
Post an initial pilot survey of six randomly selected respondents from each country, the data was collected over a two month period, electronically by distributing a

survey questionnaire (translated into each country's original language) by email and by post (in Bulgaria, Greece and Portugal) and via Survey Monkey portal (in Ireland, Iceland, and Sicily). Although the data collection processes varied slightly from country to country, the data was analysed by country, by organisation type and gender manually by using Excel Spreadsheets.

Prior to administering the survey, the minimum sample size was established at 50 respondents per country. However, a relatively small number of respondents were surveyed in the voluntary sector, in comparison to the respondents in the public sector where the number of respondents who replied to the survey was three times higher. Table 1 details the number of respondents surveyed and the number of organisations involved by country surveyed.

Table 1: Response rate, number of respondents and organisations surveyed

Country	Targeted sample size	Total Surveyed	Number of valid Responses	Response Rate	Number of organisations
Bulgaria	50	170	50	29.40 %	34
Greece	50	249	49	21.20 %	19
Iceland	50	501	40	8.20 %	34
Ireland	50	225	50	23.10 %	31
Portugal	50	568	209	37.00 %	71
Sicily	50	216	52	24.70 %	27
Total no.	**300**	**1928**	**450**	**-**	**216**

Table 1 informs that the targeted sample size was 50 respondents per country. However, in the case of Portugal the sample size was very high (n=568) and the response rate was the highest of the six countries surveyed at 37%. This yielded a total of 209 valid responses, which was an unexpected outcome of the research. In Portugal, the survey was distributed by email and by post and was sent to as many as 71 organisations, with the feedback from the region that the survey was well received.

4.0 Findings

The findings are divided into three sections. The first section, 3.1, presents the demographics of the survey sample in terms of gender spilt, sector split (public, voluntary and social enterprise), employment level (senior executives, middle management or operative level) and the highest educational attainment of each respondent (from second level to PhD and other types of qualifications). Section 3.2 presents the entrepreneurial orientation of employees/volunteers; and the final section, 3.3, presents the entrepreneurial orientation of the surveyed organisations.

4.1 Demographics

The public sector represented 50% of the Icelandic respondents and 60% of Irish and Greek respondents, while the social enterprise sector included more than half of the survey's respondents in both Bulgaria (64%) and Sicily (56%). As can be seen in Ireland and Sicily, the number of respondents is almost equally represented by females and males. Overall, across all the surveyed countries there were more female respondents (248), than male respondents (203) (See Table 2):

Table 2: Number of respondents surveyed per sector, gender and country

Country	Bulgaria		Greece		Iceland		Ireland		Portugal		Sicily		Total No. of M/F per sector		Total No. of Respondents per sector
Sector/Gender	M	F	M	F	M	F	M	F	M	F	M	F	M	F	F/M
Public	3	6	12	17	9	11	16	14	43	85	3	1	86	134	220
Voluntary	4	5	0	0	4	9	4	5	16	4	12	7	40	30	70
Social E	11	21	10	10	2	5	5	6	37	24	12	17	77	83	160
Total no. of M/F	18	32	22	27	15	25	25	25	96	113	27	25	203	247	450
Total no. of respondents	50		49		40		50		209		52		450		450

[F-females, M-males, Social E- social entreprise]

As illustrated in Table 2, there is a high number of respondents from the Portuguese sample, especially those from the public sector (85 females, 43 males). The high number of survey responses in Portugal was an unexpected outcome and may relate to the fact the survey was sent online to many public sector organisations that included a high number of employees.[2]

Table 3 illustrates the total number of male and female respondents across sector organisations from each of the six countries[3], who indicated their level of employment and the type of job roles they perform within their organisations.

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[2] Most of the municipalities surveyed in Portugal employ a relatively high number of staff, approx. 50-125 employees; this is a higher number in comparison to the other surveyed countries.
[3] As regards Greece, there were no responses to these questions.

Table 3 : Employment role by gender, sector and country

	Country	Bulgaria		Greece		Iceland		Ireland		Portugal		Sicily	
Country	Employment Level	M	F	M	F	M	F	M	F	M	F	M	F
Public	*Senior Ex.*	2	1	-	-	4	4	5	1	13	0	2	1
	Middle Manager	0	0	-	-	5	7	4	3	0	0	1	0
	Operatives	1	5	-	-	0	0	7	10	30	85	0	0
Voluntary	*Senior Ex.*	1	3	-	-	2	6	0	1	8	0	1	4
	Middle Manager	2	2	-	-	2	3	2	2	0	0	9	2
	Operatives	1	0	-	-	0	0	2	2	8	4	2	1
Social E	*Senior Ex.*	8	7	-	-	0	3	3	3	23	0	3	6
	Middle Manager	0	1	-	-	2	2	1	0	0	0	6	9
	Operatives	3	13	-	-	0	0	1	3	14	24	3	2
Total no. of M/F per country		18	32	-	-	15	25	25	25	96	113	27	25
Total no. of respondents		50		No Data		40		50		209		52	

[M-males; F-females; Senior Ex. - senior executives]

In Iceland, all respondents are either senior executives or hold middle management positions in their organisations; these roles are also equally distributed among female and male respondents in the public sector. In the public sector in Portugal and Ireland, there were more males who are in 'senior management' roles, in comparison to females who hold rather more administrative or 'operative' roles. For example, in Portugal, across all the sectors, there is a notable contrast in roles held by females and males, with more males holding senior management positions (44 out of 96), and with all 113 females holding 'operative' roles.

Respondents were requested to indicate their highest level of educational attainment which is illustrated in Table 4.The majority of respondents in the Bulgarian public sector reported a relatively low level of educational attainment that is, a certificate level of education (38 out of 50). A similar finding is reported in Portugal, where more than half of the female respondents (53 out of 85) attained as their highest level of education either at second level (21) or a certificate degree (32). Moreover, the level of education attained among males and females in the public sector in Portugal is similar. However, five of the female respondents have a PhD (in the public sector) in comparison to none of the male respondents. Overall, it was surprising to see that in Portugal, of the total number of 209 respondents, there were only 5 respondents who attained a PhD.

Table 4: The level of education attainment

Sector	Education level	Bulgaria		Greece		Iceland		Ireland		Portugal		Sicily	
		M	F	M	F	M	F	M	F	M	F	M	F
Public	*Second*							1		13	21		
	Certificate	3	4			1	1		1	10	32		
	Degree				10		7		5	15	18	3	1
	P Grad			8	5	8	2	12	6	5	9		
	Ph.D.		2	4	2			3	2		5		
	Other						1						
	Total M/F	3	6	12	17	9	11	16	14	43	85	3	1
Voluntary	*Second*	1	2	-	-				1				
	Certificate	2	2	-	-	1	1		1	6		2	1
	Degree			-	-		4	1	2	10	4	5	2
	P Grad			-	-	2	3	2	1			5	3
	Ph.D.	1	1	-	-	1	1	1					1
	Other			-	-								
	Total M/F	4	5	-	-	4	9	4	5	16	4	12	7
Social E	*Second*	1	1		1					4	5		
	Certificate	9	18		2	1	1					1	2
	Degree	1		6			1		1	33	19	7	8
	P Grad			4	6	1	2	4	4			4	6
	Ph.D.		2		1				1				1
	Other	0	0				1	1					
	Total M/F	11	21	10	10	2	5	5	6	37	24	12	17
Total no. of M/F per country		**18**	**32**	**22**	**27**	**15**	**35**	**25**	**25**	**96**	**113**	**27**	**25**
Total no. of respondents		**50**		**49**		**40**		**50**		**209**		**52**	

[Sec-second level of education; M-males; F-females; P Grad- Post Graduate]
(

In contrast, in Ireland, Iceland and Greece the level of educational attainment is relatively high, with most of the respondents holding a post graduate degree, at 29 out of 50, 18 out of 40 and 23 out of 49, respectively. For example, in Ireland the education attainment among respondents is relatively high with 58% of respondents holding a post graduate level of education, of which 62% are from the public sector.

4.2 Entrepreneurial orientation of employees/volunteers

To identify existing entrepreneurial orientation of individuals/volunteers working within the public and third sectors, survey respondents were asked if they had any past entrepreneurial experience (see Table 5), and what was the category of their experience (for example owner of a business, or had established a club or society). Table 6 categorises respondents' initiatives (for example setting new goals, developing new products/services/processes/procedures) in their workplace.

Table 5 : Prior entrepreneurial experience of respondents

Type of organisation	Country	Bulgaria		Greece		Iceland		Ireland		Portugal		Sicily	
	Gender	M	F	M	F	M	F	M	F	M	F	M	F
	No	1	4	2	9	3	4	5	5	28	67	2	1
	Total F/M	3	6	12	17	9	11	16	14	43	85	3	1
Voluntary	Yes	2	4	-	-	4	9	4	4	10	3	10	6
	No	2	1	-	-	0	0	0	1	6	1	2	1
	Total F/M	4	5	-	-	4	9	4	5	16	4	12	7
Social Enterprise	Yes	8	8	7	6	2	5	3	4	22	8	12	11
	No	3	13	3	4	0	0	2	2	15	16	0	6
	Total F/M	11	21	10	10	2	5	5	6	37	24	12	17
Total no. of M/F per country		18	32	22	27	15	25	25	25	96	113	27	25
Total no. of respondents		50		49		40		50		209		52	

[F-females, M-males, Yes-respondents with experience, No-respondents without experience]

Table 6: Types of organisations started/initiated by respondents

Sector	Country / Types of org.	Bulgaria M	Bulgaria F	Greece M	Greece F	Iceland M	Iceland F	Ireland M	Ireland F	Portugal M	Portugal F	Sicily M	Sicily F
Public	O.B.			8	4	4	6	4	1	15	12		
	Club	1		2	1	4	2	5	5			6	1
	Society		1				2	2	3				
	Vol. Gr.	1			2	2	1	5	3			1	
	Intrst. Gr.		1		1	2		4	2				
	Lobby Gr.					4	3	1					
	Other			1	1	1	1	1	1				
	No. of M/F with past experience	2	2	10	8	6	7	11	9	15	18	1	0
	No. of organisations	2	2	11	9	19	13	20	15	15	18	3	0
Voluntary	O.B.		2	-	-	1	3	3	4	4	1	1	
	Club	1	1	-	-	1	3	1	2	1	1		
	Society		1	-	-		3	1	2		1	2	2
	Vol. Gr.	1		-	-	1	2	2	2	3		4	2
	Intrst. Gr.			-	-		1					1	1
	Lobby Gr.			-	-	1	2		1	1			
	Other			-	-		2			1		2	1
	No. of M/F with past experience	2	4	-	-	4	9	4	4	10	3	10	6
	No. of organisations	2	4	-	-	4	16	7	11	10	3	10	6
Social Enterprise	O.B.	5	8	3	3	1	5	2	4	12	4	4	
	Club	1		3	2			2	1				
	Society	1	1						2	5		2	1
	Vol. Gr.	1		1				1	2	5	4	3	6
	Intrst. Gr.		1	2		1		1	1			1	3
	Lobby Gr.							1	1				
	Other			1	3			1	1			2	1
	No. of M/F with past experience	8	8	7	6	2	5	3	4	22	8	12	11
	No. of organisations	8	10	9	8	2	7	8	10	22	8	12	11
Total no. of respondents		50		56		40		50		209		52	

[O.B. - owner of the business; F-females, M-males; Gr. – group; Intrst.-interest group;
Other- another type of organisation stated by respondents;
No. of organisations- the total number of organisations started by males/females in that sector]

Table 5 shows that most of the respondents had past entrepreneurial experience (outside of their workplace), with Iceland at 83% (33 out 40) Sicily at 77% (40 out of 52), Ireland at 74% (35 out of 50) with the highest number of respondents, followed by those in Greece at 63% (31 out of 50) and Portugal, at only 36% (76 out of 209). Table 6 explores the findings as to whether respondents behave entrepreneurially in their current organisation; that is if they ever initiated or improved work goals, processes, product/services or procedures within their organisations. Overall most of the respondents across the three sectors, except some females from the public sector in Bulgaria and male respondents in Sicily, indicated that, in their view, most

of them "contributed" in various ways in their organisations' operations, either internal ones (i.e. setting goals, revision of processes or procedures) or external improvements.

As regards respondents' type of improvements (see Table 7) in the public sector the data indicates that most of the employees have contributed in various ways to their organisations, and main areas of improvement include: "services" in Greece (79%), "processes" in Ireland (90%), and "goals" in both Iceland (65%) and in Portugal (30%). It was also interesting to see that in Portugal all respondents across all three sectors stated they took a very proactive approach to improvements at work, with each respondent claiming that he/she has contributed to at least one improvement at work.

Table 7: Improvements made by respondents in their respective organisations

Sector	Country / Types of improvement	Bulgaria M	F	Greece M	F	Iceland M	F	Ireland M	F	Portugal M	F
Public	Goals	0	1	3	3	7	6	13	8	14	24
	Products	1	0	2	2	3	3	6	4	8	9
	Services	1	1	11	12	6	7	13	10	11	17
	Processes	1	2	0	0	3	7	14	13	4	19
	Procedures	0	2	8	10	5	7	2	13	6	16
	Other	0	0	0	0	0	0	1	0	0	0
	Yes	3	3	11	12	7	7	14	13	43	85
	Total No. M/F	3	6	12	17	9	11	16	14	43	85
Voluntary	Goals	1	2	-	-	4	7	4	4	6	1
	Products	0	1	-	-	3	6	2	3	4	1
	Services	1	0	-	-	3	9	4	4	4	1
	Processes	1	2	-	-	2	6	3	4	2	1
	Procedures	1	0	-	-	2	6	4	2	0	0
	Other	0	0	-	-	0	0	0	1	0	0
	Yes	2	4	-	-	4	9	4	5	16	4
	Total No. M/F	4	5	-	-	4	9	4	5	16	4
Social Enterprise	Goals	2	3	1	3	2	1	5	5	16	12
	Products	1	2	0	1	1	4	3	2	5	8
	Services	3	7	8	6	1	3	4	3	5	1
	Processes	3	5	0	0	2	1	3	3	8	2
	Procedures	2	4	6	7	2	2	4	0	3	1
	Other	0	0	0	0	0	0	3	0	0	0
	Yes	6	12	8	7	2	4	5	5	37	24
	Total No. M/F	11	21	10	10	2	5	5	6	37	24
Total No. of respondents		50		49		40		50		209	

[Total No. of M/F - total number of females and males per each sector type]
(Source: authors)

On the other hand, the data indicates that respondents in the public sector, especially females in Bulgaria and males in Sicily, appear to behave less proactively or entrepreneurially in their organisations. Moreover, it is interesting to see that from the three male employees in the public sector in Sicily, with one holding a "middle management" role and the other two "senior executive" roles, none of them has ever contributed or improved any processes, services, or goals in his respective organisations.

4.3 Entrepreneurial orientation of organisations

The final section of the questionnaire asked respondents if their organisation requires them to be entrepreneurially oriented or not within their workplace and explored the level of encouragement, empowerment and the need for innovative/creative behaviour in their respective organisations (see Table 8).

Table 8: Encouragement, empowerment and the importance of innovative/creative behaviour in the organisation

	Country	Bulgaria				Greece				Iceland				Ireland				Portugal				Sicily			
	Sector	M		F		M		F		M		F		M		F		M		F		M		F	
	Yes/No	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Encouragement	Public	3	0	3	3	11	1	9	8	7	2	9	1	13	3	12	2	22	21	52	33	0	3	1	0
	Voluntary	4	0	5	0	0	0	0	0	3	1	7	2	3	1	5	0	14	2	4	0	12	0	7	0
	Social Enterprise	9	2	15	6	5	5	6	4	2	0	5	0	5	0	6	0	22	15	22	2	12	0	17	0
	Other									1						1									
	Total no. of respondents	50				49				40				50				209				52			
Empowerment	Public	3	0	3	3	8	4	9	8	9	0	9	2	13	3	10	4	42	1	60	25	0	3	1	0
	Voluntary	4	0	5	0	0	0	0	0	4	0	9	0	4	0	5	0	14	2	4	0	12	0	7	0
	Social Enterprise	10	1	18	3	4	6	7	3	2	0	5	0	5	0	6	0	22	15	22	2	11	1	17	0
	Other													1											
	Total no. of respondents	50				49				40				50				209				52			
Innovative behaviour	Public	3	0	6	0	12	0	15	2	7	2	9	1	15	1	11	3	41	2	80	5	1	2	1	0
	Voluntary	4	0	5	0	0	0	0	0	2	1	4	5	4	0	5	0	16	0	4	0	12	0	7	0
	Social Enterprise	11	0	21	0	10	0	10	0	2	0	4	1	5	0	6	0	27	10	22	2	12	0	17	0
	Other									2															
	Total no. of respondents	50				49				40				50				209				52			

['Other'- additional comments made by respondents to the survey questions;
Y-yes, N-no, F- females, M-males]

Employees in the public sector organisations do not appear to enjoy the same levels of decision-making empowerment and encouragement as those respondents in the voluntary sector organisations. For instance, while nearly all respondents in the voluntary sector indicated they feel empowered in decision-making processes and/or encouraged to seek new opportunities (except a small number of males in the voluntary sector in Portugal), there is a tendency that female employees in the public

sector (for example in Bulgaria 50%, Greece 52% and Portugal 61%) are not encouraged nor empowered as much as their male counterparts in their organisations. However, this may be linked to the nature of work they perform, as most of these females hold operative roles in their organisations.

As regards to the innovative/creative behaviour, Table 8 illustrates that the majority of respondents concur that it is important for employees to be creative and innovative within their work environments, with Bulgaria (50), and Ireland (47) registering the highest, followed by Sicily (except males in the public sector) and Iceland (28) with the lowest rate of consensus to this question. Overall, (5 out of 9) female respondents in the voluntary sector in Iceland and all males in the public sector in Sicily (3) indicated that they are not required to be innovative and creative in their work. This is an interesting finding considering that all males in the public sector in Sicily are in higher-management positions in their organisations, similar to those in the voluntary sector in Iceland where 6 out of 9 females hold senior executive positions.

5.0 Discussion

A key focus of this paper was to explore volunteers'/employees' EO in public and third sector organisations in order to identify entrepreneurial potential by determining past experience and the extent to which they behave proactively in their current job role. Another important objective was to ascertain organisations' EO and hence the level of organisational support for employees'/volunteers' entrepreneurial and innovative behaviour. For this purpose, this study adopted an EO framework which facilitated a reconciling of both perspectives of EO - the individual and the organisational which enriches the knowledge and facilities further research avenues regarding EO at the individual level. The discussion section is divided into the following three subsections.

5.1 Past entrepreneurial experience
The results illustrate that entrepreneurial experience was present across all sectors and countries surveyed showing strong levels in Iceland (83%), Sicily (77%), Ireland (74%), Greece (63%), and showing lower levels in Portugal (36%). Overall, respondents in Iceland and Ireland, across all three sectors, display a high level of past entrepreneurial experience, with a relatively high number of respondents in the public sector who declared such experience (see Table 5).

Prior entrepreneurial experience incorporates a range of skills and experiences such as business planning, development and project management, but also experience and knowledge in risk-taking, teamwork, leadership and reasonability and a confidence in one's own ability (Gibb and Hannon, 2006). It is probable that prior entrepreneurial experience assists public and third sector employees in their day-to-day job role and how they deliver services to their customers (Cooney, 2012). Individuals with creative (and/or entrepreneurial) tendencies will, most likely, perform that way in other areas of their life; for example in their workplace. Moreover, the employees/volunteers who display high levels of past entrepreneurial experience are more alert in opportunity-seeking (Kirzner, 1979) and may be more receptive to innovation (Drucker, 1985). They may also be more capable of leveraging necessary knowledge and skills that may lead to a high number and variety of improvements,

as appears to be in the case of respondents in Iceland, Ireland and Greece (see Table 7).

A noteworthy finding for Iceland is that the corresponding number of female respondents who registered with prior entrepreneurial experience across all three sectors is slightly higher (21 out of 25) than males (12 out of 15) (see Table 5); especially in the public sector where more than half of public sector females in Iceland (6 out of 11), declared they had initiated their own business. This is contrary to findings in the other countries surveyed where more males in comparison to females reported business-related past entrepreneurial experience (see Table 5). This also appears to be contrary to findings by Grilo and Thurik (2008) who suggested that females typically display lower levels of entrepreneurial engagement and enterprising behaviour than males.[4]

Overall, the data informs that respondents in the public and social enterprise sectors do not appear to display the same level of past entrepreneurial experience as those employees/volunteers in voluntary sector organisations, especially respondents in the social enterprise sector in Bulgaria, Greece and Portugal, where less than a half of females registered past entrepreneurial experience (see Table 5). This may suggest a reason as to why they display a lower level of entrepreneurial behaviour in their work environment (see Table 7). Furthermore, the data also indicates that, for the voluntary sector organisations across all countries (except Iceland), there are more females who indicated they had past entrepreneurial experience, in comparison to male employees. In a similar vein, in the voluntary sector organisations, it appears that more female employees take a proactive approach in improving "things" at work, in comparison to male employees; and especially female employees in Sicily, where nearly all females (6 out of 7) stated they have contributed, mostly, to "services" aspect in their organisations (see Table 7). This finding appears to be consistent with a study by Hopkins (2010) who reported that usually females appear to be the ones employed in the higher positions in voluntary sector organisations, hence having more freedom to nurture new opportunities at work.

Overall there was a high level of educational attainment among respondents in Greece, Ireland and Iceland (at 61%, 64% and 45%, respectively) who attained at least a post graduate educational qualification. These respondents also displayed a relatively high level of proactive behaviour at work (at 79%, 90% and 70%, respectively) by contributing in various ways to their organisations' "goals, processes, procedures, services and products" (see Table 7). This finding appears to coincide with a study by Jelenc, Pisapia and Ivanušić (2015), who confirmed that achievement of a high educational degree, combined with past entrepreneurial experience, creates entrepreneurs with higher levels of pro-activeness at work.

Entrepreneurial experience can come in many forms and in many cases is driven by a level of optimism (Ucbasaran *et al.*, 2009) and therefore as a behaviour, outlook or ability, it is not solely limited to just the creation of an economic entity (Chell, 2007; Gibb, 2002). The creation of clubs, societies, voluntary or interest groups are examples of a level of individual entrepreneurial orientation and entrepreneurial

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[4] Grilo and Thurik (2008) used data from two surveys (2002 and 2003) containing over 20,000 observations of the 15 old EU member states, Norway, Iceland, Liechtenstein and the US.

spirit. Overall, what emerged from the primary findings is that organisations in which respondents indicated high levels of prior entrepreneurial experience and higher educational qualifications appear to have employees who are more proactive in improving many different aspects within their work environments. However, this is contrary to what was experienced in Portugal, where 65% of all respondents did not engage in prior entrepreneurial activity, yet all of them stated they were proactive in improving different aspects of their work, especially those employees in the public sector.

5.2 Organisations' EO empowerment and encouragement

The extent to which an organisation can be identified as entrepreneurial depends on the organisation's ability to empower employees/volunteers to be more creative and proactive at work (Kuratko, Hornsby and Covin, 2014; Mulgan and Albury, 2003). This view was supported by Fernandez and Pitts (2011) who suggested that empowerment and employees' involvement in decision-making processes is one of the pivotal factors that may spur bottom-up innovation in public sector organisations. However, in this study the survey data reports that many public sector respondents (75% in Sicily, 42% in Portugal, 33% in Bulgaria) are not encouraged to look for new opportunities, nor are they empowered in the decision- making process within their organisations (75% in Sicily, 47% in Greece, 33% in Bulgaria).

For instance, while nearly all respondents in the voluntary sector indicate they feel empowered in decision-making processes and/or encouraged to seek new opportunities (except a small number of males in the voluntary sector in Portugal), there is a tendency that female employees in the public sector (for example in Bulgaria 50%, Greece 52% and Portugal 61%) are not encouraged nor empowered as much as their male counterparts in their organisations. However, this may be linked to the nature of work they perform, as most female respondents hold "operative" roles (see Table 3) in their organisations, hence the remit of their job description may limit their decision-making latitude, as anticipated by Wakkee, Elfring and Monaghan (2010).

According to Kuratko, Hornsby and Covin (2014) and Fernandez and Pitts (2011), one of the important drivers of employees' innovative behaviour is empowerment and perceived job autonomy that not only creates feelings of safety but also spurs the motivational state needed for generating creative solutions (and therefore improvements) at work. However, this study indicates that empowerment at lower grades (roles) may not necessarily impede one's ability to instigate different improvements at work. This was illustrated in regard to females in the public sector in Greece and Portugal, who, despite their low empowerment in their organisations, claimed they were proactive in improving many different aspects of work. Overall, it appears that respondents from voluntary sector organisations feel the most encouraged to seek new opportunities and also feel empowered in decision-making processes in their organisations, especially among female employees across all the six countries.

5.3 Proactive and innovative behaviour in the workplace
With respect to innovative behaviour at work most respondents concur that it is important to behave innovatively and creatively at work with an overall high consensus among respondents in Bulgaria (100%), Portugal (91%), Sicily (96%), Ireland (92%), Greece (96%), and Iceland (73%). However, an unexpected finding was that the highest number of respondents who did not support this view was from Iceland (27%). This may support the contention made by Sandberg, Humerinta and Zetting (2013) that, being entrepreneurial does not necessarily mean being innovative and some organisations (also individuals) that may be entrepreneurially orientated may not necessarily be (or wish to be) innovative (Drucker,1985).

Overall, (5 out of 9) female respondents in the voluntary sector in Iceland and all males in the public sector in Sicily, indicated that they are not required to be innovative and creative in their work (see Table 8). This is an interesting finding considering that all males in the public sector in Sicily are in higher-management positions in their organisations, similar to those in the voluntary sector in Iceland where 6 out of 9 females hold senior executives positions (see Table 3).

This paper concurs with Mair's (2005) conceptualisation of "day-to-day" entrepreneurship, where individual entrepreneurial behaviour includes a spectrum of activities, ranging from autonomous to integrative/cooperative behaviour, to find entrepreneurial ways of getting things done (i.e. at work). This research also concurs with the view of Bolton and Lane (2012) who emphasised that an understanding of an individual's EO can firstly lead to more cohesive and successful project teams and also can be valuable to future business owners, managers, educators and organisational leaders. However, in order for employees of public and third sector organisations to be able to act on their creative/entrepreneurial abilities, they need to be empowered and encouraged to do so from within their own organisations.

6.0 Conclusions

It is important to fully understand the entrepreneurial potential of any workforce as all individuals have the potential to think and behave entrepreneurially. The aim of this study was to identify entrepreneurial potential of employees within pubic and third sector organisations by exploring the EO of individual employees and the extent to which they can be entrepreneurial within their respective organisations. It is evident from the findings that public and third sector organisations should consider the entrepreneurial potential of their employees, taking into consideration their employees' past entrepreneurial experience. This knowledge can be used to enhance the efficiency, affectivity and service delivery of public and third sector organisations. A major contribution of this research is that it adds a new dimension to existing research on EO, especially the approach of exploring EO at employee/volunteer level in public and third sector organisations.

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Integrating Visual Literacy Training into the Business Curriculum. A Case Study at Dublin Business School

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Abstract

Visual literacy, the ability to interpret, analyse and create visual material, is an increasingly crucial skill for today's graduates. However, this importance has not yet led to its teaching being widely introduced into the third-level curriculum. This study uses a constructivist and social constructivist approach to introduce a visual literacy element to a business curriculum. This took the form of five projects: creation of an album cover, a poster and artefact presentation, a walk along a river to facilitate learning via visual stimulation, abstract art creation through use of image manipulation software and a photography exhibition. Students responded positively to the projects; self-reported improvement in skills and confidence are in line with results of previous studies. Students also noted the ease of use of PowerPoint as an image manipulation tool.
Keywords: Visual literacy; Visualisation; Business education

Introduction

Today's business environment is very visually oriented. Globalisation mandates an increased visual element to business communications. Organisations can spend large sums of money on logo design, while advertising - an image-rich discipline - has become almost ubiquitous. The need for graduates to be visually literate in this technological age was never greater. Baker (2006) suggests that business communication modules, for example, are "ideal for teaching visual communications principles and techniques."

Debes (1968) identifies visual literacy as the "ability to interpret, negotiate and make meaning from information presented in the form of an image" and is based on the idea that meaning can be communicated through the "reading" of images. Television, the internet, new information and communication technologies (e.g. smartphones,

laptops and tablets) as well as film and advertising industries, all contribute to the "flood of visual messages" in which modern society is awash. Bamford (2003) states that there are many forms of visual communication, including gestures, objects, signs and symbols, and shows the ubiquity of visual material; for example: dance, film, fashion, hairstyles, exhibitions, public monuments, interior design, lighting, computer games, advertising, photography, architecture, and art. Using new information and communication technologies it is now easier to create and manipulate images than it has ever been in the past, hence, more recent definitions of visual literacy have been expanded to include the ability to not just analyse or interpret, but also to create visual material (Hattwig *et al.*, 2013).

Visual literacy is increasingly essential for communicating and navigating the modern world. The literature review of this study indicates that this implementation of visual literacy modules across the higher education curriculum has not been widespread. Blummer (2015) provides a literature review of visual literacy training in academic institutions. Many of the studies that she cites are pilot projects or are implemented at course or departmental level as opposed to institutionally. Hill (2003) cited in Blummer (2015, p. 128) argues that higher education lacks a 'pedagogy of visual rhetoric'. Daly (2003) also cited in Blummer (2015, p. 37) argues that 'visual media are perceived as inferior communication forms when compared to print'. This lack of visual rhetoric contradicts the requirements of the modern curriculum and of industry.

Research question
Visual literacy instruction is delivered in a small number of business programmes at Dublin Business School using a social constructivist approach. This paper seeks to address the following research questions:

1. Does visual literacy impact students' confidence levels?
2. Does visual literacy impact students' technical skills?
3. Do students feel that visual literacy training enhances their employability?
4. How do students rate the learning experience in a visual literacy initiative?

The above research questions are explored in the context of an extensive overview of the literature and a detailed outline of the visual exercises that are used at DBS and of the social constructivist teaching approach that underpins them.

Literature review

Early definitions
A Google Scholar search for the phrase "visual literacy" returns around 33,000 results. However, more than 33% of these results were published in the last 5 years, suggesting that it is a topic of growing scholarly interest. This coincides with a growing use of multimedia in all areas of everyday life. The field of education is no exception: although illustrated textbooks date from the 17th century, today the impact of visual material on the learning process is growing ever deeper.

 Although visual literacy was first defined by John Debes in 1968, the concept is far older; the poet Simonides of Ceos asserted "Words are the images of things" (Benson, 1997). Similarly, Aristotle stated "without image, thinking is impossible" (Benson, 1997). Going back farther than Ancient Greece, Egyptian hieroglyphs – picture with meaning – form a bridge between images and words.

Debes' definition of visual literacy is not the only one extant. Wileman (1993) defined visual literacy as "the ability to 'read,' interpret, and understand information presented in pictorial or graphic images". Associated with this is visual thinking "the ability to turn information of all types into pictures, graphics, or forms that help communicate the information". Heinich *et al.* (1999) have a similar definition: "the learned ability to interpret visual messages accurately and to create such messages". Stokes (2001), in a comprehensive review of the literature, defined visual literacy as "the ability to interpret images as well as to generate images for communicating ideas and concepts".

Visual literacy in the technological age
More recently, definitions of visual literacy have shifted in meaning to reflect modern day trends (such as increased technology use). Technology also facilitates more readily the creation and dissemination of visual images. Stokes (2001) suggests that the printing press led to a separation of words (type) and pictures (illustrations), which is now being reversed because of the ability of computers to graphically display information, "allowing for deeper insights as well as heightened abilities to communicate data and concepts".   Therefore incorporated into more recent definitions are "communication", "messages" and "creating" or "composing" (Hattwig *et al.*, 2013). For example, Johnson (2006) states that "visually literate individuals have an imaginative ability to see and understand the messages communicated with images, as well as to create, modify, and use visual cues and images", while Metros (2008) talks of the "ability to decode and interpret (make meaning from) visual messages and also to be able to encode and compose meaningful visual communication".   The best definitions of visual literacy according to Brumberger (2011) include both "an interpretative and a productive component".   Thus contemporary definitions require the ability to not only analyse and interpret visual material, they require the ability to create visual material too (Hattwig *et al.,* 2013).

Benefits of visual literacy
Yenawine (1997) states that visual literacy promotes critical and creative thinking. Flynt and Brozo (2010) list a variety of benefits to teaching children visual literacy. These include better verbal skills; self-expression and ordering of ideas; motivation and interest in a variety of subjects; better chances of reaching the disengaged; improved self-image and relationship to the world and more self-reliance, independence, and confidence.   Silverman and Piedmont (2016) state that their students have more self-belief and are better able to express themselves, a conclusion shared by Dinham *et al.*, (2007) who assert that visual literate students "are active participants in the process of communicating ideas and making new meanings". Bintz (2016) suggests that visual literacy promotes leadership skills such as critical thinking, problem-solving, visual communication and self-reflection. Ali-Khan (2011) notes the potential to better engage and motivate students in the context of visual literacy education, and suggests that "it is becoming increasingly

important that we as educators harness the vibrant power of visual communication, and that we try to find ways to engage our students in working together with us in decoding images and in producing them".

The educational response

The benefits of visual literacy have not gone unnoticed by educators and policy makers, who have developed an interest in the role that visual representation can play in education. There is a perceived need for a change in curricula to help navigate a more visually-oriented world. Many researchers believe that although students live in a visually saturated society, this exposure does not necessarily lead to better visual literacy (e.g. Felten, 2008; Avgerinou, 2009; Flynt and Brozo 2010; White, Breslow and Hastings, 2015). Bleed (2005) noted that "although visuals and media have become ubiquitous in our society during the 21st century, words and text still dominate literacy efforts within education" while Ali-Khan (2011) declared that "Schools value one language system and students others – this prompts me to question the degree to which schools are equipping students to decode and read a world that is thick with visual knowledge". In a similar vein, Silverman and Piedmont (2016) note "Years are spent teaching students grammar and paragraph construction so that they can become strong written communicators, but rarely is the same attention spent on the elements of visual communication". The result, Emanuel and Challons-Lipton (2013) suggest, is "that today's college students may be adrift in a sea of images with little ability to see beyond their own generation", while Pauwels (2008) asserts that those who are not visually literate are only partially literate.

Curricula integration

With regard to studies on the teaching of visual literacy, there is as much literature on first and second-level as third level teaching. It is logical to teach visual literacy at an early age as Berger (1973) explains, "Seeing comes before words. The child looks and recognizes before it can speak". Lopatovska *et al.* (2016) describe teaching visual literacy to young children using art images. Mbelani (2008) self-reflects upon teaching and assessing visual literacy in a South African secondary school. Zambo used visual literacy to help adolescents understand how images influence their lives. Stafford (2011) outlines the use of picture books, film,

At third level the teaching of visual literacy has been introduced across the curriculum. For example in: art and design (Andrews, 2016) statistics (Young and Ruediger, 2016), dermatology (Griffin *et al.*, 2016), library and information science (Beaudoin, 2016), inter-disciplinary studies (Little, Felten and Berry, 2015), geography (Hollman, 2014), science, technology, engineering and mathematics (Cook, Teaff and Cook, 2015), politics and international relations (Holland, 2014), teacher training (Wilhelm, 2005) and art and computer science (Eber and Wolfe, 2000).

The aforementioned studies illustrate breadth of visual literacy training rather than depth within educational curricula. They also indicate that the integration of visual literacy training within the curricula, whilst commendable, remains in its infancy and tends to be ad hoc and informal (non-accredited) by nature.

Pedagogical approach

Visual literacy is taught not only as an end in itself but also as a method of improving students' learning skills – with mixed results. Chanlin (1998) found that while the use of graphics enhanced the learning experience, the effect was dependent upon the prior knowledge of the students.   Ernst, McGahan and Harrison (2015) set students the task of producing an animated video in an attempt to inculcate creative visual literacy. There was no change in depth of topic understanding between this cohort and previous years', but students who produced the video showed poorer learning outcomes. Ernst, McGahan and Harrison conclude that producing the video was disruptive to wider learning because of the involved and novel nature of the task. Other initiatives have been more successful: Naghshineh *et al.* (2008) observed that formal art observation training improved medical students' visual diagnostic skills, while Milkova *et al.* (2013) used analysis of artworks to develop higher-level thinking skills and prompt greater engagement with course material in undergraduate biology students.

The literature demonstrates engagement with visual literacy training across a broad range of subject disciplines and with varying degrees of success in terms of pedagogical approaches. More formalised integration of visual literacy training within the curricula would ensure standards in relation to pedagogical approaches with proven outcomes. Studies with negative outcomes remain useful, however, in relation to informing best practice as in what approaches don't work.

Business curricula integration

Business is a discipline that would benefit from increased visual literacy training. We live in a world in which images exert great influence in how we conduct business.   In an era of globalisation, using visuals to communicate can overcome language barriers. The sub-disciplines of advertising and marketing are rich in imagery and the number of adverts seen by people in urban areas more than doubled in the period between 1976 and 2006 (Story, 2007).

Although scholars and researchers have been repeatedly calling for the inclusion of a visual literacy component in business courses (Bernhardt, 1986; Brumberger, 2005; Kostelnick, 1988; Rosenquist, 2012) few have picked up the gauntlet. Schultz (2006) included the use of visual enhancements in a creativity and communication module of a marketing course, stating that having students able to express themselves visually helps make them more effective communicators who have a competitive edge in the market place. Baker (2006) offers suggestions on the integration of visual literacy components into business communication courses, asserting that the addition of this visual material will give students greater ability to produce textually and visually powerful documents. Andrews (2016) discusses a visually literacy module, which, although primarily designed for art and design students, can easily be adapted for business courses. Toth (2013) describes an approach to teaching infographics in a business course, which involves both analysing and creating infographics. Siu-Kay (2010) describes an elective module in which business students are introduced to visual semantics and syntax and then design business promotional materials. Siu-Kay notes that the course is very

popular and, despite the maximum class size increasing by 25%, it is always fully subscribed.

Studies pertaining to integration of visual literacy into the business curriculum illustrate successful approaches using a wide range of media already embedded and ubiquitous in the business world such as PowerPoint and infographics. Additionally the aforementioned studies illustrate that visual literacy training can enhance soft as well as technical skills for the business world such as leadership and communication skills.

Visual literacy education in Ireland

There is a paucity of academic literature on the use of visual literacy in an Irish education setting. Existing studies focus on visual literacy at first and second level predominately. In an Irish context, visual literacy is often considered a component of a wider definition of literacy. Daly (2015) mentions visual literacy in passing while discussing a digital literacy framework to support teaching of special needs students, while Barnes *et al.* (2007) touch upon visual literacy in their report on critical media literacy in Ireland. Danos (2014) reviews the emergence of graphicacy "otherwise known as visual literacy" in a number of countries noting that Ireland has a "long tradition of graphical education, which has typically been associated with vocational education." Seery, Lynch and Dunbar (2011) review the nature and evolution of second level graphical education in Ireland.

Butler (2013) suggests that the integration of visual and digital literacy into the school curriculum can improve oral and written language development in a class of 6-8 year olds. Sweeney-Burt (2014) explored primary school children's visual literacy while implementing a technique for telling and presenting stories using digital media.

Holland, O'Sullivan and Arnett (2015) explore visual literacy within the higher education environment by exploring the effect on cognitive load of including images within histology exam multiple-choice questions.

Educational standards

Despite much discussion there does not appear to be any co-ordinated attempt to standardise requirements to teach visual literacy. Bamford's white paper (2003) suggested strategies to promote visual literacy in the classroom, advocating that the teacher should provide creative experiences centred on technology noting that it is not a requirement for teachers to be technical "whizzes". The New Media Consortium (2005) asserted "21st century literacy is multimodal" with a strong visual element and recommended that teachers be trained with these multimodal skills. Felten (2008) stated that "the proliferation of literacies, and the emergence of new technologies that blend text and image, suggest that the time is right to rethink the very concept of literacy." Felten also noted that the American Association of Colleges and Universities 2002 Greater Expectations report suggested that one of the core characteristics of an "empowered learner" would include the capacity to effectively communicate visually. This idea was missing from their follow-up report, released in 2005, suggesting that the importance of visual literacy is not consistently stressed.

Several educational initiatives merit a mention. At second level, the American Common Core State Standards Initiative includes several standards that support the teaching of visual literacy (Finley, 2014), while at third-level the Association of College Research Libraries (ACRL 2012) published their visual literacy competency standards for higher education.

Figure 1: Visual literacy array
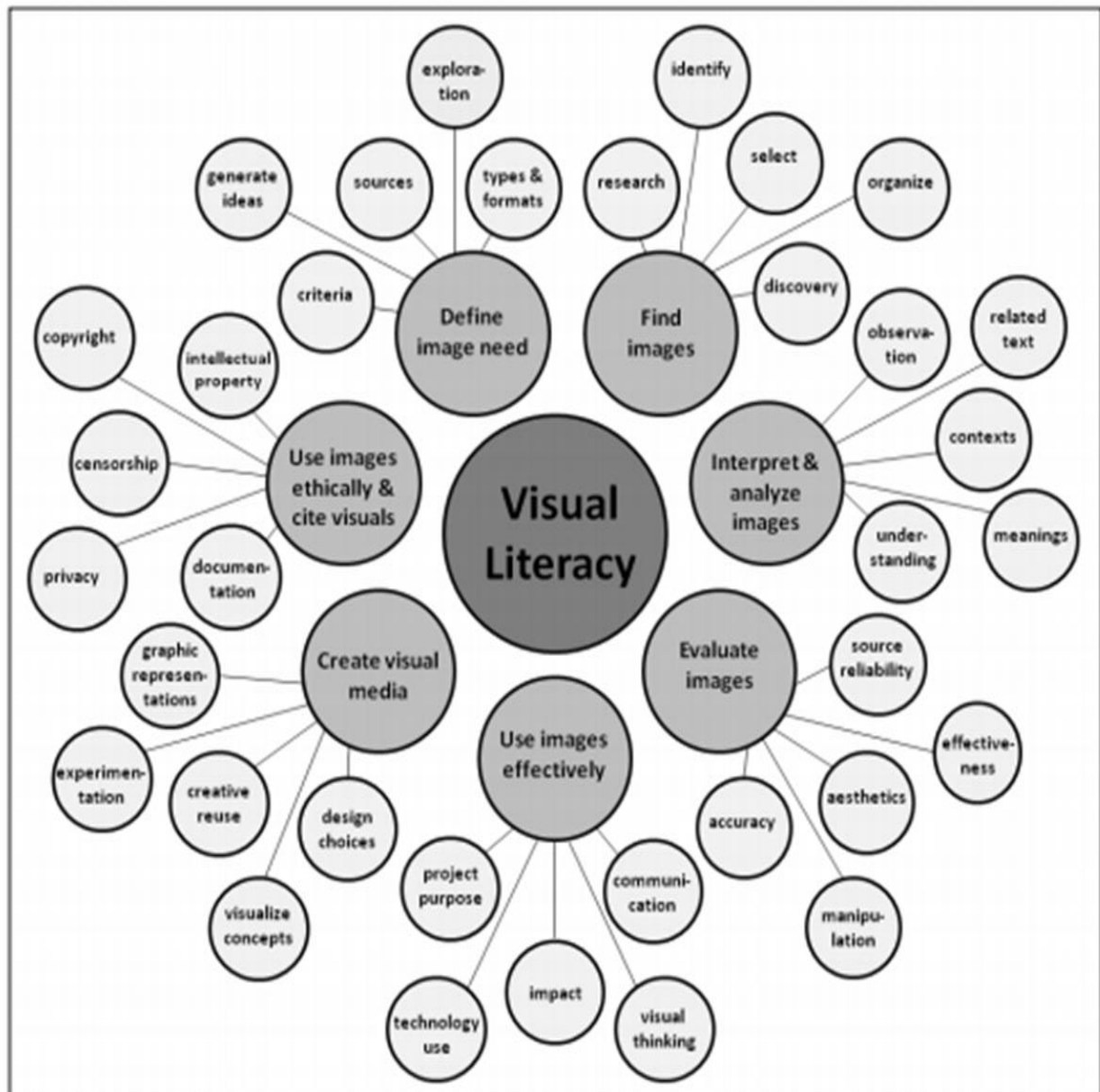
Source: based on ACRL's Visual Literacy Standards by D. Hattwig, K. Bussert, A. Medaille and J. Burgess. Copyright 2013 The Johns Hopkins University Press. This image originally appeared in PORTAL: LIBRARIES AND THE ACADEMY, Volume 13, Issue 1, January 2013, p. 75.

In Europe, there is an ongoing project funded by the Lifelong Learning Programme of the European Union that brings together specialists in didactics, curriculum developers, teacher trainers and scientists working in arts, design, art education and visual communication (60 researchers in total), with the aim of developing a Common European Framework of Reference for Visual Literacy (ENViL, 2014). The ENViL framework creates a prototype of a "Common European Framework of Reference for Visual Literacy – CEFR_VL". This framework describes competencies that European citizens must have in the field of fine arts and applied arts (architecture and design) as well as the everyday visual culture when they participate in society and culture as responsible citizens. The framework "aims to be a tool for the development of curricula, lesson plans and assignments as well as assessment instruments" (Wagner and Schönau, 2016 cited in ENViL, 2014).

Training the teachers

To facilitate the integration of visual literacy into the curriculum, it is essential that teachers acquire some experience and expertise in teaching visual literacy. Bleed (2005) mentions the need to integrate visual literacy training into teacher education courses. Fabian (2005) describes possible approaches to training teachers to effectively use visual resources including a train the trainer faculty immersion programme as well as individual and group training sessions scheduled at convenient times and of suitable duration. Fabian also recommends that there must be 'takeaway' documentation and skills from training sessions. She also recommends that faculty engaging in visual literacy instruction demonstrate real life application of skills using multiple resources/interfaces and active learning strategies. Alpan (2015) found that pre-service teachers benefit from visual literacy training.

Little, Felten and Berry (2015), in a special themed edition of New Directions for Teaching and Learning, highlight seven general suggestions and strategies for faculty (and others) working to develop visual literacy in classrooms and across the curriculum. The first of their seven general suggestions is "determining which learning goals or outcomes you want to teach with or through visual images…in deciding how and when to use them in your courses.' (p. 87). Subsequent steps include planning assignments or classroom activities that align with these goals or outcomes; consider the ways in which experts and novices see differently; scaffold assignments to help students to develop visual and disciplinary expertise; model professional integrity for image use and help students understand current ethical and legal practices; make visual literacy a long term part of your teaching practice and consider ways to share what you and your students learn with others.

Summary

In summary, there are a number of definitions of visual literacy, with a consensus forming around the requirement to both analyse and create visual material exploiting new technologies. Business students require a high level of visual competence to be adequately prepared for the highly visual nature of business communications in the 21st century. Studies indicate the potential of visual literacy to enhance both soft and technical skills for the modern workplace. Studies also show the development of informal visual literacy education at first, second and third level across a range of subject disciplines. More widespread practice of visual literacy education is required

at all levels to prepare students for a significantly more visual, as opposed to textual, world. Encouragingly, standards and resources are being developed by a number of agencies to help underpin this going forward.

Pedagogical approach to visual literacy instruction at Dublin Business School
Visual literacy instruction at Dublin Business School is delivered using both a constructivist and social constructivist framework. The roots of social constructivism lie in the work of Vygotsky (1978) who stressed the fundamental role of social interaction in the development of cognition. He believed that meaning is created in the context of community and that social interactions from guided learning experiences facilitate the co-construction of knowledge. Vygotsky's theory of learning differs from his contemporary Piaget (2002), who believed that children's cognitive development is derived from independent explorations during which they construct knowledge of their own.

A social constructivist teaching approach is ideally suited to the delivery of visual literacy education. Visual literacy instruction at Dublin Business School is active and dynamic during which discussion and collaboration is encouraged. Students work together in groups to create artefacts. The social interaction of the group in the learning environment is therefore key. Equally important, however, is the focus on the individual's learning because of his or her interaction in the group. Papworth, (2016) states that "in social constructivist classes, collaborative learning is a process of peer interaction that is mediated and structured by the tutor".

The characteristic of a social constructivist teaching paradigm is that 'students learn most effectively by engaging in carefully selected problem solving activities, under the close supervision and coaching of an educator' (Hanson and Sinclair, 2008, p. 170). Teaching methods (Hanson and Sinclair, 2008) focus on realistic problems; students working collaboratively in small groups to solve the problem; groups exercise self-management and direction; teachers and tutors scaffold this process. Little (2015), as referred to in the literature review of this study, also refers to the necessity of scaffolding assignments.

Branton (1999), cited by Stokes (2001), links visual literacy instruction with constructivist learning. An extensive review of the literature found no studies explicitly referring to social constructivism as a pedagogical framework for visual literacy instruction. This is also reinforced by Blummer's 2015 extensive review of visual literacy initiatives in academic institutions in which there is explicit reference to social constructivism as an educational strategy.

A number of papers referred to in the literature review of this section describe pedagogical approaches to visual literacy instruction that have some of the characteristics of social constructivism, although the authors have not explicitly labelled them as such, indicating the potential for the adoption of this learning paradigm. For example Fabian (2005) discusses a 'learner centred approach' in which learners 'engage in real problem or case based examples'. Andrews (2016) uses group/collaborative work for visual literacy instruction.

Visual literacy education is delivered at Dublin Business School within the business curriculum by one of the authors of the paper, Susan Sweeney. She has two Masters Qualifications: the first in IT in Education and the second in Multimedia. She also has an undergraduate degree in Communications Technology and teaches visual literacy via five separate projects which culminate in the staging of visual exhibitions. The production of a visual exhibition by students embodies a social constructivist approach in terms of student collaboration and the co-creation of knowledge mediated by Susan Sweeney as lecturer. A visit to the gallery of photography in Temple Bar Dublin preceded four out of the five projects. Students were introduced to concepts of creative design as well as the principles of curating a visual exhibition during their gallery visit. Students were also invited to visit art gallery spaces online.

Figure 2: Student visit to the Gallery of Photography

GALLERY OF PHOTOGRAPHY, TEMPLE BAR, DUBLIN.
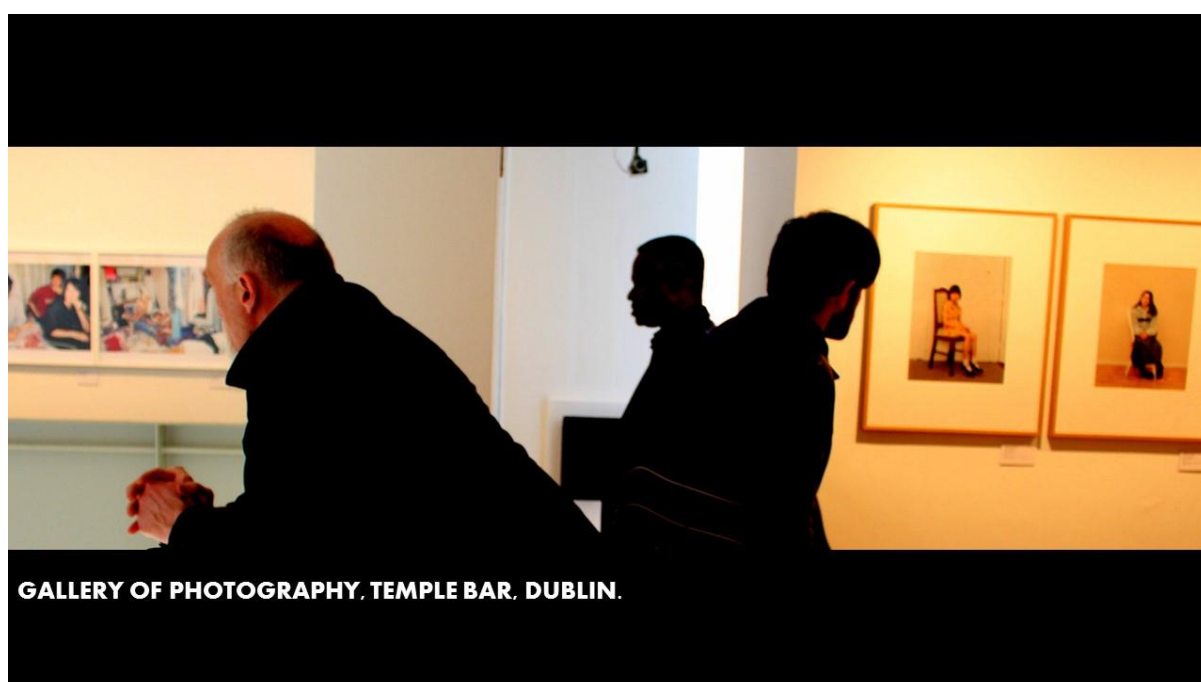
Five visual literacy projects at Dublin Business School

Project 1: Collaborative album cover installation and exhibition
The aim of the album cover project is to facilitate learning via visual engagement and digital manipulation using existing images owned by the student. The premise is that all students have access to a repository of images on their social media platforms. These images can be reconstructed and reimagined to generate a new and alternative narrative. With a collaborative constructivist approach, multiple images as a collective piece were reconstructed to form a single visual installation in an arts city centre exhibition space in Dubli

Students 'drag and drop' chosen images from Facebook to a prepared template in PowerPoint. The student manipulates the image and incorporates an album cover name or logo to complete their digital image. The students produce the final image as a printed colour album cover. The lecturer plays a significant role in directing students to choose images with strong semiotic and aesthetic value. 70 individual artefacts were exhibited as one installation piece in Filmbase, a gallery space in Dublin. Learning outcomes from this project include the notion of reimaging and reconstructing an image from a personal digital repository, visual literacy, aesthetic and form and IT skills in the form of formatting, printing and curation using the cloud.

Learning outcomes and amplification of learning:

•   Collaborative learning
•   Active learning
•   Problem solving skills
•   Exhibition of work
•   Aesthetic
•   Digital curation
•   Digital image manipulation
•   Digital and technical proficiency: file extensions, file resizing, sharing
        documents on the cloud using Google Drive.

The above exercise and learning outcomes are typical of a social constructivist approach. These are also highly valued skills in the business world.

Figure 3: Album cover installation at Filmbase, Temple Bar, Dublin

Figure 4: Album cover exhibition
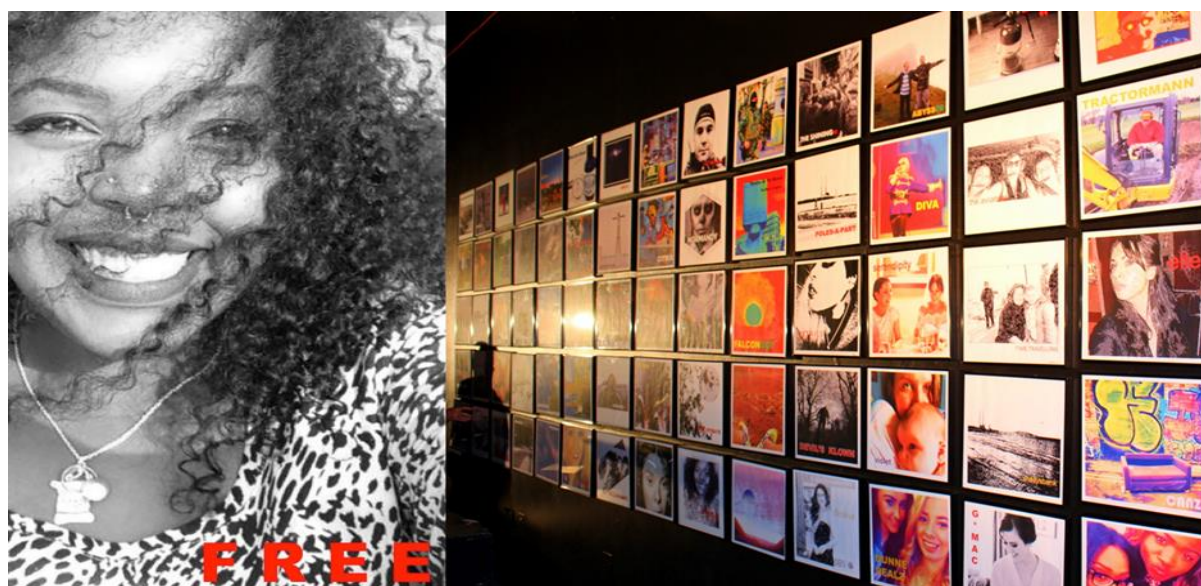
Project 2: Poster and artefact presentation and exhibition

Momentum students (Government activation business programme) were invited to create a scholarly poster about a subject of their choosing. These posters were exhibited in a public exhibition space at Dublin Business School. Students were encouraged to pick a subject or theme that they were passionate about. As part of the exhibition, students were also asked to bring along an artefact that represented the subject matter of their poster. Artefacts that students brought to the exhibition included souvenir coins, an archery bow; pitch and putt equipment, fencing foil and helmet, homemade pancakes, sign language methodology and fashion accessories.

Figure 5: Poster exhibition with artefact. Diploma in Business Studies (Momentum Programme
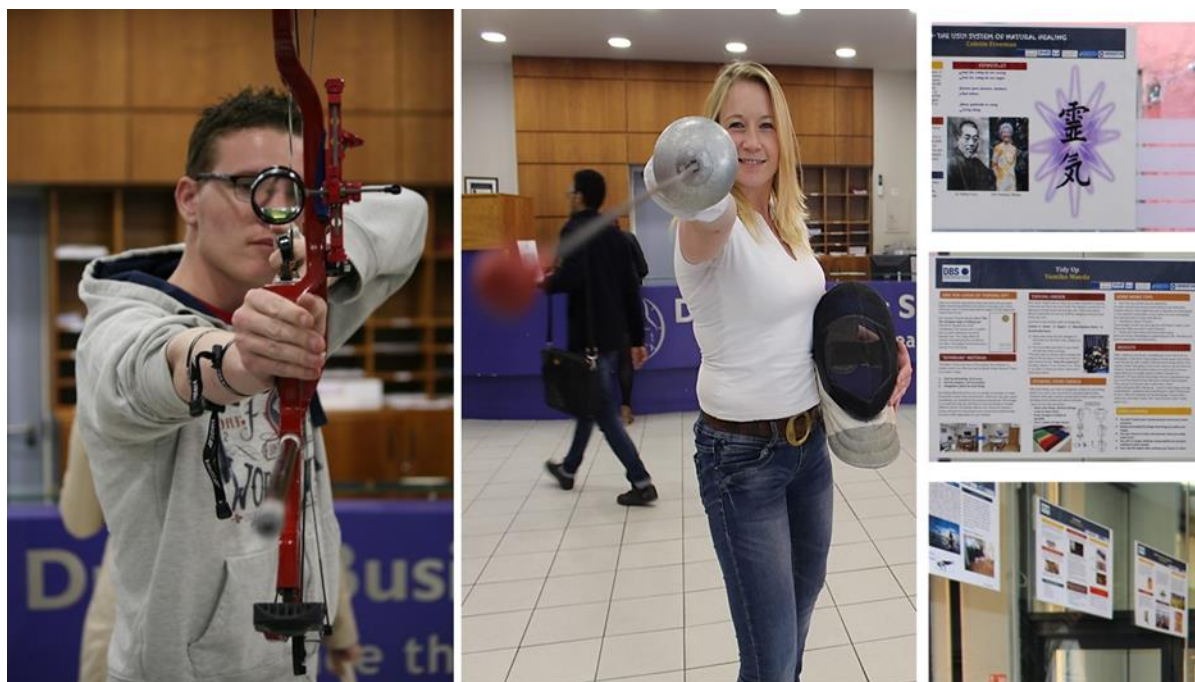
The aim of the poster project is to facilitate learning via a visual presentation that showcases Momentum students' scholarly research in an area of interest. The purpose of the poster is to present a piece of work for display which stimulates an exchange of ideas between the presenter and the audience reading the poster. The poster format has distinct visual attributes. The constraints of the scholarly poster template in PowerPoint forced students to display information in a particular format necessitating a great deal of experimentation with imagery and layout. This improvisation also led to enhanced digital and technical proficiency. The role of the teacher in this project was significant as some students on the Momentum programme were long-term unemployed and required extra support and encouragement. The lecturer teased out various ideas with students to assist with the determination of their subject choice for the poster.

During this project, the student must consider their audience, decide on a narrative/message, adhere to presentation requirements and describe a process or methodology. Students also experimented with different layout concepts and work through a series of drafts to guarantee the quality of the final product. The student engages with file formatting by converting their PowerPoint poster to a print ready PDF document. Eighty-four posters were exhibited in the main foyer of the Dublin Business School campus.

Learning outcomes:

• Collaborative learning.
• Active learning

- Problem solving skills
- Exhibition of work
- Aesthetic
- Performance and presentation skills
- Digital curation
- Digital image manipulation
- Digital and technical proficiency: file extensions, file resizing, sharing documents on the cloud using Google Drive.

Project 3: Riverwalk: collaborative photo, installation and exhibition
The aim of the Riverwalk project is to facilitate learning via visual stimulation, active visual experimentation and image curation to form a photographic showcase. Students from the Higher Diploma in Business programme (level 8) visited the Gallery of Photography in Dublin. Here they viewed and wrote a reflective blog about a photo exhibition (Mother River) that concerns a river walk in China undertaken by photographer Yan Wang Preston. Yan photographed her river journey experience over thirty days. This Mother River exhibition was the inspiration behind the Riverwalk project.

The Higher Diploma in Business Students were requested to write a reflective blog piece about their visit to the Mother River exhibition. They were subsequently invited on a class excursion to the River Dodder in Dublin where they followed the path of the river over a three-hour visit. Prior to following the route, students were given general instruction concerning the rule of thirds in photography, the notion of texture in composing an image and they were encouraged to look for patterns in nature. During the walk students took photographs, sixty of which were exhibited as part of a shared installation with Arts students in an exhibition space at Filmbase, Temple Bar, Dublin.

Learning outcomes:

- Collaborative learning.
- Active learning
- Problem solving skills
- Exhibition of work
- Aesthetic
- Digital curation
- Digital image manipulation
- Digital and technical proficiency: file extensions, file resizing, sharing documents on the cloud using Google Drive.

Figure 6: Riverwalk with 2D sphere exhibition

Figure 7: River images by Higher Diploma in Business students (Level 8)
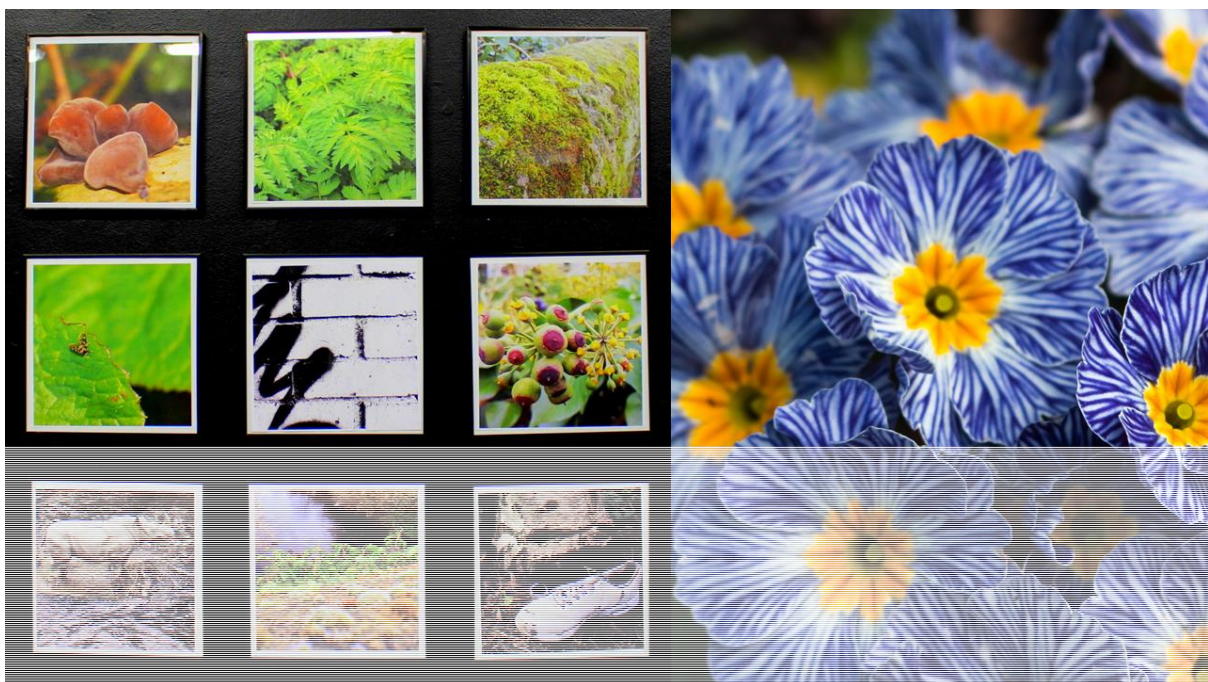
Project 4: Abstract art image
This is a collaborative image project involving installation and exhibition of digital content for a marketing event. The aim of the abstract image project is to facilitate

the acquisition of design skills for digital marketing students at Dublin Business School.

Students on the Certificate in Data Analytics course at Dublin Business School were already actively engaging with digital platforms during their studies. However they lacked the skills necessary to generate original digital images and digital content. Student learning was facilitated via visual stimulation using examples of abstract art work. Students were invited to actively engage with visual experimentation by designing abstract art pieces using Microsoft PowerPoint. Students' engagement was further enhanced as the group curated a photographic showcase both online and as an exhibited installation in the foyer of the Dublin Business School campus (Aungier Street).

Learning outcomes:

- Collaborative learning.
- Active learning
- Problem solving skills
- Exhibition of work
- Aesthetic
- Performance
- Digital curation
- Digital image manipulation
- Digital and technical proficiency: file extensions, file resizing, sharing documents on the cloud using Google Drive.

Figure 8: Abstract Art exhibition at Dublin Business School

Figure 9: Abstract art images made with Microsoft PowerPoint (Data analytics students at Dublin Business School)
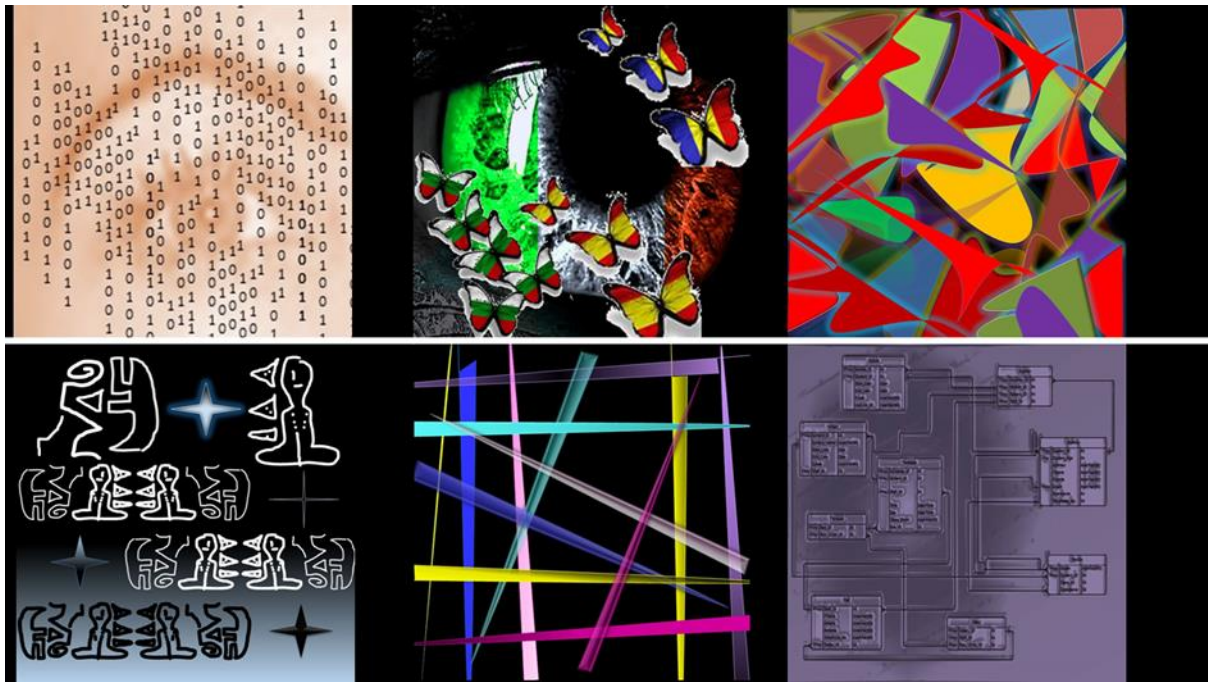
Figure 10: Abstract art images made with Microsoft PowerPoint (Data analytics students at Dublin Business School)
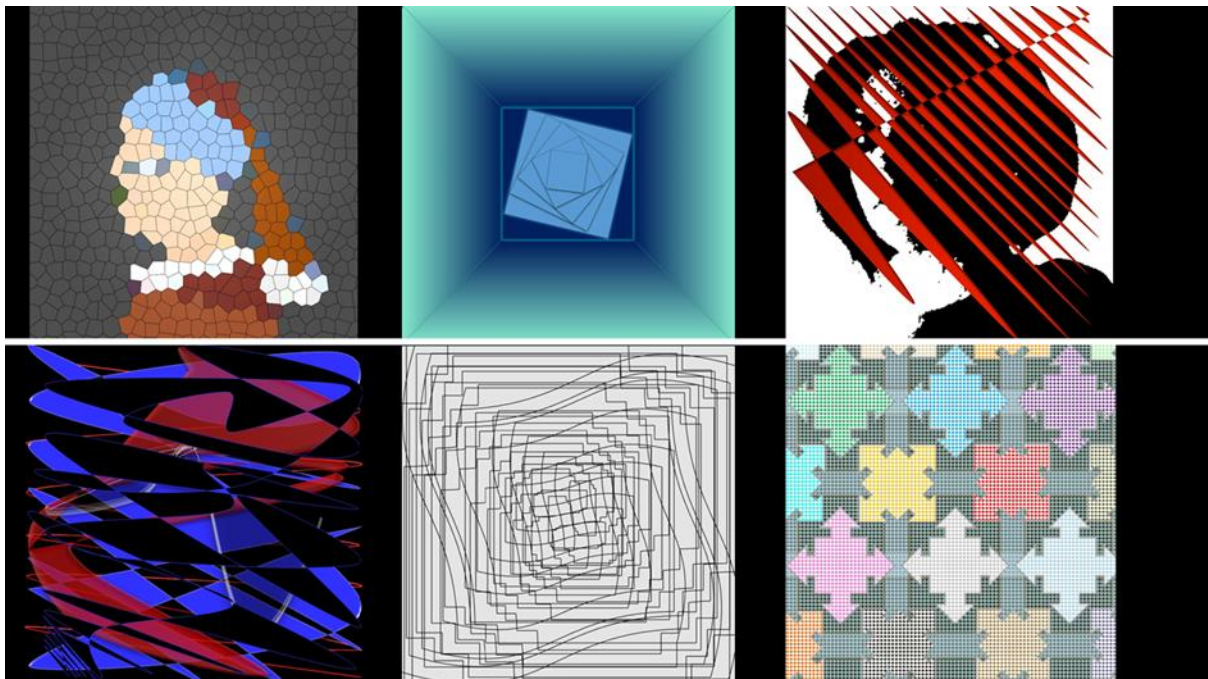
Project 5: Momentum photography exhibition
Students on the Momentum Diploma in Business programme were invited to take part in a photography exhibition. The role of the lecturer was a key element in this project. Students were brought on various excursions and to exhibition spaces in Dublin city. The first trip was to St Stephen's Green Park where students were asked to reflect on the word 'Momentum' and what it represented to them. Some of the first photographs taken involved the notion of momentum and motion. See Figure 11

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Figure 11: First Momentum photograph in St. Stephen's Green

Figure 12: Momentum photography exhibition images. Diploma in Business students
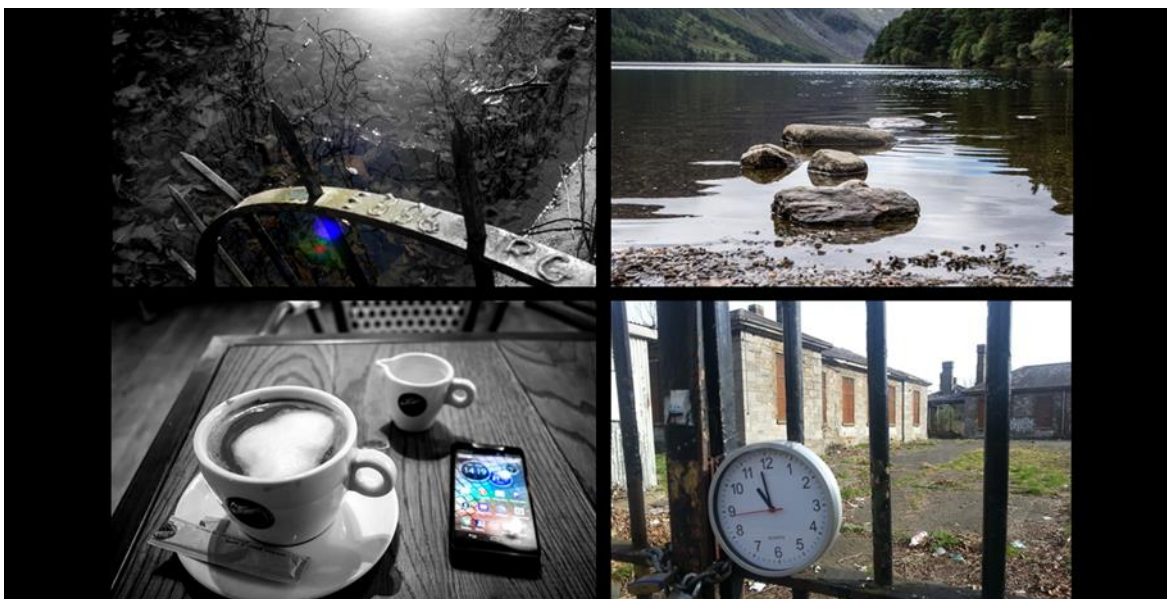
The product produced a diverse range of images. Students also visited the Gallery of Photography. Elements of semiotics, the rule of thirds in photography and visual perception were discussed in the classroom environment. The social constructivist nature of the exhibition and group endeavour was enhanced by an exhibition organised by the Diploma in Business (project management) students and their lecturer. During this exhibition, images were auctioned off to the public in a social media campaign charity event.

Learning outcomes:

• Collaborative learning.
• Active learning
• Problem solving skills
• Exhibition of work
• Aesthetic
• Performance
• Digital curation
• Digital image manipulation
• Project/event management
• Digital and technical proficiency: file extensions, file resizing, sharing documents on the cloud using Google Drive.

Figure 13: Momentum students, Photography exhibition, Filmbase, Dublin

Methodology and limitations to the study
On completion of the aforementioned visual literacy projects, the lecturer delivering this instruction (one of the authors of this paper) decided to execute some preliminary research. An exploration of the visual literacy literature highlighted a

dearth of both Irish and social constructivist studies in this area. These gaps in the literature were therefore key stimuli to the writing of this paper.

The research conducted in this paper could only be small scale and preliminary due to a number of factors, the first of which was timing. At the time of deciding to carry out the research, many students had already graduated and left the College. This militated against the use of a qualitative research approach comprising focus groups or interviews as many students were now already out of reach geographically.

The lecturer of the module was still able to reach students via email, however. Pragmatic reasons therefore dictated the use of a quantitative approach using an online survey tool created in Survey Monkey. Open-ended as well as closed-ended questions were also included to elicit some qualitative feedback. Blummer (2015), in a literature review of visual literacy initiatives in academia, found that the majority of visual literacy training projects were small pilots. This is also the case at DBS. There is not yet the scale of delivery to inform a larger study.

A total of 101 students were invited to participate in the survey. These comprised:

1.	67 students from the Momentum Business Diploma programme.
2.	20 students were from the Arts programme, BA Journalism and Media and BA Film and Media
3.	14 students on the Higher Diploma in Business (level 8) were invited to take Part

45 students (44 percent) responded (only six were from journalism, media and film). The majority of respondents were from the business curriculum. The visual literacy lecturer had decided to include students from journalism, film and media by way of attempting to glean some comparative information with students who are expected to have higher levels of visual literacy. It could be argued that the inclusion of students from a film, media and journalism programmes could skew the findings. They did not respond in large numbers however.

Results

The benefits of visual literacy training for the learner
Although the sample size is small, initial results are encouraging with the vast majority of students (98%) agreeing that visual literacy defined in the survey as "having the skillset to source, create or manipulate visual images to get your message across" is an important workplace skill.

The visual exercises undertaken within their lectures boosted students' self-assessment of their image manipulation skills with 66% of respondents perceiving they have good image manipulation skills, compared to 40% before the exercises commenced. The exercises also improved students' visual manipulation skills (72% of respondents), technical/IT skills (56% of respondents) and workplace confidence (56%).

The exercises were considered useful, with all bar one student learning something about image design and manipulation. Nearly two-thirds of respondents stated that they learned about technical tools, while nearly half stated they learned something about aesthetics.

Figure 14: The benefits of visual literacy training at DBS

Visual Skills Questionnaire 2017		SurveyMonkey
Answer Choices	**Responses**	
Improved your visual manipulation skills	72.09%	31
Imoproved your technical/ IT skills	55.81%	24
Increased your confidence in the workplace	55.81%	24
Inspired you to undetake further study	16.28%	7
Other (please specify)	18.60%	8
Total Respondents: 43		

The benefits of visual literacy training for employability
87% of respondents believe that visual literacy training enhances the attractiveness of graduates to employers with 56% of respondents also stating that the visual skills they acquired during their courses had been of value to their employers. It is important to note that over one-third of respondents were still in full time study when they completed the survey. One respondent commented that the exercise may help in their career:

> "It helped me understand a lot about visual design and how it can be very useful for my future career"

Students also noted the benefit of the exhibition element of the projects:

> "PowerPoint presentation in the Aungier St foyer was useful because that skill I could use on my current job when I did marketing of our services for potential clients"

One respondent noted that:

> "We are part of a time of a digital transformation and having the digital tools will only enhance my future job prospects"

Other respondents commented that:

> "I have gained experience in imaging and how to create a better piece of work visually and aesthetically"

> "It helped a lot; I put together presentations in work so my standard of work is better than before"

Another respondent commented that:

> "It made me appreciate exhibitions more knowing all of the time and effort to put in just to make an event successful. Knowing that one of my works produced for college was exhibited gives me more confidence to say that my work was showcased to the public. I am proud to say that on my social media accounts as well as in a job interview ".

Technical Platforms

There was a clear preference for PowerPoint as the most useful tool for creating and showcasing images. Responses showed that students were unaware of the image manipulation capabilities of PowerPoint. Several students remarked:

> "I conduct group training and present presentation using PowerPoint multiple times per week, preparing them using the skills learned in DBS"

> "I was so used to other advanced software that I never knew PowerPoint was actually very useful for many different reasons"

> "That so many useful visual design features are pre-included in PowerPoint"

> "I feel the most useful tool for creating and showcasing visuals was PowerPoint"

> "I personally still believe that Photoshop is the best. But using power point for cropping is ingenious"

PowerPoint was also considered easy to use, with only four students stating that using PowerPoint was the most challenging aspect of the visual exercises that they undertook.

The learning experience

Qualitative responses from students indicated that students really enjoyed the visual literacy component of their studies at DBS.

> "I really enjoyed taking this module. I learned a lot about visual literacy and the important role it plays in today's society"

Students also noted an improvement in their levels of self-confidence and belief. This was a particularly valuable output for Momentum students, many of whom were unemployed. The idea behind the Momentum programme was to reskill unemployed people for the modern workplace. One student commented:

> "Thought it was a great idea, sense of achievement having a picture in the gallery and charity …all while being unemployed"

Some students who undertook the visual literacy exercises felt encouraged to further their knowledge and skills in this area:

> "Although I came to study Data Management and Analytics, you have won me over into the field of Digital media with a focus around Digital Design and Web Development. You really inspired me a lot with your course. I have been putting what

you taught me into practice because I would never want to forget. Your line of specialisation inspired me to be more creative".

Visual Exercises

In the questionnaire students were invited to comment on their visit to the Gallery of Photography. Some student comments highlight the value of scaffolding assignments as per the Social Constructivist approach (Little, 2015; Hanson and Sinclair 2008). One respondent commented:

> "It brought meaning to the class exercises"

The reflective blog element of the Riverwalk project both facilitated reflective writing and the acquisition of a new skill. A respondent commented:

> "It was the subject of my first blog post. I learned to reflect on what I experienced and the learning outcomes".

Discussion

Although small scale in size, the survey findings are consistent with the literature. Flynt and Brozo (2010) cite Ausburn and Ausburn's (1978) potential benefits of visual literacy, which include improvement in the following areas:

1.   Self-expression and ordering of ideas

2.   Student motivation and interest in a variety of subjects

3.   Chances of reaching the disengaged

4.   Self-image and relationship to the world

5.   Self-reliance, independence, and confidence

Other visual literacy studies actualise these potential benefits. In Griffin *et al.* (2016) study, dermatology students self-reported an improvement in observational, verbal and written descriptive skills after taking a short visual literacy training course led by an art historian. Art students in Eber & Wolfe's study (2000) showed better self-expression and ordering of ideas.   In a similar vein, Holland (2014) noted greater understanding and engagement from politics and international relations students after introducing video to his modules, while Bristor and Drake's (1994) longitudinal study of second level students found them to be more positive and self-confident after the introduction of a visual literacy element to a school curriculum .

This paper corroborates the benefits of visual literacy training as outlined in the aforementioned studies. Comments from DBS students would indicate that, subsequent to visual literacy training, these students feel that they can express themselves more coherently and cogently, have more self-reliance, independence and confidence and have a better self-image. This paper also shows the benefits of

visual literacy in an information technology age such as improved technical skills, knowledge of technical platforms etc., confirming more recent definitions of visual literacy which highlight the importance of being able to create and manipulate as well as interpret and analyse images.

Conclusion and Recommendations

Although small scale in size, this paper augments the literature on visual literacy education by exploring its practice in an Irish context. Additionally the paper provides information on the social constructivist approach to teaching visual literacy. An interesting finding of the paper is the reported increase in soft as well as technical skills that survey respondents reported. The 10th edition of the GradIreland report (2017) states that fundamental soft skills are lacking in Irish graduate recruits. Additionally, in terms of hard skills 23 percent of companies surveyed noted that graduates were lacking in knowledge of basic IT systems including Microsoft Office.

The social constructivist nature of the digital visual event curation implemented across all five projects lends itself to enhanced communication skills, IT skills and file management skills using the cloud storage. The presentation and performance element of the exhibition of student work encourages social interaction where students were observed to be proud of their work and which boosted their self-confidence as a result. Encouraging students to explore even the basic image manipulation functions in PowerPoint provides graduates with a skill that is transferable to the office environment. Graphic design tools and platforms generally involve the acquisition of costly IT packages and the specific skills to use them. PowerPoint, on the other hand, as part of the Microsoft office suite, has a familiar learning convention for students and is immediately accessible in the business and corporate environment. PowerPoint has evolved in recent years and is a powerful graphics tool that can be used for complex 3D animations and 2D image manipulation and reinvention, though has not been much used as an image manipulation tool (Lababede 2004a, 2004b) Engagement with visual literacy exercises adds value to the graduate skill set which in turn benefits the business environment.

Despite the limitations inherent in such a preliminary study, the positive response of the students would indicate that there is a case for rolling out a visual literacy element into other business courses at Dublin Business School on a wider and more formal basis with more extensive input from industry. There may be a need to refine and alter visual literacy projects undertaken as required but this could be done in consultation with employers. This may in turn provide the basis for a larger scale study in the College of visual literacy education using both quantitative and qualitative methods, incorporating interviews and focus groups as well as a survey. Future research on visual literacy could also explore the perceptions of visual literacy training by employers along with an analysis of their perceived requirements in this area.

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Q1 Please indicate programme of study that you completed whilist at DBS

Answered: 45   Skipped: 0
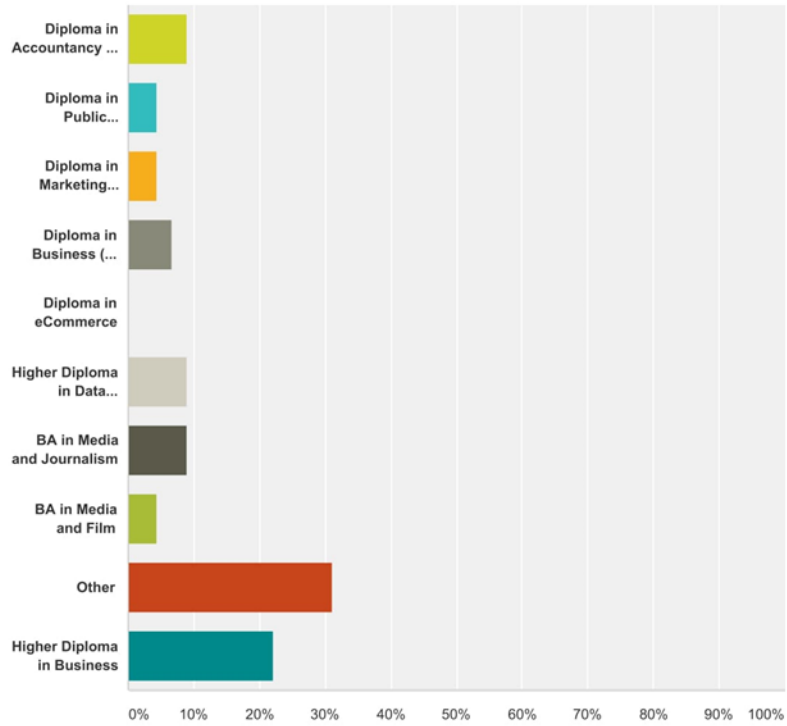
Answer Choices	Responses	
Diploma in Accountancy and Finance (Momentum)	8.89%	4
Diploma in Public Relations (Momentum)	4.44%	2
Diploma in Marketing (Momentum)	4.44%	2
Diploma in Business (Momentum)	6.67%	3
Diploma in eCommerce	0.00%	0
Higher Diploma in Data Management and Analytics, Information Technology (Springboard)	8.89%	4
BA in Media and Journalism	8.89%	4
BA in Media and Film	4.44%	2
Other	31.11%	14
Higher Diploma in Business	22.22%	10
Total		45

Q2 Do you think that having the skillset to source, create or manipulate visual images

Visual Skills Questionnaire 2017   SurveyMonkey

to get your message across is an important skill in the workplace today?

Answered: 45   Skipped: 0
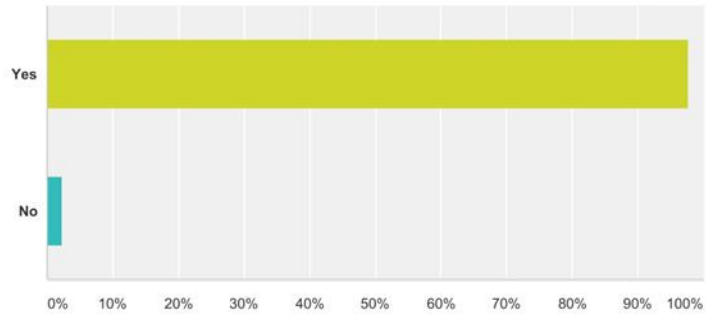
Answer Choices	Responses	
Yes	97.78%	44
No	2.22%	1
Total		45

Q3 Please rate your competency with image manipulation prior to your studies at DBS on a scale of 1-5 with five being the most important or highest value. Please tick the box

Answered: 45   Skipped: 0
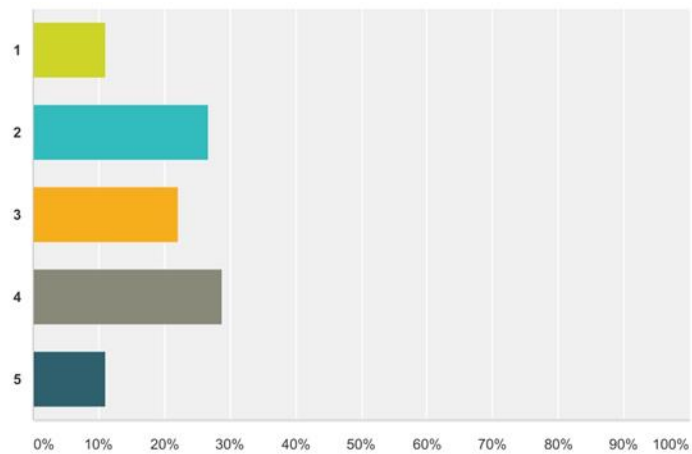
Answer Choices	Responses	
1	11.11%	5
2	26.67%	12

3	22.22%	10
4	28.89%	13
5	11.11%	5
Total Respondents: 45		

Q4 Which of the following visual exercises did you engage in whilst studying at DBS? Please select ONE or MORE more of the following?

Answered: 45   Skipped: 0
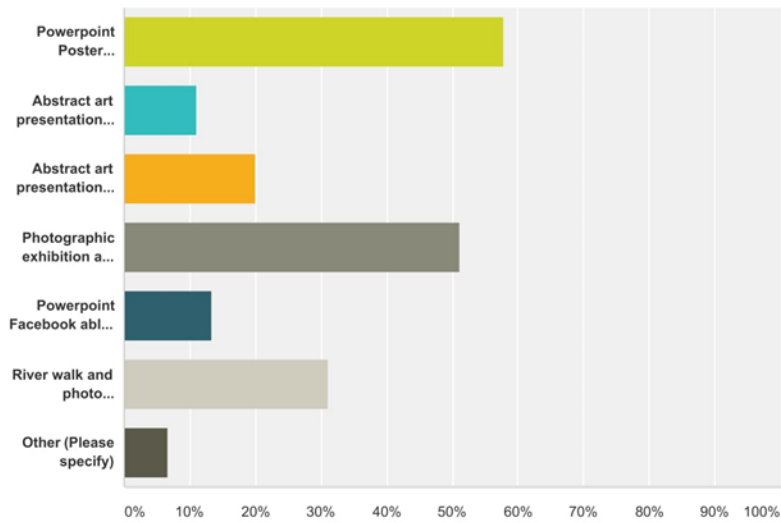
Answer Choices	Responses	
Powerpoint Poster presentation in Aungier Street foyer	57.78%	26
Abstract art presentation Aungier Street foyer	11.11%	5
Abstract art presentation in Castle House	20.00%	9
Photographic exhibition at Filmbase	51.11%	23
Powerpoint Facebook ablum cover installation at FilmBase	13.33%	6
River walk and photo exhibition in Filmbase	31.11%	14
Other (Please specify)	6.67%	3
Total Respondents: 45		

Q5 What do you feel you learned about visual image design and image manipulation during the visual exercises? Please select ONE or MORE of the following.

Visual Skills Questionnaire 2017   SurveyMonkey

Answered: 44   Skipped: 1
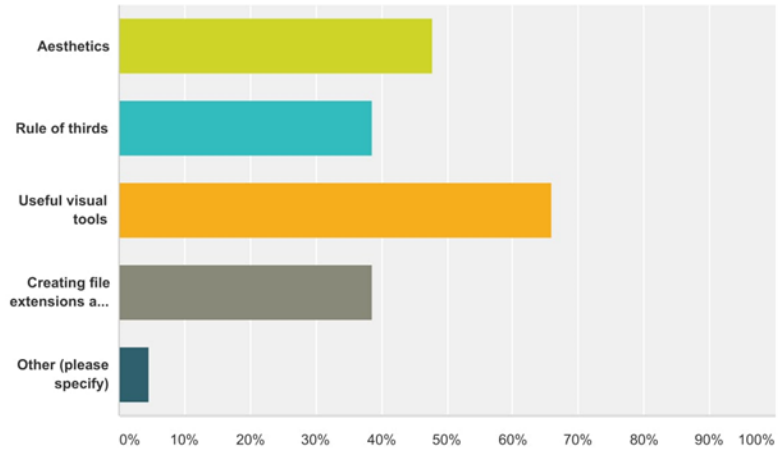
Answer Choices	Responses	
Aesthetics	47.73%	21
Rule of thirds	38.64%	17
Useful visual tools	65.91%	29
Creating file extensions and other IT skills (jpg, png, pptx conversions)	38.64%	17
Other (please specify)	4.55%	2
Total Respondents: 44		

Q6 What do you feel was the most useful tool(s) for creating and showcasing visuals?

Answered: 34   Skipped: 11

Q7 What did you find challenging about the visual exercises that you undertook?

Answered: 33   Skipped: 12

Q8 Please rate your competency with image manipulation after completing the visual exercises on your programme from a scale of 1-5 with five being the most important.

Answered: 44   Skipped: 1

Visual Skills Questionnaire 2017 SurveyMonkey
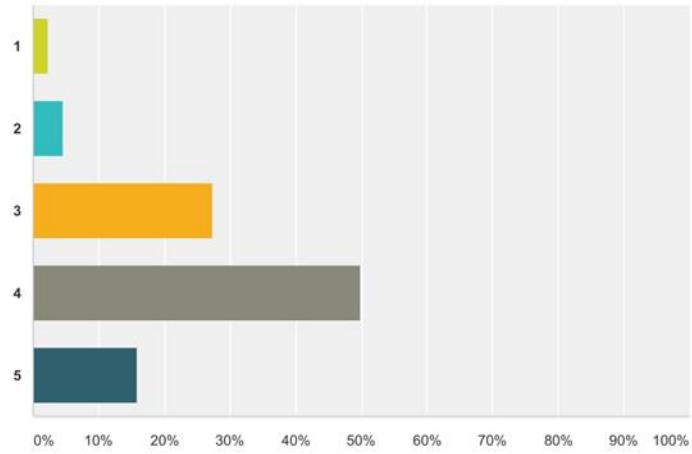
Answer Choices	Responses	
1	2.27%	1
2	4.55%	2
3	27.27%	12
4	50.00%	22
5	15.91%	7
Total		44

Q9 Did you feel that there were any other benefits to completing visual exercises as part of your programme? Please select ONE or MORE of the following.

Answered: 43   Skipped: 2
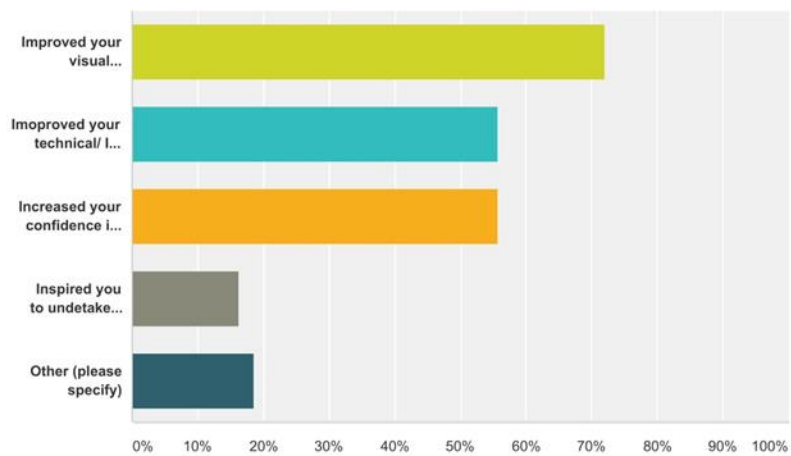
Visual Skills Questionnaire 2017   SurveyMonkey

Answer Choices	Responses	
Improved your visual manipulation skills	72.09%	31
Imoproved your technical/ IT skills	55.81%	24
Increased your confidence in the workplace	55.81%	24
Inspired you to undetake further study	16.28%	7
Other (please specify)	18.60%	8
Total Respondents: 43		

Q10 If you are currently in a programme of further study or completed one since leaving DBS please could you indicate what this programme of study is?

Answered: 24   Skipped: 21

Q11 Do you feel that the visual skills that you acquired at DBS have been of value to your employer?

Answered: 43   Skipped: 2
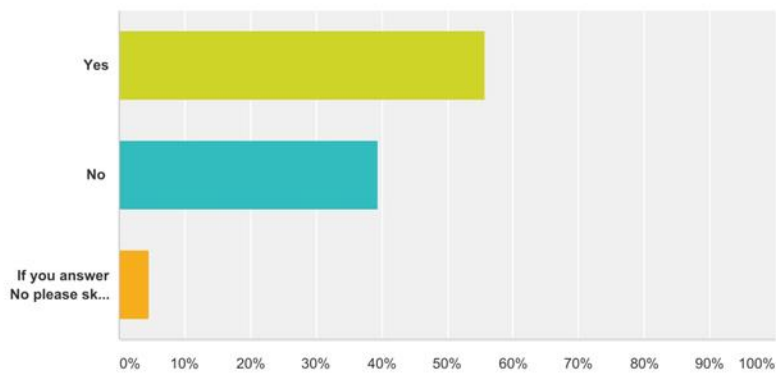
Answer Choices	Responses	
Yes	55.81%	24
No	39.53%	17
If you answer No please skip to question 13	4.65%	2
Total		43

Q12 Please describe the way in which your visual skills were used in the workplace and what tools/platforms you use most.

Answered: 21   Skipped: 24

Q13 Do you think that visual training enhances the attractiveness of graduates to employers?

Answered: 45   Skipped: 0
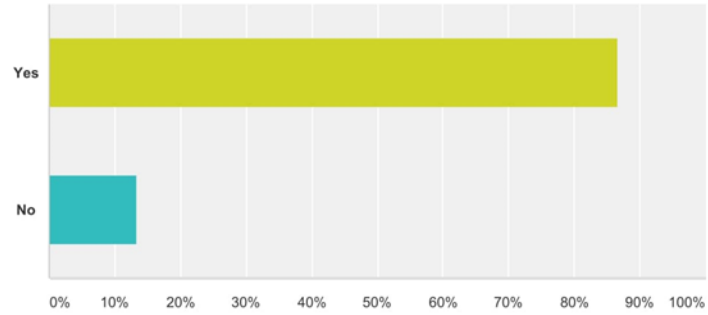
Answer Choices	Responses	
Yes	86.67%	39
No	13.33%	6
Total		45

Q14 If you feel that visual training enhances the attractiveness of graduates to employers, please indicate why?

Answered: 33   Skipped: 12

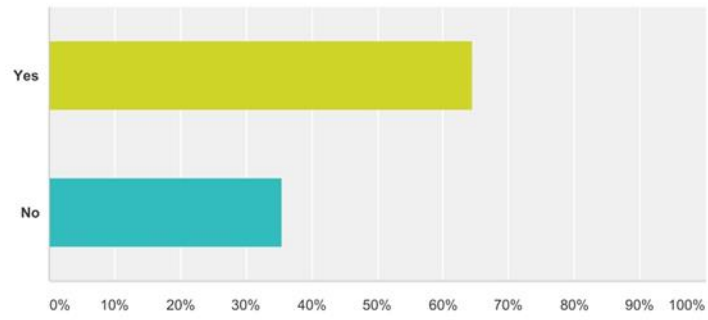## Q15 Do you have suggestions for inclusion in future visual exercises on DBS programmes?

Answered: 27   Skipped: 18

Q16 Did you visit the Gallery of Photography with Susan?

Answered: 45   Skipped: 0

Visual Skills Questionnaire 2017   SurveyMonkey

Answer Choices	Responses	
Yes	64.44%	29
No	35.56%	16
Total		45

Q17 If you answered 'yes' to question 16. How did the experience of the visit add value to your understanding of visual design and visual exhibitions?

Answered: 22   Skipped: 23

Q18 Do you have other comments to make?

Answered: 23   Skipped: 22

An Exploration of Methods to Improve Process Flow in a Remanufacturing Cell

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Abstract

This paper examines flow creation within the remanufacturing cell of an Irish medical device manufacturer. The site in question has embarked on a lean journey that commenced in 2003 and has spread site-wide since then. However, despite this progress, achieving balanced work-flow within the remanufacturing cell remains a challenge. The objective of this study is to examine the state of flow within the facility and by understanding this, provide a roadmap for improving flow in the remanufacturing cell. This case study utilises a mixed method approach that includes qualitative interviews, participant observation and evaluation of company documentation and data. Upon initial observation, work-flow within the remanufacturing cell is highly variable mainly driven by the uneven rate of failure of parts returned to the cell; and a lack of visibility as to the rate of demand from production. Following the adoption of practices such as visual management, A3 problem-solving, standard work, kanbans and kitting systems the amount of rework demanded by production cells has reduced by as much as 80% in some cases. Further improvements were identified in the ability of the remanufacturing cell to effectively service demand. If further gains are to be made then the plant planning system must afford better visibility to the remanufacturing cell. Upon deeper exploration, although the remanufacturing cell presents contextual challenges to balancing flow, an adaption of flow practices can add significant value in designing a robust system of flow within the cell that deeply interacts with the operations of the broader facility as a whole.
Keywords: Remanufacturing; Flow; Lean; Production planning; Visual management

Introduction

Flow is identified by Bicheno and Holweg (2009) as one of the five core concepts of Lean, and is a prerequisite for efficient processes. Flow is considered a "central principle of lean" (Ball, 2015, p. 415) and indeed the primary focus of lean is to deliver value to the customer by maximising the efficient flow of products and information through processes whilst simultaneously reducing waste (Womack and

Jones, 2005). This case study examines flow creation within the remanufacturing cell of an Irish-based medical device manufacturer. Despite the fact that the latter has undergone a major lean transformation since 2003, with many lean methodologies and tools embedded across the organisation, work-flow within the remanufacturing cell remains a challenge. This is mainly due to (i) the uneven rate of failure of parts returned to the cell; and (ii) a lack of visibility as to the rate of demand from production. Other factors include inconsistent rates of recovery of parts due to variable amounts of damage incurred during usage in production; and a lack of standardisation. This article begins by providing an overview of remanufacturing and flow. The methodology undertaken for this research is then described. The key results of this study are that although the remanufacturing cell has successfully improved flow through the application of lean principles, restrictions still occur because this operation not yet fully extended the well-established lean systems that are in place in key production areas to the remanufacturing cell, which leads to problems with sustainability.

Theoretical Base

Remanufacturing

Remanufacturing is a process whereby components (or sometimes complete units) are collected and returned to a manufacturer or a third party specialising in remanufacturing for reconditioning or re-machining. This extends both the life of the product and its value (Sundin, 2006). The product may also be broken down into smaller components or manufactured into a new component. This process is often employed with items that are of slow obsolescence or are very expensive to produce. Remanufacturing is seen as environmentally friendly as it conserves valuable natural resources and can assist in prolonging the life cycle of a product (Gehin, Zwolinski and Brissaud, 2008). This work can often be highly specialised requiring the skills or inputs of highly experienced tradespeople to bring the component back to being a usable item. Processing times can also fluctuate widely as the condition of the returned items can often vary considerably. Mähl and Östlin (2007) have stated that this factor alone severely impacts on the flow of materials and the planning of a remanufacturing operation. A condition assessment may also be required to ascertain if the product is fit for remanufacture (Sundin, 2006).

Flow

Liker (2004) states that the goal of every organisation should be the creation of continuous flow in all sides of a business including its service structures. Bicheno and Holweg (2009) state that flow is the central idea in lean and that the primary reason for enabling flow is because flow is directly responsible for delivering value to the customer. Organisations must design their systems in such a way that the outputs of the process are guaranteed and repeatable. This is achieved by generating capacity, controlling the order in which parts are processed, the simplification and error proofing of processes and the design of standards which enable the customer to pull product when it is required. Flow is achieved by the continuous removal of complexity from the process and by focusing on the process rather than the product (Harrison, 1995).

Achieving flow in a remanufacturing environment is problematic as planning in this type of operation is much more difficult than in a conventional operation (Guide, 1996). The key attributes of this type of system are uneven flow of materials, and undefined processing times, along with the fact that a one size fits all approach does not work. This can make planning to achieve an even flow in this operation difficult (Mähl and Östlin, 2007; Östlin, 2008). In many cases standards as deployed in a conventional manufacturing set-up are not workable as the amount of work required to return a part to usable condition in a remanufacturing scenario is found to be variable. Nevertheless, many of the operations carried out in remanufacturing have commonalities with standard manufacturing processes, and as such lean principles apply (Kucner, 2008). Bottlenecks may shift constantly as parts may not be reworked to the required standard on the first operation. These parts may require further routings through the same machine to become fit for use (Östlin, 2008). This is due to the condition of the returned product, the number of operations required to remanufacture, and the amount of material or parts that are not recoverable (Guide, 1996).

The adoption of the "Flow Framework" (Figure 1) is seen as a strategic action by Bicheno and Holweg (2009, p.34) to ensure that an organisation can steer itself in the right direction. They also state that the framework is a map to enable broad based action rather than just focusing on the tools as this is where organisations often fail in their attempts to become lean. This tool helps an organisation to create flow, keep it going through systemisation and define how flow will be measured. This framework helps an organisation to understand its capacity and how best to exploit this in the marketplace.

Figure 1: The Flow Framework
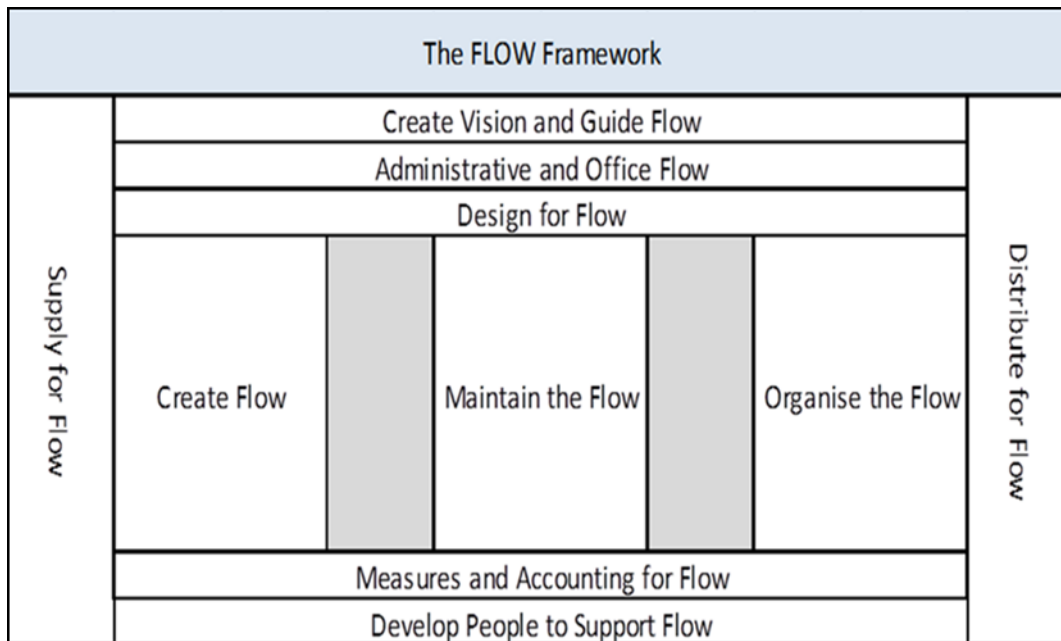
Source: Bicheno and Holweg (2009, p.34).

Lean principles can be applied in a remanufacturing scenario helping to increase productivity, reduce costs, improve quality and empower employees (Hunter and Black, 2007; Östlin, 2008; Kucner, 2008). Companies make use of a diverse range of planning and control options to smooth the flow of parts through the system and control inventory. Customised MRP systems, the deployment of kanbans, Theory of Constraints and economic order quantities are some of the tools used (Guide, 2000). When dealing with contingencies an operation must look at the external environment it services, decide its core process and then apply the most suitable contingency theory construct to achieve the best fit (Kucner, 2008).

Kucner (2008) also found that the deployment of visual management techniques were advantageous in promoting flow in the remanufacturing system. These techniques provided the following benefits in the areas studied: empowerment of employees, accurate analysis of production at any point in time and improved communication throughout the facilities.

One way of dealing with the unevenness in remanufacturing and help to promote flow is to increase the buffers between the processes (Sundin, 2006). The use of Constant Work in Process (CONWIP) originally developed by Spearman, Woodruff and Hopp (1990) offers the benefits of Kanban systems in varying production environments. Finite capacity scheduling is also seen by Irani (2011) as advantageous. Efficient scheduling of operations generates a smooth flow of inventory through the system but flow is extremely difficult to achieve if your demand is uneven (Nicholas, 1998).

Originating in Toyota, the purpose of heijunka is to smooth the demand on the production line by aligning the process times, in so far as is reasonably possible, to the one time (Ohno, 1988). It is now a cornerstone of the lean manufacturing system. The levelling of production is achieved by the use of in-process buffer stocks or uniform production schedules where the same amount of parts are produced at timed intervals (Nicholas, 1998). The applicability of heijunka in remanufacturing is questionable with Irani (2011) stating that it does not always work in a highly variable situation. Kucner (2008) found that the system had been used successfully in a shipyard but it led to workers being pulled off active jobs and on to other tasks.

Value stream mapping (VSM) is a technique that can assist organisations with the visualisation, analysis and redesign of processes (Rother and Shook, 1998; Womack and Jones, 2002; Matt, 2008). Value stream maps are useful as they not only illustrate material flows but also illustrate information flows that support processes. Value stream maps provide an effective means for providing a strategic direction for where opportunity for improvement might occur (Martin and Osterling, 2004). The case study organisation has begun utilising value stream mapping on selected areas but this is at a very early stage and has yet to implement VSM activity sitewide. For that reason the authors did not investigate VSM activity at the site, but recommend that VSM activity be expanded and extended to all site operations.

First introduced by Goldratt and Cox in "The Goal" (1984), Theory of Constraints (TOC) has come to be seen by authors such as Irani (2011) as being superior and a

better strategic fit for job shop and remanufacturing operations when compared to "Six Sigma" or a traditional lean approach. This system advocates the employment of a "drum-buffer-rope" system based around the most constrained resource in the system. This designs production promoting "continuous flow" to ensure the bottleneck process is continuously fed, balancing the flow of work through the system but not balancing the capacity (Harrison, 1995). If continuous flow is to be enabled it is, however, vital to have as much visibility as possible between the organisation and its customers to ensure the right parts are produced with minimal disruption to the system (Irani, 2011; Bicheno and Holweg, 2009; Schragenheim, Dettmer and Patterson, 2009; Harrison, 1995).

Bicheno and Holweg (2009) state that kanban systems are deployed in a number of production scenarios. These may consist of card based control systems which authorise the stocking of a part or signalling the production of a part to commence. Harrison (1995) states that kanbans are more associated with push systems and must be properly controlled if they are to promote flow. Another drawback that may occur in the use of kanban systems is that they can dramatically increase the level of inventory in a system (Harrod and Kanet, 2013). Also if there are large amount of product families to be catered for the cost of maintaining these kanbans may be prohibitive (Harrison, 1995); Harrod and Kanet (2013, p. 621) also state that one of the main deficiencies of operating a kanban system is that the system often fails due to the fact that competing jobs are not prioritised, leading to a queue at a work centre. Caputo and Pelagagge (2011) advocate kitting operations as being a better strategic fit to feed assembly operations. They state that the issues normally seen with kanban operations are not associated with kitting as this system ensures only the correct amount of parts required to build an order are present on the line at one time. This coupled with the fact that the visibility afforded through planning this type of operation is seen as the least wasteful of resources.

Kattman *et al.* (2012) state that visual management helps to drive waste from the work system. This permits the flow of information and enables rapid decision-making. The transparency afforded by visual management eliminates the need to look for information, tools or material as all are in place where employees need them, therefore empowering employees (Kattman *et al.*, 2012). This eliminates the tendency people have to store information internally as the information required to make decisions is always at hand (Tezel, Koskela and Tzortzopoulos, 2009). Sundin (2006) conducted a case study into seven companies involved in remanufacturing. It was found that where the use of visual management was below average, the flow of product through the system along with the control of inventory and W.I.P. was negatively affected. This resulted in large amounts of capital being tied up in the system.

A key element of standard work is TWI (Training within Industry) which is reported by Bicheno and Holweg (2016, p.146) to be "arguably the most effective and influential training programme ever developed". Labach (2010) describes standard work as a series of tasks which are designed to be completed to the TAKT time (rate of customer demand) which achieves a levelling of production in a manufacturing system. This is achieved by defining "the one best way" of completing a task. This enables standard times and work sequences to be set for the completion of the

different tasks. Standard work aids in the reduction of defects, reduces work in process, cuts costs and aids in the achieving of consistent outputs (Labach, 2010).

The deployment of standard work in a remanufacturing system is seen as essential to achieving consistent operations (Hunter and Black, 2007). The formulation of these instructions which are both highly detailed and precise, relating directly to the original product drawings, has been found to be advantageous (Kucner, 2008). Dixon (2009) advocates the development and use of standard work for repetitive tasks in a job shop to help remove waste and improve responsiveness. This along with error-proofing (poke-yoke) devices helps to build quality in at every step and promote flow throughout the process. The role of the supervisor in a remanufacturing scenario is markedly different to that of a job shop. In this situation the supervisor's primary task lies in developing standard work for the repeat jobs that exist in the facility (Hunter and Black, 2007).

Many operations involved in remanufacturing have tried to use traditional planning approaches but these have been left wanting as the planning requirements of a remanufacturing operation are unique (Guide, Jayaraman and Linton, 2003). As a result of this, organisations attempting to use a one size fits all approach to planning and scheduling of work in a remanufacturing context were highly likely to fail. When adopting a contingency approach to a remanufacturing operation it is essential that the planners build the operation to suit the rate of arrival of returned product and the type of remanufacturing operation that is to take place, i.e. remanufacture to order, reassemble to order or remanufacture to stock (Guide, Jayaraman and Linton, 2003).

When these constraints are considered it is of vital importance that the remanufacturing operation gains as much visibility as possible on up-stream operations to help to smooth the flow (Sundin, 2006). Traditional lean approaches often do not work in environments where unevenness in both demand and time to process constrain the planning outputs (Irani, 2011). The use of flow control systems such as Kanban and CONWIP to promote flow in a make to order system must also be approached with caution as the levels of WIP in the system may increase, negatively affecting the cash balance (Harrod and Kanet, 2013).

If flow can be successfully implemented it can provide many benefits to a remanufacturing operation. The empowerment of employees and the building-in of quality at every step form the basis for a fast, flexible system which enables a rapid response to customer demand (Östlin, 2008). The end result is a robust and cost-effective system where inventory levels and scrap or unplanned work are reduced. Environmental impact is also reduced and the business strengthened for the future (Östlin, 2008).

It is generally accepted that lean methodologies do have a place in remanufacturing. However the tools as originally designed will not always work in a remanufacturing system but through modification they can be applicable (Irani, 2011). It is essential that an organisation gains as much visibility as possible from its customers and from there proceeds to finite scheduling to aid in the rapid execution of orders (Irani, 2011). The deployment of standard work, as described by Hunter and Black (2007),

visual management, as surveyed by Sundin (2006) and TOC (Guide, 1996) have their place in promoting flow in a remanufacturing system.

Methodology

A case study approach that incorporated the use of mixed methods was utilised in this study. Yin (2003) states that case studies are particularly suitable for the investigation of real-world phenomena. A review of the literature indicated a lack of research that studied flow in a remanufacturing environment. The research design utilised three forms of data from the organisation.

As the question asked in this case was complex, the availability of data had a major bearing on the research design. Process performance data from the site operations was accessed to obtain a picture of the operating systems in the organisation. The organisation that is the subject of this case has an array of secondary data permitting an in-depth analysis contributing to the understanding of this case. The data included standard operating procedures and various records relating to the use of remanufactured product. This data was chosen as it offered many advantages, including permitting the analysis of data gathered over an extended time frame (Saunders, Lewis and Thornhill, 2003; Cowton, 1998). The advantages of using secondary data are that it has already been collected, it saves research time, is cost-efficient and the volume of data that is available can be greater than researchers could collect themselves. The disadvantages of secondary data are that it may have been collected for a purpose other than the researcher's, it may be inaccurate or it may not accurately reflect current conditions.

Participant observation is especially useful in case study applications as it can provide an extensive and in-depth analysis of a problem and is less intrusive than conventional inquiry (Jorgensen, 1989). The observation was carried out by the author during the months of April and May 2014. Participant observation was utilised to understand the human element relating to the problem. Observations were taken on efficiencies of respective processes, downtime reasons, incidence of quality spills, action card raised and the reporting systems in place in each area. Morning meetings were attended in six operations areas on various weekdays during May 2014 and observations were recorded. Participant observation was utilised as it added current context and current data to the secondary data already gathered. It also provided the researcher the opportunity to observe systems in practice and record any divergence between standard operating practices and actual practice.

The data from secondary sources and participant observation were used to inform the questioning for the qualitative interviews. The author then adopted a semi-structured approach to the interviews. DiCicco-Bloom and Crabtree (2006) stated that a semi-structured approach to interviews affords an opportunity to enrich the research through the insights of the interviewees. The researchers conducted qualitative interviews to gather richer data about the behaviours underpinning the practices and systems utilised in the system and to understand participants' opinions on the performance of practices designed to improve flow.

The interviews and the participant observation for this case study were analysed using NVivo software. For the purpose of the study the author chose to analyse the qualitative data using a thematic approach as outlined by Creswell (2007). Other approaches were considered but the thematic approach has been deemed to be most suited in this case. The literature review focused on three pillars to achieving flow in a lean system (planning, standard work and visual management) and as such the author chose to construct a line of questioning based on these pillars.

The sample for these interviews came from the supervisory team, the planning group and from the remanufacturing cell. A total of five supervisors, one planner and one remanufacturing cell employee were interviewed. Table 1 below illustrates the role, length of service, breadth of knowledge and time spent in current role for each interviewee.

Table 1: Breakdown of interview participants

Employee	Years of service.	No. of areas employed in.	Current role.	Time employed in current role.
Employee 1	10	1	Supervisor	10 years
Employee 2	11	1	Supervisor	6 years
Employee 3	15	2	Supervisor	7 years
Employee 4	13	2	Supervisor	4 years
Employee 5	10	4	Supervisor	2 months
Employee 6	19	7	Planner	3 years
Employee 7	4	4	Production Support Employee	9 months

The supervisors are responsible for the different stages of product manufacture and also have the unusual distinction of being both a customer as well as a supplier. The planner is responsible for planning the orders for each department apart from the remanufacturing cell. The employee from the remanufacturing cell is responsible for the supply of consumable items to the production areas. The insight of each respective value stream into daily requirements was vital if a rounded picture of the organisation was to be gained.

To summarise, the case research was performed by using the following sources of information during the research project:

- Secondary information concerning process performance, standard operating procedures, quality data and A3 reports.
- Direct observation at daily performance management meetings to observe participant behaviour and activity.
- Qualitative interviews with employees who have direct input into the site operations and remanufacturing operations.

By obtaining data from three different sources the researchers were able to triangulate their findings. This assisted in confirming observation drawn from the analysis of one source of data. There are limitations to this research. Firstly, only one case study organisation was chosen and the findings may not be representative of other firms. Secondly, although a significant amount of data was obtained by three different methods, time and monetary constraints limited the period of observation and the sample size.

Research Hypotheses

Bicheno and Holweg's (2009) "Flow Framework" was adopted as a roadmap to promote flow in both the remanufacturing operation and the wider organisation. Four hypotheses were developed to examine this phenomenon, namely:

Hypothesis 1: That visual management systems have a role in supporting flow within the facility.

Hypothesis 2: That the introduction of standard work will support flow within the remanufacturing cell.

Hypothesis 3: That the existing planning structures take little consideration of the remanufacturing cell.

Hypothesis 4: That demand variability within the cell can be managed by the introduction of an appropriate system.

Findings

The ultimate goal of this project was to introduce a system to better manage the flow of work in the remanufacturing cell while still maintaining production requirements. The key constraining factors present in the remanufacturing cell are variability in the time taken to remanufacture consumables, coupled with the amount of visibility the cell has in relation to production demands. It is important to note that several 'Lean Tools' have been implemented by the team within the remanufacturing cell to support flow. Chief among these are visual management, kanbans, A3 problem-solving and standard work. An analysis of these changes is conducted, along with an exploration of planning systems within the facility, and how this affects flow in the remanufacturing cell.

The findings of this study are constructed by triangulation of the three types of data used to compile an accurate picture of operations within the facility; namely the use of secondary data, participant observation and qualitative interviews. The literature noted the complexity of remanufacturing operations and the unique constraints that must be addressed if "flow" is to be enabled and maintained.

The opinions of the interviewees will be distinguished by using a different code for each interviewee as illustrated in Table 2 below:

Table 2: Referencing system deployed for illustrating the responses of each interviewee

Interviewee	Reference
Employee 1	E1
Employee 2	E2
Employee 3	E3
Employee 4	E4
Employee 5	E5
Employee 6	E6
Employee 7	E7

Scrutiny of H1: That visual management systems have a role in supporting flow within the facility

Kanbans of consumables are widely used across the plant including in the remanufacturing cell. All of the people interviewed agreed that the kanbans are meeting the levels of requirement with instances of stockout being rare. These kanbans are used to hold consumable items which support the manufacturing operation.

Figure 2: Assembly Crash Cart Filled with Consumables

Crash carts, as shown in Figure 2, are deployed by the remanufacturing cell when conducting milk-runs on each shift to restock the shadow board kanbans on the respective assembly lines. The deployment of these carts and the milk-run system has proven highly effective in supporting the manufacturing operation.

Table 3 illustrates the opinion of the interview participants on the use of kanbans within in the facility. Interviewees were asked if the use of kanbans positively impact

on flow in the operations. All indicated positive outcomes from the use of kanbans; however interviewees E6 and E7 drew attention to the fact that the system had to be used correctly and consistently to avoid slippage in performance.

Table 3: Opinions on whether the use of kanbans within the facility had a positive impact

Interviewee	Response
E1	"Yes the kanban system has a mark, but I also know that the Toolroom has a level of clean pulleys to replenish quickly if we get to that level so there's a level in place within the area and within the toolroom to prevent stockouts".
E2	"The visual management systems on our kanbans. ....as I say we don't have an awful lot of issues with the kanban and supply of consumables so I think what we have in place is working well".
E3	"Yes they are and they are updated every week".
E4	"They certainly do that's the whole point of them I suppose back many years ago it wouldn't be unusual to have a stockout ....we have been supplied with the appropriate collets from the Toolroom but maybe we have gone through them too soon, changed them too soon without really identifying the real cause of our problems".
E5	"Yes, yes as long as they are kept we do regular checks, teamleads check them, supervisors check them to make sure that what's required on them is kept on them. ....this kind of keeps them up to date and everything the operators need are there for them".
E6	"They do I mean no body is perfect so because we might have and I remember there was a situation where we had some shifts on weekend work and we don't have others .....like the warehouse don't work Saturday."
E7	"For us I think we're ok on them ones we usually have what we need unless people are coming up for something different without giving us notice and then we will run out".

Kitting systems are deployed for the high volume, low variety cells and the night shift. This permits an exact list of consumables to be delivered at the end of shift so the line is left fully kitted. This system currently works well but there are instances where lack of visibility negatively effects the kitting operation in the remanufacturing cell, prompting E7 to comment in his interview that:

> "for one of the lines "Odds and Sods" we'd get a box at the end of the shift from them in the last couple of hours of the shift. Sometimes that's done and it's changed without any notice. They come up to us at 6 o'clock in the morning maybe looking for different collets and we don't have them" [E7]

This may be due to the fact that the line leads are not given visibility on what is "coming down the track" as the supply of required components is not finite scheduled [E4]. Morning meeting boards as shown in Figure 3 and "hour by hour" boards as shown in Figure 4 are also deployed in the production areas. These boards are used to visualise where a shift is in relation to its planned workload. During the morning meetings efficiencies are reported and if there is a problem or an improvement action required, an action card is placed on the board. The cards are discussed by the cross-functional team members who attend the meeting.

Figure 3: Morning Meeting Board containing Action Cards

Figure 4: Hour by Hour Board from the Facility

Part Number	Work Order Number	Part Number	Work Order Number	Part Number	Work Order Number
6323150B035V	1351239				
6234150B035V	1351886				

Hour by Hour Board

	Hourly Target											
Hourly Target	Work Order 1	Work Order 2	Daily Target	Daily Actual	Rework	Rework %	Scrap	Scrap %	FC	+/-	Comments	TL#
550	550		550	550	52	8.6%	2	0.4%		0		96150
700	700		1250	1250	15	2.1%	3	0.4%		0		96150
550	550		1800	1800	12	2.1%	7	1.3%		0		96150
700	261	439	2500	2500	11	1.5%	2	0.3%		0		96150
450		450	2950	2950	10	2.2%	3	0.7%		0		96150
550		570	3500	3520	9	1.6%	4	0.7%		20		96150
			3500	3520		####	0	####		20		
			3500	3520		####	0	####		20		
	2061	1459		total:		109 total:		21	0			
			total %:	101% total %:		3.0% total %:		0.6%				

CLUMPS	J OFFSETS	J SPLITS	SCRAP CORES	OPEN J'S	LENGTH	OFFSETS	B/S	BENDS	STRETCH	DROOP	BROKEN RIBBON	OTHER	
												2	1
												3	2
												7	3

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The introduction of visual management boards has made it easier to control and track process performance and thus visualise process flow. This allows for earlier identification of process problems and has minimised disruption to flow.

Scrutiny of H2: That the introduction of standard work will support flow within the remanufacturing cell

Based on its success in other areas of the plant the management team was of the opinion that standard work would play a crucial role in this new system. An observation by the remanufacturing team is a definite requirement to tightly specify the original parts at their point of manufacture in an effort to make reprocessing easier. To this end, A3 problem-solving has been deployed to all areas to minimise variation and promote standardisation. Figure 5 details just one of several A3 problem-solving projects that have taken place which have reduced variability in the remanufacturing operation. The results of these projects have then helped to introduce the standard work within the area. One of the major constraining factors relating to remanufacturing is the fact that the amount of work required to bring a part back to usable condition is highly variable due to an uncertain level of wear. A3 problem-solving and standard work have helped to build in capacity in the remanufacturing operation as there is now less variability in the quality of returned parts.

Figure 5: A3 to reduce collet usage
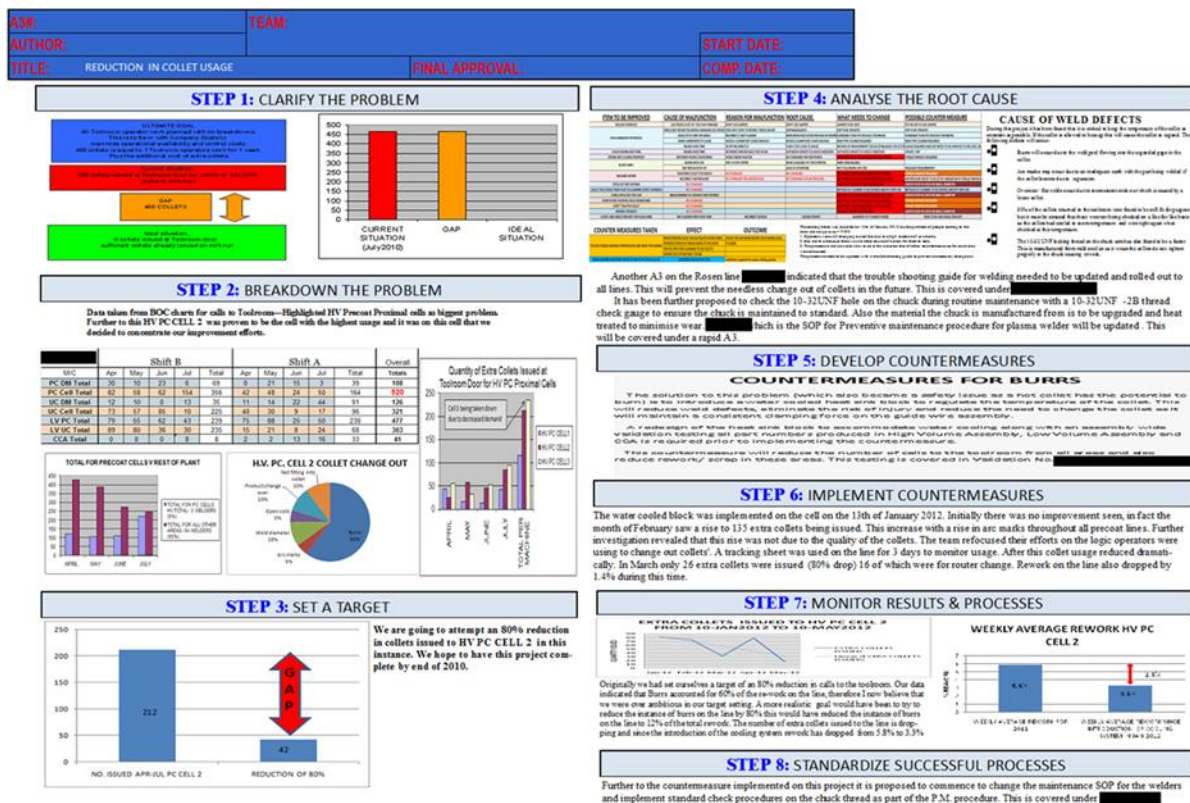
Figure 5 illustrates an A3 problem-solving exercise that sought a reduction in calls to the remanufacturing specifically in rework on collets used in key operations areas. By introducing a cooling system on the line in a production cell it was possible to achieve a reduction of rework to this line from 5.8% to 3.3%.

Figures 6 and 7 detail the results of the implementation of standardisation on the quantity of consumables required by some of the manufacturing areas thus helping the flow of work not just in the remanufacturing cell but in the manufacturing area it supports. Monetary savings accrued from these projects but this data was confidential and cannot be disclosed.

Figure 6: Reduction in collet usage
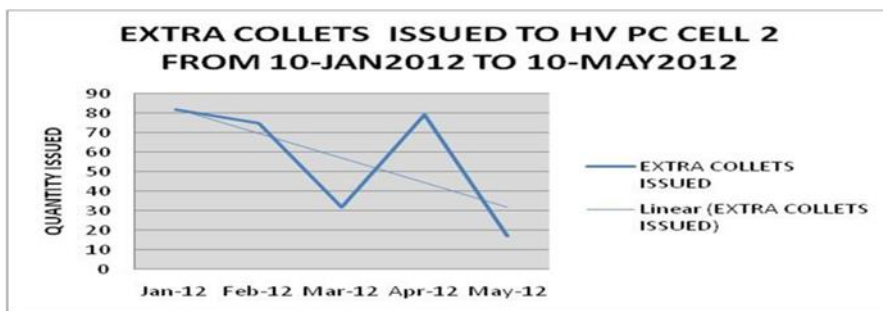
Figure 6 illustrates a reduction in the number of collets issued to HV PC Cell 2 by the remanufacturing cell from 81 in January to 18 in May 2012.

Figure 7: Reduction in snips usage
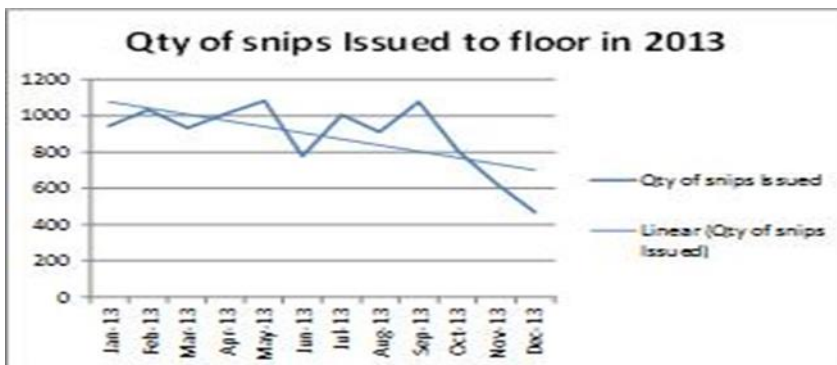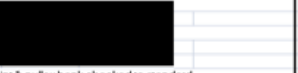
Similarly Figure 7 illustrated a 50% decline in the quantity of snips issued by the remanufacturing cell to the production floor from approximately 1,000 snips in Jan-Feb 2013 to less than 500 in December 2013.

E4 in particular made reference to these projects stating:

"There's been a huge improvement I would see in the service levels coming from the Toolroom" [E4]

The goal of these projects from the outset was to move to a situation where reprocessing times could be standardised at their most efficient. A drive was made to adopt "the one best way" of reprocessing the consumables to ensure efficient operations. This is leading to the adoption and implementation of clearly defined work instructions which in turn are bolstered by the use of "Job Breakdown Sheets" (see Figure 8 below).

Figure 8: A Job Breakdown Sheet from the Remanufacturing Cell

This approach has increased the skill level amongst the members of the remanufacturing cell along with demonstrating a high degree of standardisation in the abilities of the team.

Scrutiny of H3: That the existing planning structures take little consideration of the remanufacturing cell

An analysis of the interviews revealed that to date the planning procedures in the facility do not, to any great extent, factor in the remanufacturing cell or its capacity to meet demand. E7 stated that**:**

"if we had a better idea of what was running we could have stuff ready there instead of people just coming up, I want this collet, I want more snips, I want more stuff that we don't [have] ready for them" [E7].

Indeed the only area where planning have any visibility over remanufacturing operations is as E6 stated:

> "the one that we do is if there is overtime because if it goes outside the standard work and there is overtime at the weekend and it exceeds a couple of lines... we know it is going to effect the supply of consumables" [E6].

Day to day operations are governed by kanbans and kitting to simplify supporting the production areas as E5 stated:

> "for the rest of the cells making more standard work we would have a visual system whereby a daily milk-run by the Toolroom and they would also replenish the shadow board with collets" [E5]

The current structure of planning in the facility is comprised of weekly buckets, the bucket being the term used to describe the quantity of work orders due for manufacture in that week. In this system all of the orders for that week fall due on the same day. When asked if this system supported work flow in their respective areas the responses were mixed and varied from the respondents. In areas where it is difficult to plan it was felt that they did not afford enough visibility to downstream activities. It also emerged that the "siloed structures" between departments appeared to be creating an obstacle where a lack of harmonisation in relation to order priority and visibility was currently negatively affecting flow.

The existing planning structures at the plant have not fully extended to the remanufacturing cell and the resulting lack of visibility is restricting the ability of the remanufacturing cell to service the production area demand in a consistently effective manner.

Scrutiny of H4: Demand variability in the remanufacturing cell can be managed by the introduction of the appropriate system

One of the major constraining factors relating to remanufacturing is the fact that the amount of work required to bring a part back to usable condition is highly variable due to an uncertain level of wear. Figure 9 below, taken from a time study conducted in 2013, clearly shows the variability in remanufacturing times for one of the product families the cell produces.

Figure 9: Time Study Data for Remanufacture of one Product Family

Date	Time	Collet Type	# Collets	Time taken/Secs	Time taken per collet/Secs	Comments
28/02/2013	12.00	340	5	618	123.60	
28/02/2013	14.10	Module	10	1935	193.50	Interrupted 2 mins - collets needed for Benson Line
28/02/2013	14.43	170	10	2285	228.50	Fiddly - 3 needed reworking
01/03/2013	14.21	170	6	1384	230.67	
04/03/2013	14.10	Precoat 340	21	2587	123.19	
04/03/2013	15.09	Uncoat 340	17	2409	141.71	
05/03/2013	14.32	Module	10	2120	212.00	Interrupted 43 secs- collets needed for PM02 and Precoat Cell 2
06/03/2013	14.10	135	6	1980	330.00	
07/03/2013	14.18	170	4	2196	549.00	3 out of the 4 were scrapped and had to be made from scratch
07/03/2013	14.21	240	6	1935	322.50	

Whilst A3 problem-solving and standard work have been deployed to reduce variation in the actual remanufacture of the consumables, an analysis of the secondary data conducted during the study showed there is still some tightening of standards required in the manufacturing operation, particularly in relation to planning, to better regulate the flow of returns to the cell. In May 2014 (refer to Figure 10), during the time of the participant observation, over 900 extra parts of one consumable family were issued to the assembly floor. This corresponds to nine days of extra work for one operator. This was unplanned demand. This variability in demand currently necessitates that the cell carries extra headcount when compared to a normal manufacturing operation to enable it to cope with the surges in demand.

*Figure 10: Uneven Flow back into the Cell for May 2014*

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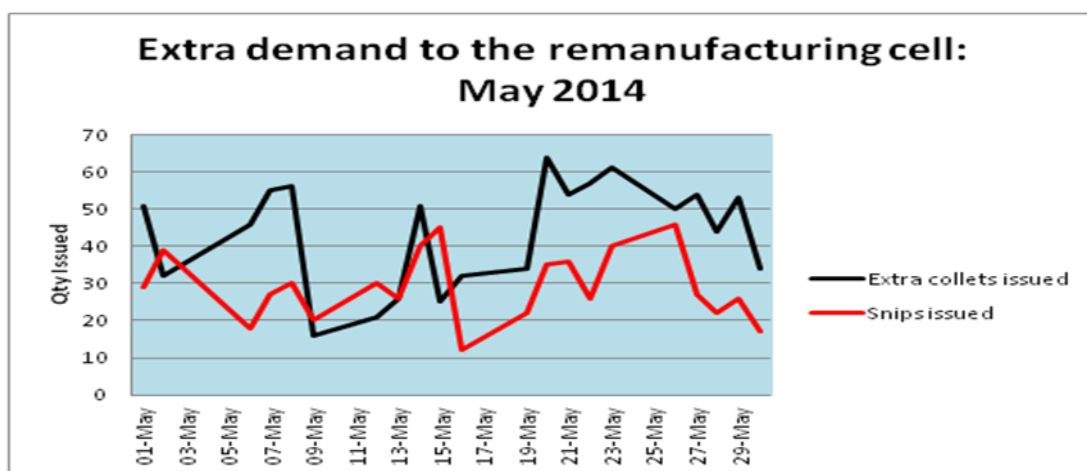
These consumables were issued even though only five instances were observed during the study where extra consumables were requested for cells that were not meeting efficiency. This totalled 18 parts from the remanufacturing cell. Also in these instances supplementing the cell allotment with these extras only had a positive impact in three of the five cases.

In 76% of instances where the cells were behind target at the morning meeting (three hours into the shift), three-quarters of these lines had managed to make this deficit back by shift end according to study of the corresponding shift reports. This clearly points to a high degree of elasticity within the current process which can in turn cause spikes in demand to the remanufacturing cell.

This was apparent when both the secondary data and participant observation were analysed. This clearly points to a need to tighten some of the standards in the operation to better regulate the flow of returns to the cell. The elasticity in the manufacturing operation is causing peaks and troughs in the rate of parts being returned to the cell. Currently breakdown occurrence charts (BOC) are deployed in the remanufacturing cell to track the usage on extra consumables issued during the shift. These charts track consumable usage and indicates where surges in use are taking place (refer to Figure 11). While this approach is used in the facility, the author did not see a set trigger point for escalation to prompt the remanufacturing cell to intervene.

Figure 11: Example of a Breakdown Occurrence Chart
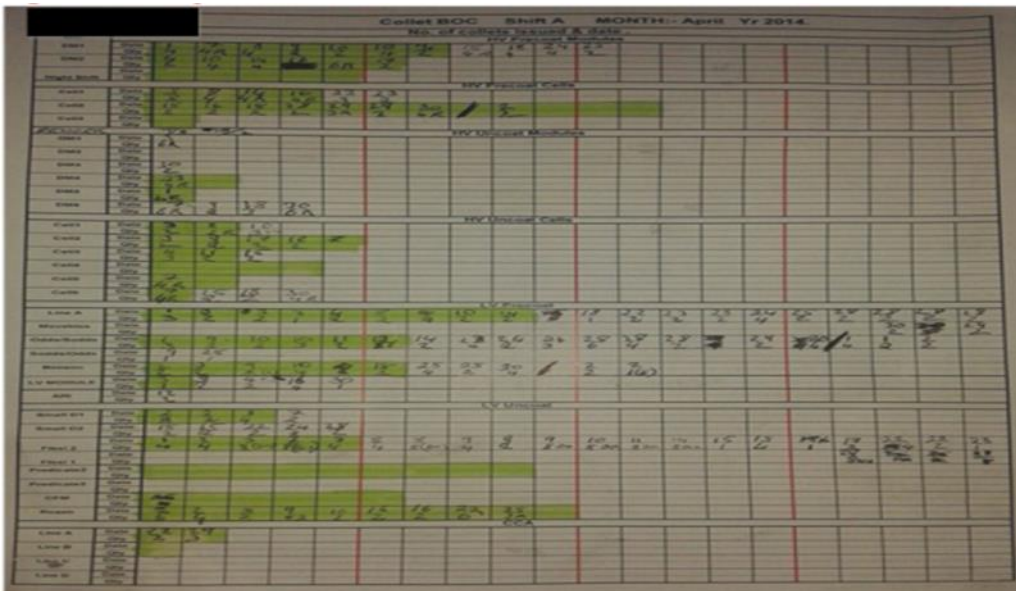
Summary of Key Findings

Scrutiny of H1: That visual management systems have a role in supporting flow within the facility

The visual management systems currently deployed are of a high standard. The use of kanbans with clearly defined replenishment points being a notable positive. In line with the findings of previous authors such as Kucner (2008) and Sundin (2006), this system is supporting flow in the facility. The entire management stream interviewed clearly stated that the occurrence of stockouts is rare. The use of crash carts in the remanufacturing cell has certainly provided a very visual means of the amount of work required to be carried out at the beginning of the shift. Another factor that is negatively impacting on the visual management system is the lack of a clearly-defined escalation point in relation to the control of remanufactured consumables used in the production cells. Currently calls are made to the remanufacturing cell when the allotment of consumables is used up. This is based on the current requirement that production must be kept running, regardless of the quantity of consumables used. Then, and only then, is an investigation carried out as to why the allotment has been used. Currently data is being collected but the pattern uneven flow in operations indicates that this data is not being presented in an efficient manner to drive waste from the system.

Scrutiny of H2: That the introduction of standard work will support flow within the remanufacturing cell

There has been considerable effort made up to this point to standardise the entire operation in the facility. The use of standard operating procedures and the deployment of job breakdown sheets are enabling "the one best way" to be adopted. In this respect the remanufacturing cell has carried out an extensive amount of work to standardise the remanufacture of consumable items. Currently job breakdown sheets are being used to ensure critical points in relation to the remanufacture of consumables within the cell are not missed. This has severely cut the amount of returns to the cell by promoting consistency in the standards of remanufacture between operators. This has all but eliminated quality issues and aided in reducing rework and scrap within the plant. At this point in time the reduction in variation is helping to build a matrix of standard remanufacturing times for a task enabling standard cycle times to be set. This has been done by strictly setting standards for the design of control tolerances of new consumables. Where variation between batches was once common place, the deployment of A3 problem-solving coupled with increased visibility to suppliers and the setting of safety stocks has helped to drive down the time to remanufacture.

Scrutiny of H3: That the existing planning structures take little consideration of the remanufacturing cell

Currently planning structures within the organisation in question take very little account of the remanufacturing operation. This is compounded by the current planning system i.e. weekly buckets causing visibility and pacing issues between departments. In high volume, low variety sections the weekly buckets were found to help operations to meet demand. However, if the area has complicated

manufacturing processes incorporating many different steps in manufacture as in the grinding area within the plant, then this system does not provide enough visibility. Visual management systems are deployed (e.g. kanbans) to simplify the stocking of remanufactured parts to the production floor and reduce the amount of planning required. The only formal planning structures providing any visibility in relation to demand at this time are in relation to notification of overtime and a kitting operation which covers two cells. The pacing issues identified leading to the substitution of orders at the last minute and the lack of visibility relating to demand is hindering flow in the remanufacturing operation.

Scrutiny of H4: Demand Variability in the remanufacturing cell can be managed by the introduction of the appropriate system
Currently owing to the poor level of visibility the remanufacturing cell has in relation to daily and weekly demand a certain level of buffering is required. This negatively impacts the business and drives up inventory costs. The variability in the failure of remanufactured parts in the assembly areas of the plant must be catered for. The component areas of the plant have dramatically reduced their requirement for remanufacturing cell support by the redesign of machinery and the introduction of standard work coupled with fault-finding guides to rapidly solve issues relating to setups and the general running of machinery. This is helping to build capacity in both the remanufacturing cell and the production area it serves. Clearly as shown in the findings section there is still a high degree of variability in demand from the assembly areas. This now accounts for 80% of the workload the remanufacturing process has to process. The basis for Toyota's lean system is the use of levelled production (Womack and Jones, 2002). The problem with implementing heijunka is the fact that all parts of the operation must have clearly defined cycle times, coupled with robust planning, visual management and standard work. In a variable environment like the one in this study there would have to be substantial buffers in place to implement heijunka which would in turn drive up inventory costs. Clearly in this case conventional lean thinking will not work. There is only one system capable of dealing with this variability, the "Theory of Constraints" as originally conceived by Goldratt and Cox (1984). There is evidence to suggest that an appropriate system can be used to manage demand variability in the remanufacturing cell, however this hypothesis has not yet been proven. It would be highly beneficial to carry out a value stream mapping exercise from end to end to identify waste and give opportunities for improvement. The findings promote the understanding that conventional lean practices may not optimally address variability in this context. The Theory of Constraints approach may offer a better approach but this remains to be tested.

Implications

The purpose of this study was to investigate if even flow could be enabled in a remanufacturing cell. The study examined the application of lean systems in a remanufacturing context within an Irish based medical device manufacturer, with the end goal of providing a roadmap for improvement within the organisation. This is the first study conducted, in so far as the author is aware, in relation to the application of lean principles on the remanufacture of consumable items which aid in the assembly

of medical devices. It must be stated that none of the consumable items are constituents of a finished device. These items are primarily used as work holding or cutting tools to aid in the manufacture of the finished guide wire. A number of findings from this research reinforce existing theories in relation to flow and remanufacturing. Chief among these being that even flow is very difficult to achieve in a remanufacturing environment due to the unpredictable rate of failure of parts, a lack of visibility in relation to production and planning procedures and unpredictable reprocessing times.

Implications for the company

The current state of the visual management systems was found to be of a very high standard. One area where the systems are deficient, however, is in their lack of interaction with the remanufacturing cell. Kucner (2008) and Sundin (2006) both found that a good visual management system supports flow within a facility, but for this to be of benefit as advocated by Kattman *et al.*, (2012), the visual management systems must provide realtime updates of requirements to the remanufacturing cell. The use of BOC Charts is positive but the lack of an andon system within the facility which incorporates the remanufacturing cell and set trigger points for intervention, as promoted by Bicheno and Holweg (2009), is also hampering attempts to achieve consistent flow.

The use of A3 problem-solving and the introduction of standard work to the cell, as previously studied by Hunter and Black (2007), is highly beneficial. This system has ensured that critical tasks are preformed consistently without missing key parts of a task. This system has proven enormously advantageous in aiding training and reducing waste within the facility. Its introduction into the remanufacturing cell and subsequent rollout to suppliers of remanufactured parts is also proving positive. One area where it remains deficient, however, is the fact that the current standard work does not include a cycle time for completion of a task. Its introduction would help to build standardised times for remanufacture which in turn could be fed into a capacity planning system.

The current planning system of 'weekly buckets' does not provide enough finite visibility to promote flow within the operation. The only time that the remanufacturing cell gains any visibility in relation to production demands is in relation to overtime where a list is issued detailing the type and quantity of consumables required. Remanufacturing operations are traditionally hampered by a lack of visibility from both suppliers and customers. The case in question is a closed loop supply chain with a single planning function which if extended to govern the remanufacturing cell would provide a very robust flow and may ultimately reduce manufacturing costs. Whilst value stream mapping as promoted by Rother and Shook (1998) has been used selectively in other areas of the plant, its implementation to the remanufacturing cell would make waste visible and enable more robust structure of planning to be put in place. Beyond this, kanbans are deployed to simplify requirements to the cell which are replenished on a milk-run basis. In this respect Sundin (2006) advocates providing as much visibility as possible to the remanufacturing operation to promote flow, whilst Irani (2011) promotes modification of lean tools to suit the needs of the remanufacturing operation. Caputo and Pelagagge (2011) advocate the use of a

kitting system to feed assembly operations. The remanufacturing cell currently makes limited use of this system, and it has proven to be advantageous in reducing waste.

A system that is proven to manage the variability within this environment is the Theory of Constraints, as originally advocated by Goldratt and Cox (1984) and further studied for applicability to this environment by Guide (1996) and Irani (2011). This system requires buffers of inventory to be deployed to ensure instances of stockouts do not occur.

Although this operation has well-established lean systems in place in terms of TOC, visual management systems, and standard work, it is interesting to note that these systems do not consistently nor fully extend to the remanufacturing cell, which leads to problems with sustainability. A more sustained and constant application of these tools, coupled with trigger points for escalation, would prove beneficial. Also if the production functions of this operation were to assume responsibility for the kitting and supply of consumables a more efficient service could be provided. If further gains are to be made then the planning system must afford better visibility to the remanufacturing cell.

Implications for general practitioners
This study has confirmed that lean principles do have a place in the remanufacturing and medical device industries. A broader sample of cases would be beneficial and serve to enrich the knowledge base already present on this subject. The time scale of the study was also quite short. A study over a longer time period incorporating a broader base of interviewees would prove beneficial and provide a more accurate picture of operations in the facility.

Implications for future research
As remanufacturing and lean continue to grow their strong base a further study of lean principles being applied to remanufacturing in relation to the medical device industry would be beneficial. The authors are aware that some studies have already been conducted in relation to remanufacturing of actual medical devices but is unaware at this time of a study incorporating lean remanufacturing techniques.

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The Dominant Educational Discourses Underlying the Cassells Report

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Abstract

The Cassells report "Investing in National Ambition: a Strategy for Funding Higher Education," creates an opportunity to explore critical issues in Ireland's higher education sector. This paper excavates behind the report for discourse, agency, power, influence and environmental factors, to come to understand the assumptions made in the document. A document is always situated within a social setting and context. By considering this setting we attempt to unearth the dominant educational discourses in the document. Some of these discourses are obvious and substantial, others are muted and unrevealed. This paper provides insights to assist educators to develop new understandings of the ways in which policy documents are used in the context of the Cassells report.

NOTE: The authors are currently registered on the Doctorate of Education Programme at Maynooth University with the Department of Higher and Adult Education. They would like to acknowledge the support of Professor Anne Ryan and Dr. Bernie Grummell at Maynooth University where the foundations for this paper began.

INTRODUCTION

Our efforts to view the document from multiple perspectives highlight issues that are not being considered in the Cassells report. In excavating the educational discourses in the report, the politics of valid and reliable knowledge created by a few come into prospect and can determine policy, leaving many uninformed and uninvolved. Sustainability in higher education requires a much longer timeframe than policy makers can generally give to it. Sustainability requires thinking not only one budget or general election ahead, but thinking one generation ahead. We pay particular attention to the contextualisation of the report and focus on six key educational discourses with the aim of promoting debate on policy in higher education.

CONTEXTUALISATION OF THE POLICY: THE SOCIO-POLITICAL CONTEXT

According to Prior, "the content of a document is never fixed or static, not least because documents have always to be read, and reading implies that the content of a document will be situated rather than fixed," (2003, p. 4). The Cassells report is situated in a time of crisis and political upheaval. When the report was published in July 2016, a Fine Gael-led minority government entered into coalition, supported by Fianna Fáil, bringing about a new political landscape in Ireland.

Sustainable efforts in higher education policy require suitable timeframes and political stability, neither of which are a given in the current political landscape. The Cassells report proposes three alternative funding options which are to some degree unpalatable across the current political domain. However, what appears initially politically toxic may not seem so when we have had time to digest the information that is being presented in public domains. Despite the presence of three proposed funding models, the report has managed to shift the debate in both government circles and the media towards funding higher education through income contingent loan schemes (ICLs). The idea that the student should pay has become a dominant discourse, leading to a possible legitimisation of policy by adopting ICLs for the payment by the citizen for use of public services. Chapman and Dorris (2016) describe the Australian experience, where income contingent loan schemes have become public policy for drought relief, low-level criminal fine repayments and penalties for insider trading and collusion.

While the 'student must pay' discourse gains prominence in the public arena, the discourse of who currently pays is muted and hidden. A striking point in the report is that 50% of the 210,000 students in Ireland do not pay the current student contribution charge of €3000. When describing a discourse Ryan offers some guiding questions when engaging in discourse analysis: "What conditions facilitate or militate against a discourse being widely circulated?" (in press, p. 5). While deeper excavation is required to understand why 50% of students do not pay the student contribution charge, it is noteworthy that capital assets are not assessed in the eligibility criteria for accessing financial assistance to go to college, thereby excluding some sections of society from paying the student contribution[1]. The discourse of 'who pays' is closely linked to the discourse of higher education as a public good. Viewing higher education as a public good "is in constant tension with government policies of commercialisation and reinforcement of inequity," (Connell, 2016, p. 70).

IDENTIFICATION OF KEY PLAYERS: AN ANALYSIS OF THE STAKEHOLDERS

The Cassells report is currently being debated in policy fora comprising those from a university background. In addressing the Joint Committee on Education and Skills in November 2016, the then interim CEO of the Technological Higher Education Association (THEA), Professor Tom Collins, noted that staff in the higher education sector mostly received their qualifications from a university (Joint Committee on

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[1] Student Universal Support Ireland (SUSI) https://susi.ie/eligibility/income/

Education and Skills, 2016). The consensus view of these committees is then brought to the Minister for Education and Skills. How this influences the debate and decision-making depends on the discourse used to "interpret and filter" the concept, (Ryan, 2006: 22). According to Ryan "the concept of discourse shows how the fixing of meaning is never a neutral act but always privileges certain interests," (2006, p. 24). By analysing the positions adopted of those debating the report vis-à-vis the field of power we gain an insight into the interests and values that are served or not. The discursive climate in the sector is identified below to understand the influence and power they may or may not exert.

Currently the Irish universities sector is advocating the funding of higher education through the introduction of ICLs that reflect the earnings potential of the graduate, (Joint Committee on Education and Skills, 2016). While this sector views ICLs as equitable, affordable and allowing widening participation from lower socio-economic groups, Professor Andrew Deeks, President, UCD, notes that the university sector places significant weighting on international rankings, thereby justifying an increase in fees and a lucrative income stream for the university, (Joint Committee on Education and Skills, 2016).

The Institutes of Technology account for 38% of all higher education graduates in Ireland. THEA is advocating higher education to be free at the point of entry and exit up to and including the Level 7 award on the National Framework of Qualifications (NFQ) standard. According to Professor Ciarán Ó Catháin, President, Athlone Institute of Technology, the cost of this is to be funded by the Exchequer, (Joint Committee on Education and Skills, 2016). In addition, the sub-sectoral impact of any intervention is under-represented in the report. An Irish Times analysis of student enrolments for 2016 show that the number who rely on grants to go to college is significantly higher in Institutes of Technology, especially in regional areas, (O'Brien, 2017).

The Union of Students in Ireland (USI, 2016) makes the case for publicly funded higher education. The USI is not in favour of ICLs, (USI, 2016). We struggle to hear their voice or that of their parents or guardians in the media, resulting in educational institutions having stronger voices than the learners on this occasion.

A DISCOURSE OF CRISIS

The report opens with a discourse of crisis in which Ireland is portrayed as transitioning out of a 'deep crisis'. The crisis has impacted on higher education following years of funding cuts and self-sacrifice. This discourse of crisis is in part supported by the Irish Higher Education Authority which in 2011, driven by a wider narrative of public service reform, published the 'National Strategy for Higher Education to 2030' (HEA, 2011). The report aimed to redefine the structure of Irish higher education and the relationship between it and the state. It presents higher education as a 'cure and restorative' for the collapse of the Irish economy and suggested a redefinition of the mission of higher education, conditioned by economic demands and the short-term need to overcome the economic crisis. It acknowledged the human capital paradigm in its justification for widening participation while reinforcing the concept of Ireland's knowledge economy (Walsh and Loxley, 2015). This surrounding narrative permeates the Cassells report, which itself places an

emphasis on the economic importance of education and a paralleled reforming of the surrounding economic model. Education is positioned as an 'enabler', capable of lifting us away from the crisis. The sense of crisis is used to validate a discourse of underfunding across the sector. Underfunding is framed as a core crisis, the effects of which will impact on the students, the institutions and the goals of the state.

A DISCOURSE OF CONTROL, OVERSIGHT AND THE RIGHT EDUCATION

O'Connor (2014, p. 4) suggests that higher education is a site for power struggles and the outcome of such power struggles can influence the shape and purpose of higher education both nationally and internationally. A discourse of power of control is suggested in the proposal of a 'Virtuous Circle of Investment, Quality and Verification', which frames funding as an investment by the state. The report states that 'institutional autonomy remains a core tenet of national policy' yet it appears that autonomy must be exercised in a manner which matches the strategic priorities of the state and the market. 'Incentive mechanisms' to drive 'national objectives' point towards increasing state influence over institutions, their decision-making and their provision. The report suggests that funding allocations should be weighted towards "strategically important and vulnerable provision". If there are courses which are 'strategically important', then there may be courses that are 'unimportant' or not worthwhile. Courses which fail to meet the requirements of stakeholders risk removal from this virtuous circle of investment.

The justification for power over provision is suggested through the discourse of worthwhile education. Higher education is charged with the responsibility of producing human capital with the 'right' skills to meet the needs of the economy. These right skills are highlighted in various government reports including National Skills Strategy 2025 (Department of Education and Skills, 2016), Innovation 2020 (Interdepartmental Committee on Science, Technology and Innovation, 2015), What Do Graduates Do? The Class of 2014 (HEA, 2016). The latter report suggests that graduates should 'do' something to be of value and this doing should be categorised within the context of the wider economic system. This supports a narrative that those who are 'doing' have engaged with a worthwhile form of education which has provided the right skills to enable one to do something. Thus graduates fit the template of the 'rational economic actor' (REA) citizen (Lynch, Lyons and Cantillon, 2007), an economic citizen of greater value than the cultural or politically engaged citizen.

The muted discourse of the responsible citizen is highlighted by the contrast between those that are 'doing' and those that are not. Those that are 'doing' are framed as 'responsible citizens' (Fejes, 2010). The responsible citizen is constructed as responsible for her/his own employability, and the state and the employer are construed as enablers. Thus a theme of 'responsibilising of the self' (Peters, 2001) emerges, a theme associated with a new tendency to 'invest' in the self. Giroux argues that the market-driven student engages in education for the self, focusing on the demands of the market while "intellectual ambitions are often reduced to an instrument of the entrepreneurial self" (2002, p. 426).

INTERNATIONAL COMPARATORS: HOW ARE THEY SELECTED?

Key figures are often used as a mode of legitimisation in a document to gain support for the claims that the authors make. The Cassells report is no exception to this. If the statistics and quants are isolated from the report, Australia is the only southern hemisphere country mentioned - once again reinforcing Santos' normalisation of the right of the North as possessing "good" knowledge, (Santos, Nunes and Meneses, 2007). There are a number of international comparators in relation to funding models for higher education. The selection of comparator countries in the Cassells report can be called into question, as there is no clear justification as to why those particular countries were chosen. Some of the selected comparator countries, such as Germany, have considerably different scales of economies and populations to that of Ireland. Countries which have not been selected for comparison, such as Portugal, Norway and Denmark, have similar demographic and economic characteristics and are often used as Ireland's comparators in other contexts, (Marginson, 1997)

The structure of higher education and the impact of higher education funding models in these comparator countries is also worthy of consideration, yet it is excluded from the report. Research into funding models in Portugal, Denmark and Norway (Frølich, Kalpazidou Schmidt and Rosa, 2010) indicates that all funding models will have an impact on the perceived role and value of academia. This type of consideration is conspicuously absent from the Cassells report. Furthermore, like Ireland, all three countries have seen a significant policy shift in higher education funding, moving toward mixed models that include:

> "…incentives for development and change, increased effectiveness, efficiency and transparency, enhanced internationalisation, and improved quality on the one hand, and greater focus on students' needs and requirements on the other." (Frølich, Kalpazidou Schmidt and Rosa 2010).

In examining funding models, the Cassells report fails to acknowledge the diversity of Ireland's higher education institutions and the impact that these models may have on institutions. Studies such as those carried out by Liefner (2003) and Jongbloed and Koelman (2000) suggest that changes in funding will impact on the behaviour of higher educational institutions as well as on their internal processes of resource allocation. Changes in behaviour manifest in institutional focus on 'performativity, as evidenced by the emergence of an emphasis on measured outputs: on strategic planning, performance indicators, quality assurance measures and academic audits'. (Olssen and Peters, 2005).

The Cassells report suggests a one-size-fits-all funding model and ignores differences in mission, regional objectives, student cohorts, graduate profiles, research funding, ranking, overheads and scale. The differences absent from the report are highlighted by Johnes (1996), who argues that higher education institutions are multi-product organisations with multiple objectives, lacking consensus with regard to objectives, input and output. Given such diversity, there is little agreement regarding the appropriate method of evaluating and assessing such institutions. Hence, a one-size-fits-all approach to funding is inadequate.

THE DISCOURSE OF CURATIVE EDUCATION

The report advances that underfunding is a cause of social class gradients and issues of participation. While universities argue for greater funding to combat social inequality, Lynch suggests that universities are embedded with social interests, doing little to "challenge the evident social closure practices within powerful professional groups," (2006, p. 2). The report suggests that many of these current issues in higher education will be remedied by increased funding, supporting the view that the current uses of funding are appropriate, well-managed and fit for purpose. Carpentier (2010) argues that these approaches to funding, while intending to increase access, tend to benefit those socio-demographic groups who are already among the most well-represented in higher education:

> "Despite these impressive levels of public investment, persistent patterns of under-representation continue to present a challenge to policymakers and universities, and this under-representation is likely to be exacerbated by the substitution of public funds with private individual fees (Carpentier, 2010)" (quoted in Burke, 2013).

This underlying discourse of what one might call 'curative education' is the belief that there is a model of higher education financing that will be the panacea for problems of higher education access and participation, while still balancing the economic interests of public policy makers, is clearly interwoven throughout the Cassells report.

CONCLUDING THOUGHTS

Written during a time of great economic and political upheaval the Cassells report aims to highlight the future funding needs of higher education and suggests ways by which these needs may be met. The document appears to be influenced by neoliberalism, described by Giroux (2002, p. 425) as 'the defining economic paradigm of our time'. While acknowledging education as a public good, it connects much of this 'good' to market and economic needs, linking the provision of education to the strategic needs of the market and state. Students are portrayed as responsible citizens (Fejes, 2010), charged with the selection of courses which will meet the needs of a variety of stakeholders, including the state and market. Autonomy over provision is threatened by a new proposed funding model and a threat to academia is made through questioning the status of contracts, proposals of targeted redundancies and suggestions around the use of employment control frameworks.

This neoliberal approach is legitimised through a discourse of crisis. The authors continually remind the audience of the economic and political crisis which threatens the country. Education is framed as a solution to that crisis but reformation is required if the crisis is to be overcome. It is worth noting that at the time of writing, few of the recommendations of the report have been implemented. Continued political uncertainty has bred a culture of inaction, and while decision-making may be hidden from public view, the discourses within the document remain. The document continues to be a site of struggle, the outcomes of which may shape our higher education system for generations.

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There's a Wolf in Wicklow – and It's Leading the Pack!

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Introduction

As I drove into the quaint seaside town of Bray on a brisk autumnal morning to meet Simon Lynch, co-founder of The Wicklow Wolf Brewery, I was aware that there was something changing in the behaviour of beer drinkers in Ireland. As a consumer behaviour academic, I have always been interested in phenomena that fundamentally change consumption behaviour, for example TV in the 60's and 70's, video in the 80's, the internet and of course German discounters in the 90's and noughties. But I just wasn't aware that the consumer behavioural change toward beer in Ireland was coming down the tracks like a freight train in the form of 'craft beer', and this was knocking a lot of the bigger mass producers out of the way. According to the 2016 report for the Independent Craft Brewers of Ireland and Bord Bia it is estimated that there are some 90 microbreweries operating in the Republic of Ireland, of which 62 are production microbreweries and at least 28 are contracting companies. There has been a 29% increase in the number of production microbreweries from 48 in 2015 to 62 in 2016. The number of microbreweries has more than quadrupled since 2012 and the total turnover of craft beer producers in 2015 is estimated at €40m and at the time of report projected at €59m for 2016. In the five years since 2011, turnover has increased eleven-fold in the industry.

Wicklow Wolf is a major brand force in the industry; it was founded in 2014 by Quincey Fennelly and Simon Lynch - two ordinary guys driven by a passion to create high quality craft beer and to build an Irish craft beer brand. Simon is a horticulturist by profession and grows hops on their own hop farm in Roundwood and Quincey is an avid home-brewer/brewer with a background in the drinks business. Sitting in the brewery's tap room, I begin the interview with Simon who is proudly wearing a Wicklow Wolf t-shirt.

AM: *Many thanks for agreeing to see me, Simon.*

SL: You are very welcome, Alan.

AM: *I have about 20 questions to ask you that I feel are relevant to the brand, the market and your business today. To start the interview maybe you could give me an overview of the company, how did you enter the craft beer industry, when did you start etc…..*
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SL: Myself and my business partner Quincey met through our kids in school as both are in the same class. We both discovered after meeting that we had an appreciation of good food and wine and good craft beer. We both spent time separately in San Francisco and for me this is where I discovered and sampled my first craft beers, for example Sierra Nevada, Anchor Steen breweries, and from the mid 90's I really loved craft beer.

Moving on to recent times, about 4 to 5 years ago I began helping Quincey with his home brewing and over the kitchen table after drinking plenty of beer we started discussing the idea of commercially brewing our own brand of craft beer.

Before we went down any road of development we began to do research into the craft beer industry in the UK and the USA and then began looking at the home market in Ireland. When we examined the market in Ireland we felt that at that time the quality of craft beer available to the Irish consumer wasn't great albeit this has improved overall since then. There was also a huge opportunity as there was a revolution coming across the Atlantic and we felt that we could catch this wave as we were passionate about the whole concept of delivering a quality beer to the market.

After some basic research in the USA and in particular in Colorado, we got some funding and we started a 'Food Works' programme with Bord Bia, Enterprise Ireland and Teagasc which was an absolutely super programme. They made us look at everything in depth, made us look at it again, and then made us do our business plan a couple of times until both they and us felt it was the right one in terms of helping us to get started. Really, these organisations were excellent and we were awarded HPSO status.

AM: *Why Teagasc, Simon?*

SL: Because Teagasc is an agricultural body providing advice and research. They also do a lot of testing on food for nutrients, calories and other areas as food and beverage companies need food tasting done, and this is a great service which they provide.

So, after all this work we produced our first beer here at this brewery in Bray in September 2014 – it was American Amber – and it was from here we just went from strength to strength.

Through the 'Food Works' programme we were introduced to a guy called Nick Kelly from a band called 'The Fat Lady Sings' and Nick introduced us to Cathal O'Flaherty, who does all our art work and brand visuals.

AM: *Oh, yea, I remember that band – he has an incredible voice.*

SL: Yes, he has an incredible voice and he's a very intelligent guy – we were very impressed by him – Nick Kelly did the copy on the bottle for us – this is the story behind the brand – Nick is very active in the advertising industry and has done work for some other companies in the industry.

AM: *Where did the brand name come from?*

SL: It's very simple, myself and Quincey are luddites when it comes to technology, and I said to Quincey one of those nights around the table when we drank lots of beer (*laugh!*), "What name would we use if we were to go with this project, I wonder could we have a Wicklow-type website with www.ww.ie as this would be a handy one to remember as the Wicklow registration plates are WW?" (*Simon laughs out loud*).

I started looking at different ideas and I discovered that Cromwell, when he came over to Ireland in 1600's, wanted to rid Ireland of the Gael, the priest and the wolf. The wolf had been exterminated in the UK 200 years before when Cromwell arrived and the last wolf in Ireland was killed, with a bounty on its head, on the Wicklow/Wexford border in 1768. I suppose the wolf is a metaphor for us for the reintroduction of a craft that had been exterminated/suppressed by the big breweries like Guinness. Guinness started buying up all these small breweries until there was none left and only them producing beer in Ireland.

There was at one point in time 168 breweries in Ireland. This was at a time when it was often safer to drink beer than it was to consume water as a lot of the water sources were contaminated and, because no pathogens can survive in alcohol, beer was a safer bet!

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Also, the wolf is a pack animal and we were trying to create our own pack. One of the most important points about the brand name origin is around the fact that I am a horticulturist who refers to plants by their Latin name – The hop plant's Latin name is Humulus Lupulus and hops are an integral part of the brewing. The Latin for wolf is lupus! Therefore - lots of different reason why the wolf name works for us.

AM: *Taking the brand name now: How important is the Wicklow Wolf brand name and how important is it having a brand name in the craft beer industry?*

SL: I think it is very important – when we went through the food works programme our mentor was concerned about the name; although Wicklow is our base and it is where we hale from, there was a concern if the brand name Wicklow Wolf would travel. Now, our opinion was that it would travel. If you look at "Galway Hooker" one of the well-established breweries, they were selling their beer outside Galway, in Dublin for example. We felt that Wicklow as a name would travel. People see Wicklow as the Garden County, a very picturesque place. Also, we said that there would be no GAA rivalry from other counties as Wicklow has no real challenge with football or hurling…. (*Simon laughs*). The brand name is very important for us because there is a lot of noise from the industry.

AM: *Yes, it's a very busy industry*.

SL: Yes, very busy! That's why having a brand name and more importantly a brand image that stands out from the pack. What we have done with the brand is to make our products very recognisable. We deliberately change the colours on our bottle labels for each product we market so that when they are on a shelf they stand out and create more of a presence. The brand name is also important because it informs the customer that we have a base in Wicklow and that we use as much local materials and ingredients as possible - thus the brand name roots us to Wicklow.

We also examined the spelling of the name Wicklow and it is spelled and pronounced phonetically, so for example in the American market, the consumer over there will be able to say the name Wicklow and understand it as it is spelled, then really this means that the brand can travel outside of Ireland.

AM: *Are you looking at internationalising the brand?*

SL: Yes, we are in the process of developing export markets. We are going through an export drive with Bord Bia now. We are examining European markets such as France, Italy, Spain, Switzerland and Scandinavia. We are also targeting specific areas within the US, the first being Boston. This is quite a specific drive focused on Boston in the US, as we feel that this is a wonderful place for an Irish brand to start because of the diaspora, and we would hope that the brand would spread from there.

AM: *Is Wicklow Wolf available on draught?*

SL: Yes, it is - we are currently stocked in approximately 160 pubs, mainly in the Leinster region, but also around the country as well.

AM: *What about the off-licence trade?*

SL: The brand is stocked in 550 off-licences nationwide, including independent off-licences. We are centrally stocked in SuperValu and of course the O'Brien's off-licence chain. We are the number one selling craft beer in O'Brien's for the last year and a half (*Simon says this with pride!*).

AM: *How did the business grow from a standing start?*

SL: We got huge help from my wife who has a financial background. She helped us formulate our financial business plan and see what was achievable. I am a qualified horticulturist and my business partner Quincey is a qualified baker and brewer and has a background in marketing in the drinks industry – he worked in C&C and he started in Ballygowan as a start-up with six people. He also worked with United Beverages. So really Quincey had a very good relationship with the on and off trade. Through his experience, he set sales targets based on his experience as to what was achievable.

With this experience we could put together a realistic business plan and we have developed very good relationships which have brought good investors to the table – investors who brought real added value – not just their money.

We have just closed a second round of funding and we have been offered a serious amount of cash to expand the business in a different direction. These investors wanted to drive volume whereas we wanted to drive quality, because for us it is more important to drive the quality first, develop the brand in the marketplace and then drive the volume in a way that won't compromise the quality or the brand.

AM: *That's interesting, Simon – I think in the craft beer industry quality is a huge brand attribute. Regarding the brand now – would you say that it is still going through market development and brand adoption stage?*

SL: Absolutely! We have just engaged a marketing company and they are helping us to develop the strategy. They are helping us refine our tone of voice, you know,

like the messaging – so it is all succinct and consistent. Up to now we have had no marketing budget, we never had! So, all our marketing is ad hoc and reactionary.

AM: *I suppose it is like any brand that develops in the market - you must formulate a consistent brand communication message.*

SL: That's it! That's exactly it. This company is also helping us to understand who exactly our consumer and target market is.

AM: *Who is your consumer?*

SL: The millennials, college graduates, educated consumers with a disposable income: 21–35 year olds predominantly. We have an older cohort of consumers as well.

AM: *Looking at your assorted products – you started out with American Amber – how have you developed the other beers?*

SL: We started out with a strategy that we only produce beers that we like to drink ourselves! We have a brewer from Colorado – Pete. He is a great brewer. We get together as a team and discuss the styles. When we produced Amber, there was a couple of Ambers on the market and we felt that we could better these – I think we have. We followed with the IPA - this was because the craft revolution was coming from America, a lot of the beers we produced to begin with would have been 'well-hopped' – a high hop profile which would be reflective of the American scene. Also, there is a company called 'BrewDog' that we would have looked at in relation to how they grew their brand.

AM: *Is BrewDog an American company?*

SL: No, Scottish. They are a $1billion brand now, maybe more, I'm not sure. They started in 2007 in a garage, they had their first plant in 2009 and they are currently fundraising in the USA – well worth checking these guys out. They have grown phenomenally well. They have a beer called 'Punk IPA'; this was one of their first beers. They are sort of anarchists, rebellious but very savvy anarchists as they run a very good and clever business.

We have on-going recipe development and this comes from Pete our brewer, but we will discuss what styles we want to go with before he goes down that road. We have produced 17 assorted styles to date. We have 6 core styles, and the rest of the range is what we call specialities or seasonal beers. The reason we do these specials is that we feel it is another marketing tool.

AM: *I have seen this strategy of producing seasonal beers with the Kinnegar brand.*

SL: Yes, that's correct. The craft drinker is a curious animal – they like to experiment – a bit like the wine drinker – they will probably go for their solid bottle of wine and know what they are going to like – but they will also try something new – craft beer is the exact same.

AM: *Taking myself as a consumer, when I go to a pub I like to experiment and even though I'm not a big beer drinker, I will always ask what brands of craft beer they have – so the point I am making is that your customer, or your potential customer, is almost a 'prostitute' to different beers. It seems that it is hard for them to stick to one brand?*

SL: You are correct, Alan, they do prostitute to different breweries and assorted styles, but they also stay loyal to one brand as well. I am the same way myself – when I go into an off-licence or supermarket to buy a couple of beers, there are beers that are 'go-to' beers for me as I know on a Friday or Saturday evening I won't be disappointed by these – but I will also pick up a couple of others to try – some I may pour down the sink and hate – but I know I will always have the 'go-to' beers in the fridge!

AM: *Would you say that Wicklow Wolf is a marketing company or a brewing company?*

Simon pauses and thinks about this question………..

SL: I think it must be both! If you don't market your brewery than you don't go anywhere. But the brewery is the engine of the organisation – the brewery is key to it all because you must produce top quality beer all the time and if you can't communicate and market this to your consumer then you won't be brewing for very long!

AM: *What have you done in the last 3 to 6 months to develop the brand?*

SL: Mmmmm………that is a good question, Alan (*long pause from Simon*). I think one of the things we did is we came up with some new styles, for example Children of the Revolution to mark the centenary of the 1916 rising, and I think this generated a lot of interest in the brand – Quincey argued with Joe Duffy and a couple of his cohorts for an hour on the radio and this really helped to drive brand awareness of Wicklow Wolf.

We have also done a few different events – and this has come down to not really knowing who we should be communicating with – we did an equestrian event for example! (*Simon points to a surf board hanging on the wall*) – we did a film festival called 'The Shore Shots' film festival – this was a surfing festival – we have done a theatre festival……..so like I said earlier, it's all a bit reactionary, ad hoc, we don't know who we should be saying yes to, we don't know who we should be saying no to and this really comes down to how they want to sell the brand and what we can get from this to develop the brand.

AM: *This slides nicely into my next question, Simon – how do you know and how do you choose who your customer base is, as without consumer analytics this is hard to do?*

SL: Yes, it is very hard to do this without more consumer and market information. We are working on our strategy, based on reports like the Bord Bia Craft Beer Market report, and we are defining who our target market is and the right way to speak to those consumers.

AM: *What things about your business or the environment you compete in are different or changed in the last 12 months?*

SL: Mmmmm…. (*long pause from Simon*).   There are more players in the market, it's a little bit more crowded and it's getting more crowded every day.   But it's funny – we are taking market share from the bigger guys actually. There is enough room to grow the business. When you look at it from a 'per head of population' perspective there is lots of opportunity to develop and build breweries and brands within the sector.

AM: *From a non-expert viewpoint looking in on the industry and looking at it from an academic research perspective, there seems to be a good few 'fly-by-night' players coming into the market in the past couple of years?*

SL: Yes, this is a good observation, Alan, there are players that are not as focused on premium product or branding and they are never going to make it because they haven't got the quality, the experience or the finance behind them. That said, some of the brands in the market only just want to be the local brewery looking to develop a lifestyle business – but there are some big players in the market and they have ambition – we are one of those players – we have lots of ambition to a point - we don't want to compromise our brand or our quality, so we are ambitious to grow organically. Funding is important for growth and growing a brand. Without the funding we had we would not be here today. We have just closed a second round of funding and we are just about to embark on building a new brewery which will be (when it's finished) 20 times the size of this one.

AM: *What do you think will be different about your business in 12 months?*

SL: This time next year we will be close to opening our new brewery, so we will be much more efficient. This is quite an inefficient brewery, it is very labour-intensive. We have ten people working for us now (Pete, our brewer was our first hire) and I think this time next year we will have considerably more people working for us. We will have a bigger sales team, a bigger marketing team - sorry let me correct that – we WILL have a marketing team (*we both laugh*) and a bigger brewing team.

Of course, one of the substantial changes that will occur over the next 12 months is that we will be exporting – we currently supply Northern Ireland and from an Enterprise Ireland perspective, this is an export market. We were going to target certain cities in the UK but with Brexit this plan may change. We are currently looking at different potential markets in Asia, we are working with Bord Bia in terms of the Boston project and Quincey has been talking with a number of key distributors in Europe, and in one case the biggest craft beer distributor in that country. Obviously, we have a capacity issue now so we are not able to produce much more beer from this plant.

AM: *So, you have a lot going on, Simon: you have this brewery going on, the development of the new brewery, the brand development, the export development - it's busy. You are a classic start-up scenario?*

SL: There is one important part of this conversation that I have not brought up yet! (*Simon has an excited look on his face*) We are the only brewery in Ireland that has its own commercial hop farm. We have ten acres of land in Roundwood, two of which are planted with hops at the moment. It is a terrific addition to the brand as it encompasses the 'Wolf' concept - Humulus Lupulus (hops) and Lupus (wolf). But hop farming is highly labour-intensive so I will be taking a business trip to the States very soon to look at harvesting, drying and baling machinery.

With the hops from our farm we produce this beer called 'Locavore'. The first style of this beer was a blonde in 2015, and in 2016 we produced the Irish Pale Ale and this year we are producing another modern style. This is an important part of the marketing story of Wicklow Wolf – yes, it's a marketing tool, but it is more than that – people want to know the provenance of their beers and this beer is made entirely (*said very proudly*) of Irish ingredients, including the bottle itself and the label. The only thing that is not Irish is the cap – because it can't be sourced in Ireland! From a 'farm to glass' perspective we are passionate about the natural world around us.

The last commercial hop farm in Ireland ceased to be in 1989. They had 40 acres and produced exclusively for Guinness.

AM: *Is the hop farm concept coming from your horticulturist background?*

SL: Yes, yes, it is - the skillsets in the business really work. We don't think anyone else in the industry in Ireland has these unique set of skills: baker, brewer, and horticulturist!

AM: *We hear the term 'Globalisation' a lot these days Simon, but in marketing and in branding, particularly in a market as small as Ireland, it's all about 'Glocalisation', and this means that price and brand-positioning go hand in hand. Where do you think your brand is positioned in the market, and how do you plan to improve this positioning?*

SL: Wicklow Wolf is a premium product and we are positioned high in the market.

AM: *Is Wicklow Wolf premium price?*

SL: Yes, we are the most expensive Irish beer in O'Brien's off-licence, and we are also the number one seller in this store.

AM: *So, you are the most expensive and the bestseller?*

SL: Yes, here is our thinking - if you walk into O'Brien's and they have 100's if not 1000's of different beers and bottles of wine, the consumer has a choice. They have wines for €8 in the bins but they also have wines on the shelf for €200. The wines that are on the shelf for €200 are selling, that's the only reason that they are there. They may not sell the same volume but they sell. We are the most expensive Irish craft beer on their shelves and the bestseller – it is working for our brand here!

AM: *Do you think that your pricing and positioning reflect the Wicklow Wolf brand image?*

SL: Absolutely (*said by Simon with gusto*) – we are about quality, about pushing the boundaries in terms of styles and doing things that nobody else is doing, and making sure that our beers are absolute premium all the time. All of this is part of the brand.

AM: *So, you are the number one seller in O'Brien's, and you are certainly not the cheapest Irish craft beer on the market – what are the key factors that the brand must focus on in getting your customers to accept the premium price that the brand commands?*

SL: That's a very difficult question to answer!

AM: *Don't worry, Simon, that is probably the ultimate marketing question! (We both laugh).*

SL: I think our brand image from a bottling and labelling perspective stands out to the consumer and gives a different message compared to the competition. Our products sit alongside many other craft beer brands but our labels are very distinctive and when you see the palette of colours on the shelf it really stands out from the crowd. A lot of the other craft beers tend to have a confusing message - their labels are confusing, and even some breweries look the same!

Visually it must be good to make the purchase and once it is tasted, the consumer knows that they are getting quality, and more importantly they know that, for the extra couple of cents they pay, they will consistently get a quality beer. I also believe, along with how the product looks and feels on the shelf, communication with our consumer audience through social media is very important, inviting them to be part of the brand. You could spend marginally less on another craft beer and find that it is undrinkable and it must be thrown down the sink.

So that's the image – we try to be creative with names and people who drink craft beer are curious folk, they will pick up a lot of different bottles of the shelf but if they see a big block of Wicklow Wolf on the shelf, for a start its easier to identify it as a brand story and when they read the label we generally find that they put it in their basket.

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AM: *The wine industry is similar where most people buying wine make their choice on the label, not necessarily on the wine itself!*

SL: Of course………. social media has helped our brand as well. Before a customer gets into an off-licence or a bar they can be so pre-informed about a craft beer that their mind is already made as to what they will purchase.

AM: *You have just perfectly linked my next question, Simon. How important is your website, social media and word-of-mouth-marketing in driving traffic to your brand?*

SL: Huge! The reason is that craft beer drinkers are a community – they talk a lot – tweeting and bloggers being an example. They are opinionated and they want to tell their story about the beer they like. Social media is playing, and will play, a huge part because the demographic that we are targeting are high social media users. Instagram, the visual side of social media, is also important and our website is our company window. We are updating this with the new marketing company now. We have a profile of the staff on the website and this makes the brand almost personal and gives a 'real' feel to the brand from the consumer's perspective.

AM*: Thanks Simon, I have only two more questions! Do you believe that you have one major competitor in the market or do you acknowledge competitors?*

SL: While there is a lot of noise and players, we are taking the margin for the mass-produced beers, for example the Diageo and the Heineken brands, so we don't see the other craft beer companies as direct competition; in fact we see it as co-opetition. There is great interplay between the breweries, for example we may run out of a hop and we make a phone call and they will send us this – on the flip side, they may run out of grain and we will send them some – so there is great cooperation in the industry right now. Obviously, there are examples of non-cooperation - but if you look at what we are doing today when I finish this interview with you – we have just got our costings on the new plant and they are astronomical, so we are visiting a brewery in Wexford to try to get some help and advice from them on costs and they are happy to share information with us.

AM: *Do you want to say where the new plant will be built?*

SL: It will be in Wicklow of course! (*Simon gives a wry smile*) We did look at the Maltings in Bray.

AM: *So, this was a brewery?*

SL*: Yes, this was a brewery called Watkins & Darley; they ceased to brew in 1908. If we could get this site it would be great. Obviously wherever we move to it must be in Wicklow, this is the story!

AM*: What is the future for Wicklow Wolf?*

SL: Well……we have just closed our second round of funding, we have plans to build a much more efficient facility and we are looking at many different export markets. (*Simon takes a deep breath and looks proud before he says*…….) We want to be THE coolest, THE best producer of beer in Ireland. I think we are that already

but we want to try to bring this to the next level - nationwide in bars, we want to grow our products and our brand. When people talk about good beer we want Wicklow Wolf in the same sentence. We want to be the benchmark for quality so that Wicklow Wolf becomes the top beer that everyone looks to.

AM: *Simon, here is the nightmare question in any interview: Where will the brand be in 5 years' time?*

SL: Mmmmm……..we did a piece on the TV program 'Ear to the Ground' and they asked me a similar question and I said something, which in hindsight I shouldn't have said, but it demonstrated my ambition. I said that I wanted Wicklow Wolf to be a household name, but I don't really want it to be a household name because 'household' may be a bit boring, but what I was trying to say was that I want Wicklow Wolf to be recognisable by the right people and have strong brand awareness in export markets across Europe, Asia and America. So I want the consumer to think that if they want to know about the latest innovation in craft beer…..go and check out Wicklow Wolf.

We want to be the brewery that is doing things that nobody else is doing. We have a beer called Kentucky Common. This is a very old style beer which Pete brought over from Colorado. There is a brewery in the UK called Beavertown and they tweeted last week that they were the first people to bring Kentucky Common to Europe – we had to correct them by stating that we have been brewing Kentucky Common for the last two years. This is what we want from the brand, doing things that no one else is doing.

AM: *Simon, what is your opinion regarding the new legislation to allow craft breweries to sell their craft beer product on tours? How will this change/enhance operations at WW?*

SL: Wicklow Wolf are delighted that the bill was approved by the cabinet and unanimously supported by the Dail. It is a very welcome and positive development that will bring Irish craft breweries in line with other breweries all over the world. Imagine going to vineyards around the world and not being able to legally drink or buy wine? This is just common sense legislation.

If it goes through the Oireachtas (hopefully before Christmas 2017 and without much change to it) it will for WW create another revenue stream, employ at least one, maybe two, more people initially. Also, apart from the revenue generated and job creation, it will hugely help with brand building/awareness. It's a great opportunity to enhance the tourist experience and grow a new tourism sector. Up to now we have being doing tours but it's been more a marketing investment for WW, costing time and money or at best break-even; with this new bill there is a real opportunity to continue to build our brand while using the extra money made to grow our business.

AM: *A final question, Simon. As I sit here I am looking at the shelf in front of me and I can see a plethora of different Wicklow Wolf beers………you must have a bestseller in those?*

SL: It's funny; a lot of breweries have flagship beers like BrewDog's Punk IPA, and their other beers hang off these flagship products. For us, we have three beers (*Simon walks over to the shelf and takes the three different bottles down*) and they are all neck-and-neck in terms of sales. We thought that our consumer would bring us to an out-and-out flagship beer, but when we look at sales our three top beers are American Amber, IPA and Elevation.

AM: *Elevation is an interesting name for a craft beer. Where did the Elevation name come from?*

SL: Elevation is an interesting beer alright! (*Simon chuckles*) Our hops are grown at an 'elevation' of 1200ft, hence the name……..others may tell a different story, but I'm sticking to mine! (*Simon has a wry smile together with a nod and a wink*!)

AM*: Many thanks for your time today, Simon.*

SL: You are most welcome, Alan.

As I walked out of the brewery that morning, I was energised by the passion and fearless approach that Simon and his colleagues had taken in approaching this very competitive market. I opened my car door and looked back into the brewery and noticed the large brewing vats and beside one of them was cases of beer with the very impressive Wicklow Wolf Logo embossed ready for shipment out into the jungle; at this point it was hard not to remember Rudyard Kipling's quote, "For the strength of the pack is the wolf, and the strength of the wolf is the pack". As I stepped into my car I knew that this wolf, The Wicklow Wolf, was forming a very strong pack, one that should be feared by its competitors yes, but more so respected for its stature and prowess in the jungle that is the drinks industry.

Dublin Tech Summit – a Review

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Dublin has long built itself a reputation as being a tech hub, with many of the large IT players (Google, Microsoft, Facebook, etc.) having their European headquarters here. The annual Web Summit (https://websummit.com) had its origins in Dublin in 2009 and for several years flooded the capital with investors, tech-heads, start-ups, SMEs and MNEs and anyone with a techie bent, from around the world. In 2016 it moved to Lisbon and its absence left a notable gap in the Dublin tech scene. In 2017, we more than filed this gap with the Dublin Tech Summit (http://dublintechsummit.com).

Held over 15th and 16th February at the Dublin Conference Centre, it managed to be even more varied in many ways than the web summit, and this was most obvious in the number of women attendees. For most tech conferences, the stereotype varies between polo-necked males in black jeans (the tech-heads) and the be-suited gent (the business types), and any other personas are under-represented. The Tech Summit had almost 49% female attendance.

This was down to the work and foresight of the CEO Noelle O'Reilly (@NoelleNate), and helped in no small part by groups such as http://witsireland.com/cms/ (Women in Technology and Science). The sheer variety of speakers (over 200) across 8 stages meant there was something for every one of the 10,000 attendees, and stereotypes went out the proverbial window. Of course, with that many people, technology is needed to handle the introductions – all visitors were greeted by RoboThespian.

The Fashion-Stage seemed to be as popular with the men as with the women attendees. "Fashtec" or "wearables" is fast moving towards making our clothes smarter, so we become walking/talking exponents of the Internet-of-Things. We can even 3D-print the fabric involved – this has notable implications for the textile industry – whether good or bad, remains to be seen.

The 'wearables' also featured in the Healthcare-Stage. We do not need reminding that the current system of healthcare is unsustainable. It is a relief then to hear about innovations such as patients sent home with cloud-based, always-on, discreet, monitoring devices that alert the right people at the right time if there's a need. Wearables such as the Fitbit (and other branded alternatives) can alert the wearer to impending problems. Remote medical diagnostics are not totally new but have the potential for mainstream deployment. We might see an end to the dreaded hospital trollies yet.

Technology has been invading the world of finance for many years. Bitcoin and other 'alternative' currencies have had their peaks and troughs in recent years. However, Blockchain is what has the Fintech people particularly excited. It has uses and applications well beyond the financial world of ledgers of bitcoin transactions of the dark web. It genuinely has the potential to revolutionise transactions through transparency and traceability for all parties across a range of transaction types. It spurred the 'twitterati' into action:
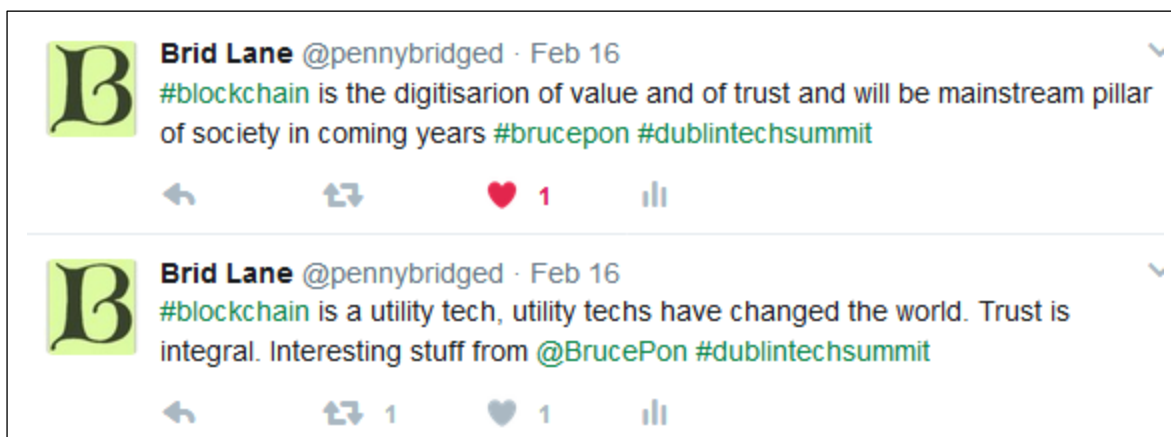
Fintech is back on the agenda for next year's conference (April 2018), along with a host of other stages. Cloud computing is a decade old this year and has more than found its place in the IT world. It is a facilitator of some of the other themes heading our way next year – Internet-of-Things and big data in particular. Let us hope that women will continue to be as well represented next year as they were this year. Conferences such as these are an opportunity for attendees to learn about what is happening in the tech world, make contact with like-minded people, share ideas, and encourage dialogue and exploration of the technologies of the day. By encouraging women to become more and more involved, the world of tech is headed on the right track to gender equality – and it is about time too. Final word goes to keynote speaker Cindy Gallop:

Data Protection in EU Businesses: an Introduction to GDPR

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Irish businesses can't have failed to notice the increasing number of news items on data breaches in organisations. These have included major stories about malicious attacks on multinationals (affecting Sony and Yahoo recently) but also national reports about flaws in data management practices: for example, the Irish civil servants' payroll system has been plagued by a series of data breaches in recent years (Edwards, 2017). Indeed the ongoing Maurice McCabe scandal is, in part, a story of a multi-organisation and multi-level failure to adhere to basic principles of an individual's data privacy rights.

All organisations, big and small, are responsible for managing private data of varying volumes, from the massive amount of personal information passing through social media multinationals, to SMEs managing employees' payroll and customers' contact details. So it is timely to raise awareness of the European Union's General Data Protection Regulation (GDPR), which will become law across the EU from May 2018. The GDPR will affect how Irish and European businesses collect, retain and share personal data and significant fines will be applicable to organisations in breach of it. The Data Protection Commissioner (DPR) will also have the power to stop organisations collecting data and force them to delete it.

The GDPR is designed to harmonise and strengthen European citizens' data privacy and to provide a consistent playing field for companies doing business across the EU. It covers any data that could be used to identify a person: their name, date of birth, or their IP address, but also information about personal characteristics such as their age, gender or nationality.

GDPR means businesses must explicitly seek consent from their customers when collecting information. Customers have the right to know what details are stored about them and they have the right withdraw consent about allowing businesses to keep this information. All organisations must have procedures in place to notify individuals when potentially harmful data is breached and they may need to report it to the Data Protection Commissioner.

International Data Transfers and Privacy Shield

The GDPR prohibits companies from transferring personal data outside of the European Economic Area but the EU-US Privacy Shield agreement (EU-US Privacy Shield 2017) allows European companies to continue to keep the data in the cloud using US-based companies (Google, Dropbox, Amazon etc.). However, Privacy Shield may be challenged in court so businesses should explore a longer term Plan B: making sure their data in the cloud stays within the EEA (Lonergan, 2017).

Subject access requests

The GDPR means that customers have the right to access their personal information, to have their data corrected or erased. Research from 2015 suggests a large percentage of Irish companies will not be compliant: only 40% of companies in the study were able to comply with current legislation for subject access requests (Castlebridge Associates, 2017). So organisations need to consider the following:

- How can individuals make requests (online, by phone, in person, etc.)
- The length of time to process requests
- The volume of requests anticipated and the logistics of managing this.

Gathering data

Before gathering any personal data, companies must notify customers in clear language about the company's identity, why they need the data and how they will use it (sharing with third parties etc.). What customers are consenting to should be clearly explained and companies must maintain a record proving that consent was given.

Retaining data

Organisations will not have the right to retain personal data indefinitely, so they need to decide how long they plan to retain personal data and how it will be deleted. Just moving a file to a computer's recycle bin isn't good enough.

What do businesses need to do?

The Data Protection Commissioner has warned of a surge in consumer legal actions against non-GDPR compliant companies (Kennedy, 2017) so every organisation, big or small, should have an individual or team responsible for data management. In the run up to the GDPR taking effect next year, they must review their data protection procedures and plan how to make and keep the organisation GDPR-compliant. The review should map out questions like:

- What personal data do they hold?
- Have they collected this with the individual's consent?
- Is this data secure?
- Is it ever shared with third parties? If so, is there a record of this?

Following this, organisations need to identify any deficiencies in how they manage data and address them, ensuring that all staff who work with the data are informed.

Recommended sources for further information

- [The GDPR and You](#), from the Irish Data Protection Commissioner, the first in a series of publications on GDPR.
- [THE GDPR: A Guide for Businesses](#), from A&L Goodbody.

This article is general information, and does not constitute legal advice or analysis.

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Originals: How Non-Conformists Change the World

Adam Grant
(WH Allen, 2016)

Review by **Neil Gallagher**
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Originals, by Wharton School professor Adam Grant, struck a chord with me as it reaffirmed many of the values and ideals that I respect in both my personal and professional life. With an abundance of insights and compelling anecdotes from some well-known innovators, all of whom are 'originals' or non-conformists, the author emphasises the importance of originality: that it is okay to challenge conventional thought. It could be argued that the author has in fact provided too many brief examples rather than choosing the best ideas and discussing them in greater detail. This wealth of ideas occasionally produced themes that didn't flow coherently, requiring the reader to question their relevance. Again, focusing on fewer examples with more detail would have created more robust themes throughout the book. The book is underpinned by solid research. However it also has a 'pop psychology' or self-help feel which undoubtedly makes it attractive to the general reader. Although it could be improved by better references and by the use of charts, diagrams and other supplementary materials, the positives of this book far outweigh the weaknesses.

In themed chapters Grant explores topics such as how to recognise a good idea; speak up; gain support; choose the right time to act; manage fear and self-doubt; how to nurture originality in children; and how leaders can build cultures that welcome criticism. The reader is drawn in by picturing himself in the text: *How does birth order affect me? What does my browser choice say about me? Am I a procrastinator?* Grant makes his points by choosing ideas that will resonate with most people, such as:

- Question the default, which can often serve as the 'eureka moment' in creating an idea
- Seek more feedback from peers, particularly one's best allies
- Highlight the reasons why not to support your idea, i.e. the weaknesses of your idea, when trying to gain support
- Welcome criticism as too many leaders only seek feedback from people they consider supportive
- Emphasise values over rules
- The larger the numbers of ideas, projects and failures, the higher the chance of originality

- View procrastination as an incubation period to develop and work through your ideas
- The concept of pioneers and settlers. Grant speaks of pioneers having to fight an uphill battle to create the market, whereas the settlers, the second or third movers, have to make the product better. As a timing issue, this can account for 42% of the difference between success and failure
- Good lessons on parenting and the balance between disciplining bad behaviour, praising good behaviour, and managing an environment which fosters freedom to motivate children to be original without being destructive or antisocial.

Grant pulls together the ideas and themes in a final chapter called *Actions for Impact*. This useful summary of the practical actions along with a call to action for leaders provides valuable tips that are a final gift from the author.

Originals is worth the read and will challenge you to question your thinking and seek new ways to bring creativity into your life.

The Power of a Single Number:
a Political History of GDP

Philipp Lepenies
(Columbia University Press, 2013, German version, English Translation)

Review by **Prof. John O'Hagan**
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This book, as the subtitle suggests, is a political history of what the author claims is the 'most powerful statistical figure in human history' namely GDP, or gross domestic product of a country. First published in German in 2013, the English translation by Jeremy Gaines appeared in 2016. It is a relatively short book, not just in terms of number of pages but also in terms of text per page.

As the author acknowledges, the book does not provide a comprehensive history of the concept of national accounts given that this had been done already. It focuses instead on the political contexts within which GDP arose and the decisive periods in which it gained influence. The topic is of particular interest to Irish readers perhaps given the recent extraordinary upward revisions to GDP, which got world-wide attention and some obloquy.

Lepenies traces the origins of GDP to 17th century England in the person of William Petty and his 'Political Arithmetick'. Petty enlisted as a physician in Cromwell's army and served in Ireland, where following the Irish rebellion of 1641 to 1651 large swathes of the country were divided up among the English occupying forces. For this, a land register and a map of Ireland were required, for which task Petty was eminently suited. He also 'under dubious circumstances… became one of Ireland's biggest landowners … and as an ennobled member of Parliament, he vehemently defended the interest of the English settlers in Ireland' (p. 11). This short passage illustrates clearly the political economy focus of this book.

Petty's calculations were driven by political consideration as the title of his famous book implies. 'He wanted to show that on account of its wealth and resources, England …was economically and militarily on a par with its two enemies' (pp. 16-17), France and the Netherlands. The theme of linking GDP measures to militaristic purposes recurs throughout the rest of the book.

The next major contribution to the development of GDP had to wait until Colin Clark (1905-1989), who did most of his work on collecting statistics in Australia. For him though 'economics was not independent of moral considerations. He advocated early marriage, lots of children and agricultural self-sufficiency' (p. 36)! As a result, in 1964, Pope Paul VI appointed him as economic adviser to the Vatican Commission on Birth Control and Clarke 'played a major role in justifying the ban on contraception, not on theological but on economic grounds' (p. 37).

The book also examines the contributions of some other great economists of the time of Clark, including Keynes, Robbins and in particular Meade and Stone (both future Nobel Prize winners) in England, who can be most clearly linked to the work of Petty and Clark before them.

The next big leap forward though occurred in the US, through the work primarily of Kuznets (Nobel prize winner in 1971). A lengthy chapter follows on the 'triumphal forward march of gross national product' in the US. There is in particular coverage of a very interesting discussion at the time on whether or not expenditure on armaments lead to an increase or decrease in national income, something of direct political relevance given that the US had entered World War II with a more than four-fold increase in spending on armaments.

The book then turns to Germany. It was the advent of World War II which focussed minds there also on the need for reliable statistics. But the biggest influence interestingly was US economist John Kenneth Galbraith, who was 'tasked with statistically recording the war mobilization effort of the German economy and its destruction' (pp. 113-4). It was at the request of the US in fact that Germany later had to produce complete national statistics for the first time as part of the Marshall Aid Plan after the War.

This a beautifully written (and translated) book, with some very interesting narrative about key personalities and developments with regard to the central role that GDP had come to assume in the 20th century. The book though is rather lacking in any proper discussion of how GDP has been viewed since the War, especially as there has been several critical treatises of the concept of GDP and its links, if any, to happiness and well-being. There is also no discussion of the development of the multitude of other indicators now used to throw light on well-being, such as the UN's Human Development Index and the World Bank's World Development Indicators, for example life expectancy, crime statistics, connectivity, human resources and assets and so on.

In a sense the argument as to what should be included in GDP is today considered very secondary as to what extent GDP matches general well-being if at all. It is after all almost a hundred years ago that Pigou pointed out the anomaly with national income statistics that 'if a man marries his housekeeper, or his cook, the national dividend is diminished'.

Another thing to consider is that material living standards are measured by GDP/capita, not GDP. China may have the same level of GDP as the US today, but its GDP/capita is probably not more than one-quarter that of the US. Except for military purposes perhaps, it is then GDP/capita that is maybe the most 'important single number'. Besides, statistical offices today are charged with collecting much, much more data than on GDP: such as on the labour market, education, housing and health, demographics and so on.

Nonetheless, the measurement of GDP is a key function of national and international statistical offices around the world and the origins of the political controversies surrounding the measurement of this concept over the centuries make for compelling reading, especially when it is written in such an erudite, interesting and elegant way as in this book.